Maletić

EVERYTHING YOU SHOULD KNOW BEFORE
AESTHETIC OPERATIONS AND TREATMENTS

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EVERYTHING YOU SHOULD KNOW BEFORE AESTHETIC OPERATIONS AND TREATMENTS

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ZAGREB, 2015

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FOREWORD

Human appearance, irrespective of the notion of majority about what is beautiful or "ugly" is at the same time a reflection of his or her mind. Therefore the injuries and damages which leave behind ugly scars, at the same time cause dissatisfaction equally as the congenital or acquired aesthetic drawbacks.

At the beginning of the 20th century life expectancy for women was approximately 50 years. Today, in the part of the world where we live in this age is estimated at approximately 76 years (in North America even 82), while the life expectancy for men is somewhat lower. Long life is the consequence of social and economic advancement and the fruit of development in all areas of human endeavour. Man therefore lives longer and easier, technology offers the benefits unimaginable as of yesterday, but the certainty of aging spoils the image of perfection.

To healthy people bodily health is often not completely sufficient. An awkward image in the mirror depresses even the most brilliant of minds. The basis for the personal feeling of wellbeing is unimaginable without satisfaction with oneself, which includes one's outer image.

Aesthetic surgery, a follower of reconstructive surgery, recognized the challenge which the art of shaping the body offers, and scientifically founded contributions to the art of beautification surgery have an ever growing part in medical literature. Unfortunately, there is only a small number of easily understandable and readable papers on this important branch of surgery, which would bring closer to the curious readership the procedures of aesthetic surgery.

The decision to change the appearance of one's body is not easily taken. No matter how strong this desire may be, uncertainty and the fear of the unknown inevitably cause anxiety and even repulsion. Moreover, in spite of consultations with physicians and with the surgeon, during which the intervention itself is largely clarified, there remain many questions without answer.

The spouses Duško Maletić, surgeon and urologist and Ines Maletić, anaesthesiologist, make a harmonious team which has been in the business

of aesthetic and reconstructive surgery for a long time. The professional challenge and enthusiasm prompt them to go ever further in the knowledge and demanding skills which they apply in their job. A thorough education which they received in leading Czech, Austrian, Swiss and American surgical establishments, along with their own 25-year long surgical experience, particularly in the field of aesthetic surgery, motivated them to write the book for a broad circle of readership mostly without medical education.

Several years back, their daughter Ana Maletić, MD joined them in their work. Ana is currently specializing in plastic, reconstructive and aesthetic surgery.

In this new, expanded and updated edition, the text is copiously illustrated with carefully chosen drawings and photographs, which contributes to the readability and comprehension of the book, and answers the basic questions relating to aesthetic interventions. The authors guide us in a very simple manner through the book, explaining all the key notions and clearly describing the interventions applied in modern aesthetic surgery. Furthermore, they explain in detail the procedures upon reception in a surgical facility, administrative requirements, types of anaesthesia, the course of intervention, and finally they frankly expose the features and ways of treatment of possible complications.

Written in a popular, yet very professional manner, this book will reveal many new facts even to a demanding reader and stimulate an open discussion with the surgeon in a person-to-person contact. Finally, it will surely provide that crucial dose of courage to the indecisive clients and thus enable an immeasurable pleasure and self-confidence in daily life.

Prof. Predrag Keros, MD, PhD

Specialist in general surgery, orthopaedics and neurosurgery
Professor emeritus of the School of Medicine of the University of Zagreb
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INTRODUCTION

In the last seventy years aesthetic surgery has blossomed forth all over the world; accessible at first only to the wealthy and famous it has eventually come within reach of the middle class in developed societies.

In Croatia and surrounding countries the beginnings of aesthetic surgery can be traced back into the 1960s in Zagreb, and in the last twenty years it has seen a tremendous advance due to the liberalization of the state's attitude towards private clinics and polyclinics.

With the development of the society, broadening of the world-view and particularly the view on the role of aesthetic surgery in modern day and age, certain interventions on the body all the way to the rejuvenation operations became acceptable to almost everyone. People subject themselves to aesthetic interventions in order to achieve greater inner satisfaction, an increased social affirmation, and the like. The striving for beauty is eternal, although beauty is difficult to define, because it is very individual. Nowadays, every individual and the society as a whole recognize beauty as a value. The perception of beauty creates in us the feeling of pleasure and evokes emotion (cognitio sensitiva or sensory knowledge). What appeals by itself is beautiful, devoid of interest for real existence and possession.

Today in the media – newspapers and other publications we find more and more topics related to aesthetic surgery, mainly of promotional character. This book has the goal to familiarize potential candidates for aesthetic surgical intervention with all the information relevant to a certain operation. As this is a surgical discipline, one ought to know what precedes a surgical intervention, which examinations should be done before, what type of anaesthesia is applied for a particular intervention, what and how long is the post-operative course until the return into daily life and which are the possible complications. In such a way, a well-informed client takes the decision for the intervention with less difficulty and is less burdened by fear which proceeds from not knowing what expects him/her. We also wish to mention that aesthetic surgery is not omnipotent, it is limited by biology, i.e. the material on which the intervention is performed. Expected results come after a period of post-operative recovery and treatment. Corrections following possible partial failure of the operation can be done only after a

prolonged period of time, which depends on the type of intervention that was made.

This book will first of all serve the readers to broaden their views on medical culture, and perhaps recognize their own imperfections in the interventions described. The other side of this coin is future satisfaction if they undergo such a treatment. The book will surely serve the people who are critical of themselves, aware of the passage of time as an undeniable factor in our lives which leaves trace also on our appearance. The solutions for certain imperfections which are presented and explained in this book are not meant as a solace, but should instil hope. Time is unstoppable, but beauty can be cultivated, preserved, partly even regained. This is the value of present-day surgery.

The book is the result of 30 years of specialist surgical experience of which 20 years have been spent almost exclusively in the area of aesthetic surgery in a family run clinic. The authors have been trained in their job in the Czech Republic, Poland, Austria, Italy, Switzerland, the USA, England, France and Israel. We strived to provide a synthetic approach using our books published so far: Aesthetic Surgery (2001, in Croatian), Important for Men (2001, in Croatian), Aesthetic Surgery – Possibilities and Examples from Practice (2004, in Croatian), Atlas of Aesthetic Operations (2009, in Croatian) and FUE Hair Transplantation (2013, in Croatian).

The authors:

Ana, Ines and Duško Maletić

A GENERAL OUTLOOK ON AESTHETIC SURGERY

Surgery is a branch of clinical medicine which deals with knowledge and treatment of diseases by the use of mechanical instruments and the work of hands. The branch of general surgery which deals with the reconstruction of congenital or acquired defects and removal of bodily deformities is called plastic surgery. Its purpose is the setting up of normal anatomic relationships, functions and appearance – aesthetics. In principle, in plastic surgery aesthetic intervention is subordinated to the functional one. If the problem is of aesthetic nature only, it is the domain of aesthetic plastic surgery. Plastic surgery is mentioned far back in Hindu books where rhinoplasty (plastic operation of the nose), i.e. the operation involving removal of the nasal defect with a facial skin flap and later the forehead skin flap is described. This method has survived to this day under the name of "Indian method". Later on, significant names (Dupuytren, Reverdin) marked the advance of this branch of surgery in the 18th and 19th century.

Plastic surgery was ill prepared to meet the demands by the First World War, but massive injuries stimulated its intense development and the acquisition of experience. Plastic surgery continued to see an excellent development until the Second World War, following which its evolution was further accelerated to this very day. The first international world congress of plastic surgeons was held in Stockholm in 1955.

Aesthetic surgery is a part of plastic surgery. It deals with the removal of all the deformities on the body which disrupt a harmonious shape and proportions, and where the function is not affected. These are mainly the deformities which evoke the feelings of "ugliness" or "being funny". In this branch of surgery the indications for operative intervention are relative and depend on the wishes of the patients, social trends, even fashion. Objective indications exist in persons psychologically altered due to a certain defect, congenital or acquired deformity, and in persons of pronounced aesthetic needs. In this group of potential candidates for aesthetic operation we differentiate those with congenital deficiencies and deformities who undergo beautification operations (operation of floppy ears, nose, breasts) and those who subject themselves to rejuvenation operations (face-lifting, lifting of drooping eyelids, sagging female breasts and the flabby stomach).

The removal of bodily shortcomings directly affects the psychological health and brings about an improved psycho-physical balance, as beauty is the

ideal of harmonious forms and an important factor of human psychological satisfaction. Thereby aesthetic surgery fits into the definition of health according to the World Health Organization which says: "Health is a state of complete physical, mental and social wellbeing, and not only the absence of disease or infirmity. Social welfare is a state of peace and safety, irrespective of race, religion, political conviction, gender and the right to education and work in a healthy environment, with insurance in case of disease, infirmity and old age."

The notion that aesthetic operations are unnatural was changed by Pope Pius XII in 1958 who stated: "If we contemplate physical beauty in the Christian world and respect the conditions on the basis of moral principle, then aesthetic surgery is not in contradiction with the will of God because it contributes to the perfection of the most perfect creation – man."

We form our initial impression of people a few minutes after the initial encounter, and during that time almost our whole attention is directed to what the eyes tell us, not ears. To opt for an aesthetic operation means to respect the desire for better looks, greater appeal, and, perhaps the most important of all, for greater self-esteem. It is precisely self-esteem and self-confidence which mainly depend on bodily looks. Women are generally more susceptible to care about looks than men, so that in the past, among the operated, there were many more women than men, but today this difference is levelling out. Fifty years ago aesthetic surgery was the preoccupation of the rich, while today everyone may consider an intervention. In the last 50 years much has changed in fashion and society in general. The body is more naked, and it is trendy to look beautiful and young. The result of this is that aesthetic surgery "descended" from the face and neck down to the breasts, belly, legs, even the intimate parts.

Today in the world it is not infrequent that aesthetic corrections are done on male or female genitals. In Croatia this trend is only beginning. Many classical aesthetic operations and procedures in modern time are significantly improved with the use of high-quality materials, advanced surgical techniques and instruments, all with the aim of achieving a better end-result and a shorter recovery time and return of the patient to everyday life. For the removal of the consequences of aging, which particularly involves the face and surface wrinkles on the skin, along with standard techniques of abrasion (removal of the surface skin layer) new procedures are gaining ground – the filling of wrinkles by injection of hyaluronic acid, paralysis of the muscles with botulinum toxin, transplantation of fat tissue for the purpose of filling grooves in facial wrinkles, silicone implants, etc.

DEVELOPMENT OF AESTHETIC SURGERY

The advance of plastic surgery between the two World Wars, and especially after the 1950s also provided an impetus for the development of aesthetic surgery. This was mainly seen in the USA, but Europe followed close behind. At first, celebrities and the rich were mainly involved, but with a constant increase in the standard of life, the prolongation of the life span and the trend to look young and beautiful, aesthetic surgery has become a mass affair. With the entry of aesthetic surgery into the average economic social strata the glamour surrounding celebrities and their aesthetic surgeons is lost, and this branch of surgery has increasingly become the need of all with emphasized aesthetic demands. We have interesting examples in the former "Eastern Block" countries who cultivated a rather developed surgery, including plastic surgery, so that as early as in 1960s they had institutes for aesthetic medicine (Czechoslovakia, Poland, etc.). This shows that even in the lower standard of life and restricted economic possibilities there is the need for aesthetic correction and beautification. In the above institutes the services were charged, although the institutes were the ownership of the state. The prices were relatively low, in accordance with the overall economic conditions in those countries, but the waiting time for an operation was long (one year or more).

In former Yugoslavia, also in the 1960s, the first clinic for aesthetic surgery was opened in Zagreb. Unfortunately, the opening of new clinics in private ownership was not possible due to legal constraints (a moratorium). Namely, private clinics that were already registered could go on with their work, but it was not allowed to register a new one. It is therefore no surprise that ear-nose-throat specialists began doing aesthetic surgery, because in the majority of cases, due to aging, clients demanded the removal of aesthetic deformities of the nose, position of the auricles, slackening of the skin on the face and the throat. A further development extended into aesthetic shaping of the breasts, while a real transformation of the entire branch occurred with the onset of the silicone implants for breast augmentation.

With inappropriate and abundant nutrition and a low level of physical activity, in today's population we encounter the problem of obesity. Diets, physical activity and cosmetic procedures are not sufficient to achieve the desired contour on all places where excessive accumulation of fat tissue has occurred. This is what opened the door to a new area of aesthetic surgery –

liposuction (the suction of fat tissue). It is precisely this surgical intervention which is most frequent in aesthetic surgery today.

Following the democratic changes in the 1990s Croatia embraced private initiative and a larger number of privately-owned aesthetic clinics and polyclinics were opened. However, aesthetic surgery never found its place in large systems, i.e. hospitals. Plastic surgeons are preoccupied in their daily routine with functional and reconstructive surgical interventions, and, with the development of microsurgical operative techniques with free flaps, clinics are crowded with patients who come to large operations or, in the emergency ward, to microscopic replantations. With regard to a large number of traffic accidents and professional injuries and following radical operations in the treatment of malignant growths, a large field has opened in reconstructive surgery, with the surgeons striving to achieve the best possible functional and aesthetic result. Due to the above, and the attempt not to mix patients who are resolving their serious medical problem with those who come only with their aesthetic demand, today, almost everywhere in the world, aesthetic surgery is performed in private clinics and polyclinics. All the teams who privately practice aesthetic surgery must have a refined sensibility for the patient and his/her aesthetic problem for the solution of which the patient is paying by himself/herself. Along with correctly performed operation, such a patient must be given understanding, discretion, safety and a comfortable accommodation. All of this is not quite possible in a large system. It is also important to note that one of the biggest problems in aesthetic surgery is infection which can largely be avoided if in the operation theatre, where the aesthetic surgical operations are performed, nothing that goes under the name of "dirty" surgery takes place. This again, is almost impossible to implement in large hospitals.

The team of experts doing aesthetic surgery must be very expert in what they are doing, and that includes everyone – physicians (surgeons and anaesthesiologists) and nurses. As in every profession, here there are specific features in medical care, operational technique and the choice of anaesthesia appropriate for a given intervention. All of this is of essence if we want to return the patient to his/her daily life as soon as possible. In every classical surgical education which takes place in large establishments, everywhere in the world and in every branch of surgery, very little attention is being paid to aesthetic interventions. Due to this fact, the improvement and advancement in this area largely depends on individual effort. By the

opening of countries of Central and Eastern Europe after the 1990s, tourists from the West were given the opportunity of a certain form of health tourism. So it happens that very frequently tourists from the West visit former Eastern countries in order to have an aesthetic operation done. This type of business is very lively in the Czech Republic, Slovakia, Poland, Hungary, and in recent times Turkey, even India. The level of medical service is very good, and the prices incomparably lower than in the Western countries. Geographic vicinity played a large role here (Germany, Austria), but it is not a rarity that charter flights are being organized, even from America, to one of the former Eastern countries to perform aesthetic surgery. Outside Europe, there exist other, similar destinations which attract visitors desiring aesthetic surgery. This points to two important facts – one, it is advisable to perform an aesthetic intervention and post-operative recovery outside of one's daily environment. Second, there is a financial incentive for such travel. Namely, surgical interventions are extraordinarily expensive in the Western countries, and irrespective of the relatively high standard of living, the patients can finance their journey, operation and post-operative stay on some other destination for a significantly lower price.

The development of this surgical discipline is limited by the biological material on which the operations are being done - the individual human being, and it also depends on the introduction of new surgical techniques and the quality of surgical material used in operations. Today the patients expect to be back to their daily lives as soon as possible after the operation and expect only minimal complications. This is provided by the appropriate preparation of the patient for the given intervention, the right choice of anaesthesia, surgery with a minimal loss of blood and minimal tissue trauma and the use of high-quality implants and suturing material, ending, of course, with the by-the-book post-operative care. All of this will offer the patient ideal conditions for a full treatment. Such an approach, along with additional care for every segment of work,offers good results with few post-operative complications.

In this book the most frequent procedures in aesthetic surgery are being described, but the demands of people who opt for such interventions constantly broaden the scope of work. Depending on the development of society and its trends, almost every part of the human body is potentially the target of aesthetic surgery.

REJUVENATION OPERATIONS

Aging is a natural process which cannot be stopped. It represents a progressive and irreversible changing of the structures and functions of a living organism, which after a certain time lead to a reduction in adaptability to the environment and an increase in the risk of death. Aging in the broadest sense begins with conception. There follows an embryonic development, and after birth the organism matures in a quantitative and qualitative way, with strengthening of the majority of vital functions. For a certain period of time the maximum of vitality is being kept, whereupon the organism enters the second phase in which it regresses in quality and quantity – it declines. We can say that aging in the first phase is an evolutionary and in the second one an involutionary process. In common language only the second phase is referred to as aging. The line between evolutionary and involutionary aging is rather difficult to determine in humans. We can say that in all vertebrates aging begins with the end of growth. A marked involution or decline begins a little later. In humans, it begins to dominate over evolutionary or developmental and restorable processes approximately at the time between forty and fifty years of age. There are factors in life which impact on the aging process, such as: nutrition, environment, personal habits relating to physical activity and genetics. Radioactive radiation, chronic poisoning, inappropriate nutrition, psychological crises, excessive physical work and illnesses can accelerate aging. This can also be called pathological aging, by contrast to physical aging which takes place without aggravating pathological factors. We want to make it clear, however, that aging is not a disease, but a state or condition of the organism.

The development of medicine has extended the life span significantly. There are around 200.000 people in the world over a hundred years of age, 85% of which are women. The oldest woman was a French national who, according to the Guinness book of records died in 1997 at the age of 122. In the group over 110 years of age there are several dozen to several hundred people.

Back in 1862 the Canadian physician William Osler put it succinctly when he said: “A man is as old as his arteries are old!”

It is unquestionable that we can change a lot with factors over which we have control like nutrition and physical activity. As regards nutrition, the prevalent view in the world is that Mediterranean nutrition is particularly healthy – it includes fresh fruit, vegetables, olive oil and fish. The proofs of longevity related to this diet can be found on Sardinia and Crete. Physical activity is

also important for a good circulation and metabolism, but its effects are much greater when practised in a mountainous climate with clean and rarefied air, which additionally stimulates circulation, compared to a fitness club.

Speaking of nutrition, we wish to mention the so-called French paradox. In south-western France in the county of Gers of the region Pyrenees-South (main city Toulouse, main river Garonne) this paradox is a reality. This is an area known for tasty foods, with lots of fat cheese and goose liver pate and a predominant consumption of red wine. The incidence of cardiovascular diseases and malignancies in this area is exceptionally low. Scientists attribute this to the effect of polyphenols (flavonoids) from the skin and pits of red grapes cultivated by a traditional method and fermented, by contrast to white wines where only the juice without the skin and pits of the grapes is being fermented. In Georgia, a country of wines with tradition dating back to 7000 B.C. the number of hundred-year olds is exceptionally high. Along with red and white wines, they produce the so-called kakhuri where the juice for the wine is being fermented with whole grapes and pits! Along with aforementioned ingredients from grapes, of essence for good health is resveratrol which accumulates in wine as a defence against mould – it is stronger in rainy and humid years, and is found in greatest quantities in red wines of the type shiraz (syrah), pinot noir, cabernet sauvignon and other. Today there is an increasing number of scientific articles about the usefulness of the consumption of wine, which is only a continuation of the teaching of Hippocrates, Galen, Pasteur and Paracelsus who wrote: "Wine is food, medicine and poison – it is only a matter of dose!"

In the effort to delay the process of aging, or rather to live up to an old age, but in a "better edition", modern man pays an ever greater attention to youthful looks. It is this wish that aesthetic surgeons must professionally take into account.

The number of germinative cells in the skin is reduced, the number of sebaceous and sweat glands is reduced, elasticity is lost and the skin wrinkles. Under the impact of Earth's gravitation which pulls everything downward, the skin loosens up and accumulates excess. With the atrophy of the muscles this process becomes all the more pronounced.

It is unquestionable therefore that the main reasons for the decision to undertake an aesthetic operation are: the process of aging and the force of gravitation, the genetic factor, quality and skin care, possible diseases, nutrition, habits. The exposure of the body to the influences of nature and

stress are also factors which can increase or decrease the process of change.

Here we wish to say a bit more about aging and changes related to this process, partly conditioned by hormones, stress and nutrition.

These changes are mostly visible on the face which acquires an older and frequently a sorrowful look. A similar process affects the eyelids which acquire a multitude of wrinkles and excess skin. Such a face looks tired. Around the mouth the most prominent are wrinkles in the nose-upper lip area (nasolabial folds) and from the lip angle towards the chin (oral commissures). In smokers we see pronounced vertical wrinkles around the mouth. The area of the jaw gets thinner due to degeneration of the chewing muscles and loss of teeth. Due to facial movements, deep vertical and horizontal wrinkles appear. The skin on the neck loosens or becomes the point of accumulation of fat tissue (double chin). The tip of the nose descends and looking at the portrait of the person, the distance between the tip of the nose and the upper lip decreases with age. With breasts, there develops an atrophy of gland tissue and an excess of skin. The abdomen in women suffers a lot of changes due to pregnancies and extension, as well as due to accumulation of fat tissue and an excess of skin. Usually this excess folds downwards like an apron. With a decreased tonus of the skin on legs there appears a visible excess, usually in the upper part of the thighs, mostly on the inside. Changes with excess of skin are present in women who underwent severe dieting several times in their lifetime and again gained weight.

As regards the skin itself and its surface, especially visible changes due to aging are seen on those parts of the body which are most exposed to sunlight, i.e. weather conditions, depending on the climate in which the person lives. Usually these changes are old age spots and other hyper-pigmentations. There is a lack of movement and bodily activities while nutrition is rich and abundant, all of which causes problems with obesity which usually affects people of middle age. Diets and bodily activities can reduce weight up to a point, but some parts of the body remain immune to such interventions, even cosmetic treatments. These problem areas are: double chin, lower part of the abdomen, waist line, outer and inner parts of the thighs and knees.

Specifically, rejuvenation interventions can be cut down to three basic principles:

1) What came down must be lifted.
2) What has atrophied and is reduced should be filled out (fat atrophy of malar regions of the face, atrophy of mammary glands, etc.)

3) What has excessively accumulated should be removed (excess skin, accumulations of fat tissue on places of predilection – double chin, abdominal wall, waist line, thigh, upper arm).

With aesthetic rejuvenation operations we try in the first place to lift and tighten loosened parts of the body and face (lifting of the face, neck, upper arms, thighs, abdominal wall – abdominoplasty) and, using various dermal abrasion methods, remove superficial senescent changes on the skin. With liposuction we aim to remove accumulations of fat tissue from those parts of the body which are immune to dieting, bodily activity and cosmetics. Silicone implants fill out the breasts and buttocks, and with the transplantation of fat tissue – lipofilling – we fill out the malar regions on the face.

It is the task of the aesthetic surgeon to mitigate the imminent process of aging, in accordance with the wishes of the patients and the possibilities of modern aesthetic surgery. In such a way, aging is slowed down, the patient is given satisfaction with the achieved result, and the surgeon himself has the gratifying feeling of a job well done. For maximum success, psychophysical stability of the patient is also important. Through interview with the surgeon, or independently, with the help of relevant literature on aesthetic surgery and other sources of information, the patient must know why and what he/she wants changed on himself/herself. The issue must be resolved together with the surgeon if this is possible, by which technique, etc. However, an unstable patient doesn't know what he/she wants which creates problems afterwards. Also, attempts to resolve by aesthetic operation some other life's problems always end up unsuccessfully. The well-known phrase which men often tell their wives: "I love you just the way you are" often demotivates the female patient to undergo an operation. In such cases, a three-way conversation can be useful. Women often see the above phrase as a loss of support, discouragement for financial or other reasons. The majority of women, if not all, choose to undertake aesthetic interventions exclusively for their own sake.

BEAUTIFICATION OPERATIONS

This group of aesthetic surgical intervention includes the treatment of congenital or acquired malformations and defects.

On the head these are most frequently operations of protruding earlobes (otapostasis), operations of noses with humps, reduction or shortening of the nose. As to lips, people usually want them enlarged. Breasts can be corrected – if small they can be enlarged by the insertion of implants, or they can be reduced if too big.

There are a number of other malformations of face and body which are congenital, but these are closely connected with function, so they are usually treated by classical plastic-reconstructive surgery or maxillofacial surgery.

Except these, congenital defects, there are many other acquired in the course of life by trauma or some other process – such as scars after trauma or operation, tattoos and tumours of the skin such as atheroma, warts, fibromas as well as smaller haemangiomas and basal cell carcinomas.

Scars following facial trauma are most conspicuous and require, usually in the phase in which they are fully formed, aesthetic surgical correction. These are usually injuries from car road or similar accidents, where we have relatively frequent injuries of nasal bones and injuries of other facial bones. With breasts, a significant invalidity develops after amputation of one or both breasts. Traumatic defects of tissue can appear on the entire body, and they can be reduced by aesthetic surgical procedures. Very frequent are burns and scars which remain after them.

With regard to the variety of aesthetic needs, there is a range of operations which are not very common, but there are persons who place demands for such interventions. Such wishes can be met, with a note that nothing should ever be done that could harm the patient.

AESTHETIC SURGERY AND AGE

The beautification operation comes into consideration only when the development of the part that should be corrected is fully completed (protruding ears, nose deformities). Thus, the operation of the otapostasis is best done in childhood, between the age of five and seven, before starting school, so that the child in the new environment appears without the defect which can easily provoke teasing by other children. Of course, this operation can also be done much later, if for any reason in childhood aesthetic correction was not possible.

The frequency of this operation is also influenced by fashion. Lately, with short haircuts being in fashion among young men, many of them come to correct protruding ears in mature age.

The nose operation is done some time later, i.e. when the facial bone growth and the shape of the nose is completed. With females this is somewhat earlier (with completed 17 years of age), and with males it is usually connected with full age. Of course, nose can be corrected also later, but in any case before the age of forty. In later age, the skin is not so elastic any more, nor does it have the necessary tonus, and the post-operative course is usually prolonged with a swelling.

For the correction of breasts – augmentation, reduction or correction of uneven breasts by enlargement or reduction of one of them, one must wait for full age. It is important to tell the patients who are reducing their breasts that they will have problems with breast-feeding after the operation.

For any interventions done before full age, a written consent of the patients is absolutely necessary.

Corrections of the bodily contour by suction of the fat tissue by the method of liposuction or classical lipectomy are being done when the patients themselves decide to do so and consult a physician beforehand. These operations, especially liposuction, are being done as early as the age of twenty. Genetic predisposition for an irregular bodily contour, along with excessive food intake and limited movement lead to a situation in which some persons even at an early age have problems with accumulation of fat.

Rejuvenation operations are being done also according to indications which the patients put forward by themselves, on the recommendation or in consultation with the physician (blepharoplasty, face-lift). The right time

is when there is a significant excess of skin and the appearance of wrinkles. Once, this age limit was the late fifties, but for a better preservation of the freshness of the face and maintenance of the continuity of visual appearance, it was moved downwards so that today it is under the fortieth year of life. Already at that age the face acquires a tired look, and the first major wrinkles appear. This limit, of course, is individual and depends on genetic predispositions, the style of life and bodily care. A steady and relaxed way of life with sufficient sleep and regular nutrition, along with skin care helps to move the indication for this operation to a later age. The decision on rejuvenation operations should be taken in consultation with the aesthetic surgeon who will do the operation. The determination of the age in which the operation will be done together with the surgeon helps achieve the continuity of freshness and beauty of the face. This is much better than an operation at a later age which produces a sudden change from a tired to a fresh face. However, each person's life is individual and the decisions can be made earlier or later. Sometimes, this is linked to the pleasures or problems in life, and not to the medical or aesthetic view of beauty and freshness. The upper age limit doesn't exist because this would run contrary to the very word "aesthetic operations". Counter-indications can be a generally run-down state of health and a major surgical or anaesthesiological risk. The indication for these operations is a personal matter of the patient, and counter-indication is a medical matter, in case of increased risk.

Hair transplantation is done individually, when the patient is irritated by the lack of hair or its thinning out, and the transplantation is indicated.

In any case, irrespective of the operations with which a part of the body is being corrected or the age at which surgical rejuvenation interventions are made, when they are medically and aesthetically successful, they will create a great feeling of pleasure both to the patient, now refreshed, and to the surgeon who performed the operation.

When the surgeon estimates that the operation will bring satisfaction and peace of mind to an otherwise psychologically healthy person, the intervention should be done because every man and woman has the right to remove the imperfection which burdens him/her.

AESTHETIC SURGICAL INTERVENTIONS AND TIME NEEDED FOR RECOVERY

For every operation done on the human body it is necessary to do a thorough health check-up, sometimes many check-ups, depending on the type of intervention and the general health condition of the patient. Only emergency surgical interventions when life is at stake are done without a complete check-up of the health state of the patient. In some cases a certain therapy is indicated prior to the operation, in order to minimize the risk of the operation and increase chances for a good outcome. For example, a diet and cessation of smoking are rather important in some segments of aesthetic surgery. These measures are undertaken in consultation with the surgeon.

The check-up itself takes one day, but if dieting is involved, it may last weeks, even months. The operation and post-operative course take several hours to several weeks. The visibility of the operated site which is bandaged usually lasts up to a week.

In this book we intend to lay out the pre-operative preparation for every aesthetic operation, the duration of the operation itself, the immediate post-operative course and time of recovery before returning to the familiar environment and assuming old professional responsibilities. All the operations can be done throughout the year, provided the patient ensures the recommended necessary conditions for post-operative treatment. So, for instance for the dermal abrasion of the face and chemical peeling it is recommended that this part is not exposed to sunlight, or to use protective creams with a very high protection factor. After liposuction the prescribed corset must be worn 24 hours a day, which is difficult in the summer, except if the person stays in an air-conditioned space. The corset is worn between three and eight weeks after operation, depending on the surgical intervention. Certainly, this requirement is more easily met during winter, so that this operation, as well as the previous one,is usually done between autumn and summer. Potential candidates for aesthetic operations, especially liposuction, usually choose the time after the winter, in preparation for the summer. It is advisable to plan the entire process for autumn or winter, so that the preparation can be done comfortably and thoroughly, as well as the intervention itself and the necessary post-operative course.

The return to the work place depends on the type of operation, the nature of the work place and its demands with regard to the physical activities and on the patient and his/her physical constitution. As a rule, the return to the

familiar environment and continuation of daily obligations is possible within one to ten days. If we are dealing with heavy physical work, an additional time of exemption from work is necessary. In the text further on, the necessary time for recovery is stated for every particular operation.

An ideal advice would be to take more free days than necessary for the return to work, in order to ensure a thorough recovery and the disappearance of visible scars or possible swellings or to make these swellings imperceptible for the environment. For such an approach it is best to change the environment, perform the operation outside the place of residence, and spend the initial part of the rehabilitation there. Of course, this approach demands somewhat greater expenses for board and lodging.

PREPARATION FOR SURGERY

Prior to every operation, including the aesthetic one, it is necessary to carry out pre-operative preparation. The patient is informed about the fact that the success of the operation largely depends on him/her and his/her preparation for the surgical intervention and the post-operative course.

Basic laboratory parameters must be established (complete blood count, prothrombin time, blood glucose, urea, creatinine, liver enzymes, urine), ECG, examination by the internist and anaesthesiologist, and, if necessary, some additional examinations may be required.

Before the operation the patient fills out a questionnaire containing questions about his health state.

The patient must come to the operation on an empty stomach (nothing must be eaten or drunk eight hours before the operation). Of course, this is a demand connected with major interventions done under general anaesthesia. The patient must be warned that he/she must not drive a motor vehicle after the operation if general or potentiated anaesthesia was applied, or if the patient was given sedatives as part of the preparation for the intervention. Photographing is obligatory and serves for the purposes of medical documentation. Photographs can be published only with the patient's written consent. This part must be thoroughly clarified with the patient, so that he/she knows the exact purpose of publication of the photographs.

Along with these general pre-operative preparations, there are a number of special steps that need to be taken relating to specific surgical interventions and they will be described along with those interventions.

ANAESTHESIA

The word anaesthesia is of Greek origin and means insensitivity. In surgery, anaesthesia is a state of intentionally induced insensitivity which the physician achieves by introduction of anaesthetics into the body. Surgical anaesthesia comprises also analgesia, i.e. the loss of sensitivity to pain. In addition, general anaesthesia implies the loss of consciousness. Quality anaesthesia is one of the key conditions for a successful execution of surgical interventions. It ensures comfort and relaxation in the patient, and the surgeon gets optimal conditions for work.

In today's perspective anaesthesia is a medical method of anaesthesiology which, with the application of anaesthetics and other medicines, leads to the exclusion of the sense of pain in the human body and the induction of sleep. It is applied in various operational interventions and methods of invasive diagnostics and treatment of complex and difficult conditions related to intensive care.

Anaesthetics are a heterogeneous group of drugs in gaseous, liquid or other forms which, when introduced into the organism, lead to the loss of sensitivity, and, according to need, loss of consciousness with a minimum of noxious effects and the possibility of return of the organism into normal state after the cessation of their application.

THE HISTORY OF ANAESTHESIA

In ancient times, the first means which were used were marijuana and opium. Real anaesthesia comes on stage only in the 19th century. British chemists Humphry Davy and Thomas Beddoes describe some features of nitrous oxide – the laughing gas, but in those days this gas was used only for amusement. The first person to use this gas for anaesthesia was the American dental surgeon Horacy Bunare who extracted teeth with the use of nitrous oxide, but a broader support failed to come because the patient died.

The other significant drug was chloroform which was discovered in 1831. A general view today is that anaesthesia was conceived by Oliver Wendell Holmes in 1846, and modern anaesthesia by Joseph Lister.

In 1842 in Danielsville, Georgia, Dr Crawford Long gave the first anaesthesia to a patient on whom he operated a neck cyst. The first operation under anaesthesia on the battlefront was done by the Russian surgeon Nicolai Ivanovitch Pirogow.

THE SUBDIVISION OF ANAESTHESIA

Anaesthesia is divided into general (inhalational, intravenous and rectal), locally potentiated, local (surface, infiltration and regional which can be a central or peripheral block) and non-pharmacologic anaesthesia.

GENERAL ANAESTHESIA is the state of reversible insensitivity of the patient with the features: sleep, analgesia, muscular relaxation and loss of reflexes.

Inhalational anaesthesia is achieved and maintained according to operative need with anaesthetics in gaseous state which come into the organism with the air breathed in by the lungs. Usually a mixture of gases is used (oxygen, nitrous oxide, isoflurane), mixed in the anaesthesiological device and blowed into the patient's lung by means of plastic tubing ending in the endotracheal tube, or by means of a special mask on the face. Along with these gases additional medication is also given which relaxes the muscles and induces insensitivity to pain.

Intravenous anaesthesia is achieved and maintained according to operative need by applying the anaesthetic into the patient's vein. It is mainly used as an introduction into inhalational anaesthesia, or for short operations.

Rectal anaesthesia is a type of anaesthesia where the anaesthetic is applied into the large intestine. It is mostly used in small children.

LOCALLY POTENTIATED ANAESTHESIA includes local application of anaesthetic on the operated area and intravenous sedation of the patient.

LOCAL ANAESTHESIA is divided into surface, infiltration and regional.

Surface anaesthesia usually implies putting an EMLA cream (mixture of 2.5% lidocaine with 2.5% prilocaine) on the surface where infiltration anaesthesia will be applied, or a smaller surgical intervention done. The cream on the skin must be covered with a foil and one should wait for its effect to begin. Thereby, the needle pricks for infiltration will be almost imperceptible, or the DERMO JET will be applied, whereby the anaesthetic is given under high pressure without the needle prick into the skin.

Infiltration anaesthesia is one in which local anaesthetic is applied into and around the area where the surgical intervention will be carried out. It is applied into the very skin and under it.

As a special type of local anaesthesia we should mention **local tumescent anaesthesia** under which nowadays everywhere in the world a large number of aesthetic operations are being carried out. It is usually applied in patients who go home on the same day – outpatients, and in clinics – office procedure. It comes from the Latin word tumere – to swell. In this type of anaesthesia usually the tumescent liquid is injected into the tissue by large injections or a special pump. Tumescent liquid contains the physiological solution (or ringer lactate) as a base and usually two local anaesthetics – one with a rapid effect, the other with a prolonged one. The mixture also contains adrenalin as a vasoconstrictor which will act on the blood vessels in this area. Thus, the blood vessels contract and prevent the migration of anaesthetic into circulation and bleeding during surgery is reduced. Taking maximum doses of anaesthetic in relation to kg of body weight of the patient up to several litres of tumescent liquid can be diluted. This can be injected into the tissue safely and without untoward sequelae. This approach to anaesthesia was very important in the 1970s and 1980s when liposuction was being introduced into practice (Fischer, Italy, 1977). It is precisely this type of tumescent local anaesthesia which is applicable in liposuction interventions on all parts of the body.

Regional anaesthesia is the one in which anaesthetic is applied near the nerve or the spinal cord, thus achieving blockade – insensitivity to pain. It is further divided into central and peripheral anaesthesia.

Central block – in this type of anaesthesia anaesthetic is applied around the spinal cord and thus the transmission of painful stimuli to the brain is being blocked. It lasts from 2 to 4 hours. According to the location of application it is divided into spinal and epidural. Spinal anaesthesia is one where anaesthetic encircles the spinal cord. It is used for interventions on the legs, all the way to the height of the navel.

Epidural anaesthesia is the one where anaesthetic is in epidural space – between the vertebrae and the envelope of the spinal cord. If the epidural catheter is placed in this space, anaesthetic can be added according to need and thus prolong the anaesthesia. This type of anaesthesia is used for painless birth where pain is blocked by a lower concentration of anaesthetic, while the muscle power remains intact.

Peripheral block technique is the application of anaesthetic in the vicinity of the nerve, e.g. hand, foot, etc.

Regional intravenous anaesthesia is a technique used for the anaesthesia of the extremities – arms, legs. For this type of anaesthesia the blood circulation in the extremity is stopped first, followed by the injection of anaesthetic into the vein of that extremity. In such a way, the anaesthetic gradually penetrates the tissue and reaches the nerves.

NON-PHARMACOLOGICAL ANAESTHESIA

Hypnosis has a long history. It comes from the Greek word for sleep, but hypnosis is not sleep – it is a suggestion that goes with the altered state of consciousness.

Cooling of the tissue. In this way a temporary interruption of transmission through nerve fibres can be achieved and a loss of sensitivity ensues. For laser interventions on the skin in our Polyclinic we use this type of anaesthesia with the advanced ZIMMER device which blows cold air on the location of work.

Fear is present in the majority of patients and we can consider it normal. In some it is more, in others less expressed. One of the first tasks of the anaesthesiologist is to remove the feeling of apprehension, or at least to reduce it. This is achieved by conversation with the patient in which the course of the operation is described in understandable terms, as well as the type of anaesthesia that will be used. During this conversation the patient provides information about previous operations and experiences with anaesthesia, about health problems, medication he/she currently uses, allergies and habits (alcohol, drugs, smoking). Approximately half an hour before the operation the patient is given drugs (premedication) which remove anxiety, or at least reduce it and thus bring the patient into an optimal condition for anaesthesia and the surgical intervention.

The type of anaesthesia which will be applied depends on the type of operation which will be carried out. If several types of anaesthesia come into consideration, the choice is discussed with the patient. Of course, the attitude of the surgeon must also be taken into account because he knows what kind of anaesthesia he needs in order to create the best conditions for the accomplishment of optimal results that a particular operation intends to do.

Ultimately, the choice of anaesthesia rests with the specialist anaesthesiologist as well as the surgeon. An individual approach must be maintained and the wishes of the patient should also be taken into account whenever medically possible.

MODERN TRENDS IN AESTHETIC TREATMENTS AND OPERATIONS

With the development of the society and the commitment of everything to success and profit, we are obliged to pay more attention to outer appearance and appeal, to look fresh, in top condition for our age. This is good news for all in the business of aesthetics.

What may be a problem for the users of such services is that there is less and less free time, there is ever decreasing opportunity for sick leave while the daily obligations are on the rise, and the imperative is to use minimally invasive procedures with the shortest possible time for recovery, from just several hours to no more than several days!

All procedures which demand longer recovery are usually done during the year's leave.

As a response to such trends in aesthetic offer all over the world it is recognizable that people opt for aesthetic treatments and corrections at a relatively early age – already in the late twenties and the thirties. Non-invasive or minimally invasive methods are applied to the skin (radiofrequency, laser, etc.), in initial wrinkles the hyaluronic acid fillers are being placed. As prevention to increased facial mimics, for the life on the sunny coasts of the Mediterranean, or somewhere else, botulinum toxin is applied on the forehead. In such a way inevitable changes on the skin will be reduced and delayed. These applications can be completed in a work break and they do not require any special after-treatment care.

In aesthetic surgical interventions of face rejuvenation, methods with insertion of threads into subcutaneous tissue are used. This leads to the reduction of sagging (ptosis). There exist several types of threads, but the best known are APTOS (anti ptosis) threads invented by the Russian surgeon of Georgian origin Marlen Sulamanidze, Peters' threads, Siluethe threads, etc. They are being placed into the skin of the face under local anaesthesia, there are no cuts and consequently no scars, because they are being inserted through injection needles. The recovery takes one to two days. This method achieves the lifting of sagging parts of the face – eyebrows, malar region, jaw line in the area of the lower half of the ear lobe towards the chin, etc.

As far as classical face-lifting is concerned, there is increasing demand for the abbreviated procedure of S-lift or mini-lifting which is achieved with one cut only in front of the ear lobe.

It is in such a way that aesthetic medicine – like dermatology and aesthetic plastic surgery – adapted to the demands of its clients at the beginning of the 21st century.

MESSAGE AND ADVICE OF THE AUTHORS OF THIS BOOK

Do you feel that you have imperfections on your face: the shape of your nose, position of ears; or on your breasts – uneven, small or too large breasts; on your body: excessive accumulation of fat tissue and an excess of skin that isn't disappearing with physical exercise, dieting, cosmetics, etc.? It may be time to talk to an aesthetic surgeon and to decide on a corrective aesthetic operation.

With aesthetic surgical correction done on your body parts your dissatisfaction about yourself will disappear, and at the same time you will gain new self-confidence and a brighter disposition.

Therefore, if you see a tired look in the mirror and a saggy, sorrowful face, turn for help to an aesthetic surgeon.

Surgical aesthetic interventions of rejuvenation on eyelids and face bring back the lost beauty, youthful looks and a freshness of mind. Interventions can be done on parts of the body which are largely not exposed to the eyes of others, even on the most intimate parts of every man or woman.

It may well be that an intervention, no matter how minor from the medical viewpoint, can produce a huge positive personal difference for yourself!

When you make your mind up for an aesthetic treatment or operation – corrective or a rejuvenation intervention, consider that you have done something for yourself, for your satisfaction and psychophysical health, ultimately for your happiness. All other issues are secondary. This is what justifies the idea and purpose of the operation!

COSMETIC EYELID SURGERY (BLEPHAROPLASTY)

Love begins with the eyes, and the rest comes gradually
Italian proverb

Even in young people we often see bags under the eyes which can be hereditary, but they also appear as a consequence of consumption of salty foods with a lot of liquid and sleeping on the stomach. With age, the skin loses elasticity and the eyelids change their shape. There appears an excess of skin, wrinkles become visible, and often the pockets of fat increase and give the appearance of puffiness to the eyelids. Fat pads are found both in upper and lower eyelids, and they stand out as fat tissue accumulates in otherwise anatomic depots. The skin of the eyelids is the area with the thinnest skin of all the human body and operation on the eyelids must be performed in minute detail, in order to avoid disfiguring scars and the pulling of eyelids in some unnatural direction.

There is a popular saying that "the eyes are the window of the soul". It is therefore very important that excess skin and puffiness do not obstruct the view, in other words that this "ugly" curtain is removed.

Blepharoplasty is an operation which removes excess skin and accompanying fat tissue of the eyelid, which gives a new freshness to the face. The eyes look bigger and their natural beauty is enhanced.

INDICATIONS

The indications for this surgical intervention are: a natural puffiness of lower eyelids, excess skin on upper and/or lower eyelids, excess of fat tissue, dark pigmentation of the skin around the eyes and wrinkles of aging.

PREOPERATIVE CARE

It is absolutely necessary to do a general check-up of the health status. In case of some other disease it is necessary to consult an ophthalmologist and endocrinologist (exophthalmos). It is desirable that the patient gets enough sleep before the operation so that the eyelids have their usual appearance.

ANAESTHESIA

The surgical intervention on the eyelids is usually done under local anaesthesia. Usually a vasoconstrictor (drug used to narrow the blood vessels) is added into the local anaesthetic in order to reduce the bleeding to a minimum. Also, in such a way, post-operative haematomas are smaller. Operation can also be done under locally potentiated anaesthesia. Very

rarely, as part of larger interventions, blepharoplasty can be done under general anaesthesia. However, looking at the problem of eyelids only, local or locally potentiated anaesthesia suffices.

OPERATION

The intervention takes 1 – 2 hours, depending on what is planned to be done. Prior to the operation excess skin which should be removed by the operation is carefully measured and marked. Surgical intervention follows next. A cut in the upper eyelid is done in the natural fold of the skin where it overlaps, usually some ten millimetres above the lower edge of the eyelid. On the lower eyelid the cut is made closer to the edge of the eyelashes. Such cuts and their placement allow for a less visible scar after the operation. The excess skin is removed, and, according to the local finding, also part of the fat pads. Radical removal of fat pads is not necessary because if it is done at an older age, the eye sockets can become too deep. Namely, with the aging process, here too the fat deposits atrophy. After the removal of excess skin and, if necessary, the fat pads, the wound is closed with an intracutaneous (continuous) suture following the principles of aesthetic surgery. Usually the incisions are sutured with absorbable material. In such a way the removal of sutures is avoided because they disintegrate by themselves. The scar following such suturing with a high-quality suture material is almost imperceptible.

In cases where the lower eyelid is only puffy, without significant excess of skin, only the reduction of fat pads is done in the area of the lower eyelid using a transconjunctival approach (through the mucous membrane). In such a case there are no visible scars on the skin of the lower eyelid.

POST-OPERATIVE COURSE

The patient is resting under professional medical care in the medical facility for several hours after the operation. Immediately after the intervention ice packs are placed on the eyes in order to reduce the haematomas. Antibiotic cream is placed on the cut and into the eye. For several days afterwards it is advisable to wash the eyes in camomile. After the absorption of the suture, one can start with a light massage around the eyes, according to instructions by the surgeon. Haematomas and swellings disappear in the first week after the operation. If necessary, lymph drainage can be done in a cosmetic salon. Make-up can be put on approximately ten days after the intervention.

The first results are visible as soon as several days after the intervention. The eyes are open wider, there is no excess skin, but the eyelids are swollen

and haematomas are still present. The final result will be visible after several months. At that time, the superficial sensitivity on the eyelids returns. This operation is usually the first in line in the rejuvenation of the face.

If small wrinkles are still visible on the remaining skin of the lower eyelid, they can be aesthetically treated with chemical peeling or laser and radiofrequency – pelleve!

COMPLICATIONS

If the indication was appropriate and the excess skin well marked before the operation, the complications are very rare. In case of a radical removal of excess skin from the lower eyelid, ectropion is possible (condition in which the lower eyelid turns outwards). If it is smaller, it retracts by itself, otherwise a surgical correction is necessary. Contrary to classical correction, ectropion can be resolved with the aptos method – placing of threads in the skin of the lower eyelid which lifts it upwards! Haematomas may last some time longer.

THE SCAR

When the wound has been sutured according to principles of aesthetic surgery with high-quality sutures, the scar will be almost imperceptible, because the skin of the eyelid is pliable and in principle reacts to trauma with minimal or small scars. On follow-up it can be checked whether there is any deviation from the expected standard course of the scar, and some additional local treatment can be undertaken with the aim of reducing the scar to the minimum. If it is significantly visible, it can be resurfaced with Erb:YAG laser or treated by peeling with an acid.

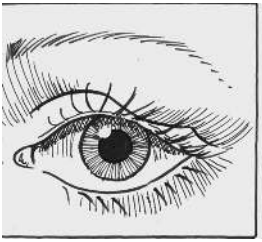


Illustration of the drooping upper eyelid

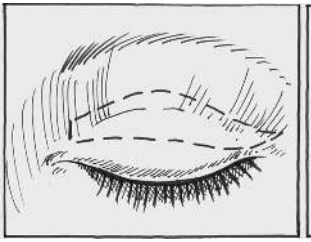


Illustration of the necessary intervention for the correction of the upper eyelid

State after the correction of the upper eyelid

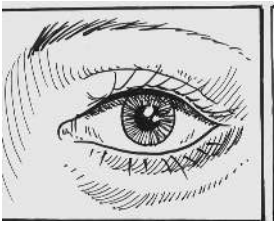


Illustration of the puffy lower eyelid with excess of skin

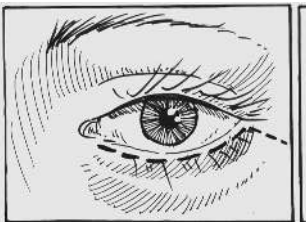
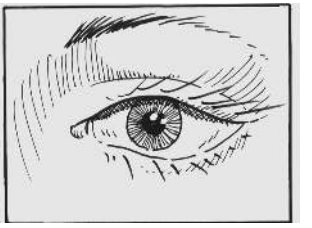


Illustration of the location of incision



State after the performed correction

Upper eyelids before the operation

Upper eyelids after the operation

Upper eyelids before the operation

Upper eyelids after the operation

Upper eyelids before the operation

Upper eyelids after the operation

Upper eyelids before the operation

Upper eyelids after the operation

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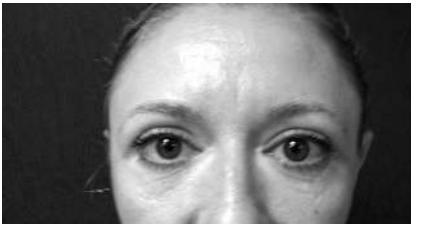


Upper eyelids after the operation

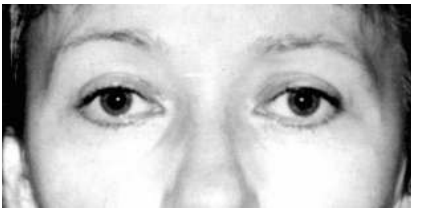
Upper eyelids before the operation

Upper eyelids after the operation

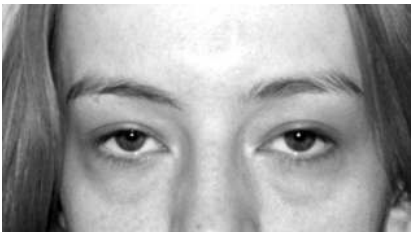
Upper and lower eyelids before the operation

Upper and lower eyelids after the operation

Upper and lower eyelids before the operation



Upper and lower eyelids after the operation



Eye bags before the operation

Eye bags after the operation

COSMETIC EARLOBE SURGERY
(OTOPLASTY)

Deformation of the earlobe, i.e. its irregular position with the disproportionate angle between the head and the ear (protruding ears) is a congenital malformation. The angle between the head and the ear and the shape of the earlobe are important for the overall looks of the head and face. Therefore this condition can be the origin of discomfort (frustration) with one's appearance and a cause of the inferiority complex. Usually the children with protruding ears are subjected to teasing by their peers at school. Deformation can be one-sided or two-sided, and it is frequently apparent immediately after birth. Depending on the magnitude of the angle between the head and the earlobe, we differentiate three positions:

- normal – angle between 15 and 30%
- otapostasis . angle greater than 30%
- severe otapostasis – angle between 50 and 70%

Otoplasty is an aesthetic surgical intervention which permanently resolves the problem of protruding ears. There are several surgical approaches and techniques, and the surgeon must decide on one of them which is most accessible to him. All the techniques come down to the serration of the cartilage of the earlobe from the front or rear or its abrasion and thinning. These surgical techniques have the aim of modelling the earlobe cartilages into a desired shape and bring them closer to the head by sutures.

INDICATIONS

The indication for this operation is the otapostasis of one or both of the earlobes. In aesthetically sensitive patients even a small deviation creates a problem and wish for its correction. With regard to the possible inferiority complex it is desirable to do the operation before the child starts attending school (until the sixth year of life, because the growth of the ear is anatomically completed by the fifth year). If the operation is not done until this age, it can be done later and there is no age limit for it.

PREOPERATIVE CARE

It is necessary to do an assessment of the health state, and, if necessary, in cases of some diseases of the child, have the paediatrician examine the patient as well. Before operation the hair is washed with a disinfectant.

ANAESTHESIA

The operation is done under local, locally potentiated or general anaesthesia. In case the child is uncooperative, general anaesthesia is preferred.

OPERATION

The intervention takes about one hour. Before the intervention the angle of the ear in relation to the head is measured and the cut behind the earlobe is planned, so that the future scar after the operation is almost invisible. After the preparation of the cartilage for modelling by the technique of serration or abrasion, the earlobe is modelled by placing the sutures and pressed against the head. The wound is closed by an absorptive suture which spontaneously disintegrates in the tissue and doesn't need to be taken out. The earlobe modelled in such a way is packed with cotton-wool, if desired, on its outer relief, and the new position immobilized with a bandage around the head.

POSTOPERATIVE COURSE

The return to home care is planned several hours after the operation. Control bandaging is done only if needed in the case of bleeding or severe pain. The bandage is taken down after one week, and at that time hair can be washed with a mild shampoo. The wound behind the ear can be treated with antibiotic cream, and the suture on the wound will be fully absorbed at most two weeks after the operation. For one month after the operation the patient should sleep with a sport band over the ear, so that a forceful folding of the earlobe doesn't occur during sleep. In the first two weeks the post-operative oedema also subsides, as well as possible haematomas. A frequent consequence of swelling, its subsiding and return to normal state is dandruff on the skin of the earlobe. If dandruff appears, the skin of the earlobe can be treated with a cream. The sensitivity of the earlobe after the operation is changed, but returns within 6 to 12 weeks. The position of the earlobe in relation to the head after the operation is usually in a hyper-correction, which gradually loosens and the earlobe assumes a normal position. The first effect of the correction of the position of the earlobe is visible immediately after taking down the bandages, and the final effect is expected after three months. This is the time necessary for the earlobe to return from a hyper-corrected position into a normal one.

COMPLICATIONS

Among the complications severe haematomas may occur, a hypertrophic (thickened) scar behind the ear, the so-called keloid, infections, necrosis of the skin on the earlobe, a recurrence of otapostasis (return of the earlobes into pre-operative position). Complications are rare and easily removable, except in the case of keloid when a more intensive control is necessary with the therapy which suppresses the re-emergence of the keloid scar.

THE SCAR

With regard to the localisation of the scar behind the earlobe, traces of intervention are almost imperceptible.

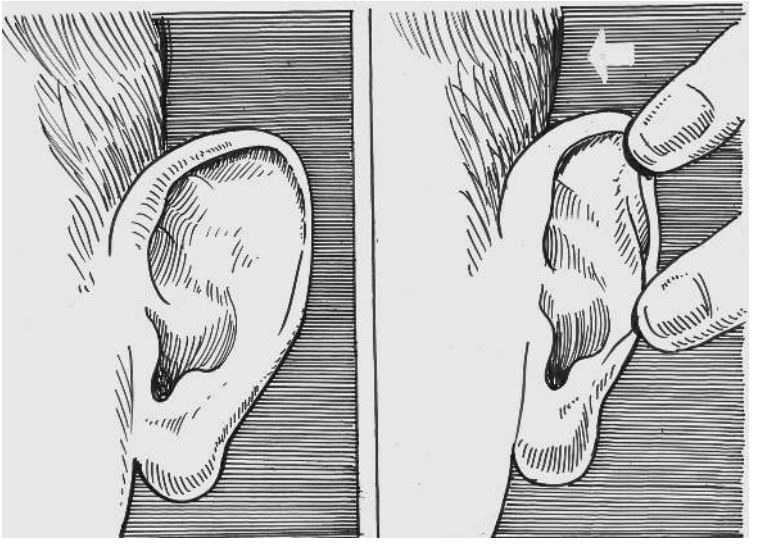


Illustration of what the operation targets to achieve

Earlobes before the operation

Earlobes after the operation

Earlobes before the operation

Earlobes after the operation

Earlobes before the operation

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Earlobes before the operation

Earlobes after the operation

COSMETIC NOSE SURGERY (RHINOPLASTY)

He who has a great nose thinks everybody is speaking of it.
Scottish proverb

The looks and beauty of a face depend on the looks and beauty of its parts. The nose holds a central place in the configuration of the face, which is very important in the overall appearance. This is why cosmetic nose operations are among the most frequent interventions in aesthetic surgery, and also one of the oldest. Most frequently corrected is the irregular shape and size. Deformations may be congenital (hereditary) or acquired due to injuries, operations of tumours and the like. Operations of the nose are divided into:

- reductive – reduction if the nose is too big and (or) too long
- augmentative – increase if the nose is too small or saddle-shaped
- corrections of the nose if it is not positioned in a central line.

From the functional point of view, the most frequent intervention is the correction of the nasal septum which results in difficult breathing. This correction can be done in the same intervention along with the aesthetic one.

INDICATIONS

The most frequent indications are inappropriate size and (or) the shape of the nose since birth, or acquired due to trauma or a previous surgical intervention and difficult breathing in cases of deviation of the septum. From the aesthetic point of view, a different shape of the nose matches every individual face, and for this reason the approach to such an operation must be individual. In such a way we achieve a harmony of the face with a new shape and position of the nose in its central and most prominent part. In congenital malformations it is necessary to wait for the completion of the development of the nose and the face which is usually at the age of 17 in females and 18 in males. When the nose is operated with the aim of rejuvenation, usually its tip is being raised, as it descends with the age and the distance between the tip of the nose and the upper lip gets smaller. Also, the cartilage parts of the tip of the nose are corrected, as they enlarge with age and become harder which makes them visible below the skin as a rough contour of the tip of the nose. When dealing with traumatic injury of the nose it is best to do the correction immediately, but, if this is not done, it is best to wait at least a year since the time of injury until the corrective operation.

PREOPERATIVE CARE

Along with standard laboratory findings of blood and urine and ECG, if necessary an x-ray of the nose bones may be done, especially when dealing with the deviation of the septum or injuries to the bones.

ANAESTHESIA

In most cases the intervention is done with locally potentiated anaesthesia (for easier cases) and general anaesthesia for the more complicated ones. Along with the anaesthetic, vasoconstrictor is added (drug producing narrowing of the blood vessels) so that the bleeding is reduced as much as possible.

OPERATION

The intervention takes 1 – 2 hours. The surgical cut is made in the vestibule of the nose (closed rhinoplasty) or on the skin of the septum (open rhinoplasty), which depends on the surgical technique chosen for the operation. Usually the second technique is chosen in re-operations. The wound is sutured with absorptive sutures which remain for approximately ten days and are absorbed spontaneously. After the operation paddings soaked (impregnated) with antibiotic cream are placed inside the nostrils, and the nose itself is immobilized with plaster or plastic material. Immobilization is fastened to the face with adhesive strips, and plastic immobilization is usually sticky on the lower side, and attaches to the skin of the nose.

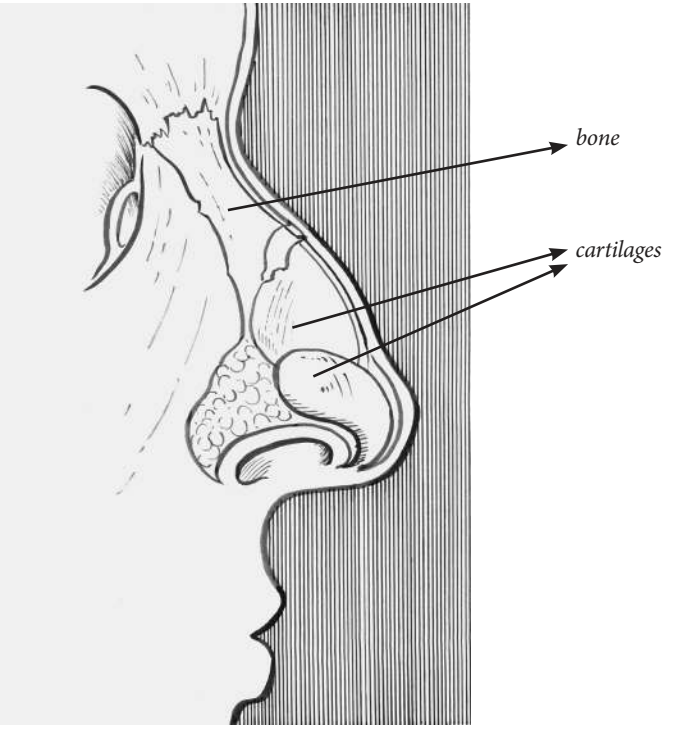
POSTOPERATIVE COURSE

After the operation the patient stays in the medical facility under professional medical care for several hours (usually 6 – 8 hours after general anaesthesia). One to two days later the tampons (paddings) are removed from the nostrils (in cases of correction of deviated septum they remain longer – usually four days). Immediately after the intervention ice packs are placed on the face to reduce the swelling and the haematomas. After the removal of the tampons the inside of the nose can be treated with cream, and frequently nose drops are recommended. Nose drops act as vasoconstrictors – they shrink the tiny blood vessels and reduce the swelling of the mucosa and make breathing easier. Immobilization is removed one week after the operation. After the removal of the immobilization the nose is still swollen. One can start immediately with the massage with mild circular motions from the base to the tip, which stimulates circulation and accelerates the disappearance of the oedema. In older patients the oedema persists somewhat longer. In that case it is advisable to place camomile compresses, cold and warm interchangeably, which will also stimulate circulation. Lymph drainage can be done too. One should be careful of possible blows to the nose (e.g. with a ball) at least for the initial 6 – 8 weeks. While the swelling persists the carrying of eyeglasses is not recommended. The first result is visible already after the removal of immobilization. As the nose is seen as a tent above the basic construction of bone and cartilage supporting tissue, a somewhat longer time after the operation is needed to achieve the final

condition with respect to gravity and all the healing and scarring processes after the intervention. This period lasts from 6 to 12 months. Possible surgical reinterventions are not recommendable at least one year after the previous operation, and it is desirable that the correction is done by the same surgeon who operated on the nose previously.

COMPLICATIONS

There can be early bleeding, in the first 24 hours, which is normal for this type of operation, and later, upon the removal of the tampons. This complication is resolved by the physician, who usually performs a tamponade of the nose for another shorter time, and the topical application of drugs for the shrinking of blood vessels if necessary. Other possible complications are the perforation of septum and an unsatisfactory aesthetic or functional result of the operation.



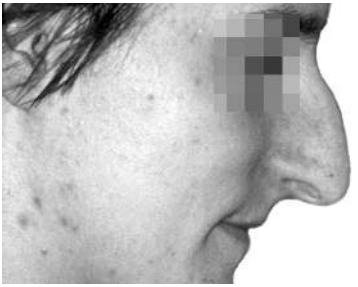
Anatomic structures of the nose - profile

Nose before the operation

Nose after the operation

Nose before the operation

Nose after the operation



Nose before the operation

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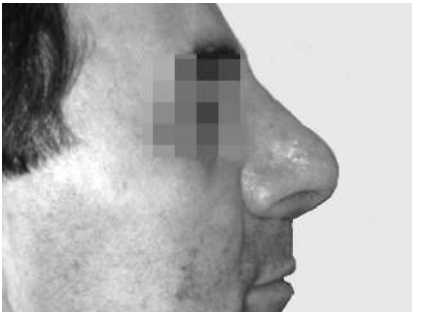
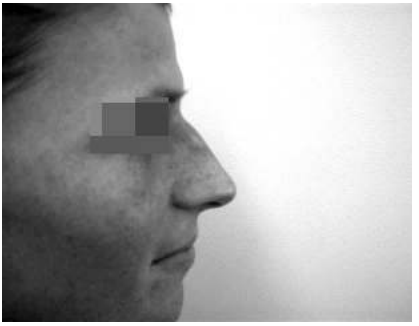


Nose after the operation

Nose before the operation

Nose after the operation



Nose before the operation

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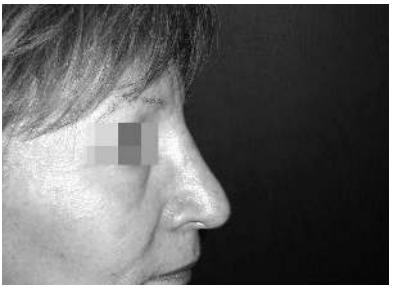
Nose before the operation



Nose after the operation

Nose before the operation

Nose after the operation

Nose before the operation

Nose after the operation

FACE-LIFTING

Face-lifting is one of the most important operations in aesthetic surgery, and it is often used as a synonym for aesthetic surgery of the face as such. This surgical intervention is classified as a rejuvenation operation (see the introductory part of the book). This operation refreshes a saggy and tired face which gets a new, brighter and refreshed look. The intervention in the aesthetic sense returns the beauty and keeps it for the next 10 years or more, until the sagginess due to changes in the quality of the tissue, its elasticity and the force of gravity do their part again. It is important to note that even many years after the operation the face will be in a better shape than if the intervention hadn't been done at all.

INDICATIONS

The indication for this surgical intervention is an excess of the skin on the face (sideways from the nose towards the ear), excess and saggy skin between the lower earlobe and tip of the chin (jaw line) and an excess and saggy skin on the neck. The age limit was once fifty years or more, but today it has moved towards an earlier age. Excess skin, as the first indication for operation, appears earlier if the client was overweight or even obese and underwent multiple dieting regimens, as well as the lack of facial skin care. Life with less stress and good sleep most certainly delays the necessity for this intervention.

If there is no excess skin, rejuvenation can be done by other interventions and treatments (Aptos lift, pelleve, Nd:YAG laser, chemical peeling, transplantation of the patient's own fat tissue, etc.) in order to preserve the continuity of a good facial tonus.

PREOPERATIVE CARE

It is necessary to perform a complete laboratory check-up of the blood and urine, ECG and, if needed, an examination by an internist, if the anaesthesiologist requires it. This is usually done in patients with some chronic internal organ disease. On the day of the operation washing of hair with disinfectant is mandatory. Many surgeons nowadays recommend cessation of smoking at least two weeks prior to this operation, and approximately for the same period, or a bit less, after the operation. The reason for this is the improvement of microcirculation of facial skin and a lesser risk of necrosis of the edges of the skin in the post-operative period. If the patient

is on anti-aggregation therapy with acetylsalicylic acid (Aspirin) or some other drug for blood dilution, this should be told to the surgeon, and the physician who indicated it – usually an internist – should be consulted about the suspension of this therapy for a certain period before and immediately after the intervention.

ANAESTHESIA

The intervention is done under locally potentiated anaesthesia in which, along with a local anaesthetic, vasoconstriction drugs and some other preparations are given. Such an approach, along with sedation, is comfortable enough for the patient, and provides sufficiently good conditions for the work of the surgeon. The intervention can be done under general anaesthesia if the patient explicitly wants it, in consultation with the anaesthesiologist.

OPERATION

The intervention lasts around 3 hours. The surgical cut goes under the ear upwards into the scalp, continuing around the lower half of the earlobe, turns backwards and follows the rear part of the earlobe to the middle, where it again turns into the scalp. A greater part of the cut is well hidden behind the earlobe and in the scalp, and the front part follows anatomic folds between the ear and facial skin, so that it is hidden inside them. Today there exist several variations: S-lift, Mini-lift, Quick lift, etc., but all of them are alternatives of the classical face-lifting. In principle, anyone who is at least to some extent educated and informed on the matter, will want to reduce with this intervention the excess skin of the face and neck (or only the face or only the neck), but also have the SMAS (superficial musculo-aponeurotic layer below the skin) surgically fixed. Without that, with the reduction of excess skin only, we get a result which soon wears off. In other words, along with the face-lifting it is mandatory to perform the tightening of deeper anatomic structures.

POST-OPERATIVE COURSE

In the first 12 – 24 hours the head remains bandaged, along with lymph drainage from the operated area on the face and neck by means of vacuum, in order to keep the haematomas as small as possible. Ice packs are placed on the head. After the change of dressings, the wound is cleaned one day after the operation. Along with cleaning of the wound, hair is also washed and, instead of a classical bandage, for several days a special compression garment for face and neck is worn. During re-dressing the drains are

taken out. Patient is staying in the medical facility until recovery after locally potentiated or general anaesthesia and removal of the drains. As a consequence of the lifting and post-operative oedema a tension is felt in the skin and in the first days after the operation a cream is being placed which will alleviate this condition. The neck is also treated with the cream. The feeling of tension subsides after about ten days, and the skin senses return to the face and earlobes in a few weeks. The initial result is seen about ten days after the operation when the haematomas and post-operative swelling have subsided. The end result is seen after several months. This operation gives the best results in the central and lower third of the face and on the neck.

Rejuvenated looks after the face-lifting operation last ten years or more. After that, the face will still look better than if the operation hadn't been done. If this operation is done in the early fifties, within ten years another intervention might be needed, if the patient has the motive for it. This second intervention is usually done on only one level where the skin is tightened and excess skin removed, without touching the deeper structures.

However, this operation does not affect the changes due to age on the upper third of the face – the forehead (intervention in this part of the face is described in the next chapter), and likewise, the problem of tiny wrinkles on the face is not resolved. Another type of treatment is necessary to treat these wrinkles. This is usually one of the abrasion methods (mechanical, chemical peeling, fractionated – ablative laser treatment), injection therapy with hyaluronic acid (filling of the grooves) or treatment with botulinum toxin (inducing the paralysis of muscles so that the wrinkles do not stand out in facial mimics).

COMPLICATIONS

In post-operative course an acute haematoma can appear within the first 24 hours, or a chronic (late) one after several days. Infections are also possible, as well as scar hypertrophy or transient paralysis of the facial nerve. The risk of deterioration (necrosis) of the skin on locations of greatest tension is increased in smokers. With a good preparation for the operation, gentle surgical technique of manipulating the tissues in the operation area (zone) and a good post-operative care, the complications are kept at a minimum.

If in a late post-operative period a depression – indent is visible (due to muscle hypertrophy and reduction of subcutaneous fat tissue), these areas can be filled with the patient's own fat tissue (lipofilling).

SCARS

Following a correctly performed treatment the scars are almost imperceptible. This means suturing should be done with high-quality materials according to principles of aesthetic surgery. The sutures remain in the wound somewhat longer than usual – up to ten days, and if absorptive material is used they needn't be taken out at all. After that, the scar can be treated with a choice of creams in consultation with the surgeon, or with some other procedure which acts to reduce the formation of a scar.

Illustration of the saggy face and neck

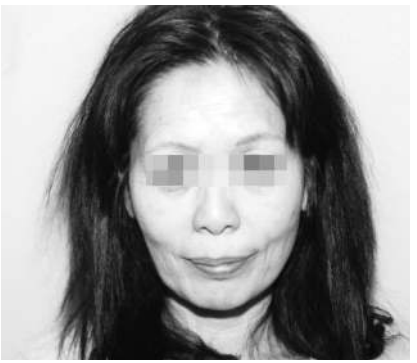
Illustration of the desired outcome of the operation –tightened skin of the face and neck

Before the operation

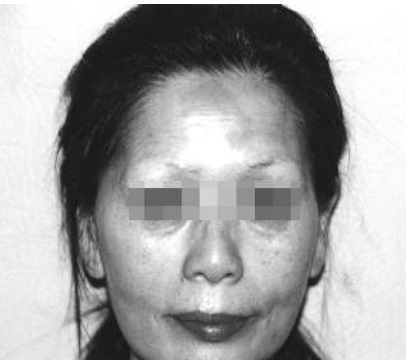
After the operation

Before the operation

After the operation



Before the operation



After the operation

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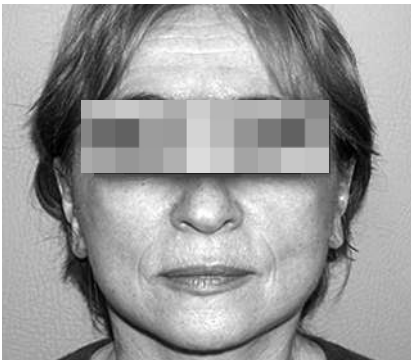


After the operation

Before the operation

After the operation

Before the operation

After the operation

Before the operation

After the operation

SUBCUTANEOUS TREATMENT BY Nd:YAG LASER

OF THE SAGGING SKIN ON THE NECK AND THE JAWLINE (MALETIĆ: International Master Course of Aging Skin, Paris 2012)

In many cases female patients in their forties turn to us for assistance with a local finding of initial loose skin of the lower part of the face and the neck. Examining the condition of the skin and the sagginess of anatomic structures, very often a clear indication for a classical face-lift is not given, because the sagginess is not so emphasized, but the patients feel urgency about doing something for themselves with the purpose of rejuvenation.

The other group are women over fifty, with a clear indication for a classical face-lift, based on the local finding of sagginess of the face and neck skin. However, they are not willing to undergo a major intervention, or maybe they cannot financially afford it and are seeking another, surgically less aggressive solution at a lower price.

All these potential patients have tried non-invasive and cosmetic methods of rejuvenation, but without significant results.

For these cases we use the aforementioned aptos method of lifting the saggy parts of the face. However, this method, apart from fibrosing and the tightening effect, has no impact on the surrounding tissue – e.g. to thaw away any excess fat, and likewise, there is no stimulus for the creation of elastic and collagenous tissue that would rejuvenate the skin.

Precisely for the purpose of dissolving the accumulations of fat tissue – especially on the double chin and in the area of the lower mandible (jawline), we started doing laser treatments under local tumescent anaesthesia. In such a way we dissolve the excess of fat tissue which worsens the already saggy appearance, and we treat the skin at the subcutaneous level with photo-thermal energy which increases the amount of elastic and collagenous tissue – consequentially with a better skin tightening.

The results are good and we demonstrated our results on IMCAS in Paris in 2012, as well as on several workshops for surgeons and dermatologists doing laser medicine within the scope of the Laser & Health Academy.

INDICATIONS

The sagginess of the lower third of the face and neck, without a full indication, based on the local finding and age of patient, for a classical face-lifting, or simply the desire of the client to achieve a better tonicity of the abovementioned parts of the face avoiding a major surgical intervention.

Preoperative care includes examinations and tests for the intervention under local-tumescent anaesthesia.

ANAESTHESIA

The intervention takes place in full comfort and without any pain under local tumescent anaesthesia.

OPERATION

With a laser fiber we enter the subcutaneous tissue on both sides of the face, under the ear, and in the middle, below the chin. A small hole of approximately 1.5 – 2 mm suffices. Lipolysis is always done from two directions if there is fat tissue in these parts that needs to be dissolved. The loosening of the skin from deeper structures and a laser treatment of the saggy parts of the skin follows. The result is a better skin tightening.

The intervention lasts from 45 min. to 1 hour.

Post-operative course – it is advisable to wear compression garment 4 – 5 days continuously, and later when the patient is at home during the night. In principle, one should sleep with the garment at least 3 weeks following the intervention. Smaller haematomas can appear which can be treated with Lioton gel 1000 or some other cream which facilitates resorption. The cream can be spread with light circular movements of the finger tips.

COMPLICATIONS

One should take care when treating the area below the mandible in order not to thermally injure the nerves (ramus mandibularis). The technique of manipulating the laser must be very precise, in the calibration of power, as well as total energy.

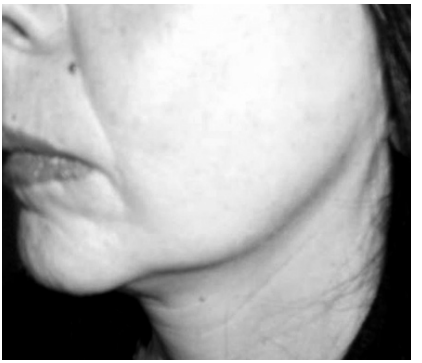
Before laser treatment

After laser treatment

Before laser treatment

After laser treatment

Before laser treatment



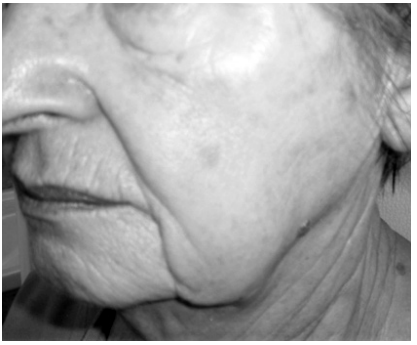
After laser treatment

Before laser treatment

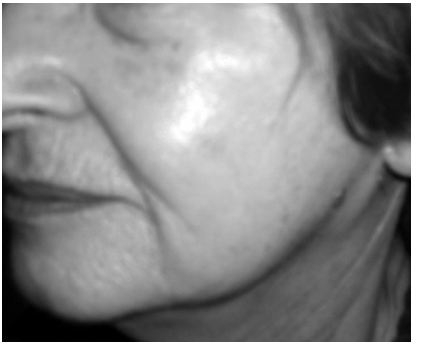
After laser treatment

Before laser treatment

After laser treatment



Before laser treatment



After laser treatment

FOREHEAD LIFT

This type of lifting addresses excess skin and wrinkles on the forehead and lifts the eyebrows. With the development of endoscopic techniques and its ever larger role in all branches of surgery, its use was adopted in aesthetic surgery as well. Endoscopic technique is particularly successful in lifting the forehead by elevating the eyebrows. This technique uses small incisions in the scalp to cut the muscles which, through facial mimics, foster the creation of deep wrinkles in the forehead. This technique is sparing for the patient because it uses smaller incisions and the post-operative recovery is faster. Several years back this operation began to be abandoned because of an increased use of botulinum-toxin which has proven ideal in the treatment of the upper third of the face, on a preventative basis as well as when the looseness and wrinkles are already present. Its significant advantage is outpatient application without the need for surgery, but the drawback is that it must be repeated. The same goes for the injections of hyaluronic acid.

For **elevating the eyelids** ***(brow-lift)*** nowadays the classical intervention is hardly ever used; instead, the desired effect is achieved by the application of suspension threads (polypropylene aptos threads or other). The intervention is an easy one; the threads are inserted through small incisions in the scalp, approximately 1 cm long on each side, and tightened immediately after they have been placed. It is good to do this intervention after the application of botulinum toxin to avoid the possibility that the mimics of the forehead rupture the freshly placed threads, before they become fastened in their position with the surrounding fibrous tissue.

INDICATIONS

The most frequent indications are wrinkled skin with horizontal and vertical deep furrows, saggy eyebrows and excess skin.

PREOPERATIVE CARE

An assessment of the health state is necessary before the intervention. On the day of the operation the scalp is washed with a mild disinfectant.

ANAESTHESIA

Locally potentiated anaesthesia is used, but in agreement with the anaesthesiologist, the intervention can be done under general anaesthesia.

OPERATION

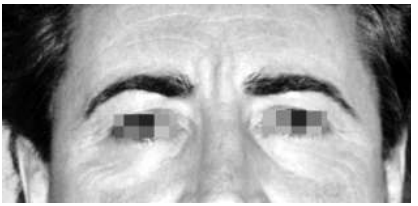
The intervention takes 1 – 1.5 hours. In the classical operation the approach is through a cut in the scalp on the line between the tips of the earlobes. This type of approach is nowadays rare. Much more in use is the endoscopic technique and the insertion of suspension threads through small incisions in the scalp, approximately 1 cm long on each side. The scar is hidden by the hair.

POST-OPERATIVE COURSE

The patient stays in the medical facility for several hours after the operation and receives local treatment with ice compresses. Upon discharge the wound is bandaged and remains so for several days. After that the hair is washed with mild shampoo. Sutures are taken out in approximately ten days, unless they are absorptive. It is at that time that the swelling subsides along with possible haematomas. Ten days is also the period after which the initial effects are visible, but the long-lasting effects take several months to show.

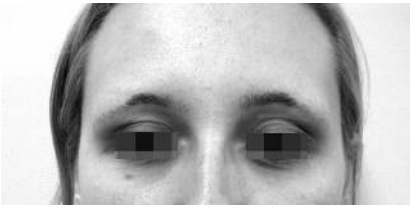
COMPLICATIONS

Complications are very rare, and usually consist of haematomas or infection of the wound.



Before the classical forehead lift

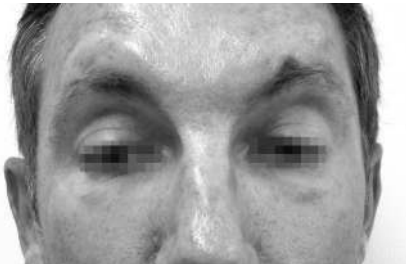
After the classical forehead lift



Before the brow lift with Aptos threads

After the brow lift with Aptos threads

Before the brow lift with Aptos threads



After the brow lift with Aptos threads

NON-INVASIVE AND MINIMALLY INVASIVE METHODS OF REJUVENATION OF THE FACE AND NECK AND REMOVAL OF SURFACE SKIN DEFECTS

APPLIED BEFORE OR AFTER THE FACE-LIFTING, DEPENDING ON THE NEED AND INDICATION

Throughout the history of the human race, as we have already stressed in the beginning chapters of this book, the desire for rejuvenation has been present. It is part of the human nature, and also of the human culture; ultimately, it is a democratic right of every individual.

To look beautiful and younger, cultivated, preserved, with a retained healthy and youthful appearance has been the yearning of people throughout history. To wait for a real indication for a major surgical intervention means to look neglected in this period of waiting. After the necessary intervention is done, the change in such a scenario will be radical and very visible to the social environment. Therefore, there are a number of simple and relatively cost-effective treatments to continuously maintain the face in a good shape. In such a way radical change will be avoided, the beauty and freshness of the face will be a matter of continuity, and the classical major face-lifting operation will be postponed into higher age, which usually means that it suffices to do it only once between the age of 55 and 60.

RADIOFREQUENCY

One non-invasive method is pelleve (Ellman) in which radiofrequency delivered through a special probe in a controlled manner heats the tissue – skin on the face, neck and cleavage. Before the treatment, the skin in cooled with a cool gel which almost entirely prevents swelling after the treatment. During the treatment the surface temperature of the skin is monitored by a laser counter. Usually the working temperature is a bit higher than 40°C. The intervention is completely painless and it is done without anaesthesia. It consists of light circular or spiral movements of a special appendage on the device which produces radiofrequency and the area where we want to achieve the effect is being warmed up. The effect is visible immediately after the intervention, because during treatment a partial coagulation of protein inside the tissue occurs.With the time, the body will treat this area as injured and will produce elastin and collagen. After the treatment the patient is slightly reddish, but a return to everyday life is possible without delay. The intervention can be repeated after several weeks in order to achieve an improved result.

A similar, but somewhat more invasive treatment is with the THERMAGE machine!

LASER

A good result can be achieved with the impact of Nd:YAG laser on the skin. If we add to the Nd:YAG laser a light fractional treatment of the skin by the Erb:YAG laser in order for the face to dandruff, the results are even better, and the recovery time, regarding dandruffing, up to two days after the treatment. For a laser peeling, usually only surface anaesthesia is administered by the Emla cream, and during work with the laser cold air is blown on the skin with a special Zimmer device. Laser treatments are of the outpatient kind. Parameters of the applied power and energy per unit are measured and controlled on the device itself. Laser can be applied by hand, or, more sophistically, with a scanner. After the laser abrasion the patient leaves with a slight erythema on the face which, with home care, will subside in 2 – 3 days.

In cases of more severe sagginess, which is usually visible in the pockets which descend in the direction of the lower earlobe – chin – the jaw-line, the method of subcutaneous application of Nd:YAG laser under local anaesthesia is used. We introduced this method and presented it at a conference in Paris in 2012 ***(Maletić: Skin tightening neck and jaw lines under local anaesthesia with subcutaneous treatment with Nd:YAG laser. Paris 2012, International Master Course of Aesthetic Medicine).*** In this treatment under local tumescent anaesthesia the laser fibre is introduced in three places – below the left and right ear and in the middle below the chin. Laser lipolysis is done, after which there follows the extraction of the material under anaesthesia with delicate 3-mm liposuction probes. Finally, all three points are treated subcutaneously by laser at an appropriate angle in order to achieve the best possible skin tightening. After the intervention compression garment is worn for 3 days (day and night), and for three more weeks one sleeps with the garment on. A maximum result is visible 2 – 3 months after the intervention.

APTOS LIFT

If there is no significant excess of skin, but it is very loose with reduced subcutaneous fat tissue, the ideal intervention is the aptos-lift (abbreviation for anti – ptosis, against looseness). It is also called feather-lift.

The operation consists of insertion of polypropylene aptos threads through injection needles into the subcutaneous skin layer of the face. After the removal of the needles, the threads spread out with their fin-like hooks into the tissue – like a feather or a fish bone. These little fins run in one direction up to the half of the basic thread and in the other direction in the other half. In that way, by pulling of the thread in one and the other direction, we get the volume and the tissue rises. This addresses the basic rule of rejuvenation

– what has descended should be lifted and the volume should be recreated in the place where it once was. The classical points are outer parts of the forehead, i.e. the browlift, lifting of the cheeks in the area of the cheekbones (malar region), lifting of the skin in the direction of the lower part of the earlobe – chin (jaw-line) and lifting of the skin under the chin.

The threads consist of polypropylene, known in surgery as the material of which surgical sutures are made. As soon as one month after the intervention, connective tissue rich with collagen is formed around the thread and its fish-bone fins in much the same manner as around every foreign body. The cell growth caused by the foreign body made of polypropylene reinforces the tissue and gives the skin elasticity and firmness, levelling out the wrinkles and thus rejuvenating the skin. In the whole process there is no quick change of the outer appearance like the one following a classical operation, but instead a cell-based physiological rejuvenation occurs. The reaction of the tissue is complete within three months following the intervention. This method was patented by the Russian surgeon of Georgian origin Marlen Sulamanidze. His two clinics in Moscow and Tbilisi are well known for application of his patents – the aptos threads, aptos wire (the wire that can cut into the skin below the wrinkles and thus reduce their depth), aptos spring – spiral thread for locations of severe sagginess and aptos needle – the needle with which in a targeted manner the loose parts are lifted. With these aids many corrections can be done on saggy parts of the face and body. Along with these threads a number of others are in use today like Peters-threads, Siluette-threads, Wolf-threads, Serdarev-threads and other.

Before the polypropylene threads, golden threads were used, but the results of their application were not up to the expected standards, because the fin-like hooks could not have been made on the threads, and they are crucial in intensifying the creation of fibrous tissue. Also, gold as an inert precious metal by itself evokes minimal tissue reaction.

Indications for the application of the threads are sagginess of the face and other parts of the body (upper arm, buttocks, etc.) along with loss of volume, but without significant excess of skin.

Preoperative care - as in all other surgical procedures a check-up of the health status of the patient is necessary.

Anaesthesia – in principle, whatever the location of the intervention, local tumescent anaesthesia is sufficient.

Operation lasts about an hour or a bit more, depending on the number of threads which should be inserted in the body.

Postoperative treatment – no special care is necessary. One shouldn't but wait several days for the swelling to recede. Haematomas are a possibility, but they resolve spontaneously in a week's time. It is advisable not to chew solid food in the first post-operative days or engage in excessive facial mimics in order not to damage the threads until the surrounding tissue envelops them.

Complications are rare. Allergic reactions to the threads were not described. There can be a prolapse at the point of placement of the threads, which is easily corrected by cutting off a part of the thread. Possible haematoma retreats by itself.

HYALURONIC ACID FILLERS, BOTULINUM TOXIN

A demand for the shortest possible time needed for recovery after the intervention and the desire for an ever greater number of non-operative procedures resulted in the development of other, simpler methods of injection therapy in the treatment of superficial wrinkles. Twenty years ago the defects were filled by liquid silicone. The problem of this method is that silicone remains permanently in the body, it is subject to the change of position due to force of gravity, and is subject to infections. This method is nowadays almost completely abandoned. Today the hyaluronic acid of different gradations is almost exclusively used as the filler substance which provides volume and fills both deep and tiny wrinkles. There is a downside with regard to cost-effectiveness because the procedure must be repeated. Namely, after about 6 months the filler disintegrates. The application is simple for the physicians. It involves application by injection and needle until the defect is corrected. Combined with botulinum toxin excellent results are achieved because the toxin paralyzes the muscles involved in facial mimics, so that the wrinkles do not show. The application of botulinum toxin has its preventive effect too – when applied in spring frowning due to sunlight on the Mediterranean is avoided and consequently the appearance of wrinkles is prevented (for more details – see pp. 79 to 84).

TRANSPLANTATION OF ONE'S OWN FAT TISSUE

A major breakthrough in the filling of deep wrinkles of the face and achieving volumetric lifting, as a long-term solution, is the transplantation of one's own fat tissue (fat grafting, autologous fat transfer). Along with resolving deep wrinkles, augmentation and filling of the upper and lower lip, it has become very popular to use fat tissue with the aim of achieving volumetric lifting in the area of malar regions on the face. It is precisely these areas which, as early as the middle age, show fat atrophy – i.e., a portion of the so-called baby cheek, which imparts a youthful facial expression, especially in three quarter view (like the letter S), slowly disappears and the remaining part descends due to gravity onto

the nasolabial groove. By returning volume to the cheek we get a mild lifting of a part of nasolabial wrinkles. With regard to the multipotent nature of fat cells, the skin after lipofilling is shiny and is better tightened. Fat tissue is taken from the donor location usually under local tumescent anaesthesia. It is taken with narrow cannulas and vacuum syringes – like liposuction. After that, it is centrifuged in order to remove local anaesthetic, liquid fat and blood. The fat tissue obtained in this way is again sucked into syringes and is transplanted with special cannulas into defects which we want to fill. By contrast to the injecting of hyaluronic acid filler, where the defect is filled until we achieve a full correction, in the case of fat tissue the filling is applied to the point of over-correction (more than apparently necessary). This is important because the organism, once it recognizes its own genetic material, will resorb a larger part of the injected fat. It is precisely due to absorption that this process is usually repeated after several months in the same way. A permanent result which will be maintained for a long enough time-period is achieved after two transplantations. Along with the above indications, this method is applied for all major defects which appear as a consequence of accidents, trauma, large surgical interventions, etc. Transplantation of preparations of fat tissue is increasingly in use because of the naturalness of the process itself (more at length on pp. 133 to 136)

REMOVAL OF THE SURFACE SKIN LAYER – DERMABRASION

Defects of the skin can have several causes. On the one hand it is the process of aging and creation of surface or deep wrinkles, on the other hand these are the changes on the skin caused by inflammatory processes (consequence of acne), a history of measles or smallpox, post-traumatic scars, scars following burns, tattoos, telangiectasia (dilated small blood vessels), keratosis which is usually related to aging. All these conditions are successfully treated with dermabrasion.

There are three types of removal of the surface of the skin: mechanical dermabrasion or mechanical resurfacing, chemical abrasion (chemical peeling) and laser abrasion. Which method will be chosen by the aesthetic surgeon depends on the consultation with the patient, availability of equipment and knowledge of particular techniques.

MECHANICAL DERMABRASION

Mechanical dermabrasion is one of the oldest aesthetic surgical procedures. Ancient Egyptians many centuries B.C. used bluestone and alabaster for the removal of rough areas and defects on the skin. Mechanical dermabrasion is a method of removal of the surface layer of the epidermis with a motor grinder with a high number of rotations. Anaesthesia for mechanical abrasion is of the local or locally potentiated kind. The surface of the skin during the

intervention is moistened with normal saline. After abrasion there forms a scab which consists of necrotic cells and coagulated blood. Thereupon, a vaseline gauze and bandage are placed on the treated parts. The patient remains in the medical facility for several hours after the intervention. He/she is then discharged with instructions for home care. This care consists of the application of compresses, creams without the bandage, etc. After several days epidermal renewal begins. New epidermal cells grow out of the epithelium of sebaceous glands and roots of small hairs and move towards the surface of the epidermis. The skin is swollen and slightly reddish for about ten days after the operation. After several weeks the skin assumes a completely normal colour. The end result is visible after 3 to 6 months. The abraded skin is somewhat less pigmented (hypopigmentation) due to partly destroyed cells of the basal layer which contain melanin.

CHEMICAL ABRASION – CHEMICAL PEELING

The desire for rejuvenating the face is nothing new. Even the antique civilizations revered aesthetic beauty, just as they searched for drugs to improve the looks and combat the years. Their efforts were mainly directed towards the correction of superficial irregularities, especially uneven pigmentation and wrinkles on the face. Chemical peeling is the first and oldest method used for rejuvenation and its value persists until the present day where it has its place alongside other techniques for the solution of the above problems. Compared even to new methods, chemical peeling retains a special and respected place.

Chemical peeling implies the use of certain chemicals for provoking necrosis and exfoliation of the skin surface. This method is very efficient for the removal of surface changes on the skin caused by aging or external factors, or scars as consequence of acne. After treatment with chemical peeling the skin becomes stronger, smoother and has a more vital and younger appearance. Chemical peelings are recommended for autumn, winter and early spring because in the post-operative period it is important to avoid sunrays.

Before treatment the face should be washed, whereupon it is coated with a preparation of trichloroacetic (TCA) or some other acid, phenol or exoderm. The duration of the intervention depends on the size of the area which is treated and speed at which it is possible to work – if the treatment is more aggressive it is slower along with the monitoring of the state of the patient.

There exist several agents for performing chemical peeling. Depending on the depth of the penetration of the chemical agent into the skin, chemical peelings are divided into superficial, medium-depth and deep peelings.

Superficial chemical peeling is usually done with some of the following agents: resorcinol, salicylic acid, lactic acid, alpha-hydroxy acid. The agent enters the epidermis, and for a convincing result several treatments are needed. This chemical peeling is used for treating changes in epidermis – dysplasia and pigmentation. The advantage of superficial peeling is a quick recovery. The patient can go home after the treatment.

Medium-depth peeling is usually done with 35% TCA (trichloroacetic acid). The agent enters the papillary and upper reticular dermis. It is used for the treatment of epidermal dysplasias, problems of pigmentation in epidermis and superficial dermis and fine wrinkles of the face. Exfoliation and renewal of the skin usually lasts up to 7 days. The patient remains for several hours in the medical facility following the intervention.

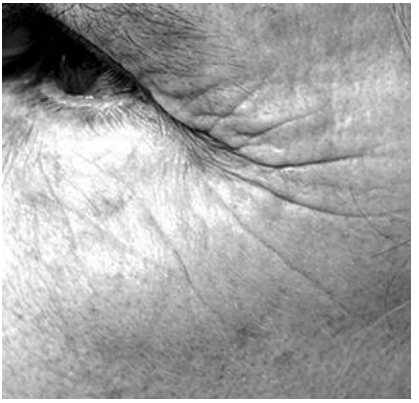
Deep chemical peeling is usually performed with phenol and croton oil. The agent enters the upper and middle reticular dermis. It is used for the treatment of changes in the face which appear as a consequence of long-term and repeated exposure to the sun, as well as both fine and deep wrinkles. Exfoliation and renewal of the skin usually take up to 10 days, and redness on the treated areas is present for several months. After the intervention, the patient stays for several hours in the medical facility, and in the first ten days the face is coated only with special preparations of a greasy texture and regularly cleaned. After this period, powder can be placed on the skin – to cover the redness, and a high protection factor sunscreen is mandatory. The person can at that point "go public". Deep phenol peeling gives a permanent result and needn't be repeated. Although the process of aging continues, histological changes and clinical improvement caused by phenol peeling is long-lasting. After treatment with phenol and croton oil chemical peeling the patients look up to 15 years younger.

Anaesthesia in chemical peeling

In superficial chemical peelings it suffices to cool the treated area during the intervention with cold air, while for medium-depth and deep peelings local or locally potentiated anaesthesia is necessary.

In all methods of dermabrasion it is forbidden to expose the treated areas to the sun for three months. Protective cream with a high protection factor 50+ is obligatory. The complications are: surface infections, intensified or reduced pigmentation of the treated part, allergic reactions.

Age for operation: dermabrasion of scars is performed one year after the injury or previous operation which caused the scar, and abrasion of the wrinkles and acne after puberty or at the age in which wrinkles develop.



Before deep chemical peeling

After deep chemical peeling

EXODERM DEEP CHEMICAL PEELING

In the 1960s a deep phenol peeling was in use which could not achieve sufficient tightening of the skin and was not applicable on all types of skin. Persevering in their efforts to achieve ever better results, Dr Fintsi and co-workers in Israel invented in 1986 the Exoderm formula as a unique method for the rejuvenation of the face.

Deep Exoderm peeling (chemical peeling) is a revolutionary technique which not only cleans the skin from scars, pigmentations, wrinkles and injuries caused by sunrays, but also tightens the skin like a face-lift, but without cuts and suturing.

This unique chemical solution is applied on the face where it removes the surface layer of the skin and stimulates the regrouping of collagen and elastin fibres, causing the skin to tighten.

Exoderm peeling is applied with the following indications: premature aging of the skin and defects caused by sun exposure, wrinkles and a bad condition of the skin, low skin quality after surgical treatments, sagginess of the skin.

Examinations before the intervention include the assessment of the health state on the basis of laboratory analysis of blood and urine and ECG. The intervention is done under local block-anaesthesia or locally potentiated anaesthesia. After the intervention a special mask is placed on the face and the patient remains in the medical facility. The next day the mask is taken down, the face is cleaned and a special powder is put on the face which stays there for the next 7 days. After that the patient comes to the clinic for check-up.

The recovery after treatment lasts 8 – 10 days. During this time the face is treated according to special instructions, and if necessary the patient may consult the physician.

After recovery ordinary make-up can be put on the face, along with the cream with a protective factor 50+ during the next 3 – 6 months.

The Maletić Polyclinic is the only clinic in South-Eastern Europe with the license to use the original Exoderm formula.

Before Exoderm – chemical peeling

After Exoderm – chemical peeling

Before Exoderm – chemical peeling

After Exoderm – chemical peeling

Before Exoderm – chemical peeling

After Exoderm – chemical peeling

PRP (PLATELET RICH PLASMA) TREATMENTS

Platelets are a constituent element of our blood and contain numerous growth factors. These growth factors stimulate the proliferation of fibroblasts and keratinocytes which produce collagen and keratin. The above factors are responsible for the acceleration of the process of recovery and healing of the tissue.

PRP is most frequently used in the treatment of injuries of nerves, muscles, ligaments, bones, sports injuries, rejuvenation of the face, neck, cleavage and hands, for the prevention of falling out of hair and stimulation of hair growth.

This treatment is entirely natural because only the patient's blood is used. For this reason, there are no recorded cases of allergic reactions.

The PRP treatment is done in the following way: the area which will be treated is rubbed with local anaesthetic in order to render the treatment painless. Thereupon, a small quantity of patient's blood is taken (like in a laboratory), which is centrifuged in a special machine to separate the platelet-rich plasma from other blood cells. Local anaesthetic is removed from the area which will be treated and it is cleansed with a disinfectant. PRP is applied into targeted regions. The procedure lasts about 1 hour, depending on how many regions and which regions are being treated. After the treatment the patient is free to leave the clinic.

Contraindications for the PRP treatment are the following: active skin infections, skin diseases, auto-immune diseases, severe metabolic and systemic diseases, blood clotting disorders and an ongoing anticoagulation therapy.

Treatment of the face, neck, cleavage and hands with PRP

In rejuvenation of the face, neck, cleavage and hands with this method it is possible to fill out the wrinkles and remove other aesthetic defects on the skin and give it freshness. Constituent elements of PRP and their products cause the creation of collagen and stimulate the skin to regenerate. The first results of the treatment are visible in a month's time, and thereafter they get better and better, as the collagen is formed and the skin renews itself.

In rejuvenation of the face, if there is such an indication, we often combine the PRP treatment with laser treatment. With a fractional laser small injuries are created on the skin, into which the PRP is then rubbed in. The small

injuries created by laser enable the PRP to penetrate into the skin and exert an impact on the entire face. The surface layer of the skin will dandruff due to effect of this type of laser and will thus shed off, which will contribute to the refreshed look of the face. Major aesthetic defects and wrinkles are filled with PRP, by injecting it with a thin needle in the desired area.

Recovery after PRP treatment is very short. After the intervention redness can appear on the treated area and an occasional small haematoma. Make-up can be applied the next day, which will cover these small haematomas if they appear. If the PRP treatment is combined with fractional laser treatment, the recovery takes 2 – 3 days in which period the skin dandruffs. After that, make-up can be applied.

PRP treatments, depending on the condition of the face and the desire to improve this condition, can be repeated in periods of 4 and 6 weeks. Sometimes only one treatment is needed, after which yearly maintenance treatments are recommended, and sometimes it is necessary to repeat the treatment several times before continuing with the yearly maintenance treatments.

Treatment of baldness with PRP

In preventing the hair to fall out and stimulating of hair growth by the PRP treatment in most patients a rapid hair growth was seen. Also, the hairs become longer and thicker compared to non-treated hair. The constituent elements of PRP and their products influence the formation of new cells, blood vessels and a renewal of the scalp tissue. PRP is used in androgenic alopecia, alopecia areata, scarring alopecia and in all of these conditions success has been achieved. PRP treatment is also applied in hair transplantation in order to achieve a better maintenance of follicular units and to enhance the healing of the donor region.

Recovery after this treatment is also very short. After the intervention redness may appear on the treated area, and an occasional small haematoma.

Depending on the condition of the scalp and on the degree of baldness, PRP treatment can be repeated in varied intervals from 2 weeks to 4 months; the number of treatment repetitions also varies.

THE APPLICATION OF INJECTIONS OF FILLER IN AESTHETIC SURGERY

Dermal fillers are materials which are injected into the skin or below the skin with the aim of lifting the skin or to increase volume. They are used for the reduction or removal of wrinkles, scars on the skin, increase of the lips and increase of the volume of the face, e.g.in the area of the cheekbones. Following treatment with dermal filler, the face looks natural, and the facial mimics are not disrupted.

Fillers are divided into two basic groups: permanent and temporary.

Permanent fillers remain forever, or, at least for several years in the area into which they were injected. They are mostly silicone–based. They frequently cause undesirable side-effects and in places in which such fillers are injected granulomas may occur. Permanent fillers can be based on collagen, usually of bovine origin, which necessitates allergy tests to the filler prior to the application, thus complicating the entire procedure.

The newest generation of fillers are based on hyaluronic acid. Hyaluronic acid is found naturally in our organism, and its main function is the binding of water. As we age, the quantity of our natural hyaluronic acid in the organism decreases, the consequence of which is loss of volume on certain parts of the face where deeper or shallower wrinkles are created.

Modern dermal fillers on the basis of hyaluronic acid are not any more of animal origin. They are produced by a biotechnological process in laboratory conditions.

In the Maletić Polyclinic we recommend fillers of hyaluronic acid because they are not noxious and dissolve in the organism in a safe way. The side-effects such as allergic reactions and appearance of granuloma are reduced to a minimum. We use only the highest-quality fillers whose safety has been validated by numerous clinical studies.

The treatment is of an outpatient kind. After discussing with the patient his/her wishes, the choice of the filler and photographing, the face is cleansed with a disinfectant and prepared for injection.

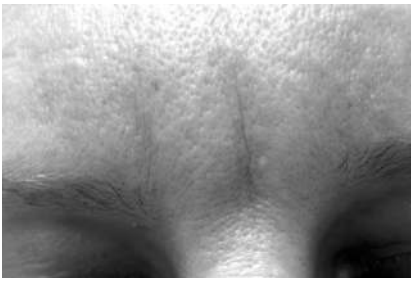
In principle, for most areas of application anaesthesia is not needed. A surface anaesthesia with the Emla cream may be used. Anaesthesia is usually used in the augmentation of lips and the filling of the lip edge. These interventions require local or block anaesthesia. In any case, the block anaesthesia is better

because it does not compromise the location where the infiltration of the hyaluronic acid is planned. Thus, the quantity of filler necessary for the desired correction can be assessed with greater precision.

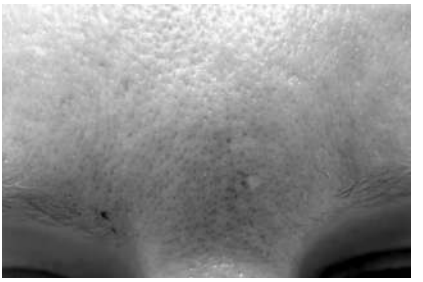
The filler is injected into the desired area with thin needles or cannulas. The advantage of working with cannulas, compared to needles, is that they reduce the possibility of haematomas. During the intervention the patient is being informed how much filler has been injected and the patient can at any moment, if he/she wishes, look at what has been done up to that point. The treatment takes 20 – 45 minutes, depending on the area being treated and the quantity of applied filler. In injecting one should not indulge in over-correction; it suffices to fill the wrinkle or defect to the desired or necessary volume. After the injection of the filler the treated area is rubbed and, if necessary, ice is placed for several minutes. The treatment, due to the previously applied anaesthetic, is painless. The results are visible immediately after the intervention, though the treated area will assume the definitive appearance after several days. This is due to the fact that injection usually causes local trauma to the tissue. After the intervention the patient can return to his/her usual activities immediately. If an asymmetry appears, or a defect is insufficiently filled, the treatment can be repeated, usually in a week's time.

The duration of the results varies depending on the type of filler injected, and on the location of intervention. Usually the results are visible 4 – 12 months after the injection of filler.

After the intervention redness may occur, as well as haematoma, swelling or local sensitivity in places where the filler was introduced. Redness recedes usually after several hours, while swelling and haematoma disappear within several days.



Before the filling of the wrinkles with hyaluronic acid filler



After the filling of the wrinkles with hyaluronic acid filler

Before the filling of the wrinkles with hyaluronic acid filler

After the filling of the wrinkles with hyaluronic acid filler

Before the filling of the wrinkles with hyaluronic acid filler

After the filling of the wrinkles with hyaluronic acid filler

Before the augmentation of the lips with hyaluronic acid filler

After the augmentation of the lips with hyaluronic acid filler

THE APPLICATION OF BOTULINUM TOXIN IN AESTHETIS SURGERY – BOTOX

Botulinum toxin (botulin) is a poison secreted by the bacterium Clostridium botulinum which causes "botulism", a serious form of food poisoning. It usually happens after the consumption of decaying food from the tins. It acts as a neurotoxin, cutting off nerve impulses in the muscles. Clostridium botulinum is an anaerobic bacterium, which means that it lives and multiplies without oxygen, and it is under such conditions that it produces its poisons – toxins. The strongest among them is toxin A. At the same time it is the easiest to produce. Botulin binds to the nerve endings which stimulate the muscles and enters inside the nerve cells. There it blocks the secretion of a neurotransmitter substance which causes the muscles to contract. Its effect wears off within 3 – 6 months, and it can stimulate the growth of new nerve endings from the same cell. In any case, whether the new nerve endings will renew the connection between the nerve and the muscle after 6 months or the effect of the toxin will wear off, the result is a return to the initial state.

The question of whether poisons can be the elixir of youth is one of the most controversial dilemmas of the modern consumer society. The development of medicine has shown that they can!

Back in the 1960s the scientists discovered useful effects of botulinum in neurology in treating uncontrolled contraction of the muscles, i.e. spasm. Botulinum toxin A was registered in 1989 in the USA by the Food and Drug Administration (FDA) as a drug for the treatment of excessive contraction of certain muscle groups: blepharospasms (contraction of the eye muscle and excessive blinking) and strabism (esotropia). In recent time it is used for the treatment of neck dystonia (pain in the neck caused by uneven muscle contraction), cerebral palsy in children, chronic migraine, excessive sweating of palms, feet and the armpit.

Along with all of the above it was the effect of botulinum toxin in the removal of wrinkles which made it so important and popular around the world. After the necessary clinical studies proving the effectiveness were completed the American FDA gave permission for the production and application of this drug in aesthetic treatments intended to remove the signs of aging.

Ideal procedures in the treatment of wrinkles in aesthetic surgery are believed to be those which remove the signs of aging quickly, significantly and relatively painlessly with a minimum of possible complications. It is precisely these criteria that botulinum toxin satisfies. One should note,

however, that it has a downside – the procedure must be repeated after 6 months, because the results of treatment are not permanent.

This substance has been in use in Croatia before that time, and in aesthetic surgery the first treatments were done in 2002. With regard to the fact that the drug is rather expensive, and that the treatment should be repeated every 6 – 8 months, this procedure has still not taken the premium place, as is the case in the USA and other highly developed countries.

INDICATIONS

In aesthetic surgery it is used as a means of erasing facial wrinkles, particularly in the upper third of the face, which means – the wrinkles of the forehead, between the eyebrows and the temporal fossa. Somewhat rarer is the indication for the removal of wrinkles around the mouth, i.e. above the upper lip and in the outside corners of the mouth. Botulinum toxin can also be applied to the wrinkles of the neck.

In excessive hyperhidrosis in the armpits botulinum toxin is also applied. Here its effect is limited to no more than six months. This is the reason why more and more people with the problem of armpit hyperhidrosis opt for a permanent solution of this problem with a small intervention under local anaesthesia done by the Nd:YAG laser – the laser sweat ablation.

In cases when the brow lift or forehead lift is treated with threads, it is advisable to first put botulinum toxin in the forehead in order to paralyse the facial mimics. One week later the threads can be placed. With such a procedure, the facial mimics will not cause the threads to rupture, but instead they will be fastened in the surrounding tissue in the proper position.

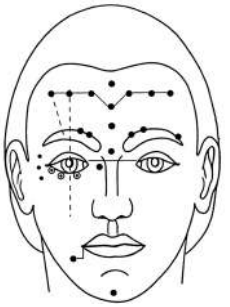
The intervention is an outpatient one, without special preparation, after cleansing the face as one would do for an ordinary injection, with a medium that will not affect the efficacy of botulinum toxin.

As small needles are used, anaesthesia is hardly necessary. The places of application can be previously rubbed with Emla cream or cooled.

It is important to know in detail the anatomy of the facial muscles because only a precise application of small quantities of botulinum toxin can lead to the desired result. Injections are given at precise points on the face and neck to produce a temporary paralysis of the muscles and thus prevent the creation of wrinkles, i.e. reduce those which have already appeared.

It is also important that after the intervention the patient does not lie down for at least 4 hours after. The patient may sit or walk so as to have the toxin fixed in the desired place. The places where toxin was applied should not be massaged or rubbed in that period. The result is visible after several days and its duration is limited to 6 months. With multiple repetition of this procedure the semi-annual interval of the application can be lengthened.

There are no undesired side-effects, providing the injection is applied in precise locations and in the prescribed dose. If this is not the case, unwanted changes may occur, which will nevertheless recede after a certain period of time. Imprecise treatment around the eyes may lead to ectropion (the condition where the lower eyelid turns out) and around the lips to problems in articulating certain sounds. Until now there were no reports that the repetition of the procedure weakens the muscles into which the substance is applied.



Typical locations on the face
for the application of botulinum toxin

Before the application of botulinum toxin

After the application of botulinum toxin

COSMETIC CORRECTION OF THE LIPS

Lips are a very important aesthetic part of the face. Their fullness contributes to the impression of sensuality and accentuates the feminine beauty of the face. Minor drawbacks can be corrected by daily or permanent make-up, but for major ones, one of the surgical interventions or procedures is necessary. Today various interventions are being applied – from classical surgery where along the very edge of the lip this edge with adjacent skin and subcutaneous tissue is cut out (excised), and with the closing of the wound by suturing the edge of the mucosal lining is turned inside out, all the way to the insertion of artificial materials which remain permanently in the lip. Alternatively, application of a certain preparation can be undertaken including the patient's own fat tissue by injection therapy. Liquid injected silicon, representing an artificial material, has been used for a long time. Its drawback is, however, that it disintegrates and creates granulomas around itself. Due to the force of gravity these granulomas descend and the edge of the lip remains empty and needs filling after a certain period. Thus, we come into a vicious cycle of further and further applications, which usually ends with the surgical removal of silicone. A significantly better treatment is one with the products of Q-MED Esthetics (Sweden) – Restylane Lip (hyaluronic acid in the form of gel NASHA – Non Animal Stabilized Hyaluronic Acid) or Teosyal Kiss which have proved very good for the filling of the lips and marking out the edge against the surrounding skin. For refreshing and hydration of the lips Restylane Lip Refresh is being used, and for the increase of the volume of lips Restylane Lip Volume or Teosyal Kiss. The preparation remains in the tissue around 6 months. After that the treatment should be repeated. A permanent result is achieved by filling the lips with the patient's own fat tissue (autologous fat transfer – AFT). Fat tissue is taken by liposuction from a donor location (abdominal wall, buttocks), , prepared, centrifuged and applied into the lips. After a certain period some of it will be absorbed, but a significant part stays. For possible further corrections, the procedure can be repeated. This is certainly the best quality intervention, because one's own fat tissue begins to live at a new location inside the body.

INDICATIONS

Hypoplastic upper or lower lip, or both, asymmetry of a part of the lip. In younger persons these are thin (hypoplastic) lips – upper or lower, and in older ones it is usually an atrophic lip with unclear delineated edge of the lip mucosa toward the surrounding skin. By filling (augmentation) we expect to achieve increased sensuality, and in older persons with atrophy the lost beauty is returned along with the fullness of lips.

PREOPERATIVE CARE

It is necessary to assess the general health state as well as the local status of the mouth cavity.

ANAESTHESIA

The intervention is usually done under local anaesthesia, or regional block anaesthesia. It is important that by the application of local anaesthetic the local finding is not lost which would restrict an appropriate filling of the lip to the desired shape and volume.

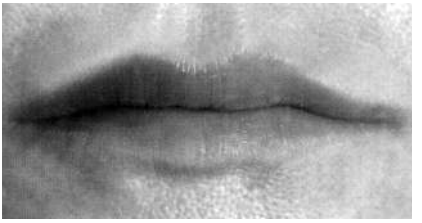
OPERATION

Following a classical operation the wound is tended in the usual manner, and in a week's time the sutures are removed or they become absorbed if they are made of absorbable material. When we are dealing with the placing of artificial material through incisions in the corners of the lips, the sutures are also removed after about a week, unless they are absorbable. After injection therapy the local status normalizes within several days, i.e. when the post-operative swelling recedes. After treatment it is not advisable to kiss or smoke in order not to move the newly placed material within the tissue.

COMPLICATIONS

Infections can occur, or the outcome may be an insufficient correction which then requires additional filling.

Before injection of Restylane filler Fine Lines into the vertical wrinkles of the upper lip and the edge and thickening of the lips with the Restylane Lip Volume filler



After injection of Restylane filler Fine Lines into the vertical wrinkles of the upper lip and the edge and thickening of the lips with the Restylane Lip Volume filler

Before the filling of the lips with fat tissue

After the filling of the lips with fat tissue

Before the filling of the lips with fat tissue

After the filling of the lips with fat tissue

Before the filling of the lips with fat tissue

After the filling of the lips with fat tissue

Before the filling of the lips with fat tissue

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Before the filling of the lips with fat tissue

After the filling of the lips with fat tissue

LASER TREATMENT OF EXCESSIVE SWEATING IN ARMPIT REGIONS

ABOUT SWEATING IN GENERAL

Sweating is a physiological process whereby the human body cools itself and thus regulates bodily temperature.

Temperature of 37°C represents a balance between heightened temperature as a result of various chemical processes in the body and its metabolism on the one hand, and the loss of heat into the external environment on the other.

By sweating the body gets rid of the excess heat generated by physical activity or absorbed from the environment. Water in the form of sweat evaporates from the surface of the skin, thus using up the heat from the environment and cooling the body.

The most frequent disorder (usually unpleasant) is excessive sweating (hyperhidrosis). It usually occurs in the regions of the armpit, on the feet, palms, face, nose, etc.

Especially unpleasant is sweating in the armpit due to stains which remain on the clothes, but other locations are unpleasant too – palms because of handshaking, feet because of socks and shoes, etc.

Factors which can influence excessive sweating are: outside temperature, physical work, nervousness, stress, food, drink, mood, drugs, hormones, etc.

Excessive sweating can be physiological (physical effort, stress, menopause, etc.), and symptomatic (in diseases – TB, malaria, hypoglycaemia, drugs – e.g. Aspirin).

If excessive sweating does not occur due to the above reasons, it can be genetic – an inherited propensity toward excessive sweating.

When hyperhidrosis is the consequence of a disease, we should treat the cause and thus solve the problem as is usual in medical practice.

In cases of inherited tendency toward excessive sweating, the response may comprise a range of everyday interventions, from regular hygienic measures ad use of appropriate deodorant to wearing clothes and footwear made from natural materials.

For excessive sweating of palms we recommend iontophoresis (water bath with direct current), and only after a possible failure of this therapy the classical operation of cutting the fibres of the autonomous nerve system in the chest.

For the feet, along with creams against sweating, we recommend iontophoresis therapy.

EXCESSIVE SWEATING IN THE ARMPIT REGIONS

Excessive sweating of armpit regions is rather unpleasant, irrespective of the time of the year. In the summer damp stains are very visible on the T-shirts, and in winter the problem transfers to several layers of clothing which it destroys. All of this is a significant problem for everyday communication, in business contacts, in the school and social life in general.

If basic hygienic measures and natural clothing materials are not sufficient, we can repeatedly apply botulinum toxin every 6 months, which is rather expensive, or we can opt for a surgical solution.

The operation of thoracic sympathectomy (cutting of the clusters of nerves in the chest) is a major intervention after which a range of complications is possible.

Laser treatment under local anaesthesia whereby sweat glands are destroyed – Laser Sweat Ablation (LSA) has proven to be the most appropriate solution for the armpit area. The method was developed in the USA, modified in Argentina (Dr Blugerman, Dr Schavalzon), reached Europe in 2008 – Croatia (Dr Maletić), England in 2009 (Dr Whitley) and went on to Australia, New Zealand …

This method provides a permanently good result.

The indication is excessive sweating in the armpit, in those cases when even the intensified measures of local hygiene and deodorants do not achieve the desired result.

PREOPERATIVE CARE

Following examination and taking of anamnestic data a test is being administered. The armpit regions are coated with a solution of iodine, left to dry and sprinkled with white powder. Soon sweat will start to get excreted on the locations of excessive sweating. The consequence of this

will be the dissolving of the iodine layer and staining of the white powder with brown colour. These places are then marked and measured so as to determine the quantity of energy necessary to neutralize the sweat glands in this area. Usually this is an ellipsoid area within the armpit region, of differing size, depending on whether the patient is a man or a woman.

ANAESTHESIA AND OPERATION

Local tumescent anaesthetic is injected in the entire area. The intervention is carried out by inserting the laser fibre of Nd:YAG laser on three points outside of the ellipse and the destruction of the sweat glands in a fan-shaped manner. As the coverage of the area by these 3 locations is rather large, about 80 – 90% of the sweat glands are destroyed by this intervention. By repeating the test after the intervention it is immediately seen whether it was sufficient.

POST-OPERATIVE CARE

After the intervention a bandage and compression garment are placed on the upper arm, similar to that which is placed after liposuction. This is necessary because it is rather difficult to bandage the shoulder, and the garment enables normal movement and work with hands. Re-dressing of the wound is after 2 – 3 days.

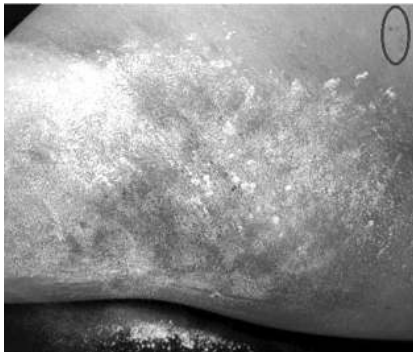
After the removal of the bandage and compression garment skin care in the armpit region continues with a skin nutritive cream. Subcutaneous tissue will be thickened which is normal due to the effects of laser in this area and subsequent fibrosis. After 2 – 3 months the tissue will spontaneously soften.

COMPLICATIONS

If too much energy is applied to a given, area necrosis – decay of skin may occur. If too little energy is applied, the result of the intervention will not satisfy the patient. In that case the procedure may be repeated after several months.

Test of the armpit region by coating with iodine. When it dries the region is sprinkled with white powder. With sweating the brown colour of iodine melts and is shown as a dark patch on the powder.

Test before laser treatment



Test one year since the laser treatment

AUGMENTATION OF BREASTS
(AUGMENTATION MAMMOPLASTY)

The size and shape of breasts are part of the physical, sexual and psychological identity of a woman. Small and underdeveloped breasts, as well as uneven breasts as a consequence of inherited malformation can be successfully corrected by augmentation with silicone or other implants inside a shell. Thus, as a result of this intervention we get more womanly and shapely breasts, i.e. the feminine figure. The intervention is broadly accepted and in the last four decades was usually done with silicone implants. In earlier periods fat tissue with adjoining de-epithelized skin, taken usually from the buttocks, was used and modelled in the form of a cone. Later the shells were filled with physiological solution or oil, but nowadays the implants are almost exclusively of silicone. Silicone is very resistant to trauma and upon touch it is most similar to the glandular breast tissue. In earlier times the shell of the implant was smooth which may have caused the creation of capsules, while today the shells with a rough texture are more in use. In a low profile of the implant, in case of its weaker edge, problems with silicone filling could have appeared everywhere around that edge, upon pressure or massage of the breast with the implant. In such a way, this part of the shell of the implant that was glued together could have been perceived as a sharp edge upon touch. This is entirely different from the consistency of an implant with evenly and diffusely distributed silicone in the shell which moves freely inside it. With modern implants such problems are gone, and sometimes the producers give a life-long guarantee on the implant (Mentor, Mc Ghan, Eurosilicone). Up until now no relationship has been established between silicone implants and breast cancer, or other diseases. The size of the implants which are most frequently implanted in this part of Europe is between 200 and 350 ml. Depending on the fashion and trends in society, these values change. With regard to the form of the chest it is best to choose the size in consultation with the surgeon, but it is also important to respect the wishes of the individual patient. This intervention is in demand among young girls, but also among middle-aged women, after childbirth and breast-feeding, where an atrophy of the glandular tissue and a sagginess of the breasts has occurred (ptosis). With the augmentation of such breasts we achieve a good aesthetic result because with the implantation of the silicone shell the breast is filled out and lifted.

According to the shape there are two types of implants – round and drop-like, and according to height there are several – low, moderately high and super-high. The decision on which implants to use may be made after the examination by a surgeon and multiple detailed measurements of both breasts. In any case, the desire of the patient should be respected even in the choice of the size of implants.

Augmentation mammoplasty represents for the patient, whether a young or middle-aged, the ultimate achievement of psychological satisfaction with her bodily looks.

The mandatory age for operation is the completed 18th year of life.

INDICATIONS

The indications are: micromasty (underdevelopement) of one or both breasts, empty breasts (involution after breast-feeding), mild ptosis – saggy breasts with insufficient gland tissue in order to do only the pexis or breast-lift, breast amputation, asymmetry, transsexuality. Of course, above all, there is the desire of the patient to have larger breasts – wish surgery!

PREOPERATION CARE

Before the surgical intervention laboratory analysis of blood and urine must be done. Also ECG and, if necessary, a consultation with an internist.

ANAESTHESIA

Usually the operation is done under general anaesthesia, though it may also be done under local tumescent anaesthesia which may be potentiated a little.

OPERATION

The duration of the intervention is 1 – 2 hours. The surgical approach is below the breast in the inframammary fold and in the periareolar region - around the nipple. The approach through the armpit (transaxillary) is nowadays avoided because in this region there are a large number of sweat glands, and with the cutting of skin their ducts are also cut which is considered a surgically dirty region. Out of fear of clinical or, even more frequently, sub-clinical infection, this approach is almost entirely abandoned. Every approach has its advantages and weaknesses, and suturing according to principles of aesthetic surgery with intracutaneous sutures and a proper management of the scar after the removal of sutures – the scar will be almost imperceptible. Implants can be placed under the chest (pectoral) muscle in

young girls or below the gland itself (subglandular placement) in women in whom a mild drooping of the breasts has occurred. For this decision too there are measurements of the elasticity of tissue and of the breast skin, and these measurements have an influence on the decision. The so-called subfascial position of the implant is nowadays increasingly chosen, i.e. below the gland and above the muscle, but below the muscle fascia!!

POST-OPERATION COURSE

The patients stay in the medical facility under professional medical care for several hours after the intervention, i.e. after they thoroughly wake up in the case when a general anaesthesia was applied. When the area around the implant is drained (redon drain – extraction of local anaesthetic and lymph from the wound with vacuum), the drains are taken out 12 – 24 hours after the operation. Thereafter follows home care according to surgeon's instructions.

Heavy physical work with hands is not recommended for approximately ten days. A special bra or a firm sports bra should be carried for several weeks after the operation. After that, if desired, normal bra can be carried.

Sutures are removed approximately ten days following the operation, or they disintegrate if the material is absorbable. With the aim of preventing the formation of a capsule, vitamin E 200 IU can be prescribed. In cases where the implants are changed, or the second operation is done because of the capsule, peroral Accolate 20 mg bid may be indicated during 2 – 3 months. Very important is the massage of the breasts which starts in the initial days after the operation. Breasts should be massaged every day for several minutes during 6 – 12 months. In such a way they will assume a natural look.

HOW TO MASSAGE THE BREASTS?

The breast with the implant is firmly embraced with the hand and pressed upwards, then downwards; after that it is pushed firmly towards the middle line of the body and outwards. Following the above, circling motion should be done in clock-wise direction and counter-clockwise.

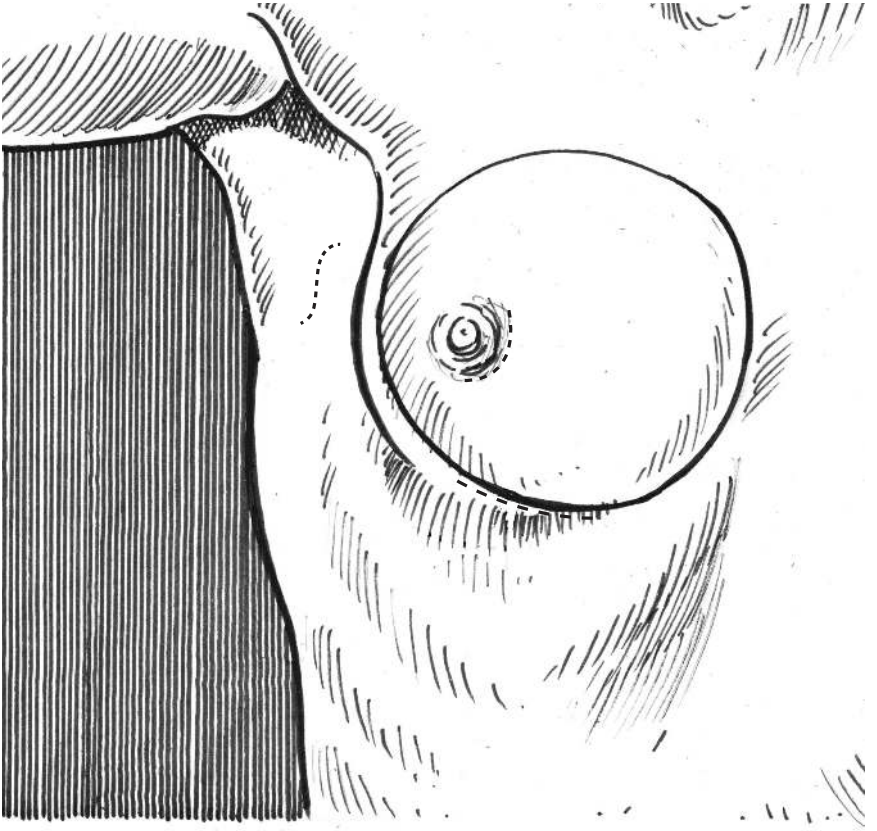
COMPLICATIONS

The complications are: haematoma (accumulation of blood), infection, thickened and hypertrophic scar, incapsulation (hardening) of the breasts due to formation of a fibrous sac around the implant. In case of creation of this hard capsule the breasts assume very sharp contours around the

implant, which doesn't look natural and it is immediately visible what kind of operation was done and what the complication is. The only solution to such problems until recently was a repeated surgical intervention, with frequent controls and massage after the operation. Today, we try to reduce the problem with vitamin E therapy, and the drug zafirlukast (Accolate) 20 mg bid, during 2 – 3 months.

SCARS

The scars are almost imperceptible, provided the principles of aesthetic surgery are respected. If they develop in spite of all, they can be removed by dermabrasion, best of all by laser.



Typical locations for incisions – submammary, axillary and periareolar

Before the operation of breast augmentation

After the operation of breast augmentation

Before the operation of breast augmentation

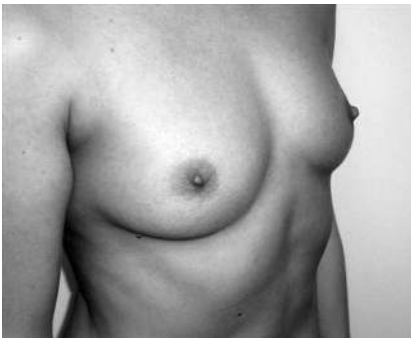
After the operation of breast augmentation

Before the operation of breast augmentation

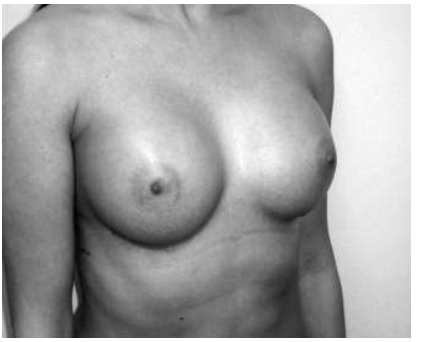
After the operation of breast augmentation

Before the operation of breast augmentation

After the operation of breast augmentation



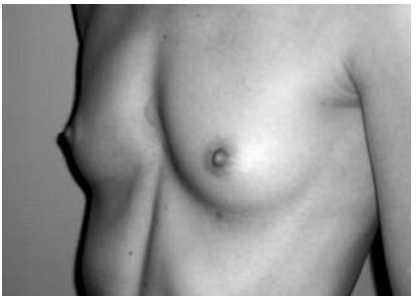
Before the operation of breast augmentation



After the operation of breast augmentation

Before the operation of breast augmentation

After the operation of breast augmentation



Before the operation of breast augmentation

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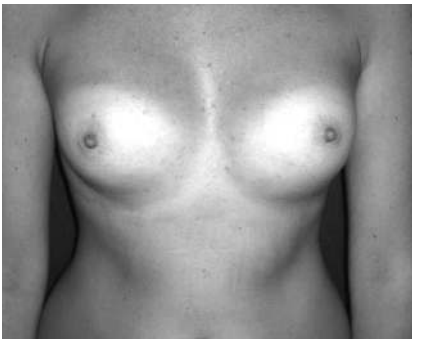
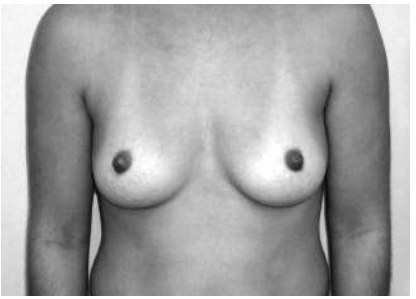
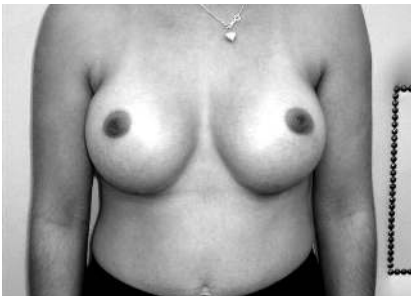


After the operation of breast augmentation



Before the operation of breast augmentation



After the operation of breast augmentation

Before the operation of breast augmentation

After the operation of breast augmentation

Before the operation of breast augmentation

After the operation of breast augmentation

REDUCTION AND LIFTING OF THE BREASTS
(REDUCTION MAMMOPLASTY, MASTOPLEXIO)

Large, i.e. hypertrophic breasts are an aesthetic and bodily disadvantage. Along with large breasts, usually sagging – ptotic, physical problems are related to stooped posture and back pain. If this state persists long enough, it will lead to the deformation of the spine and, consequently, the deformation of the chest. In other words, the correction of over-sized breasts is not only an aesthetic indication, but a medical one as well. The minimum age for the operation is 18 years. When we are dealing with breasts with larger accumulation of fat tissue, nowadays liposuction is being introduced as the appropriate solution. By liposuction the breasts are reduced to some extent, if the indication is related to the increase in fat tissue.

In younger adults it is important to mention that, if they plan pregnancy, there can be problems in breast-feeding. Namely, with the reduction of glandular tissue, the ducts of the milk gland are being cut, which creates a problem in breast-feeding. Therefore, it may be prudent to postpone the intervention for the period after delivery and breast-feeding. If a large quantity of fat tissue is determined by ultrasonic examination, only liposuction may be done as a sparing intervention for the reduction of breasts.

INDICATIONS

Sagging breasts or large (hypertrophic) and sagging breasts.

PREOPERATIVE CARE

It is mandatory to do a complete laboratory check-up of the blood and urine, ECG, possibly ultrasound of the breasts and mammography (x-ray of the breasts), as indicated by the surgeon. If the person has excess weight, it is advisable to carry out a reduction diet before the operation.

ANAESTHESIA

The operation is usually done under general endotracheal anaesthesia.

OPERATION

The intervention lasts between 2 – 3 hours. There are several surgical techniques, and all of them boil down to the transposition of areola and mamilla upwards which is suitable for breasts which are not too large or

ptotic. In the intervention itself it is highly important to preserve good blood perfusion of the areola and mamilla during their transposition. The operation further consists of removal of excess skin in mastopexy, or the removal of excess skin and realted fat and gland tissue in reduction mammoplasty. The result of the operation is a smaller breast with transposed areola and mamilla at the appropriate height. The scar after the operation in larger breasts is in the form of inverted letter T and leads from the nipple toward the inframammary fold and chest, and follows this fold. In less extensive reductions there can be only one vertical scar which starts below the nipple and leads to the inframammary fold.

POST-OPERATIVE COURSE

The patient stays in the medical facility until recovery from general anaesthesia, and is under professional medical supervision. The sutures are removed approximately ten days after the operation. Haematomas and swellings as a reaction to surgical intervention disappear approximately two weeks after the operation. The prescribed bra should be carried for several months after the operation. Scars are treated according to the surgeon's instructions immediately after the removal of sutures. A possible correction of scars comes into consideration in a year's time. The treatment of scars depends upon the method which the surgeon prefers. The sense returns to the nipples in 12 – 16 weeks.

COMPLICATIONS

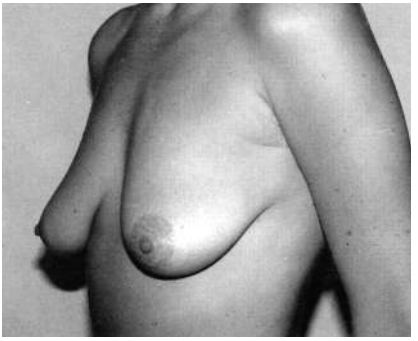
Asymmetry, haematomas, infection, hypertrophic scar, reduced arousal upon stimulation of the nipple, impossibility of breast-feeding.

Before the operation of breast lifting

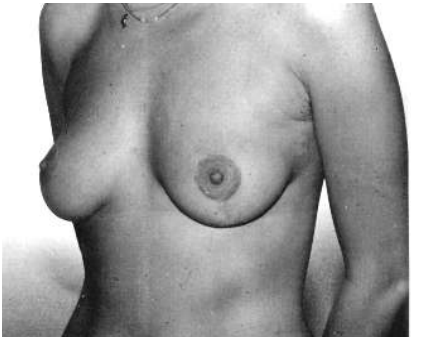
After the operation of breast lifting

Before the operation of breast lifting

After the operation of breast lifting



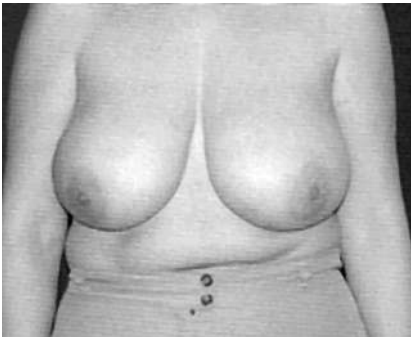
Before the operation of breast lifting

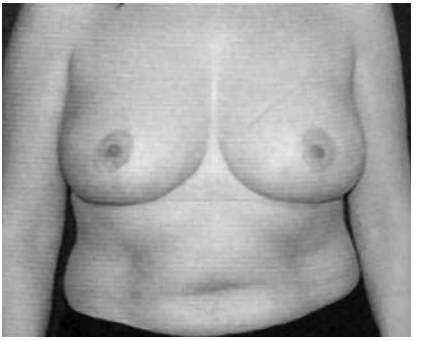


After the operation of breast lifting

Before the operation of reduction and lifting of the breasts

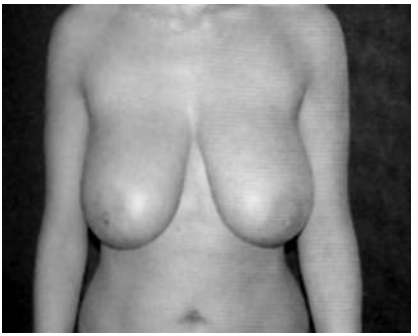
After the operation of reduction and lifting of the breasts



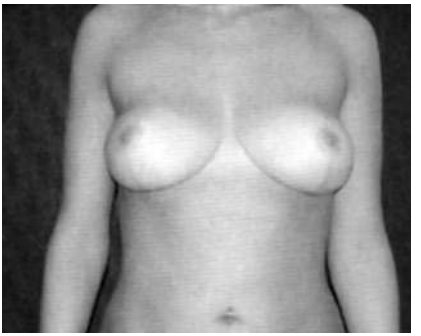


Before the operation of reduction and lifting of the breasts

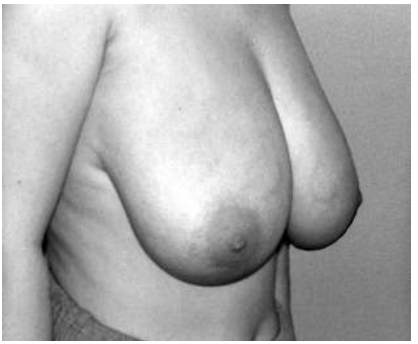
After the operation of reduction and lifting of the breasts



Before the operation of reduction and lifting of the breasts

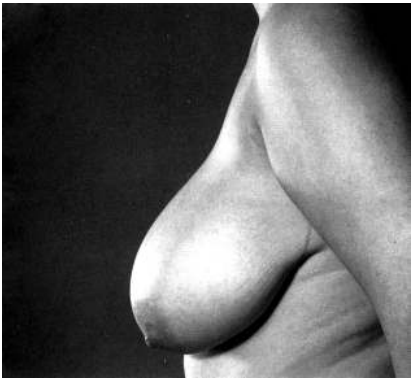


After the operation of reduction and lifting of the breasts

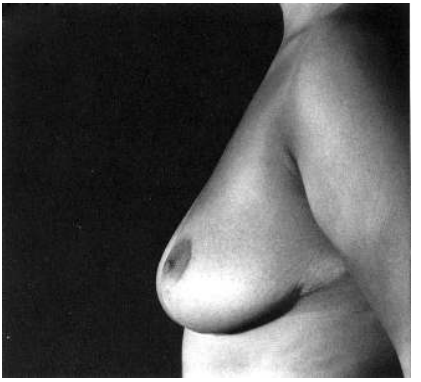


Before the operation of reduction and lifting of the breasts

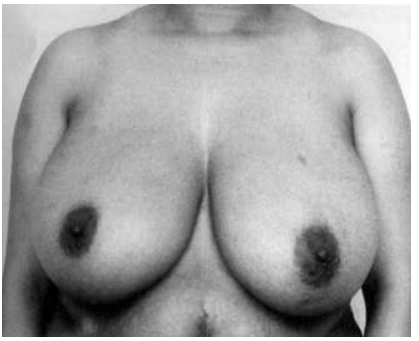
After the operation of reduction and lifting of the breasts

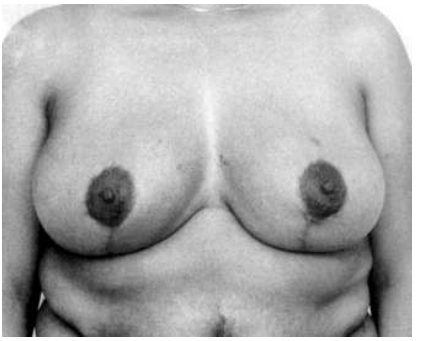


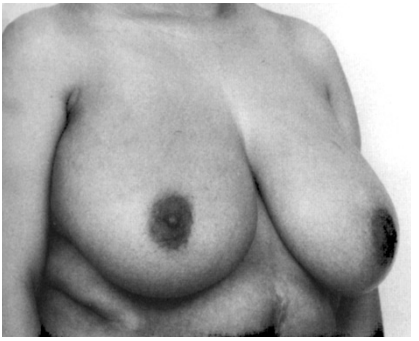
Before the operation of reduction and lifting of the breasts

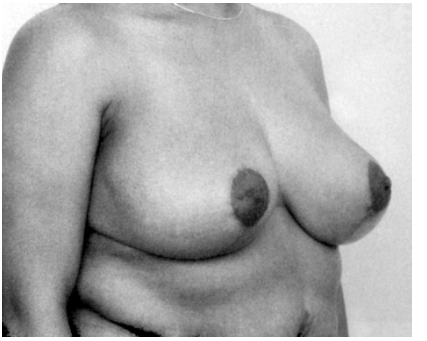


After the operation of reduction and lifting of the breasts









Before the operation of reduction and lifting of the breasts

After the operation of reduction and lifting of the breasts

LIPOSUCTION
(LIPOSUCTIO)

The only way to preserve health is to eat what you don't want, drink what you don't like, and do the things you rather wouldn't do
(Mark Twain)

HEALTHY NUTRITION AND DIETS

When starting a chapter on liposuctions it is important to mention the diets. We should clarify at the outset that liposuction is not a method of losing weight, nor can the diets remove fat deposits on places of predilection. It is for this reason that even after long-term diets fat deposits remain on the outer thigh (the so-called "riding pants"), in spite of the fact that the diet was successful and a lot of weight has been cast off, which certainly contributed to good overall health.

In order for the diet to be successful, the daily intake of calories must be smaller than the number of calories which the body uses up every day. So we come to the fact that the diet by itself is usually not sufficient; it is a method obviously much troubled by hunger, unless one starts spending the calories, i.e. increasing the physical activity. Regular exercise and correct food intake with reduced quantities will be most beneficial for your health and overall benefit. Movement is the foundation of exercise, and for some special exercises it is good to consult the professional, because work with certain muscle groups (e.g. thighs) increases their mass, so that certain parts of the body after the exercise can look even more prominent, which runs contrary to the desire to reduce this emphasis with a reduction of fat tissue.

We should in any case use integral nutrition which contains the right proportion of fats, carbohydrates and proteins, and at the same time satisfies bodily needs for vitamins and minerals. If the food we ingest doesn't contain all of the above, the consequence is an increased risk of carcinoma and heart diseases, because, due to deficiencies in nutrition, the immune system collapses.

Carbohydrates, fats and proteins are known as macronutrients – they supply energy to the body measured in calories. Vitamins, minerals and trace elements are called micronutrients – they do not contain calories (iodine, iron, selenium, zinc, etc.). Irrespective of the abundant intake of food in calories, nearly every second person does not, in his/her nutrition, bring into the body sufficient quantities of minerals, vitamins and trace elements. With regard to the fact that in older people intestinal absorption is less efficient, for them it is especially important to have a balanced nutrition; otherwise the health appropriate for their age is put at risk.

Modern research has shown that what was up till now the golden rule for the intake of nutrients – 50% carbohydrates, 30% fat, 20% proteins is not indisputable. Instead, the current recommendation is to reduce the proportion of carbohydrates and replace them with proteins. One example is the "Zone Diet" which has been in use for a number of years by professional athletes, as well as the general population, with excellent results. It is based on a more balanced intake of all nutrients: 40% carbohydrates, 30% fat, 30% protein. In particular, refined carbohydrates (cakes, white bread) influence the overall state of the organism, as well as the mood, and, according to the most recent guidelines, should be avoided.

Expressed in rough figures, the generally recommended daily calorie intake is 2000 for women and 2500 for men. If you imagine a plate with foods, you must know that fats have 9 calories per gram, while carbohydrates and proteins have 4 calories per gram. If you add to your nutrition a glass of red wine (for women approximately 2 x 125 ml, for men approximately 3 x 125 ml, it contains additional 150 – 320 calories.

The most important point is to determine how to eat sufficiently to satisfy hunger, and to avoid overeating and excess calorie intake. Research has shown that appetite is more easily satisfied with protein than with fat, carbohydrates being the last in the line. This means that diets poor in fat, but rich in carbohydrates stimulate people to eat more than necessary.

When a carbohydrate-rich meal is digested, sugars are absorbed into the circulation, which stimulates the secretion of insulin from the pancreas. Fat tissue and muscles depend on insulin which stimulates the intake of sugars from the blood. If the carbohydrates are digested fast, the level of blood sugar is increased and a surplus of insulin is secreted which increases the appetite. In such a way, carbohydrates from starch and sugar – refined carbohydrates, make people eat more. Those carbohydrates which are digested more slowly, have a lower glycaemic index. In any case, food must contain fewer calories from easily digestible carbohydrates! The sugar which remains after digestion represents a glycaemic load. The general principle is that one should eat foods with a low glycaemic index, and avoid foods with a high glycaemic load – sweetened products or the products of refined grains – white bread and white rice. Low glycaemic load is found in legumes, vegetables, fruits (berry-like, citrus fruits, apples, etc.).

The other factor which influences the appetite is the volume of food. If the stomach is full, appetite falls. Vegetables and salads have a large volume because they are rich in fibres, and also contain sufficient vitamins and

minerals which are good in the regimen of any reduction diet.

In digestion of food rich with fats and proteins, various enzymes are being released into the blood which send signals of satiety to the brain, so that hunger is not felt for a long time.

We ought to stress that, from the point of health, the most prized nutrition in the world is the Mediterranean one. It is based on the nutrition from Crete which ensures a balance of fats, carbohydrates and proteins, along with abundant vegetables and fruits. This implies a sufficient quantity of fish, vegetables, legumes (beans, lentils), seeds, nuts. Foods with animal meat are also included, but these animals were fed on grass and self-grown plants, not on grains.

Such Cretan nutrition is relatively rich in fats, but the main fat is olive oil which contains 70% monounsaturated fats, with a low proportion of saturated and polyunsaturated fats. Along with the abundance of fruit and vegetables with sufficient potassium this diet acts favourably on the prevention of heart diseases. One should be careful with bananas and potatoes, because these are the only fruits and vegetables which have a greater glycaemic load, and should be avoided in reduction diets. After eating these foods very soon the need is felt for more food – hunger comes back quickly!

By analysing the composition of food we will point out the problem of dietetic nutrition and its quality, i.e. what should the food contain in order not to develop undesirable consequences for your health.

Which proteins to use?
Diets which are based exclusively on proteins have a quick effect, but at the same time weight is returned easily and they are not very healthy. One should beware of gout and problems with kidneys. It is good to increase the intake of legumes and nuts. Especially beneficial for health is the increase of protein from vegetables, which reduces the risk of heart diseases. Beans and peas, in other words – legumes - are good. Soya is good due to its composition and is considered as more than adequate replacement for meat.

Which carbohydrates?
The best are whole grain unprocessed flakes, unprocessed oat, brown bread, pasta, brown rice. One should avoid refined grains like white bread, husked rice, cakes.

Which fats?
According to Mediterranean nutrition 2/3 of calories must come from fats, specifically the monounsaturated fats (olive oil, nuts), and the remaining

1/3 should consist one half of polyunsaturated fatty acids and the other half of saturated fats. In maintaining health an especially important role is played by omega 3 and omega 6 polyunsaturated fatty acids. They are damaged by overheating, therefore it is always good to seek cold pressed oils. Omega 3 is mainly found in bluefish, linen seeds and nuts.

Vitamins soluble in fats

Vitamin A – it is healthy for the skin and hair, good eyesight and for the sexual system. The greatest source is liver, followed by butter and cheese. Among vegetables the key source is beta carotene from carrots, parsley, tomato, paprika.

Vitamin D – it helps the body in the absorption of calcium and phosphorus, which contributes to healthy bones and teeth. Reduces the risk of carcinoma; deficiency is related to autoimmune diseases – multiple sclerosis and rheumatoid arthritis.

It can be synthesized in the skin by exposure to sunlight – 15 minutes a day is enough. It is found in bluefish, egg yolk and milk.

Vitamin E – is an important antioxidant vitamin. It helps in the prevention of oxidation of the cell wall and thus protects the health of cells. It strengthens the immune system.

It is most effective in combination with vitamin C. A rich source of vitamin E are sunflower seeds, hazelnuts, almonds.

Vitamin K – it is necessary for orderly blood clotting. Helps in the prevention of osteoporosis in the bones. It is found in abundance in green vegetables.

Vitamins soluble in water

Vitamin B – there are several of them, and they perform many functions in human metabolism.

B 1 – thiamine – it is found in the skin (bran) of grains – in wholegrain bread, pasta, rice.

B 2 – riboflavin – found in almonds, cheese, eggs, mackerel, herring, sardines, liver, etc.

B 3 – niacin – fish, poultry, turkey meat, mushrooms, nuts.

B 5 – pantothenic acid – nuts, seeds.

B 6 – pyridoxine – nuts, fish, poultry

B 12 – cyanocobalamin – it is found in all foods of animal origin including fish, red meat, poultry, eggs, milk.

Vitamin C – ascorbic acid – mainly found in citrus fruits, is necessary for the prevention of scurvy. It is a powerful anti-oxidant in watery parts of the cell (by

contrast to vitamin E which has the same function in fatty parts of the cell). The body does not retain it and the excess is filtered through the kidneys. It is unstable when cooked, therefore the vegetables should be consumed raw.

Minerals

The most important ones are: calcium, phosphorus, magnesium, potassium, sodium, chloride.

Calcium and phosphorus are important for healthy bones and teeth. Among foodstuffs, they are found in fish, milk and nuts.

Magnesiumis important for the health of muscles and nerves. It is found in legumes, nuts, whole grains, vegetables.

Potassium is important for the regulation of water in the body. It is found in tomatoes, bananas, nuts. It mitigates the negative consequences of salt intake (sodium chloride) and thus helps reduce the blood pressure.

Chloride and sodium – better known as salt, is found in the majority of foodstuffs. Excessive salting of food leads to the risk of increased blood pressure. Deficiencies are rare – in cases of a lot of sweating, cramps may appear in the muscles.

Trace elements

Iron – if lacking, it leads to anaemia. It is part of haemoglobin in the blood – binds the oxygen in the body. Its source is red meat, game meat, liver, followed by legumes, linen seeds, whole grains.

Iodine – insufficiency may lead to disorders in the production of the thyroid gland hormone, which, in the developing brain, causes mental retardation. It is found in fish, shells, milk products, vegetables. In most countries it is added to table salt.

Selenium – protects against many diseases – among them carcinoma and heart diseases. The foodstuffs with the greatest amount of selenium are Brazil nuts, followed by onion and garlic, sea food, whole grains.

Zinc – it plays an important role in enzyme reactions and helps in the healing of wounds. It is found in liver, shells, nuts, whole grains, meat.

Chromium – insufficiency is related to diabetes and heart diseases. It is found in eggs, liver, meat, cheese, vegetables.

Copper – it is involved in the cell function along with iron and zinc. Deficiency is rare.

Fluoride, manganese, molybdenum – they are found in all foodstuffs and we usually get sufficient amounts of them. Likewise, boron and silicon, but a mixed nutrition ensures sufficient intake.

Body Mass Index (BMI)

The body mass index is used as an indicator of body fat of a person. It is a ratio of bodily mass in kilograms and the square of bodily height in metres. It was developed by a Belgian scientist Adolphe Quetelet in mid-19th century.

$BMI = m/h^2$

Malnutrition has an index below 20.

Ordinary weight has an index between 20 and 25.

Excessive body weight (overweight) has an index between 25 and 30.

Obesity has an index above 30.

This parameter is widely used, although it has its drawbacks and certainly does not represent the only indicator of the level of nutrition. It is possible to be fat and have an adequate bodily mass, and likewise, it is possible to have an excessive bodily mass and not be fat. More important from the number of kilograms is the composition of the body, i.e. the ratio of fat and non-fat body mass. One example arethe athletes, e.g. bodybuilders who have a high proportion of muscle tissue which is heavier than fat, so their BMI is high.

It is best to find one's place in the tables, see the deviation from normality and determine a reduction diet consisting of several meals (e.g. 5) which end at 19 hours in the evening. One should, however, ensure the necessary abundance of ingredients as stated above in order not to run an additional risk of disease. Along with balancing nutrition, one should increase bodily activity, and make this whole discipline a long-term one. We must change the way we eat (in terms of quantity, composition, origin of foodstuffs – turning towards healthy foods, but with all the necessary ingredients), as well as the entire lifestyle (more walking or jogging in nature and on fresh air).

SUCTION OF FAT TISSUE – LIPOSUCTION AND LASER LIPOLYSIS

Liposuction is a method whereby by means of negative pressure – aspiration we permanently remove subcutaneous fat tissue. The intervention is done by special metal cannulas which are placed inside the body through small incisions between 3 and 4 mm. Cannulas are connected with the source of negative pressure.

The history of liposuction dates back to 1920s when the French surgeon Charles Dujarier was the first to remove fat tissue by curettage (scraping). By addition of negative pressure Italian gynaecologists Arpad and Giorgio Fischer in 1974 removed fat tissue by special blunt cannulas rounded at the tip with the help of negative pressure. They were followed by French surgeons Pierre Fournier (known for the dry technique – without the infiltration of liquid) and Yves Gerard Illouz (invented the infiltration by hypotonic liquid – wet technique). An even greater expansion of this method in the world occurred after the invention of local tumescent anaesthesia by the Californian dermatologist Jeffrey A. Klein.

A vacuum device serves as a source of negative pressure, and for small scale liposuctions the negative pressure is created in a suctioning syringe which is connected to the cannula (syringes lipoplasty). This approach enables, in demanding liposuctions, a greater manual mobility of the surgeon, because there is no plastic tube which connects the cannula to the vacuum device, reducing thereby the possibility of manipulation of the cannula. In the very beginnings of liposuction as a surgical technique for the removal of excess fat tissue, the suction was done without special preparation. This used to be called "dry" liposuction. The development of this technique led to hydroliposuction. This technique includes the injection of special solution into the fat tissue in order to break it down. The result is that the vacuum doesn't tear off pieces of fat tissue, but a dense yellow mass is being aspirated. Thanks to special drugs combined with this liquid, the bleeding was reduced, as well as postoperative pain. A further step was the use of ultrasound prior to the surgical breaking of the fat tissue (Michele Zocchi, 1992), and in recent times liposuction is done with "pneumatic" cannulas which, as they move through the tissue, cause vibrations (Power Assisted Lipoplasty, 1998). Instead of ultrasound, laser is nowadays more in use for laser lipolysis of fat tissue (Laser Assisted Lipoplasty). The leading names of the world liposculpture scene are Diego Shavalzon, Blugerman, Schifman, Rebelo, etc. Today we should add to the above range of methods radiofrequency energy and Vaser (ultrasound).

Along with the injection of liquid inside fat tissue with the purpose of breaking it down, reduction of bleeding and consequently a lesser amount of depressions – defects, another type of energy is necessary for an even better effect of lipolysis, an energy which will treat the skin and cause it to create more collagen and elastin. Thus, a better tightening of the skin is ensured and adherence over the new, reduced bodily shape after the suction of the fat tissue. Compressive clothes by themselves, without applied energy, are not sufficient for a good tightening of the skin. It is also important to mention that laser lipolysis damages the fat cells – their cell membranes – to an irreversible degree and these cells simply vanish. If they are not suctioned by the vacuum, the organism will resorb them in the next three months. In other words, all damaged cells will spontaneously disappear in the post-operative period. Sometimes, for instance on the neck, the suction of lipolyzed content is not done at all, but it is left to the organism to resorb by itself the fat material. Up to 350 ml of destroyed – lipolyzed material can be left in the body without fear of increased values of fat in blood tests or damage to the liver.

Nowadays in the world hydroliposuction predominates as the most broadly accepted method, with a mandatory use of vibrating cannulas.This increases the overall effect and speeds up the procedure; alongside it, laser prepares the fat tissue liquefying it – lipolysis – and acts upon the skin achieving a better skin tightening around the new volume. The exact content of the liquid injected into the fat tissue before the operation differs from surgeon to surgeon, and it is best that each one of them chooses what suits him best, or what has shown the best results in his practice. The probe to which negative pressure is connected from a vacuum device, or an open syringe of appropriate capacity, moves through fat tissue, while the other hand of the surgeon controls this passage, checking whether it is moving through the desired layer. In such a way, the cannula on its way first breaks the fat tissue, whereupon the vacuum suctions it through the cannula. The tissue is punctured by metal cannulas in all directions like a cheese or a sponge, with the removal of fat tissue. All the cannulas are blunt on their tip in order not to penetrate in a sharp manner through the tissue damaging it. On their tips are openings through which the broken tissue is being suctioned. Classical liposuction implies the suction of fat tissue from a deep lamellar layer. By contrast to this method, in the last several years we have seen a rapid development of the so-called surface liposuction, where with the help of fine cannulas of small diameter the surface – areolar layer of fat tissue is treated. The combination of deep and surface liposuction can give an extraordinary result in the sculpturing of the body. In order to achieve the best possible result, it is necessary to wear, in the post-operative

period, a compression garment over the regions which were treated. In such a way the tissue will , by its fibrous processes, heal in the desired shape which we aimed to achieve with liposuction.

Today's lifestyle, a pervasive insufficiency of movement and almost as a rule excessive nutrition, along with the hereditary factor, all contribute to the big problem of excessive body weight. The diets which are applied usually do not lead to the disappearance of excessive fat accumulations on certain parts of the body. Unless we are dealing with complete obesity, fat tissue has accumulated on some places only. We call them the places of predilection for the accumulation of fat tissue. These are: the area under the chin, upper arms, upper and lower part of the abdominal wall, waist, outer side of the thighs, inner side of the thighs and knees in women, on the abdominal wall and on the waist in men. Usually in men along with accumulations on the abdominal wall, we see an increased accumulation in the breast area.

Irrespective of the diets, cosmetic treatments and exercise, the local finding on these predilection locations will not be significantly or permanently changed. Only the method of liposuction permanently removes such an excess of fat tissue, because the number of fat cells which were determined in the far past is quantitatively reduced!

Liposuction does not resolve the problem of excess weight – obesity, but after the operation the patients, as a rule, diminish their food intake because they need less food than before the surgical intervention. This is how we achieve the effect of post-operative loss of weight.

The subcutaneous layer of fat tissue is permeated with a mesh of fibrous bands and septae which form the so-called superficial fascia (superficial fascial system –SFS). This superficial fascia separates the areolar layer of fat tissue from the lamellar one. Areolar layer is positioned immediately under the skin surface – subdermally – and extends throughout the body. It is a thin layer which consists of vertically placed fat lobules. The lamellar layer of fat tissue is below the superficial fascia, i.e. it lies between it and the muscle fascia. This layer consists of large fat cells and is located only on certain preferred parts of the body (places of predilection). The depth of this layer can increase and in persons with excess bodily weight can be even ten times the size of the same layer in persons with normal weight. At the same time, the areolar layer never increases more than twice the size of a normal one.

Cellulite is the modern day plague and it mostly affects women because they have twice the amount of fat tissue then men (25% in women and 12% in

men). Connective tissue becomes dense and blocks the fat tissue which the organism can't use. There is also a captured liquid which results in an oedema. This condition is seen as early as puberty. If we take the skin between the fingers (pinch test), we get an effect of an orange skin. It is found on the hips toward the knees, buttocks, even on the upper arm. In later stages it can even cause pain, usually upon pressure. This skin is sensitive to cold. By the creation of nodules of connective tissue pressure mounts on the blood vessels, the supply of blood is reduced, and the skin loses elasticity. There are different gradations of this condition – from a remaining dent after pressure, the orange skin look to painful nodules. Severe reduction diets lead to an increased secretion of adrenalin in the organism, which rouses the receptors on fat cells preventing their dissolution. Precisely due to this phenomenon we see no loss of weight on those parts where it is most necessary.

In the last ten years liposuction as a surgical method became part of the aesthetic correction of nearly all parts of the body. It is performed not only on the predilection areas on which there is an intensified accumulation of fat tissue typical for women and men, but nearly everywhere where we wish to achieve a more appropriate aesthetic form. In women liposuction is being done more and more on the breasts, upper arms, on the back sideways toward the arms, on the buttocks and lower legs.

Mandatory minimum age for the operation: 18 years.

PREOPERATIVE CARE

It is indispensable to check the complete health status by physical examination, and laboratory analysis of blood and urine. In addition, ECG and, if necessary, examination by the internist should be added. The whole body should be showered in a disinfectant before the operation; after that, in front of a mirror the regions are delineated which will be treated by liposuction. Everything must be photographed as part of the medical documentation.

The scope of necessary examinations depends on the size of the regions which we plan to treat, i.e. which type of anaesthesia we plan to apply.

ANAESTHESIA

A spinal or general endotracheal anaesthesia is used, and much more rarely, only for small areas, locally potentiated anaesthesia. For individual smaller regions in recent years the so-called "tumescent technique" is used

in which maximum doses of local anaesthetic are applied. The advantage of this technique is an outpatient procedure, which is not the case if spinal or general endotracheal anaesthesia are used. This technique has more and more advocates, although as a method it existed for a long time. A very similar anaesthesia was used in the 1930s by the Russian surgeon Alexander Vasilyevich Vishnevsky who used it to perform operations anywhere on the body, mainly the breasts. Modern tumescent anaesthesia is usually done according to formulas by Dr Klein or minor modifications thereof.

OPERATION

The intervention lasts 1 – 2 hours or a bit longer if we wait for the full effect of the applied anaesthetic. After the preparation is completed, liquid is infiltrated into the delineated parts of the body where we intend to perform the liposuction; – this can be done by ordinary injections or an infiltration pump for larger areas (dispenser) combined with drugs against bleeding, pain, etc., according to a prescribed formula. After a certain time period the fat tissue is being broken by the infiltrated liquid so that, when its extraction starts with negative pressure and vibrating probes, it looks like a dense yellow liquid. Additionally, energy is applied in the fat tissue by photo-thermal effect using the Nd:YAG laser. This energy damages the cells and their membranes burst – lipolysis. Cannulas for liposuction are inserted into the tissue through small incisions of several millimetres on the skin, and the aspiration is done by negative pressure. Negative pressure can be achieved by a 50-millilitre syringe, which is sufficient for minor interventions, but for larger ones it is usually a vacuum device (NouvagVacuson 60) designed specifically for liposuction.

Liposuction of the neck and face is being done in people with larger accumulations of fat tissue in these areas. In the last several years liposculpture of the neck and face has developed as one of the auxiliary procedures of aesthetic surgery. It is based on the manipulation with fat tissue of these regions, by extracting the excess of fat tissue which is then transplanted into those regions where it lacks, in order to improve the overall bodily contour (e.g. into the depressions from scars, into the wrinkles, in parts of the face where there is a pronounced asymmetry and the like). Good results are achieved with this method without surgical incisions, which is certainly its great advantage. Aging cannot be stopped, of course, but with this approach its effects on the face are slowed down. The liposculpture of the face and neck involves two methods which are applied separately or combined, and these are surface liposuction and

autotransplantation of fat. On the face and neck, by contrast to other parts of the body, there is no deep layer of fat tissue, but only the superficial (subdermal) one which can give the effect of a full, rounded face, or shape the area below the chin. We ought to mention that there does not have to be an excess of fat tissue in the region of face and neck; the skin of these structures can be somewhat loose, which is also an indication for a surface (subdermal) liposuction. Its aim is not only to extract fat tissue, but to achieve another effect called the retraction of the skin. Due to its composition which contains elastic and collagen fibres, the skin has the capacity to retract and thus more tightly adhere to the contours of subcutaneous structures to which it sticks more closely. This means that with surface liposuction we not only extract fat tissue, but – what is more important for the face and neck, we cause a retraction of loose skin which sticks to the subcutaneous structures with the help of the correct wearing of the compression garment similar to the one used for face-lift. The skin is not loose any more, so that the classical face-lifting procedure can be delayed for several years. By the introduction of laser lipolysis and additional effect on the skin and its retraction significant results are achieved, in the treatment of the jaw line – skin laxity in the direction lower ear – chin, as well as in the treatment of the loose skin below the chin. It is important to mention that after the laser treatment of fat tissue it cannot be used as a filler in lipofilling!

In the filling of major defects and asymmetry on the face with fat tissue it is transplanted directly into the facial muscles, because in such a way the fat tissue receives a better blood supply on the new location and is less resorbed in a later period. The intervention is made under so-called tumescent technique of anaesthesia, but can also be done along with some other operation under general anaesthesia. Usually this is the so-called manual liposuction with negative pressure, created in the syringe due to a greater mobility of the surgeon's hand (work with a machine reduces the mobility of the hand, because of the plastic tube which connects the vacuum machine and the probe). In order to treat the entire neck and part of the face after the injection of liquid, liposuction is done through small incisions – one below the chin, and one of each side of the neck behind the ear. So, there are three locations of entry of the cannulas and the laser fibre into the subcutaneous tissue, and the treatment is done from each point in a fan-shaped manner with the aim of overlapping the areas covered from adjacent points. After the operation the prescribed compression garment of appropriate size is worn for several days 24 hours a day, and 2 – 3 weeks additionally only during sleep.

Liposuction of the breasts is done when there is an increased accumulation of fat tissue on the breasts of men (this is the place of predilection) and lately, in the breasts of women as well. A better result is achieved when on the breasts, along with the lactic glandular tissue, there is a significant accumulation of fat tissue (usually in women who are overweight). It is good to do an ultrasound examination in order to make the assessment of the quantity of fat tissue. Such an intervention can be done in cases of extraordinarily large breasts. In such cases liposuction is done as the first act, the breasts are reduced, compressive bra is worn, and after several months a classical reduction of skin and, if needed, the reduction of the milk gland is done. Until the next intervention the nipple-areola segment will be lifted several centimetres cranially. This facilitates the second act of the operation of lifting the breasts and survival or areolas with the nipple in severely drooping and large breasts.

The operation is usually done under local tumescent anaesthesia in men, while in large female breasts general anaesthesia is needed.

If we are dealing with breast enlargement (so-called gynaecomastia) in men, the intervention can be expanded after liposuction. In the crossing from the areola into the skin between 3 and 9 h an incision can be made, followed by access to the enlarged mammary gland which is then partly or completely removed.

If the operation is done along with some other surgical intervention or liposuction of another part of the body, it can be done under general endotracheal anaesthesia, while if this region only is the target of intervention, it is done under tumescent technique. After the operation compression garment should be worn for several weeks, and women should wear a special bra – up to 2 months.

Liposuction of the upper arm is done when there is a major accumulation of fat tissue in the area of rear and outer part of the upper arm. Usually in women with such a problem, we also find an accumulation of fat in the side regions of the chest, along the upper arm, and these regions can be treated by liposuction at the same time.

If we are dealing with upper arms without significant amount of accumulated fat tissue, but only loose skin which hangs, e.g. after the reduction of body weight, laser lipolysis is mandatory. Only in such a way, i.e. by the application of additional energy on the skin will it retract in the compressive garment afterwards.

Along with this method there is the aptos method too, by which the aptos needle tightens the tissue around the upper arm after being sutured inside the subcutaneous tissue.

In cases of significant excess of skin it is necessary to do brachioplasty – cutting out of excess skin on the inner side of the upper arm.

When the operation is done along with some other intervention a general endotracheal anaesthesia is necessary. On the other hand, if only the mentioned regions are involved, tumescent technique will suffice. If only the arms are treated, for several weeks after the operation special elastic sleeves must be worn, and when liposuction is made on the back too, a special compression garment must be worn which envelops the upper arms and the chest.

Liposuction of the abdomen is done under tumescent technique, providing we are dealing with a limited accumulation below the navel. When the fat deposits which must be removed are also above the navel and sideways toward the waist, a general endotracheal anaesthesia is necessary. After the surgical intervention the compression garment must be worn for 4 – 5 weeks.

Here also it is important to treat excess skin with laser with the aim of better skin tightening. Liposuction with excising of excess skin, according to Dr Avelar from Brazil, is also largely in use. This intervention is frequent because there is no preparing and separating of the skin and fat tissue, but it is done with the liposuction.

Liposuction of the buttocks is done in cases of major accumulation of fat tissue, with the aim of achieving a prettier shape. When isolated, tumescent technique will suffice, but if some other operations are involved a spinal or general endotracheal anaesthesia should be applied. Compression garment is worn 4 – 5 weeks after the operation.

It is important to note that women increasingly ask to have their buttocks accentuated in the profile, in which case lipofilling is done – fat tissue is transplanted from the abdominal wall or legs.

Liposuction of the thighs is usually done on predilection areas which is the outer side of the thighs (hips), inner upper side of the thighs and the inner side of the knees. If necessary, the front side of the thighs and the back side all the way to the buttocks can be treated (in cases in which not only the places of predilection are affected by fat accumulation, but there is an indication of diffuse adiposity). The inner side of thighs requires special care and one should be very cautious working on this area, not overdoing the

intervention, because this can lead to saggy skin which is ugly and requires subsequent femoral lifting.

It would also be good to treat the inner side of the thighs with laser, with the purpose of melting the fat tissue, as well as after the intervention – gradually, for a better skin tightening and adhesion to the new shape of the thigh.

The intervention is done under spinal or general endotracheal anaesthesia. Compression garment is worn 4 – 6 weeks after the operation. Underwear is worn over the garment.

Liposuction of the lower leg is done in cases of major accumulation of fat tissue in the area (usually) of the rear and outer part, and sometimes immediately above the ankle (on the outer and inner side). Surgical intervention is done under tumescent technique, and when it is part of other operations, it can be done under spinal or general endotracheal anaesthesia. Prescribed compression socks are worn 4 – 5 weeks, and, when some other parts of the legs are treated, the garment which includes the compression of the lower leg can be chosen.

POSTOPERATIVE COURSE

The patient remains in the medical facility under professional medical care until recovery after anaesthesia. The wearing of the compression garment 24 hours a day is mandatory for the next 3 – 8 weeks, depending on the scope of the intervention and whether or not laser was used. Namely, the fibrous processes after the laser treatment are more intensive and it suffices to wear the compression garment for a much shorter period of time, usually 3 – 4 weeks after the operation. Haematomas and oedema disappear within two weeks. Several days after the operation the adhesive strips over entry wounds for the cannulas are removed. It is advisable to do the lymph drainage on the locations of liposuction, if possible as soon as one week after the operation, and continue 2 – 3 times per week.

COMPLICATIONS

After the operation major haematomas may appear, as well as seroma and infection. By infiltrating the tissue with preparations which constrict the blood vessels and giving of antibiotic as well as appropriate preoperative care, the risk of these complications is reduced to a minimum.

In women with compromised venous circulation of the lower leg major oedema of the leg below the compression garment may appear. In that case, it is advisable not to stand long in one place, but walk. In such a way the

muscular pump establishes better circulation, and when sitting the legs should be put in a vertical position. During sleep a cushion may be placed under the legs for the purpose of a better nightly drainage of the oedema. When these problems are more pronounced, part of the leg below the compression garment may be additionally compressed with socks.

It has not always been easy to wear a compression garment during the warmer period of the year, but today there has been a major breakthrough in the quality of the garments.The materials of which they are made are thin and permeable. There are producers which recommend special garments with microfibers for warmer periods which are extraordinarily thin, permeable and are worn easily without irritating the skin and have an antibacterial and anti-allergic effect.

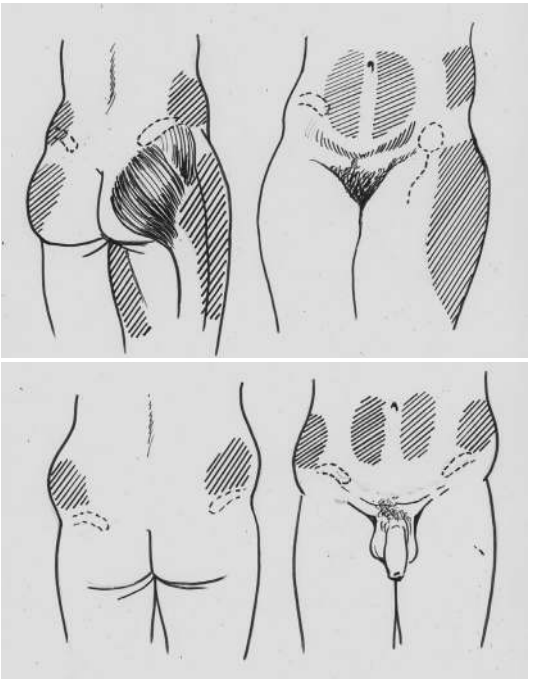
At the time when the so-called dry liposuction, without the infiltration of liquid, was routine, the end result after the removal of the garment would show many rough spots and significant haematomas. Hydroliposuction in which the liquid for the breaking of fat tissue is injected first, and only then the content is vacuumed out, has led to major improvements and the rough spots are rare. The application of laser with the purpose of laser lipolysis makes the results with respect to rough spots even better. However, if they still show after the removal of the compression garment, a correction can be made under local or tumescent anaesthesia by transplantation of fat tissue (autologous fat transfer). In such a way the defect will be corrected, i.e. uneven spots will be filled out. The other possibility is the so-called liposhifting. In this procedure a special jagged cannula (Backer) is inserted in the tissue under local anaesthesia and with it, where there is an excess it is scrubbed, but not aspirated with vacuum. Instead, it is left with a special compressive bandage around the location of work, with greater pressure on protruding parts, and lesser on depressed ones. In such a way free particles of accumulated fat tissue will shift to the positions of depression and fixate themselves there.

Infection, haematoma, seroma, rough spots – all of them are more frequent after dry liposuction. The correction can be done after 6 – 12 months.

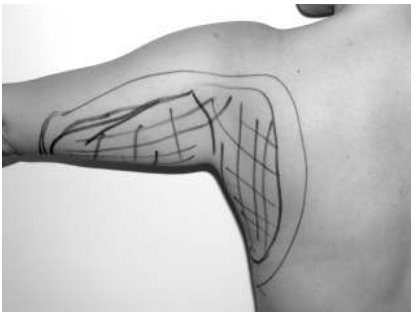
Of the serious complications we ought to mention embolism – whether with a blood clot or fat tissue. For the former there exists a prophylaxis which is carried out before and during the intervention, and immediately after the operation (giving heparin for the thinning of blood, wearing of special socks with compression, early getting up from bed and walking etc.). For fat embolism there is no prophylaxis or prevention. It can appear not only in liposuction operations, but other operations as well, even as a complication of the fracture of long bones, in other words, in common trauma.

Places of predilection
on which accumulation
of fat tissue occurs

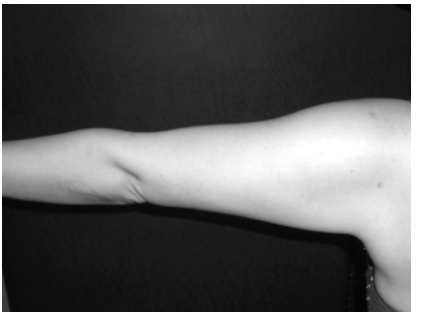
In women



In men



Before liposuction of the upper arm

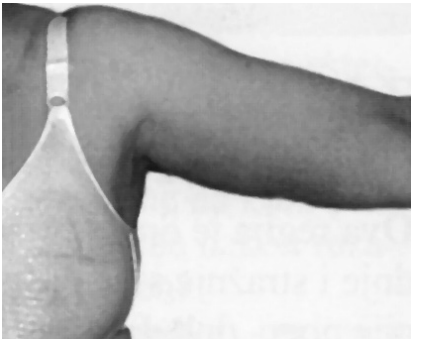


After liposuction of the upper arm along with the application of Nd:YAG laser

Before liposuction of the upper arm

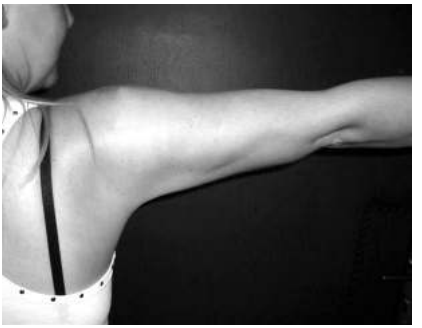
After liposuction of the upper arm along with the application of Nd:YAG laser

Before liposuction of the upper arm



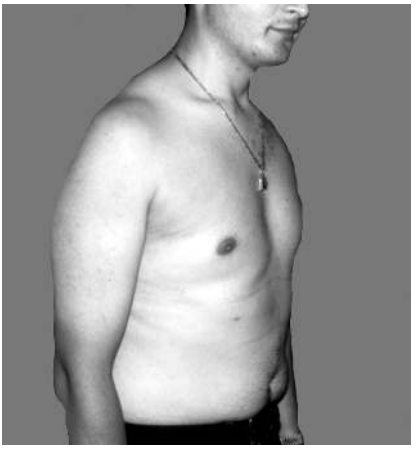
After liposuction of the upper arm along with the application of Nd:YAG laser

Before liposuction of the upper arm

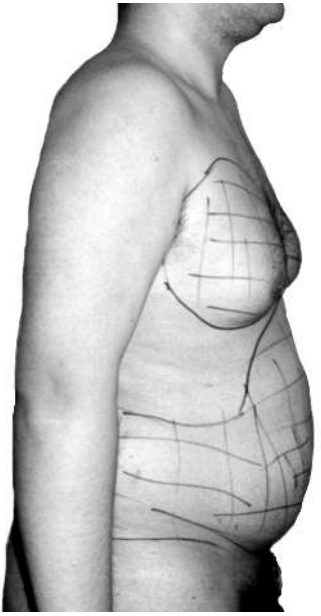


After liposuction of the upper arm along with the application of Nd:YAG laser

Before liposuction of breasts

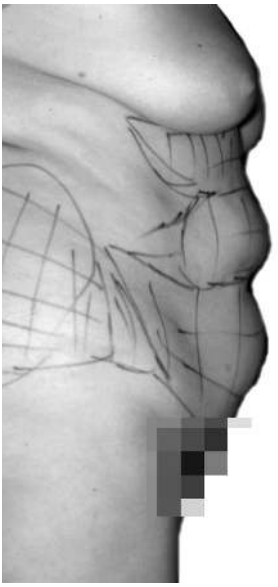


After liposuction of breasts along with the application of Nd:YAG laser



Before liposuction of the breasts and abdomen

After liposuction of the breasts and abdomen along with the application of Nd:YAG laser



Before liposuction of the abdomen

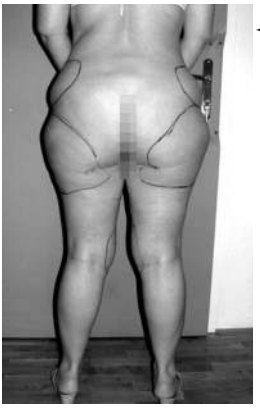
After liposuction of the abdomen along with the application of Nd:YAG laser

Before liposuction of the abdomen

After liposuction of the abdomen along with the application of Nd:YAG laser

← *Before liposuction of the thighs*

After liposuction of the thighs along with the application of Nd:YAG laser →

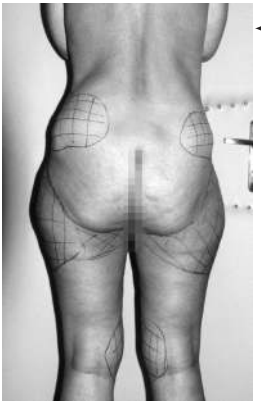


← *Before liposuction of the waist, buttocks and thighs*

After liposuction of waist, buttocks and thighs along with the application of Nd:YAG laser →

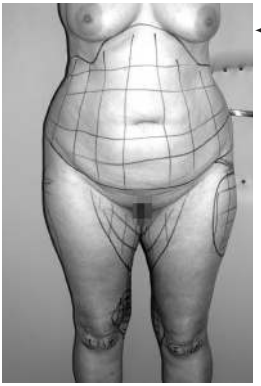
← *Before liposuction of the waist and thighs*

After liposuction of the waist and thighs along with the application of Nd:YAG laser →



← *Before liposuction of waist and thighs*

After liposuction of waist and thighs along with the application of Nd:YAG laser →



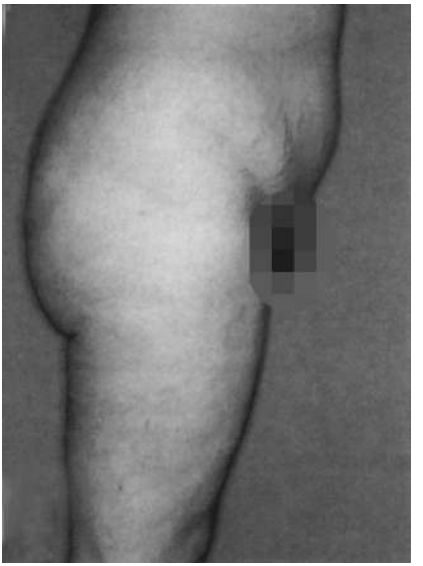
← *Before liposuction of the abdomen and thighs*

After liposuction of the abdomen and thighs along with the application of Nd:YAG laser →

← *Before liposuction of the abdomen and thighs*

After liposuction of the abdomen and thighs along with the application of Nd:YAG laser →

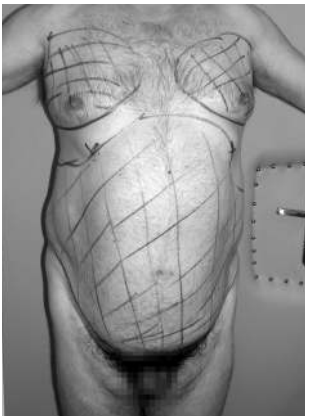
Before liposuction of the buttocks

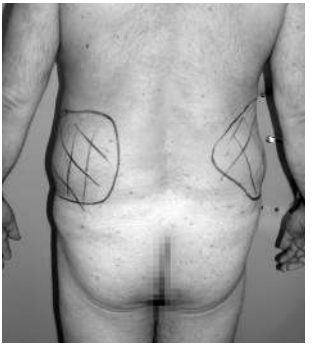


After liposuction of the buttocks along with the application of Nd:YAG laser

Before liposuction of the waist and buttocks

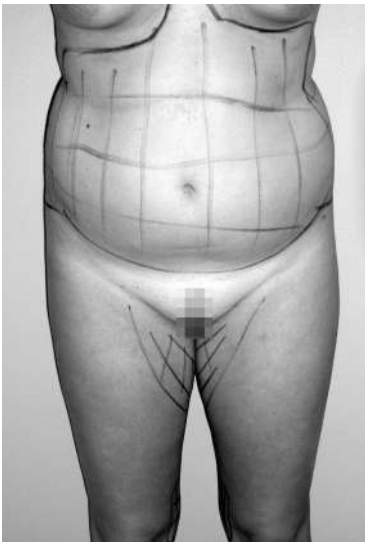
After liposuction of the waist and buttocks along with the application of Nd:YAG laser

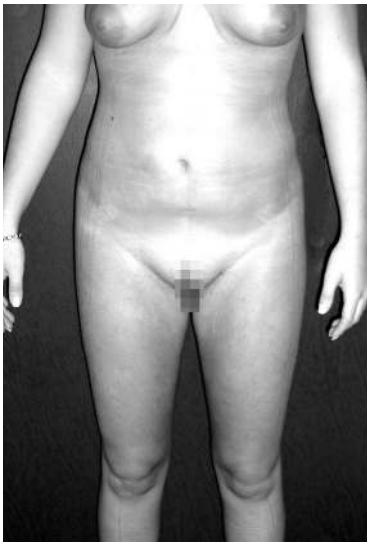


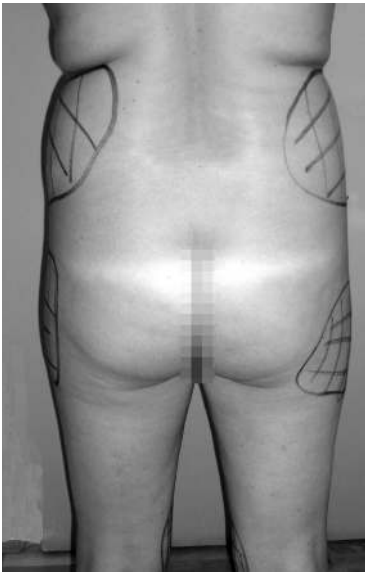


Before liposuction of the breasts, abdomen and waist

After liposuction of breast, abdomen and waist along with the application of Nd:YAG laser







Before liposuction of the abdomen, waist and thighs

After liposuction of the abdomen, waist and thighs along with the application of Nd:YAG laser

TRANSPLANTATION OF FAT TISSUE
(LIPOFILLING, AUTOLOGOUS FAT TRANSFER, FAT REPLACEMENT)

Following upon the quick acceptance of liposuction all over the world, new ideas and possibilities opened up which this method indirectly offered. The filling out of defects, augmentation of certain parts of the body, etc. with one's own fat tissue has proven to be an excellent option compared to expensive hyaluronic acid preparations.

The history begins with the introduction of liposuction in the 1980s. A major problem were places on which too much fat tissue was extracted, with an ensuing depression which required correction. Dr Richard Ellenbogen, a plastic surgeon from Los Angeles was one of the pioneers of this approach in 1982, followed by South Americans Chajchir, Zalas, Loeb, Matsudo, etc. Today, maybe the most renown name is Sydney Coleman who brought the transplantation of fat to perfection with the development of special instruments and cannulas for fat grafting. These are the Byron instruments with syringes for the extraction of fat tissue with syringe locks, and special cannulas with which fat is applied to the new location (it is not advisable to apply fat tissue with needles; instead cannulas are used with blunt tips, and sideway openings). With the use of special instruments the chance of local damage and complications due to injury to the local blood vessels is reduced.

In order preserve the viability of as many adipocytes as possible, after removal from the body, the fat tissue is first separated from local anaesthetic and blood by centrifuging at 1500 RPM, for 1 – 2 minutes, or, which is possibly more sparing for the cells, by keeping the tube with aspirated contents upright and still for 15 minutes which allows the fat cells to float to the top of the tube and so separate from other aspirated material. In the latter way the adipocyte cells are less traumatized and survive in a greater number.

When injecting the prepared fat tissue we always go to the point of over-correction of the defect or the desired volume, because a large number of the cells will be resorbed – in fact all the material which didn't manage to integrate with blood circulation in the new position. In order to achieve a permanent result, along with careful handling of the material, the intervention should be repeated after 3 – 4 months. In such a way make sure to get excellent results.

The most frequent places which serve as donors are the abdominal wall and thighs –the inner or the outer side.

On the face the fat is usually injected in the malar region (cheeks) where there

is an atrophy of fat tissue, and the other part has descended and accentuated the nasolabial fold.

Deep wrinkles can also be filled – e.g. the nasolabial folds.

With the augmentation of the malar region – filling of the cheeks with the aim of getting the baby cheek effect, we get a volumetric lifting, meaning that with the increase of the volume of the malar region the tissue above the nasolabial fold and the jaw line is lifted, so that problems on these location are less accentuated.

The filling of the lips gives excellent results with 2 lipotransfers 3 – 4 months apart.

A number of surgeons today practice also the lipofilling of breasts aiming to enlarge them. Personally I am not in favour of this method of breast augmentation, because fat tissue may calcify in some places and create shadows which may compromise examination of breasts by ultrasound and mammography.

The rejuvenation of the dorsum of hands with lipofilling, along with radiofrequency, laser and peelings gives a good result.

The augmentation of the buttocks is also possible. On several occasions we resolved the pits in the buttocks at places of intramuscular corticosteroid injections with success.

In several instances we also boosted the volume of the lower leg with fat tissue, with very good results. By contrast to inserting implants on the medial side of the lower leg, transplanted tissue imparts a completely natural shape and contour.

In sexual surgery we apply lipofilling in augmentation of labia majora with the purpose of rejuvenation, and also in the thickening of the shaft of the penis.

There remains one open question and that is the augmentation of the G spot – but that is a matter for gynaecologists!

Following extensive liposuctions – liposhifting, uneven pits and depressions may appear after several months, and they are best treated with transplantation of fat tissue.

The major problem is if we do not have a quality donor region. Without a good donor region there can be no lipofilling.

Fat cells which are transferred to a new location and manage to connect to the local microcirculation, stay there forever. This is certainly the most natural way for the augmentation of certain parts of the body.

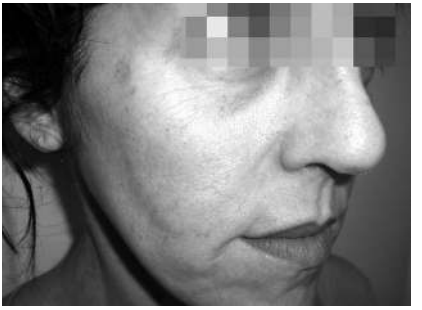
Before the transplantation of fat tissue

After the transplantation of fat tissue

Before the transplantation of fat tissue

After the transplantation of fat tissue

Before the transplantation of fat tissue



After the transplantation of fat tissue

Before the transplantation of fat tissue

After the transplantation of fat tissue

Before the transplantation of fat tissue

After the transplantation of fat tissue

Before the transplantation of fat tissue

After the transplantation of fat tissue

REMOVAL OF EXCESS SKIN AND FAT TISSUE OF THE ABDOMINAL WALL (ABDOMINOPLASTY)

In this operation we are dealing with the removal of excess skin on the abdomen with the underlying fat tissue. Very often the abdominal wall itself is strengthened, if there is an indication to do so, i.e. when the abdominal wall is loose. Such an operation might be called the lifting of the abdominal wall. Usually the patients are persons who rapidly loose a large amount of fat, or women who, after several pregnancies, present with a large addition of weight and ugly stretch marks on the abdominal skin.

Excess skin can form in the lower part of the abdomen – below the navel. In that case we can do a so-called sparing operation, or mini-abdominoplasty. The procedure is to dissect the skin and separate it from lower part of the abdominal wall – with a cut from the bikini zone to the navel. If there is an excess of skin also above the navel, the skin is separated from the lower part of abdomen all the way to the rib arch. Following this procedure, the position of the navel must be changed, i.e. it must be relocated with the exit on the tightened part of the skin. In women who, along with excess skin, have a weak abdominal wall it must be strengthened with special sutures. In extensive abdominoplasties it is not advisable to do liposuction as well, because of a significant increase in the possibility of complications. When, after the removal of excess skin and underlying fat tissue on the remaining part of the wall there is still a significant accumulation of fat tissue which makes the belly uneven, 2 – 3 months later liposuction may be done.

As has already been described in the chapter on liposuction, nowadays a sparing liposuction with abdominoplasty is increasingly practiced (without surgical dissection of the skin and subcutaneous skin layer towards the rib arch), according to the Avelar method under local tumescent anaesthesia.

Age for operation: usually more than 30, but if the processes which favour the development of a hanging belly are observed earlier, the operation can be done before that age.

INDICATIONS

Wrinkled skin, the stretch marks on the abdomen. Often the excess of skin is such that it hangs like an apron. Indications can also be the ugly scars after surgical or gynaecological operations.

PRE-OPERATIVE CARE

Standard laboratory analyses of blood and urine must be done, along with ECG. If needed, a consultation and an examination by an internist.

ANAESTHESIA

The intervention is done under general endotracheal anaesthesia. In case we are dealing with the so-called mini-abdominoplasty only below the navel or according to the Avelar technique, the intervention may be done under local tumescent anaesthesia, potentiated or not.

OPERATION

The intervention lasts 1 to 2 hours. The surgical incision goes from one hip to the other in the area of the lower abdomen, in the so-called bikini zone. The complete skin and subcutaneous tissue are dissected, i.e. separated from deeper anatomic structures of the abdominal wall, all the way to the rib arch, and the navel (umbilicus) is relocated to a new position after the removal of excess skin and subcutaneous tissue. If we observe a gap in the rectal muscles of the abdominal wall of if the wall itself is weakened, it can be strengthened by special stitches.

There exists also a surgical technique with incisions in two parts – in the area of the bikini zone and below both breasts in the upper part of the abdominal wall, in the fold between the breast and the chest. In this intervention the skin, with subcutaneous fat tissue, is lifted from the abdominal wall from the lower incision upwards (cranially) and from the upper incisions downwards (caudally). The obtained excess is removed after dissection. In this technique the navel retains its position and it is not necessary to move it to a new opening on the skin.

The most sparing for the tissue and with the least number of complications is the technique by Avelar, which combines liposuction without surgical dissection, possible circulatory compromise and cutting out of excess skin. In this method all other structures, both vascular and lymph ones, are preserved.

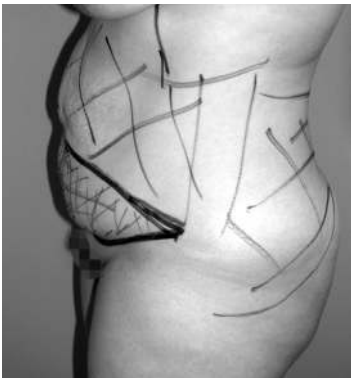
POST-OPERATIVE COURSE

After the operation the patient remains in the medical facility under professional medical care until recovery from anaesthesia. The sutures are

removed 10 – 12 days after the operation, or are absorbed by the body. It is mandatory to wear a compression garment for several weeks after the operation. The treatment of the scar is done according to instructions of the surgeon, as well as the care of the tightened skin.

COMPLICATIONS

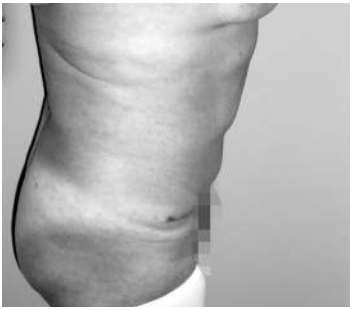
Complications include infection, hypertrophy (thickening) of the scar, seroma – the accumulation of liquid, haematoma, embolism (blood clot or fat embolism).



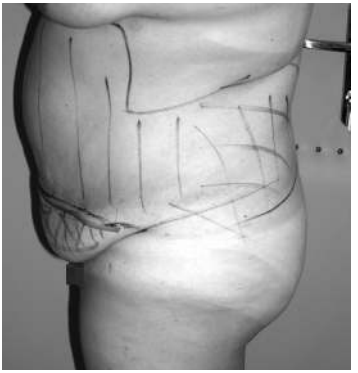
Before removal of excess skin and fat tissue of the abdominal wall

After removal of excess skin and fat tissue of the abdominal wall

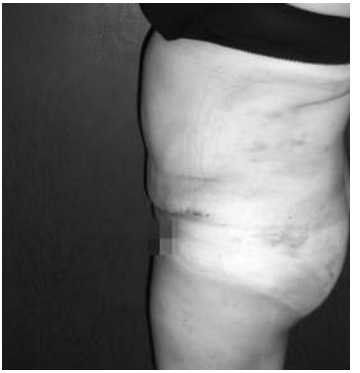
Before removal of excess skin and fat tissue of the abdominal wall



After removal of excess skin and fat tissue of the abdominal wall

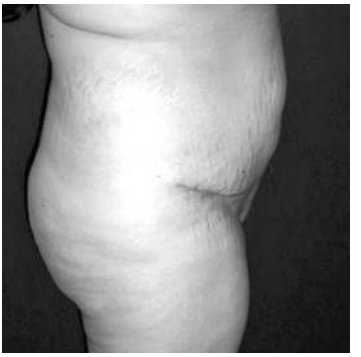


Before removal of excess skin and fat tissue of the abdominal wall



After removal of excess skin and fat tissue of the abdominal wall

Before removal of excess skin and fat tissue of the abdominal wall



After removal of excess skin and fat tissue of the abdominal wall

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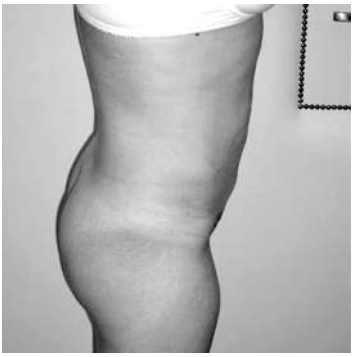

After removal of excess skin and fat tissue of the abdominal wall

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Before removal of excess skin and fat tissue of the abdominal wall

After removal of excess skin and fat tissue of the abdominal wall

TIGHTENING OF THE SKIN ON THE THIGH
(FEMOROPLASTY)

One of the places of predilection for the accumulation of fat tissue is the inner side of the thigh, as has already been emphasized in the chapter on liposuctions. This region is delineated on the upper side with the groin, and on the front and rear side it reaches approximately to the middle of the circumference of the leg. In the direction of the knee, it extends over more than a third of the inner part of the thigh. Oftentimes the fat deposits reach such dimensions that they cause problems in the summer during walking – causing friction between both thighs. When the stockings are not worn wounds may appear. In older age precisely on these points we see a loosening of the skin due to reduced elasticity, and the skin sags toward the knees.

In persons who were operated by the method of liposuction excess skin may also appear, i.e. part of the skin which is not well attached to deeper structures. These are the cases in which the surgeon was too radical in this region or the compression garment was not worn correctly. Therefore, after liposuction, the opening of the corset must always be pulled up, all the way to the groin.

In such a way, the upper part of the thigh will be well compressed in its entire circumference.

INDICATIONS

Indication can be the excess of fat tissue and adjoining skin or excess of skin after liposuction.

PREOPERATIVE CARE

As with all other interventions, here, too, a complete laboratory analysis of the blood and urine, ECG and, if necessary, examination by an internist is required.

ANAESTHESIA

The intervention is usually done under local tumescent anaesthesia, but also under spinal or general endotracheal anaesthesia.

OPERATION

Operation is done by cuts in the groin region, and the skin is dissected along with subcutaneous fat tissue towards the knee. Excess of the skin and underlying fat tissue is removed, and the wound is sutured in the anatomic fold of the thigh. The intervention lasts between 1 and 2 hours. In the first 24 hours the wound is drained in order to reduce the possibility of haematomas.

POST-OPERATIVE COURSE

On the first day after the operation drains are removed and the wound is re-dressed. For the first week more resting than activity is recommended. The sutures are removed after about ten days, or they are absorbed if they consist of absorbable material. In the first 2 – 3 weeks a gentle compression corset is worn which softly presses on the operated region.

COMPLICATIONS

With respect to the region we may expect infections, seromas and haematomas. The scar as a rule is satisfactory due to a relatively hidden position. There exists the possibility that after a certain period, in the next several years, the scar descends from the ideal place in the groin 1 to 2 centimetres lower, which is aesthetically unpleasant and demands correction.

Before the tightening of the skin on the thigh

After the tightening of the skin on the thigh

TIGHTENING AND REDUCTION OF THE SKIN ON THE UPPER ARM (BRACHIOPLASTY)

The upper arm with excess fat tissue is a classical indication for liposuction, and if there is redundant skin which cannot retract, a classical surgical intervention is necessary (dermolipectomy).

The appearance of excess loose skin in the area of the upper arm, which is especially visible when the arm is in a position away from the trunk, is characteristic of old age, when there is muscle atrophy, reduction of subcutaneous fat tissue and reduced elasticity of the skin itself. Similar problems can manifest also in younger persons who rapidly lost a large amount of weight. Taking into account both groups, we come to an age of female patients aged between 50 and 70 in whom both of the above problems intertwine.

With the introduction of laser for skin tightening and laser lipolysis, the tonicity of the skin following liposuction of these areas has improved, and thus the number of classical dermolipectomies of the upper arm has gone down.

Also, techniques have been developed which use special threads which are placed spirally around the upper arm, in order to additionally tighten it (aptos).

All of this is done to avoid a classical operation and the subsequent post-operative scar which is rather visible, especially when short sleeves are worn.

INDICATIONS

Indication for the above operation is redundant skin or both the skin and subcutaneous fat tissue in the area of the upper arm.

PREOPERATIVE CARE

It is necessary to do a complete check-up of the patient by means of laboratory analyses of blood and urine, ECG and, if needed, the examination by the internist.

ANAESTHESIA

The intervention is usually done under local tumescent anaesthesia, but it may also be done under general anaesthesia.

OPERATION

With a cut on the inner (medial) side of the upper arm redundant skin and underlying fat tissue is dissected and removed. The wound is sutured in layers according to the principles of aesthetic surgery.

POST-OPERATIVE COURSE

The carrying of bandage over the upper arm during several days is mandatory, followed by the compression garment for a period of 2 – 3 weeks. The sutures are taken out in approximately ten days or they are absorbed. In the first days after the operation heavy work with the arms mustn't be done.

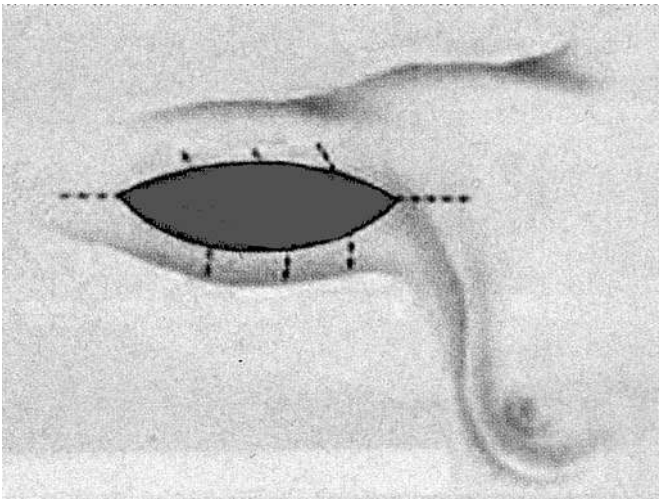
COMPLICATIONS

Complications are rare, and, as with all other surgical interventions, there is a possibility of haematoma, seroma and infection.

THE SCAR

The scar is situated in the inner side of the upper arm and in such a way well hidden. If the wound is sutured with quality sutures and respecting the principles of aesthetic surgery, the scar will be minimal, but must be visible in the entire length of the incision.

There is a possibility of the creation of keloid more than on other places on the body. In principle, the wound requires a follow-up by the surgeon, and the same goes for the scar. In such a way, a timely therapy, if needed, can be applied.



Plan for the excision of skin from the inner side of the upper arm

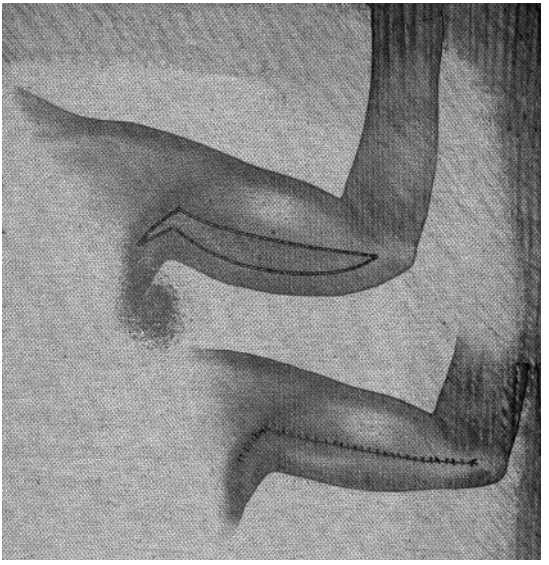
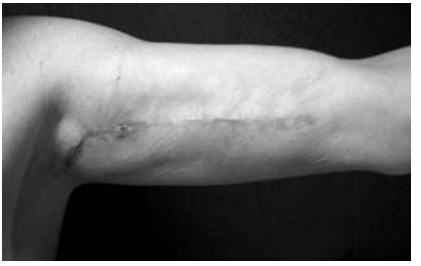


Illustration of the excision of the sking of the upper arm and part of the armpit region



Before the operation of tightening and reduction of skin on the upper arm

After the operation of tightening and reduction of the skin on the upper arm

CALF AUGMENTATION
(AUGMENTATIO CRURIS)

An ideal appearance of the calf is compared to the champagne bottle turned upside down. The lack, or rather, insufficiently pronounced shape usually conceals an insufficiency of the inner (medial) and rear (posterior) contour of the calf. The cause of this condition is a muscular hypotrophy of the inner and/or outer (medial and posterior) side of one or both calves. This can be a congenital or acquired condition, due to illness, trauma and the like. Sometimes it is merely an unsatisfactory contour of the calf which the patient wishes to have aesthetically corrected.

The procedure of correction is similar to other augmentations on the body (breasts, gluteal region, etc.). According to the insufficiency of the contour, a silicone implant is placed in this part of the calf. This implant has a special shape, and it follows pre-operative measurements and determination of the necessary size. The wishes of the (female) patient are taken into account, too.

We believe that with these implants there is a problem, because all the producers offer only implants with a smooth surface, not textured. Therefore, the number of observable capsules is rather large, i.e. the contour after a certain period is not soft any more, but overly accentuated, conveying an appearance of artificiality.

It is precisely due to the above facts that more and more surgeons nowadays are opting for the method of fat tissue transplantation, providing there is excess fat tissue on some other part of the body. In that case the intervention must be carried out in two acts, 3 – 4 months apart. The end result, however, is durable and natural, both in appearance and upon touch. We are dealing, after all, with the consistency of normal tissue.

INDICATIONS

Hypotrophic medial-posterior musculature of one or both calves which results in an aesthetically unsatisfactory contour.

PREOPERATIVE CARE

Before the surgical intervention the circumference of both calves must be measured below the knee, in the middle third of the calf and above the ankle. In such a way, the desired size of the implant is obtained. It is best to make a

trial sample of the desired size from appropriate soft tissue (sponge) and try it out with the aim of finding the desired contour. Only after these preparatory steps can we decide on ordering of the appropriate implant corresponding in the greatest possible degree to the existing condition. Other preparations in principle depend on anaesthesia under which we plan to do the operation, and they also include the assessment of the health state, ECG and mandatory photographing.

ANAESTHESIA

The intervention can be done under spinal or general anaesthesia. The implant can be replaced under local anaesthesia.

OPERATION

The surgical intervention lasts 1 – 2 hours. A cut is made in the skin and subcutaneous tissue in the area of the posterior fossa of the knee choosing natural grooves, whereupon the site for the implant is prepared and finally, following haemostasis the implant is put into place. It is immobilized with wide adhesive strips in the desired contour. The incision is closed in layers. The calf is bandaged compressively.

Similar rules apply for the bandage and compression after the transplantation of fat tissue.

POST-OPERATIVE COURSE

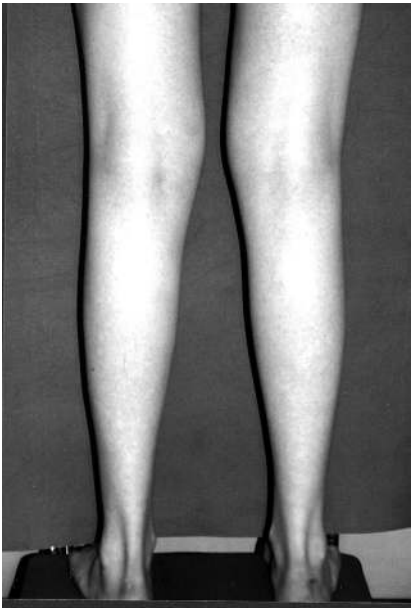
The patient rests in the medical facility until recovery from anaesthesia. After the control bandaging the (female) patient is discharged to home care with an advice to move moderately during one week, with a mandatory wearing of the compressive bandage. After ten days the immobilizing adhesive strips are removed from the calf and the sutures are taken out. For the next 2 – 3 weeks the wearing of compressive socks is recommended.

COMPLICATIONS

As with other implants, there can be haematomas, seromas, infection or movement of the implant to an undesired position.

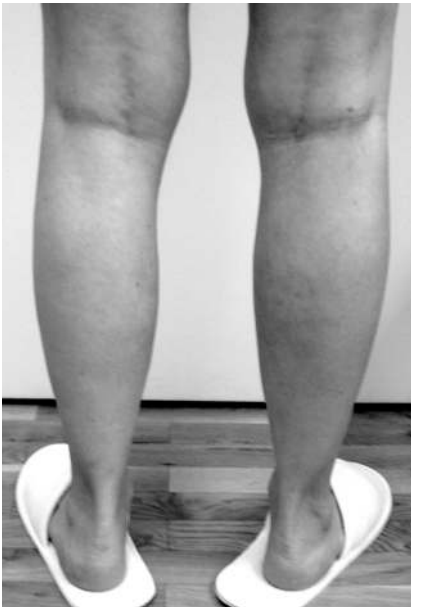
SCAR

With regard to the location the scar in the posterior fossa of the knee the scar is hardly perceptible.



Before the operation of calf augmentation with silicone implants

After the operation of calf augmentation with silicone implants



Before calf augmentation with transplantation of fat tissue

After calf augmentation with transplantation of fat tissue

AUGMENTATION OF THE BUTTOCKS
(GLUTEOPLASTY)

With an ever greater reduction of clothes, or adaptation to the anatomic shape of the body, fashion has addressed the issue of aesthetic correction of the buttocks which have their natural contour, subject to the process of aging or trauma. The desire is, simply, to achieve as good looks as possible.

Surgery is resorted to for constitutional, acquired or otherwise aesthetically unsatisfactory contour of the buttocks on one or both sides, linked to the contour of the back, the loins and thighs. Surgical augmentation of the gluteal region can be applied also on saggy (ptotic) buttocks, which usually appears as a consequence of aging, the force of gravity or as a result of significant reduction of body mass. With implants the buttocks are filled out and lifted. Special silicone implants are used for the augmentation of the buttocks, following their shape and consistency, or the augmentation is done with transplantation of fat tissue.

INDICATIONS

Hypoplastic, ptotic or asymmetric buttocks, whether congenital or acquired by trauma, or simply as a result of aging.

Important: nowadays lipofilling – filling out with fat tissue as natural material is used more and more, provided there is a suitable donor region, i.e. an excess of fat in some other body part and in sufficient quantity.

Along with lipofilling, frequently used are the methods involving the placing of surgical stitches – surgical suture in order to lift and tighten the loose buttocks (Serdarev).

PREOPERATIVE CARE

With regard to augmentation it is necessary to precisely plan and determine the size of the implant. It is advisable to perform a test with hand-made insert of the desired and presumed size. Only then can a definitive decision by made on the dimension of the actual implant. Laboratory tests and ECG should be done according to the requirements of the chosen anaesthetic procedure.

ANAESTHESIA

This operation is usually done under spinal or general anaesthesia.

OPERATION

The gluteal fold is the best place for the incision through which the implant can be placed into the left and right gluteal region. It is advisable to administer antibiotic prior to the intervention. In previous times the implants were placed subcutaneously, submuscularly, while today the intramuscular placement of the implant is preferred as the best solution, with a long-lasting satisfactory result. The wound in the fold is closed by layers, and the area in which the implant is placed is being drained. The operation takes 1 – 2 hours.

POST-OPERATIVE COURSE

Antibacterial therapy should be continued for a few more days following the surgery. A day or two after the operation the drains are taken out, and the compressive bandage remains for 2 – 3 weeks after the operation. In the first ten days it is advisable to avoid sitting. The patient should be warned that she should signal the presence of gluteal implants every time an intramuscular gluteal injection is about to be administered.

COMPLICATIONS

Most frequently appearing are the haematomas, seromas, infections and the formation of a fibrous cocoon around the implant with ensuing displacement from the desired position.

SCAR

With regard to the position of incision in the gluteal fold, the scar is almost imperceptible.

AESTHETIC AND RECONSTRUCTION SURGERY OF THE FEMALE SEXUAL ORGAN

According to the research on sexuality a significant part of the female population is dissatisfied with the appearance and function of their sexual organ. Inappropriate aesthetic looks, as well as inadequate sexual pleasure can be a consequence of congenital asymmetry, age or childbirths. Disordered anatomy which can be a consequence of various gynaecological conditions (descension of interior sexual organs and bladder with urine incontinence, myomas, etc.) is clear indication for surgical consultation. However, the woman (or a pair) who seeks a discussion about improved sexuality is almost impossible to meet in the waiting rooms of gynaecological clinics.

Indications for a surgical intervention which includes the reconstruction of a part of external female genitalia are related to anatomic changes of the skin, muscles and connective tissue of the genital system.

During delivery, while the child is passing through the birth canal, the muscles and connective tissue of the pelvic floor and vagina stretch and lengthen irreparably. This weakening of the muscle tone gradually results in lengthening, and, at the verge of the third age, the pelvic organs can be found in a descended position. Sometimes the "vaginal relaxation" appears also in women who never gave birth. Here the cause may be an inherited weakness of the supporting tissue, constantly increased intra-abdominal pressure due to chronic coughing or obesity. Additional risk factors are: nicotine (destroys connective tissue), sexual habits (anatomy of the partner), and race (Caucasian women are more susceptible compared to Asian or African women). In post-menopause the condition worsens during the process of aging and hormonal insufficiency. General symptoms which motivate the women to seek help for the syndrome of loosening of muscular tightness depend on which organs are affected. Frequently there is a feeling of heaviness or fullness. A smaller or greater quantity of urine can be released involuntarily during laughing, coughing, walking, running, even during sexual intercourse. Sometimes increased pressure in the abdominal cavity can push out the pelvic organs even in front of the vaginal opening. In case of an incipient compromise of the tightness of the pelvic floor, as the symptoms are mild and there is no major anatomic change, the so-called Kegel's exercises can be effective (the woman will easily learn them from an experienced physiatrist). Alternatives include electrostimulation of the vaginal muscles and the pelvic floor, and the modern approach – vaginal tightening induced by laser.

The operation with which more pronounced problems are being resolved often includes removal of the uterus and ovaries (depending on age), but also the reconstruction of the lower third of the vagina and the perineum. In such a way, the pelvic floor and the vaginal passage are regaining tightness.

The above interventions are done in a hospital and demand usual preoperative examination (laboratory check-up, x-ray of the lungs and heart, ECG and urodynamic examination of the urinary bladder and the urinary tube. General anaesthesia is used (endotracheal), and the operation may last from 30 minutes to several hours.

The reasons for the operation of this level are "clearly justified" within the scope of classical medical thinking.

However, what to say to a woman who doesn't have such strictly medical indication but nevertheless seeks help and advice because of a "dirty" desire for aesthetics and pleasure?

For a successful discussion about the improvement of sexuality by means of a surgical scalpel or laser, the physician should be demonstrate appropriate understanding and have a dedicated time schedule for such consultations.

A woman may have uneven labia minora and wishes to get them equalized. One of them can be so long that during intercourse it enters into the vagina causing pain. The procedure of shortening the labia is called reduction labiaplasty.

Some women want a youthful appearance of the outer genitalia. Namely, the feeling of sexual touch, especially after several births, is significantly altered. Oftentimes there is a visible significant gap between labia majora and labia minora and an ugly, broad outgrowth (bump) on the perineum which was incised during delivery. The former sexual excitement during intercourse diminishes, and the frequency and quality of orgasm are dramatically changed. With perineoplasty the opening of the vagina is narrowed and the lower parts of labia majora are brought to the central (median) line.

In some cases (age or other factors) the labia majora are shrunk. Their fullness can be achieved by transplanting fat tissue from another place of the body into the labia. With the same method fat deposits can be removed from the mons veneris or thighs below the labia majora and thus achieve an aesthetically satisfying contour of the outer sexual organ. Minimally invasive microsurgical sculpting is an art of changing the bodily form in which, by aesthetic surgical interventions, portions of unwanted subcutaneous fat tissue are removed, in much the same way as the sculptor

gives shape to a stone. The above procedure is minimally invasive. You will be the only person to know that you had an operation.

After an orderly healing no traces are left. The scars from the cuts are practically invisible (neither longer nor broader than this line: -). In the good hands the complications of this procedure fall below 1%.

Contemporary way of life and fashion which promote an intensive bodily activity (programmes of exercises, fitness, extreme sports) can easily injure the hymen. It is not rare that women for the purpose of proving virginity demand a plastic operation of the hymen whereby its original form is restored.

All the above mentioned procedures are of aesthetic nature, done for cosmetic reasons, and can be performed under local anaesthesia. The operations are done electively, only upon the explicit demand of a woman.

The interventions with the purpose of increasing female sexual pleasure are elective, too. Here, the relaxed part of the female genitalia which participates in the sensation of pleasure or the sensation preceding orgasm is reconstructed: the lower third of the vagina is narrowed, as well as its inner and outer diameter and the perineum is lifted. Even the reconstruction of vaginal folds is possible. These aesthetic interventions are relatively short. A skilled surgeon performs them with a scalpel or laser (results are the same) in a well-equipped private clinic.

Ethically, although this is a matter of contention around the world, these procedures are not debatable.

The desire and pleasure of a woman who decides by herself about her body is a sufficient motive. The general acceptance of aesthetic interventions on "visible" parts of the body (nose, face, breasts), additionally strengthen the decision in favour of this approach. On the other hand, the American College of Obstetrics and Gynecology recommends: "The physician must pose questions about sexuality. Is the intercourse acceptable for the women (in certain circumstances)? Are there any dilemmas related to sexuality? Are there any obstacles to reaching an orgasm?

The arguments favouring aesthetic interventions on female genitalia in ethical disputes include the role of urology, which deals, among other problems, with male genitalia and sexuality. According to the opinion held by many, urology is, in up to 50% of presenting complaints, actually dealing with problems of male potency, penile erection and appearance of male genitalia. There are, meanwhile, more than 20 drugs used to arouse male sexuality and around 200 splints or prostheses which relieve impotence.

Anything comparable to assist women in their sexual problems cannot be found presently anywhere around the world.

According to American surveys, there is also a great interest for aesthetic operation of the genitals among lesbians.

Aesthetic and reconstructive interventions can prolong pleasure and happiness, and an optimism which such a woman radiates is a clear indication of a significantly better quality of life.

POSSIBILITIES OF AESTHETIC CORRECTIONS

Pubic mound, *mons pubis* – liposuction, tightening

Inner labia, *labia minora* – reduction

Outer labia, *labia majora* – augmentation by transplantation of fat tissue, classical surgical reduction

Clitoris – excision of the skin of the prepuce

Vagina – reconstruction of the hymen (hymenoplasty), classical narrowing of the vagina by perineoplasty or laser-induced tightening, augmentation of the G-spot with hyaluronic acid or transplantation of fat tissue (lipofilling).

REDUCTION OF THE INNER LABIA

The reduction of the inner labia is possibly the most frequent correction on the female genitals today.

INDICATIONS

A real medical indication for the reduction of the inner labia is the condition in which during penetration a part of the labia are pulled in, making the intercourse painful.

A heightened interest is observed among naturists, women who ride bicycles, practice fitness, wear tight pants. Of course, along with the above medical indication which is related to intercourse, all other are more of the aesthetic nature.

PREOPERATIVE CARE

Upon arrival to the clinic the usual examinations necessary for local anaesthesia are being done. This is followed by showering, changing into operation clothing, informing on the way in which the intervention is done, the surgeon's check-up and determination of local status, taking into account the wishes of the patient. As always, photographing of the preoperative state is mandatory.

ANAESTHESIA

The intervention is done comfortably and absolutely painlessly under local anaesthesia. The anaesthetic mixture contains a vasoconstrictor substance which narrows the blood vessels and reduces the formation of haematoma; in this way, also, the post-operative course is shortened.

OPERATION

The inner labia can be reduced in several ways by various cuts and techniques. The removal of redundant skin and an unwanted shape of the inner labia can be done by classical surgery, radiofrequency knife or laser. It is of essence that the technique used has the least possible impact on the remaining surrounding tissue, because it is by its preservation (avoiding strong burns, etc.) that the process of healing is hastened. According to some techniques, the wound can be left squeezed with special clamps and covered with sterile cover for a shorter period of time. In my opinion, however, it is better to inspect the wound, stop the bleeding if there is any, and suture the wound by layers. We always suture in two layers – the deeper structures and the surface layer. The surface layer is sutured intracutaneously according to the principles of aesthetic surgery. The sutures are absorbable and disappear after about ten days.

It is important not to reduce the inner labia too radically, or almost to the point of removal. They are an important natural anatomic barrier for the entry into the vagina and play a protective role. Also, due to the short female urethra, their anatomy acts to direct the stream of urine during urination in a squatting position, in such a way that the stream is directed centrally, and not sideways into one of the thighs.

The intervention lasts between 30 minutes and an hour.

POST-OPERATIVE COURSE

The patient is discharged to home care with written instructions for local hygiene and treatment several times a day with regular change of underwear.

It is important to stick to the instructions and abstain from intercourse or masturbation until the wound heals completely.

COMPLICATIONS

Larger haematomas, infection, rupture of sutures – wound dehiscence in case of premature intercourse or during masturbation.

Before the reduction of the inner labia

After the reduction of the inner labia

Before the reduction of the inner labia

After the reduction of the inner labia

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After the reduction of the inner labia

REJUVENATION OF LABIA MAJOR

With age, the turgor and surface tightness of the skin is reduced. In case of outer labia, they partly lose the fat tissue and look loose and empty.

Flabby skin can be treated by energy in order to get the effect of rejuvenation. We usually use radiofrequency – produced by the Ellman device – pelleve. It is also possible to work with Nd:YAG laser, following certain protocols, or some other device for radiofrequency rejuvenation.

In order to fill out the loose and hanging skin, and thus get a new volume and lifting, we practice the transplantation of the patient's own fat tissue.

INDICATIONS

Loose skin of the outer labia with a loss of fat tissue and wrinkled surface.

TREATMENT BY RADIOFREQUENCY

This part of the intervention does not require any anaesthesia. The only thing which is felt is mild warmth under the circular motion of the probe and its touch with the skin. Following treatment, there are no special rules for local care except ordinary cream which we apply upon ending the treatment.

PREOPERATION CARE FOR REJUVENATION WITH TRANSPLANTATION OF THE PATIENT'S OWN FAT TISSUE (LIPOFILLING)

The necessary preparations of the patient for local anaesthesia are done, including showering, changing into operation clothes. In agreement with the patient a donor region is chosen from which fat tissue will be taken.

ANAESTHESIA

The extraction of fat tissue from the donor region is done under local tumescent anaesthesia, and the receiving region is anaesthesized with local anaesthetic. This intervention can be done as part of some other operation, e.g. liposuction under general anaesthesia.

OPERATION

Fat tissue is extracted from the donor region with special probes according to Coleman. Fat tissue is extracted by vacuum into the syringes, processed, purified from blood and anaesthetic in a centrifuge, and thus prepared for transplantation.

The outer labia are filled with fat tissue by means of special cannulas. We always go for over-correction, because part of the transplanted material will be absorbed. With the aim of maintaining a permanent result of filling of the outer labia with fat tissue, we usually do a second graft after 3 – 4 months, in the same way. At that time, the acceptance of fat tissue is much better after a new circulation has been established in the receiving region. In such a way we obtain a long-term good result.

POST-OPERATIVE COURSE

After the intervention the riding of a bicycle and intercourse is not recommended for approx. 3 weeks.

COMPLICATIONS

As a rule complications are rare – infection, unsatisfactory result of lipofilling which can be corrected later.

Before augmentation of the outer labia

After augmentation of the outer labia

NON-INVASIVE LASER VAGINOPLASTY

Non-invasive laser vaginoplasty is an intervention which can completely heal or improve to a significant degree the incontinence in women (IncontiLase™), return the feeling of pleasure in sexual relationships (IntimaLase™), and thereby significantly improve the quality of life. This is an entirely painless intervention which almost in a moment relieves the women of a very unpleasant problem and prevents the worsening of the condition and need for surgery at an older age.

Around 40% of women of all age groups, especially those who had one or more vaginal deliveries, due to the overly extended vaginal tissue, report problems with the so-called stress urinary incontinence or reduced sexual pleasure. Although almost every other woman has some problem of the kind, they very rarely approach a doctor on their own. The reason for concealment is usually discomfort and shame, and a number of women see this situation as "normal", especially when they hear that their colleagues and friends have the same problem. However, if nothing is undertaken, with time the problem becomes more expressed and the quality of life goes down. Unfortunately, women will finally seek gynaecological help only when a complete prolapse of the uterus occurs and when the only solution is surgical intervention. For this reason the period between the appearance of first symptoms of incontinence or lower sexual satisfaction and the need for surgical intervention is a time window in which the laser method plays a significant role. It will prevent severe forms of incontinence, a complete prolapse of the uterus and a possible need for surgical intervention.

Tissue trauma during vaginal delivery is the main reason of stress incontinence, however, it is not the only one. Vaginal delivery causes irreparable stretching of collagen which is found in the connective tissue of the pelvic diaphragm. Collagen is a protein which is an important factor of strength and elasticity of the muscles and connective tissue. During vaginal childbirth it is not only the vagina that expands, but the surrounding tissue as well – the urethra, urinary bladder and the ureter. Sphincter, the muscle which closes the urethra becomes less functional and starts to leak urine in stress situations such as running, walking, coughing, sneezing, laughing. Those who think that birth by a caesarean section will reduce or prevent stress urinary incontinence are wrong. Namely, during pregnancy the vagina is increased and extended, but after birth it returns, almost entirely, to its previous dimensions. Unfortunately, this is not the case with the connective tissue of surrounding structures, and they remain irreversibly extended.

Moreover, the problem of stress incontinence can plague women who never gave birth and those who are still young. Usually these are sportswomen who are exposed to extreme bodily exertions in terms of landing on solid ground, e.g. in athletics or skiing. In these women incontinence is a consequence of the pressure of the vertebral (spinal) column on the roots of nerves which innervate the urinary bladder, so that frequently an additional consultation with a neurosurgeon is necessary.

ONLY TEN PERCENT OF WOMEN SEEK HELP

The muscles of the pelvic floor are the strongest in the twenties; following delivery their strength is reduced, so that already 4 to 6 months after birth women can manifest symptoms of stress incontinence. Usually these symptoms resolve by themselves. However, the strength of the muscles of the pelvic floor will never be on the same level as before, because the process of stretching continues. Unfortunately, only around 10% of women lay out this problem when consulting a physician. Women see the gynaecologist for the purpose of scheduled yearly control, due to bleeding, pregnancy, pelvic pain, contraception and various other needs. The questioning of any other symptomatology usually meets with a negative answer. It is only after direct discussion of incontinence that they admit to the problem, which, however, they tend to consider as a "normal" state due to the same experiences shared by their friends and relatives. This is precisely the moment when the physician should encourage a dialogue about the prevention of possible future need for a surgical intervention. The number of operations which address stress incontinence is on the rise continuously in the last twenty years. Surgical intervention is not innocuous and in spite of the "minimally invasive" approach, complications occur frequently, as well as unwanted outcomes. Some of the problems are anaesthesia in older age, difficult healing, discomfort in sexual life, need for the repetition of the intervention, etc. Therefore, it is necessary to stress the need for a non-invasive preventive approach and treatment of stress urinary incontinence as early as possible. In this the laser method is among the most efficient ones.

In the treatment of stress incontinence various non-surgical methods are used, such as external magnetic innervation of the muscle neurons of the pelvic floor, electrostimulation of the muscles of the pelvic floor, radiofrequency therapy, stimulation of the sacral nerve, exercises according to Kegel, all the way to the so-called "bulking" methods where certain agents are injected which strengthen the sphincter. Nevertheless, none of these methods has shown results in controlled randomized studies that would confirm them as a standard therapy. The best results can be achieved by exercises according to

Kegel, provided they are performed correctly and on a regular basis, which women rarely do, because of their other daily life obligations. This is why the results fail to manifest. Of the surgical methods the least invasive are those which are done in a day hospital, like the placing of small nets or bands below the urethra with the aim of lifting it and in such a way preventing incontinence. But, these are surgical interventions nevertheless and they have their risks. The eagerness for a better solution, and a completely non-invasive method which will yield good results, gave rise to the laser method.

REJUVENATION OF UP TO 10 YEARS

Laser non-invasive vaginoplasty which literally "rejuvenates" the vagina reverting it to its original shape and tightness is based on the technique whereby precise doses of short-term laser ray energy are directed at a high temperature (around 60°C) to a depth of 0.7 mm, thus sparing the surrounding organs from possible damage. Photo-thermal laser effect shortens the existing collagen for as much as two-thirds and induces the creation of new collagen from fibroblasts, the basic cells of connective tissue. With this intervention the strength of the targeted tissues is achieved, so that their quality can be compared to the one ten years back, i.e. approximately to the state before childbirth.

This is a principle which has been used for a long time for a mild "face-lifting", in mild traumas of knee ligaments, and more lately in the treatment of snoring where the collagen in the thin muscles of the palate, pharyngeal arch and uvula is shortened. As the photo-thermal effect has shown such good results in these applications, the idea was born to treat the urogenital region with the same technique.

RESULTS OF A CLINICAL STUDY

In the first scientific study of this type in the world, which was performed in Croatia, more than 200 female patients took part. The study was performed in collaboration with the School of Medicine in Rijeka. There were two groups of patients – the intervention group which was treated by laser, and the control group in which the patients did only physical therapy exercises according to Kegel. The women from both groups had the same symptoms and histories, they were all pre-menopausal, had two children of similar weight at birth, all born vaginally, were not obese, and all had some obstetric operation (from episiotomy to vacuum and similar). The capacity of contraction of the pelvic muscles and vagina before and after therapy – laser or exercises – was followed-up through the analysis of six parameters recorded before and after the intervention. The results were more than encouraging. It was shown, for

example, that the patients from the intervention group after laser treatment had fewer episodes of incontinence or became fully continent. Their quality of life has visibly increased. Measurements by perineometer, a diagnostic device which measures maximum and average pressure in the vagina during squeezing and the duration of the squeeze, showed that in the intervention groups there was a distinct change for the better. The duration of the squeeze increased from 14 to 25 seconds on average. Q-tip test, with which the mobility of the bladder neck is measured, showed that in the patients from the intervention group after the intervention the bladder neck showed less pathological movement, which means that the muscles were stronger. The measurements of residual urine, i.e. the quantity of urine which remains after urination, showed that after laser therapy the average quantity of residual urine decreased from 9 to 1 millilitre. In the control group which did only the exercises according to Kegel there was no significant improvement in any of the parameters.

The dilatation and lesser squeezing ability of the vagina reduce sexual pleasure of both partners. The method of laser vaginal rejuvenation brings about a significantly improved sexual function and pleasure. On the other hand, in the group of patients who did only the exercises this effect was not observed.

Irrespective of these very encouraging results, one should bear in mind that the non-invasive laser vaginoplasty, as well as any other method of treatment of stress urinary incontinence is not efficient unless there is an additional engagement of the patient. In other words, to maintain the results achieved with the intervention, it is necessary to make appropriate lifestyle changes: smokers should quit smoking, obese women should go on a reduction diet, and all patients should avoid excessive physical effort such as carrying of heavy weight, otherwise the effect of treatment will soon wear off. It is desirable to maintain the improved tonus and strength of the pelvic diaphragm by regular use of vaginal cones of different weight.

OBESITY, SMOKING AND CERTAIN DRUGS CAN REDUCE SUCCESS

In order to achieve the best possible results the appropriate choice of patients for treatment with non-invasive laser vaginoplasty is important. For instance, if a women is obese and doesn't reduce her weight before the intervention, none of the known methods will help her. On the other hand, in a woman with stress incontinence and a body mass index (BMI) over 35, the mere reduction of the BMI under 30 will reduce the degree of incontinence and perhaps she will not need the intervention at all.

Also, women who are chronic nicotine addicts have a constantly increased intra-abdominal pressure and, unless they reduce the number of cigarettes or quit smoking, hardly any method will help. In addition, women who have stress incontinence and are concomitantly taking certain drugs, e.g. antihypertensives, should check the side-effects of these drugs, because some of them can cause a frequent drive to urinate. In that case, the mere changing of the antihypertensive can solve the problem.

It is vital to be able to differentiate stress incontinence from the so-called urgency incontinence. In urgency incontinence there is no stress component, but symptoms such as a strong drive to urinate accompany auditory sensations of flowing water or appear at the moment of entry into sleep. In these cases, we are speaking of the so-called "overactive bladder" syndrome, i.e. an over-sensitive bladder. This problem can be treated with drugs taken orally. Still, these two types of incontinence are often confused so that the combination of laser intervention and drugs can be of great help for these patients.

PAINLESSLY, QUICKLY AND EFFICIENTLY

The prerequisites for the implementation of non-invasive laser vaginoplasty are simple: a normal general gynaecological status, normal Papa test, sterile urine culture and cervical swabs for sexually transmitted microbes. The intervention is performed as an outpatient procedure and does not require anaesthesia. It last between 30 and 45 minutes. Sexual abstinence and avoidance of sports and excessive physical activities is recommended for three weeks after the intervention. This is the time when the first follow-up control is due.

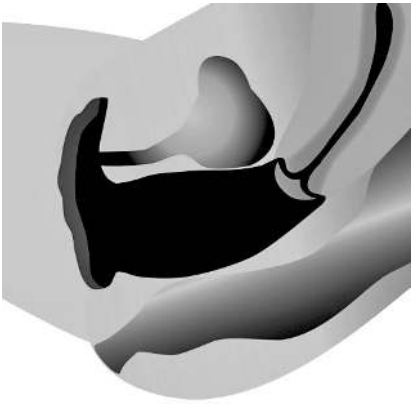
AESTHETIC INTERVENTIONS – VAGINAL REJUVENATION

After vaginal delivery the tissue of the vagina is sometimes loose, outer labia are not pressed against each other, the vestibule of the vagina is visible, the scar of episiotomy additionally worsens the appearance of the outer genitals. We see more and more women who wish to mitigate or completely eliminate these changes with aesthetic interventions. The classical surgical intervention is very efficient. With the so-called perineoplasty, redundant extended tissue is cut out, the scar of episiotomy is removed, and an aesthetically and functionally acceptable state is reached.

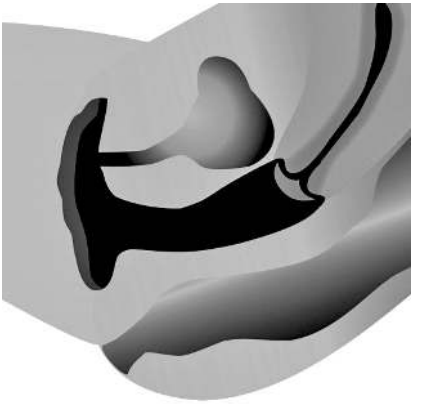
Due to discomfort, prolonged healing or fear of possible complications some patients refuse a surgical approach. In such circumstances, providing the preconditions are met, visible results can be achieved with a new radiofrequency method Protégé Intima™. This is the first fully non-invasive non-surgical system for the reshaping of the outer labia. An improvement in

sexual pleasure is expected as well. The results are visible immediately after the first treatment. A singular system of safety settings makes the intervention extraordinarily comfortable and safe. It lasts 20 minutes, does not require anaesthesia or any other form of pain control. The intervention itself does not require recovery or rest, so there are no limitations for an immediate return into the daily rhythm. The indications are simple – dissatisfaction with the appearance of the outer genitals, looseness of the outer labia which causes functional and aesthetic insecurity, reduced sensation during intercourse.

The intervention lasts around 20 minutes, it is completely non-invasive and comfortable, and should be repeated in cycles 5 – 7 days apart. Four or five treatments are needed to achieve a durable end-result, although the aesthetic and functional difference is visible almost instantly after the first intervention.



Vagina before the laser treatment



Effect of narrowing of the vagina after laser treatment

IncontiLase™ fractional non-ablative treatment of the anterior wall of the vagina

Before perineoplasty

After perineoplasty

AESTHTETIC CORRECTION OF THE MALE GENITALIA

CIRCUMCISION

This intervention is included among aesthetic surgical interventions, although apart from the aesthetic, it has also religious and medical grounds. In earlier times the indications for circumcision were religious and medical (phimosis, frequent inflammations of the glans and prepuce), but today their range is broader – this intervention is also indicated as preparation for the thickening of the penis as well as for purely aesthetic reasons. Phimosis is a condition in which the foreskin (prepuce) cannot be retracted over the glans of the penis, i.e. the head of the male genital. This condition may be congenital, in which case the patient presents with a long and narrow prepuce and a short frenulum (part of the prepuce which connects it to the glans). Often during urination we see a ballooning of the prepuce. Thus, urination is slowed down, and there are frequent infections and consequential inflammations which in turn lead to further narrowing. Acquired phimosis manifests usually in older age, due to scarring changes in the prepuce as a consequence of frequent inflammations and trauma. Every inflammation presents with a swelling in the first phase, and upon its receding, with the appearance of scarring (fibrous) tissue. In such a way the prepuce gets smaller, i.e. the opening narrows. The retention of urine in the space of the narrowed prepuce, along with the smegma and exfoliated epithelium, is a frequent cause of repeated inflammatory processes of the glans and prepuce (balanoposthitis). Chronic inflammatory change can be linked with the onset of penis carcinoma in adults. The narrowing can be so tight as to compromise urination, and make sexual intercourse nearly impossible.

It is important to mention the condition called paraphimosis which appears when a forceful attempt is made to retract the inflamed or altered prepuce (by fibrous changes) over the glans whereupon the prepuce cannot return any more into the normal position. Similar condition can occur in case of ordinary erection or during an attempt of sexual intercourse. It causes a severe obstruction of venous and lymph circulation, which leads to a further swelling of the glans and the prepuce. If such a state persists, gangrene of the prepuce can occur. When the obstruction is so severe that it disables arterial circulation, a gangrene of the glans may occur. In addition to visual finding, these processes are accompanied by severe pain, so that patients presenting with this condition must undergo urgent surgery, provided manual reposition is impossible.

Religious reasons for circumcision exist among certain religious groups, where at a certain age of life ritual circumcisions are done.

INDICATIONS

Religious, aesthetic, medical – recurring inflammation of the glans and prepuce, or phimosis.

PREOPERATIVE CARE

In children, the intervention is done under general anaesthesia, following laboratory check-up of blood and urine as well as an examination by the paediatrician. In older children the intervention is done under locally potentiated anaesthesia.

OPERATION

In circular circumcision a cut is usually made in the zone in which the body of the penis and the glans join, excess tissue is removed, haemostasis is done and the wound is sutured with absorbable sutures. These sutures will disappear within approximately ten days. The intervention lasts about 30 minutes.

In case of an urgent intervention due to paraphimosis, a dorsal incision is made under local anaesthesia which enables the retraction of the skin over the glans into a normal position which will not disrupt the circulation any more. Full circumcision can be made later.

POST-OPERATIVE COURSE

The vaseline gauze and bandage around the penis remain for several days. After that, the penis is cleansed daily with neutral soap in lukewarm water, and antibiotic cream is applied locally. The operations are done on an outpatient basis which means that the patients after recovery from anaesthesia are free to leave the clinic and continue with home care, with the obligation to see the surgeon for follow-up. Until the wound heals, sexual intercourse is forbidden.

COMPLICATIONS

Bleeding, major scar, but in principle they are very rare.

LENGTHENING OF THE PENIS

The possibility of lengthening of the penis by surgery was discovered in the 20th century by the renowned urologist Beminghaus. In the golden age of classical surgery and urology he realized the possibility of elongation of the penis by cutting the suspensory ligament which connects the pubic bone with the body of the penis and envelops it like a fan. Following this step, new discoveries followed, but everything boils down to the fact that penis has its outer, visible part and an inner one which is not visible. The relationship of the outer and inner part can be changed in favour of the outer one, due to changes in the position of the root of the penis and its angle towards the body. The first extensive experience on a greater number of operations was obtained by paediatric surgeons in the 1970s who surgically corrected congenital anomalies, e.g. the exstrophy of the urinary bladder. In those cases the cavernous bodies of the penis are at a distance from each other and with their drawing closer together an outward protrusion of the shaft occurs, in effect the elongation of the penis. In the mid-1980s Dr Long Daochou in China began to operate on large numbers of patients using the method of cutting the suspensory ligament and designing a "Y" shaped skin flap. The modification of this method, according to some authors is the Z-plasty of the skin at the root of the penis. The space remaining after cutting the ligaments can be filled with surrounding tissue or an insert – a polytetrafluoroethylene roll. This was the contribution by Dr Henne Roos from the South African Republic in the 1990s. Dr Roos published several papers describing this surgical technique and he is probably to be the most credited for its extensive use around the world.

Some surgical methods are rather frequently used today and well commercialized. The vacuum pump is known from as far back as the 1980s, and nowadays various extenders are increasingly advertised. These methods, however, are not medical and such devices are usually sold in sex-shops, not in pharmacies. There exists the possibility that in both of the above cases a forced application lead to a permanent damage of the penis. In vacuum pump the penis must not be held under vacuum for longer than 20 minutes, likewise the stretching with an extender. If these devices are applied long enough, ischaemia may occur and a permanent damage of the fine structure of the tissue – nerves, walls of blood vessels and mechanism of valves in the cavernous body of the penis. The end consequence of the above can be impotence.

INDICATIONS

The prime surgical indication for the elongation of the penis is the length in flaccid state of less than 4 cm, or less than 7 cm in erection (the so-called micro penis). But the differences in the size of the penis are not the same in Europe, Asia and Africa.

The average size of erect penis in Europeans is 13 – 17 cm, in Asians 8 – 10 cm and in Africans 15 – 20 cm. Nevertheless, it is not a rule that Africans have the longest penises, and Asians the smallest. As the length of the penis is different in different human groups, with some individuals this may suffice as a reason for lengthening. Everything else is the so-called wish surgery or luxury surgery. Namely, there is a part of male population which does not put up with aging and the processes of the "mother nature". Such indications are the most frequent on a world-wide scale. Just like other parts of the body can be reshaped (size and shape of the breasts, nose, ears, etc.) the natural state here too, according to demands of the patients, is not final, because corrective surgery has an answer.

To what an extent such and similar operations have become commonplace in urology and gynaecology is well illustrated by the fact that there is not a serious book in this field without a chapter on comparative methods. Precisely due to comparative observation of the male genitalia American sexologists propose comparison on the photographs or in the mirror, because from our own visual perspective of the penis, it always seems optically smaller than in the mirror or on the photograph. Likewise, it is mentioned that the vagina is an organ with a virtual cavity and highly expressed elasticity which easily adapts (childbirth).

Therefore, the size of the penis is not crucial nor is it the only factor in pleasing a woman. However, a comparative finding by itself is not the only reason for undergoing such an aesthetic surgical intervention. Irrespective of the social and intellectual development, man on the threshold of the third millennium is still in crisis, doesn't trust his own abilities, doesn't find security in his culture and other values, and still seeks additional security in his sexuality, i.e. in the dimensions of his penis. Probably this is the primary and reproductive factor, and all the other developments of society, culture, social status and education cannot always and for every man provide enough self-confidence. As regards a successful sexual life, partners should build their mutual and individual pleasure on love, developing a mutually acceptable style and technique of sexual relations. However, aesthetics and its perception is a matter of every individual and remains most intimate and personal; the same is true of the genitalia.

PRE-OPERATIVE CARE

Shaving of the entire region is mandatory, as well as the laboratory analyses of blood and urine, and the ECG.

ANAESTHESIA

The intervention is usually done under spinal anaesthesia in agreement with the anaesthesiologist, but there are specific features which may indicate a general – endotracheal anaesthesia.

OPERATION

Following measurement and drawing of the line of incision, a cut is made in the skin and subcutaneous tissue. The surgeon approaches the lower edge of the pubic bone and cuts the suspensory ligament. The space thus created is filled with surrounding tissue, and the subcutaneous tissue and skin are sutured in a new form of a "Y"-shaped flap.

POST-OPERATIVE COURSE

The patient rests in the medical facility until he recovers from anaesthesia. The sutures are absorptive and disappear in approximately ten days following the operation. It is at that time, that a follow-up examination is due. Abstinence from sexual activity is recommended for 6 weeks after the operation.

COMPLICATIONS

It may happen that the "Y"-shaped skin flap collapses; haematomas may occur as well as infection. For a certain period of time the swelling of the prepuce persists, and it recedes in two weeks.

THICKENING OF THE MALE GENITALIA

The technique of the thickening of the male genitalia is somewhat younger than the technique of elongation, and the first results date from the end of the 1980s (Samitier, Reed). There are two basic methods – the dermal fat graft (DFG) and autologous fat transfer (AFT). In the first method a part of the skin is cut from the edge of the buttocks and prepared for placement below the skin of the penis on the tunica Dartos fascia. The approach is like through a cut for circumcision. The other technique is the transplantation of fat tissue and this method is more generally accepted today.

PREOPERATIVE CARE

The pubic area must be shaven, and previous to surgery laboratory check-up is made of the blood and urine. ECG is done as well.

ANAESTHESIA

The intervention is usually done under local anaesthesia.

OPERATION

In the transplantation of fat tissue, firstly the donor region, i.e. the areas of the body where subcutaneous fat tissue tends to accumulate, is chosen and marked. Usually this is the pubic region, immediately above the root of the penis, or the lower part of the abdominal wall. After the necessary preparations, fat tissue is sucked by negative pressure from the chosen region, prepared and injected into the fascia of the penis.

After the operation, dressing is placed on the penis and then bandaged. Considering the fact that, in spite of all due care and skill, part of the transplanted fat dies away, part is resorbed, and some of it calcifies, we must always put more – an over-correction. It is good to repeat the intervention in 3 – 4 months in order to achieve a thickening result of 4 – 5 mm in diameter. The result will then be permanent.

POST-OPERATIVE COURSE

The patient rests in the medical facility, under professional medical care, until recovery from anaesthesia. The dressing remains on the penis for several days. Antibiotic is given for one week and Diazepam 10 mg in the evening. At first, nightly erections can be painful. Abstinence from sexual intercourse is recommended for 4 weeks after the operation. Likewise, movement for several days after the operation is limited.

COMPLICATIONS

The wound may become infected, or an inappropriate distribution of fat may occur around the penis. If the result is unsatisfactory, the procedure can be repeated after 6 – 12 months.

NOTE

Some authors, i.e. surgeons do the elongation and thickening operations in one act, but in those cases the complications are somewhat more frequent.

AESTHETIC CORRECTION OF THE ABSENCE OF THE TESTICLE (TESTICULAR PROSTHESIS)

In case where one testicle did not develop (agenesis) and for a number of reasons could not have been surgically reconstructed, in the aesthetic sense we get a defect in the scrotal sack. Such an anatomic defect usually creates complexes in men, born out of fear that their defect will be noticed during physical education at school, in the boys' dressing room, during joint showering, or their sexual partner during foreplay. Usually, these are the boys in puberty, or a bit younger and they come to the doctor accompanied by their parents. They have been warned of this defect by the paediatrician or surgeon who operated the child and proposed a subsequent intervention of implantation of a testicular prosthesis. If such support on the part of the parents is missing, these boys grow to adulthood burdened by the anatomic complex and fearing that their defect will be discovered by their sexual partner. They present to the physician for the purpose of operative correction.

INDICATIONS

All conditions in which one testicle is missing in the scrotal sack and the ensuing aesthetic defect.

PREOPERATIVE CARE

The usual laboratory analyses of blood and urine, and the ECG must be performed. Locally, the operation area must be shaved and washed in disinfectant. The existing testis is measured in three dimensions, and in such a way the size of the implant is determined.

ANAESTHESIA

The intervention is usually done under general endotracheal anaesthesia, but can also be performed under spinal anaesthesia.

OPERATION

A cut is made in the lower part of the groin – inguinum, and the bed for the implant is prepared. The implant is placed and tightened with a suture which keeps it in an appropriate anatomic position. After the insertion of the prosthesis the wound is closed by layers using absorption sutures which will disappear after approximately 10 days.

POST-OPERATIVE COURSE

The patient rests in the medical facility until recovery from anaesthesia, whereupon he must observe home care rules. For several days he should abstain from long walks and standing. It is advisable to wear small slim briefs in the initial post-operative period. The wound is re-dressed with the spraying of antibiotic spray.

COMPLICATIONS

Complications are extraordinarily rare. There can be an occasional infection or inappropriate position of the implant.

SCAR

With respect to the location and the natural appearance of scrotal skin, the scar is almost imperceptible.

PROLIFERATION OF GLANDULAR TISSUE IN THE BREAST AREA (GYNAECOMASTIA)

The male breast, as opposed to female, is only rarely the site of pathological processes. The examination of a male breast is similar to the one in women and is based on the inspection of the tissue of the nipple, areola around it and the surrounding skin, the palpation of the gland itself by quadrants – upper outer, lower outer, upper inner and lower inner quadrant, retromammary space behind the areola and the palpation of possible growths in the axillar region. The most frequent pathological change is gynaecomastia, while inflammatory lesions and tumours are rarely seen. In overall obesity there is frequently an accumulation of a greater amount of fat tissue in the breast and around it, which we dealt with in the chapter on liposuction. This is one of the methods of the treatment of this problem.

Gynaecomastia is a process in male breast representing the proliferation of glandular tissue, in one or both breasts. This condition is observed in puberty, but also in adult age concomitantly with the cirrhosis of the liver, Adison's disease, disease of the thyroid, testicular and adrenal tumours, antihypertensive therapy (methyldopa), estrogen therapy in cases of prostate carcinoma, etc. Breast tumours in men are rare. They can be benign (haemangiomas, adenomas) but also malignant as carcinomas and sarcomas.

INDICATIONS

The indication for the classical removal of the gland is gynaecomastia and tumours of the male breast.

PREOPERATIVE CARE

The health state is checked by laboratory analyses of blood and urine, as well as ECG. The area in which the surgical cut will be made is shaved, and cleansed with a disinfectant.

ANAESTHESIA

The intervention can be done under local tumescent or general endotracheal anaesthesia. The intervention takes about an hour or less.

OPERATION

The treatment is surgical. The cut goes around the mamilla, semi-circularly, from 3 to 9 h. With this cut we approach the breast tissue and remove it, and stop the bleeding. The material is sent for pathohistological diagnosis (PHD). The wound is closed by layers, with a continuous suture of the incision itself, according to the principles of aesthetic surgery in order to keep the scar as imperceptible as possible.

POST-OPERATIVE CARE

Compression bandaging during several days, removal of the sutures in approximately ten days.

COMPLICATIONS

The appearance of haematomas is possible, though rarely – today practically irrelevant. Infection may appear, too. The scar is situated in a location where it is almost imperceptible.

HAIR TRANSPLANTATION

LOSS OF HAIR AND BALDNESS THROUGHOUT HISTORY

The loss of hair and all the ensuing problems, as well as the search for the cure are nothing new. For thousands of years men, and even women, of all races have been sharing a common tragedy of premature loss of hair, along with a permanent hope for a miracle cure. This problem is, in fact, much more frequent in men, while in women it is mainly connected to the shaping of the hair and its quality.

The first writings which mention baldness date to approximately 1500 B.C. and are found in the Old Testament (Leviticus).

In the ancient Middle East baldness was considered shameful and meant a public declaration of the loss of manhood.

It is in old Egypt that we first encounter wigs. With respect to the climate and to achieve a better cooling, heads were shaven, and wigs were worn as protection from the sun and status symbols. All the pharaohs were buried with rich wigs for their afterlife.

Egyptians, Greeks and Romans dedicated a lot of time to the search for cure which would arrest the loss of hair and stimulate its new growth.

Samson obtained strength from his hair, and after the Philistines cut his hair, he lost his power and was jailed. In Rome, they advised Julius Caesar to constantly wear a wreath to conceal a balding head. Often, after a victory, he would order the enemy's hair shaved in order to humiliate them.

Hippocrates, who lived before Christ, recognized a connection between loss of hair and sex hormones. He noticed that castrated courtiers (eunuchs) do not lose hair before puberty, even in cases where they had a congenital predisposition for baldness. He was personally preoccupied with the problem of loss of hair, because he himself was balding. He had, what we call after him even today, the Hippocrates's wreath – loss of hair at the top of the head, and remaining hair sideways behind the ears and on the occipital region.

Decorating the hair with feathers (American Indians) and dyeing of the hair (Egyptians) also reaches back into antiquity. However, it is only in the 17th century that a more accentuated decoration with wigs began during the reign of Louis XIII in France. Surrounding European countries and their colonies

assumed this fashion as well. In such a way, the Europeans tried to hide their baldness, or hide dirty hair under beautiful wigs. In the 18th century in England the wearing of wigs was subject to taxation. It is approximately at that time that their downfall begins.

Today, wigs are worn in some countries by lawyers and judges, and more generally persons who suffer from a certain disease, or are under treatment which causes loss of natural hair.

Modern time, with its competition in every line of life and work and the lengthening of life expectancy, generates a need to look young and to have hair.

Modern science has developed methods and ways to reduce the hair loss through appropriate nutrition and lifestyle, as well as methods of hair care and stimulating its regeneration. There are drugs which act on the perfusion and sex hormones, furthermore laser and PRP (platelet-rich plasma) therapy has been developed and, finally, we have efficient methods of hair transplantation.

Along with all of the above, we ought to mention the existence of artificial hair wigs which look entirely natural.

PSYCHOLOGICAL SEQUELAE OF LOSS OF HAIR IN MEN

In the course of history, hair loss was present more or less as an aesthetic problem. It is an open question, however, how this affects the person who loses hair, how that person copes with that fact and the daily progression of baldness.

Both in the past as in the present day, the psychological sequelae are only negative. In men, hair has always stood for self-confidence. People who suffer from baldness have less self-confidence, are more inclined toward depressive moods, and the problem is even greater if the falling out of hair manifests in the twenties, i.e. in the fullness of youth. In these cases the psychological burden is the greatest, while in older age when nearly everyone has problems with hair loss, baldness is a lesser psychological problem.

Only rare media stars successfully presented their baldness and turned it into something attractive, even to the point of becoming sex symbols!

Among politicians the greatest bald headed men were Lenin and Churchill.

Among the actors probably the best known are Yul Brynner and Bruce Willis, and among sportsmen Andre Agassi.

The position of people who are increasingly losing hair or have completely lost it is also determined by current fashion. In the times when men were wearing long hair, it is certain that bald headed men felt bad. In the last 20 years, however, with an increased shaving of the head among the young, this problem is less accentuated, but present nevertheless. Actually, the shaving of the head represents the cheapest solution for people with increased hair loss. The good side of shaving is that eyes will get a better expression, along with the facial bones – cheekbones, jaw.

PSYCHOLOGICAL SEQUELAE OF LOSS OF HAIR IN WOMEN

Since childhood women are under the pressure to be attractive, and hair loss can be a dangerous encumbrance from this aspect. Problems usually do not occur in early youth (except in exceptional cases), but are more frequent during menopause due to hormonal changes which make a woman especially vulnerable.

By contrast to men, in women we are not dealing with baldness, but with thinning of hair, where the hair volume is reduced, thus requiring a different haircut with shorter hair.

WHICH ATTITUDE TO ASSUME AND WHERE TO SEEK HELP?

Irrespective of who is experiencing increased hair loss, a man or a woman, the first person to talk to is the physician. It is up to the physician to make an assessment of overall health and remove any doubt that the hair fall-out is a manifestation of an organ based disease or psychological stress.

Only after this step is completed, we can continue with help to decrease hair loss or even stimulate the hair to grow, by means of transplantation from the hair covered area to the place where it is not present any more or is overly thinned out.

THE LOSS OF HAIR – BALDNESS

The loss of hair has many causes: androgen disorders, genetic predisposition, radiation, hormonal disorder, stress, insufficient nutrition, infection, seborrhea, auto-immune diseases, exposure to toxic substances, the use of certain drugs, and finally aging as an inescapable biological process.

THE LOSS OF HAIR IN MEN

The causes of male baldness have been known for a long time. It is old age which as a process with its pathophysiology directly influences the loss of hair; further on, there is genetic predisposition and the condition of male sex hormones.

The male sex hormone (dihydrotestosterone, DHT) which is responsible for secondary sexual features in men (growth of beard, hairiness) causes exhaustion on the membrane of the scalp skin. Enzyme 5-alpha-reductase transforms testosterone into dihydrotestosterone – DHT which binds to the androgen receptors at the root of the hair. The consequence of this process is an increased falling out of hair and the reduction of hair follicles until they die out. DHT acts on the collagen around the root making it hard, whereby circulation is compromised, the root becomes ever weaker, and the hair thins out until it stops growing. The breakout of the effect of DHT onto the surface is followed by inflammation and the creation of dandruff. Circulation is compromised in membrane capillaries whereby follicular units get less oxygen and nutrients – precisely the factors needed for the growth of hair. The consequence of the above is the shortening of the anagen phase (the phase of growth) and lengthening of the telogen phase – the phase of rest. Hairs become thinner and fall out. Follicular units degenerate and finally bring the scalp into the state of baldness. This form of male baldness is almost physiological, and comprises 95% of cases of male baldness.

For a normal growth it is necessary to prevent the synthesis of DHT, or, if it is there, block it from binding to androgen receptors at the roots of the hair.

According to Norwood's classification of hair loss, everyone can determine for himself the approximate loss and how much transplantation would be needed to fill out the empty areas.

Norwood's scale was invented by Dr James Hamilton in the 1950s, following which Dr O. Tar Norwood modified it in 1975. It has seven clearly defined stages of loss of hair. **A** denotes *anterior* and **V** denotes *circular* falling out of hair which starts at the crown of the head. Whatever the initial stages may be, they all lead toward the stages 6 and 7 which represent final loss of hair.

STAGE 1 represents a male scalp without indication of the areas where the hair has fallen out.

STAGE 2 and 2.A –hairline recedes from the lateral sides of the forehead, but only upwards and backwards from the front line. Conservative treatment is recommended. If improvement is not noticed in 2 years, the person may decide to do hair transplantation.

STAGE 3, 3.A and 3.V – hairline recession deepens in 3.A, and in 3.V there is an area on the crown where there is no hair. Conservative therapy is necessary during 1 – 2 years. If it does not show results, hair transplantation may follow.

STAGE 4, 4.A – deep hairline recession, an area of baldness on the crown. Hair transplantation is recommended.

STAGE 5, 5.A, 5.V – in the 5th stage, the hair recession has progressed, but the crown is still separated from the forehead with a strip of scalp with hair.

5.A – the frontal and crown parts without hair are merged.

5.V – deep hair recession and a large defect on the crown – more advanced changes on the crown than on the front. Hair transplantation is recommended.

In STAGE 6 and 7 – a bit of hair is retained above the ear and circularly at the back (occipital region). Hair transplantation is recommended.

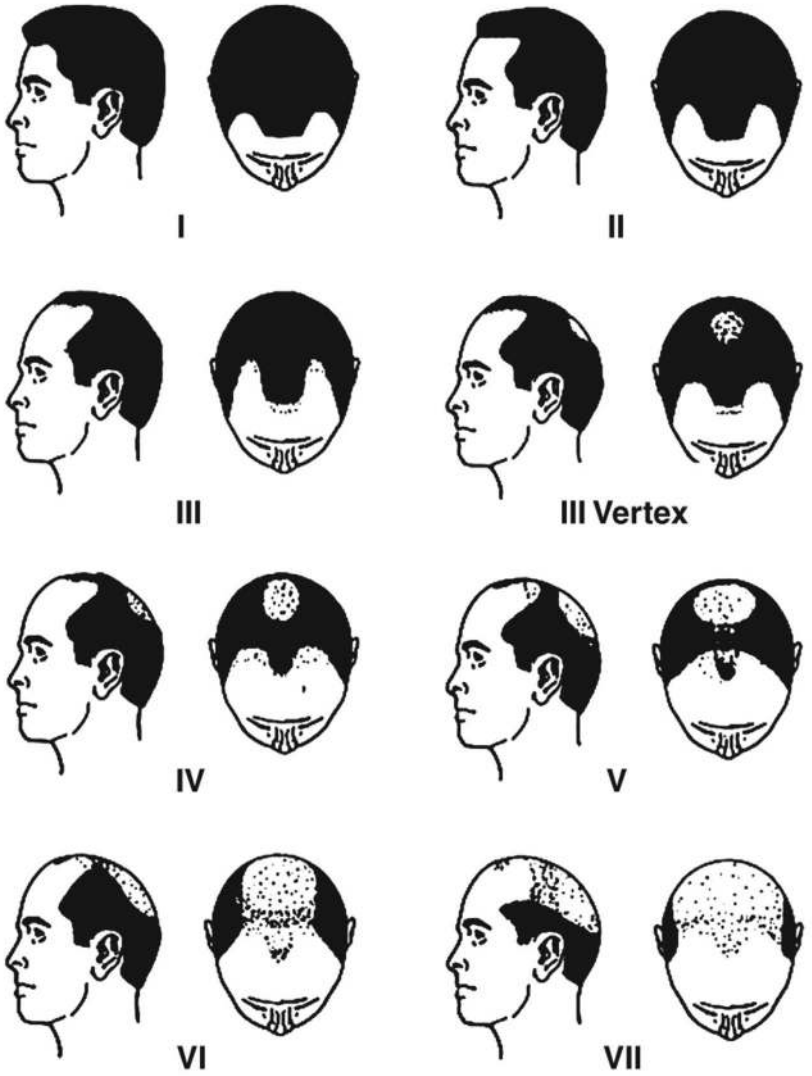
The best known manifestations of baldness (as was previously described) are: frontal retraction of the hairline upwards and backwards, circular falling out of hair on the crown or the rear area of the crown – vertex, and an even thinning out of hair on the above locations – diffuse thinning out. The latter has been classified as a problem in its own right.

There are two types of genetically determined diffuse thinning out of hair: the diffuse patterned alopecia (DPA) and diffuse unpatterned alopecia (DUA).

DPA is an androgenetic alopecia which manifests in equal, diffuse falling out of hair in the frontal part, on the tip of the vertex and in the crown area. The hair becomes thinner and thinner, rarefied, and does not follow the standard pattern of expected hair loss according to Norwood's scale, although the final phase is the same as stages 6 and 7 on the Norwood's scale. Bilaterally above the ears and in the occipital region is a stable zone of hair which provides a possible donor site for transplantation.

DUA is also a type of androgenetic alopecia, but it differs from the DPA because it advances faster, occurs more rarely and ends in the same way as stage 7 on the Norwood's scale. In that case, the donor sites are rather weak and the overall status is not ideal for hair transplantation.

NORWOOD CLASSIFICATION OF HAIR LOSS IN MEN



THE LOSS OF HAIR IN WOMEN

The loss of hair in women is directly connected with a chronic hormonal – androgenetic imbalance, as well as with possible organ disease. Among the other factors, we have stress, anaemia, genetic predisposition, thyroid diseases, fungal infection, menopause, etc. Precisely due to the above reasons, consultation with a physician is mandatory. Statistics show that the number of women who experience a loss of hair is not small – it goes up to two thirds of the total female population.

There are two types – the male type similar to male baldness and female type which manifests in a later age and affects the vertex, progressing with the time.

Internationally accepted and usually quoted is the Ludwig scale. According to it the current state can be determined, and the progression of the process with further loss of hair can also be foreseen.

For STAGE 1 – it is necessary to consult a physician. Following analyses and a check-up of the general state of health, providing no particular cause was found, it is possible to start with conservative therapy – nutrition, vitamins, minoxidil 2%, careful choice of other preparations for washing and hair care. The process may be slowed, and the condition of the scalp may partially improve.

For STAGE 2 – hair transplantation and minoxidil 2%.

For STAGE 3 – hair transplantation.

CLASSIFICATION OF HAIR LOSS IN WOMEN
ACCORDING TO LUDWIG

STAGE 1 *STAGE 2* *STAGE 3*

TREATMENT OF BALDNESS

Alopecia (baldness) cannot be healed, but can certainly be mitigated. It is almost impossible to become bald in one day; likewise, a long time is necessary for the hair to begin growing again. It is important to be patient and not give up in carrying through any of the programmes of treatment.

Today the prevalent opinion is that the tendency and gradual progression towards baldness is irreversible and that the hairs which fall out are lost forever.

However, this process can be slowed down, delayed until some later date.

It is best to start with nutrition. It has been proven that capillary growth and circulation are connected with nutrition, i.e. with certain foodstuffs. Some plants, such as sunflower seeds, grain sprout oil, lecithin from soya are all friends of our hair, hasten its growth, while the contrary effect is obtained by salt, sugar and starch.

Nutrition rich in vitamins A, B and E, as well as iron preparations (iron plays a significant role in the production of haemoglobin which is responsible for the transport of oxygen), act favourably on hair growth. It would be good also to consume zinc – found in sea food. Zinc is responsible for maintaining hormonal balance. In any case, it is crucial to consume as much as possible organically grown fruits and vegetables, as well as protein from light meat products – fish, poultry, etc.

Along with recommendations for nutrition, we should add the cessation of smoking. It has been established that nicotine compromises circulation, especially in small blood vessels and capillaries.

NATURAL BALMS

Natural balms are known since the time of Hippocrates. Today, it is recommended to wash the hair in nettle and the use of etheric oils – a mixture of thyme, rosemary, lavender, cedar, in the base of ordinary water or jojobaplant oil with grape seeds.

Next comes a mixture of honey, olive oil and cinnamon.

Also applied is onion juice, kombucha mushroom tea, etc.

The preparations can be left on the scalp overnight covered by a cap. They can also be applied warmed up, but not heated so as not to destroy the healing properties.

LASER PHOTOTHERAPY FOR HAIR

In the last decade this method has gained popularity. We live in a time when laser technology is used in such a broad range of fields such as dioptre correction, occlusion of enlarged veins, treatment of illnesses and injuries, whitening of teeth, killing of pain, treatment of skin diseases, etc., even the removal of unwanted small hair – epilation.

Low level laser therapy is a kind of cold laser therapy because it transmits only the light energy, not the thermal one. Cells exposed to such rays absorb infrared light and stimulate the microcirculation of blood and lymph. This is also called the photochemical effect. It has proven to be an excellent bio-stimulator for the tissue. Not so long ago, American scientists have proven that laser has a similar effect on follicles as minoxidil – it enhances circulation and supply with oxygen and the nutrients. Also, it enhances the cell metabolism and protein synthesis, and helps in the removal of waste and noxious substances produced in metabolic processes. FDA declared in 2007 the laser comb effective in the treatment of congenital male baldness.

Its application is both in male and female population. Before the application of laser it is important to consult a physician because in some diseases, such as skin tumour, laser therapy is contraindicated.

PRP THERAPY

It is a general view that the future lies in regenerative medicine. When we fall ill, our body only activates its natural defence mechanisms and thus heals itself.

PRP is an acronym for *platelet rich plasma*. This therapy is part of regenerative medicine which is used in combatting aging and treatment of injuries. It uses constituents of our blood – platelets, growth factor and bioactive substances which are necessary in the regeneration and healing. It has no adverse side-effects or allergic reactions, because the patient's own blood is used. New cells and a new vascular system are formed.

Firstly the patient's blood is taken, centrifuged in order to separate platelet-rich plasma from the rest of the blood, and thereupon it is injected into the scalp. This is followed by passing over the scalp with a micro-needle roller several times, in order for the plasma to penetrate into deeper layers of the skin.

DRUGS AND MEDICINAL PRODUCTS AGAINST HAIR LOSS

They are divided into DHT inhibitors – finasteride and dutasteride, followed by stimulants of hair growth – minoxidil and finally anti-inflammatory preparations – special shampoos.

FINASTERIDE (for men) is an oral drug. It is mostly known under the trade names Propecia, Proscar, FIncat, Finax, Finara, Prosteride, Gefina. It is primarily used for the treatment of enlarged prostate, and the discovery of its effect on hair growth was accidental. It inhibits the 5-alpha-reductase enzyme, whereby the conversion of testosterone into dihydrotestosterone (DHT) is disabled.

Finasteride is nowadays avoided in the stimulation of hair growth due to its many side-effects (post-finasteride syndrome) which may last for months, even years after the cessation of its use. These side-effects are: weakened libido, erectile dysfunction, difficulty in reaching an orgasm or its fading, depression, Peyronie's disease and gynaecomasty.

DUTASTERIDE is known under the trade name Avodart. It has almost identical properties as finasteride, only its effect in the treatment of prostate is greater. By contrast to finasteride, the FDA did not approve it in the treatment of baldness.

MINOXIDIL (2% for women and 5% for men) is a solution for external use. It is known as Rogaine, Regaine, Mintop, Avacor. It was initially used to treat increased blood pressure, and only later the effect of hair growth was accidentally observed. With regard that it expands blood vessels, it enables a better circulation in the scalp.

Although these drugs have a scientifically proven effect on hair growth in a certain percentage of patients, they show side-effects and negative consequences.

Thus, in long-term use of finasteride and dutasteride in a certain proportion of men depression is observed, along with impotence, disorders of ejaculation, erectile dysfunction, breast growth, reduced libido and increased hairiness all over the body. For minoxil it has been established that it interferes with heart function, influences blood pressure, causes redness, itching and dandruff on the scalp. All in all, not a nice picture, especially when we know that we are dealing with men between the age of 20 and 50, a period of life in which it is difficult to put up with side-effects which discourage sexual life.

SCALP SURGERY

With respect to the location of baldness on the scalp several interventions are possible. Usually these are skin flaps rotated from the part where there is hair (bilaterally above the ears) and where the hair has quality onto the part which is without hair. The other possibility is excising of the bald part, which is made easier today by placing an expander under the skin and its stretching in order to remove the part without hair.

These classical surgical methods are nowadays almost abandoned, due to the great advance in the transplantation of hair in the last 50 years (we describe the transplantation of hair in a separate chapter).

SOME OTHER POSSIBILITIES IN RESOLVING THE PROBLEM OF BALDNESS

The simplest way of concealing initial hair loss is the emulsion COUVRE – Alopecia Masking Lotion. The other possibility is the application of GLH Formula Number 9 in the preparation of hairdo on the thinning hair.

The classical help in baldness from time immemorial were wigs; they are more in use by women then men. Wigs can be made of real or synthetic hair. With regard to maintenance the synthetic ones are better due to an enormous advance in the technology by which they are produced.

BIO FIBRE represents the implantation of artificial hairs which substitutes natural hair. Every single hair is fastened on the galea aponeurotica on the scalp. They are between 3 and 15 cm long and come in different colours. Regular controls are mandatory. Infections are frequent, as well as rejection of the implants, following which ugly scars are left.

THE FUTURE: MULTIPLICATION AND CLONING OF HAIR

Multiplication and cloning represent the directions of research which carry the greatest promises for success. For a certain period of time we have had news of impending breakthrough, but unfortunately the definitive fix for baldness has not yet materialized.

The concept of multiplication implies the extraction of hair cells from the donor region (where there is hair and where it is healthy – occipitally, bilaterally in the areas behind the ears). After that the cells are made to proliferate in a laboratory and finally re-injected into the patient's bald regions in order to establish the growth of new hair. This is a method of

cellular engineering with which researchers attempt to achieve a new follicular neogenesis – the creation of new follicles of hair. Cloning is similar, the difference being that in this case young hairs are produced in laboratory and classically implanted in the bald region.

One day when the above pathways of research achieve success, surgery will again have its role in the restauration of the scalp, only this time with unlimited donor regions – by contrast to the situation today when a limited number of follicles can be taken from the donor regions of the back of the head and bilaterally behind the ears.

FUE *(FOLLICULAR UNIT EXTRACTION)* – A METOD OF HAIR TRANSPLANTATION

The FUE method of hair transplantation represents a minimally invasive and for the time being the best method of hair transplantation. Its enormous advantage is that it leaves no scars on the donor region. This means that hair can be worn short, head can be shaven and the like. Post-operative recovery is very fast, and the result obtained with this method gives the appearance of natural hair.

PREOPERATIVE CONTACTS, CONSULTATIONS AND WARNINGS

Cherishing the advantages of an individual approach, we always try to organize a pre-operative consultation with potential patients. During the consultation historical data are taken – any organ diseases which the patient has had, or chronic ones for which the patient is currently under treatment, the issue of allergies, possible earlier surgeries, as well as the family history. A classical examination of the scalp follows, with the assessment of the donor and receiving regions, according to Norwood classification (or Ludwig's, in women). On the basis of this examination it is calculated how many follicular units should be transplanted in order to get a satisfactory aesthetic result.

In conversation with the patient it is necessary to cover all the phases which are necessary, from preparation for the intervention, anaesthesia, the intervention itself – extraction of follicular units from the donor region, their care and preservation until the act of grafting, or, rather, implanting into the receiving region and post-operative recovery.

With such an approach a mutual trust is gained and any outstanding issues resolved. The patients prepared in such a way approach the intervention with much less stress.

If the patient lives far away or cannot, for any reason, come to the pre-operative consultations, it can be done by telephone or e-mail. It is important, however, that the patient is photographed – anterior and posterior portrait, left and right profile and a shot of the scalp from above – this is done in a sitting position with the head inclined at least 45 degrees. Both personal and family history is entered into a specially prepared form which includes the list of questions about health. In order for the patient to get acquainted with the procedure we can send him written materials about the FUE hair transplantation, a CD, relevant web-sites and the like.

In pre-operative consultation it is important to warn the patient of the regimen he/she must observe in the period immediately before the term for intervention.

Minimally 2 weeks before the intervention acetylsalicylic acid may not be taken (e.g. Aspirin, Andol), nor vitamin E. Alcohol should be avoided at least 5 days, and the consumption of coffee and teas at least 2 days prior to intervention. If some other drugs are taken, the possible interruption of therapy should be discussed with his/her physician. If the patient was on minoxidil, the treatment should be suspended at least 2 weeks before to the intervention.

UPON ADMISSION TO THE POLYCLINIC

On the day of the intervention the patient is received in the doctor's office where blood samples are taken for analysis, and the ECG is done. The patient undergoes a clinical check-up and anamnestic data are verified once again. There follows a showering while the hair is washed with special disinfectants; thereupon the patient puts on the clean clothes supplied at the clinic. Photographing for the purposes of medical documentation comes next, followed by the marking of the donor and receiving regions. The donor region is trimmed with a machine in order to make it possible to extract the follicular units.

Depending on how the patient feels, the physician decides whether sedative premedication should be given or not. IV catheter with injection port is inserted into the vein in order to keep open the venous path for possible injection of drugs, if necessary.

If all the findings are within the limits of normal, we start with the intervention.

OPERATION

The operation is done in the operating theatre, the patient is monitored at all times and the vital functions are followed – heart rate, blood pressure and peripheral oxygenation. It is customary to have relaxation music in the background.

With regard to the fact that the donor region is usually at the back of the head, the patient in the first part of the operation lies on the stomach. The beginning of preparations of the donor region is washing with a disinfectant and covering with sterile covers.

Anaesthetic is applied into the donor region with a special Dermojet injector which applies the anaesthetic without the prick of the needle and this application is entirely painless. The other option is to apply the anaesthetic by thin needles, the so-called insulin needles. In order to render the area almost painless for the latter method of anaesthetizing, the area into which the anaesthetic will be injected is previously rubbed with an anaesthetic cream.

Follicular units are extracted with an electrical device which has a metal tube at the top which surrounds the follicular unit, separates it from surrounding skin and tissue,whereupon such a follicular unit is extracted by microsurgical tweezers from the scalp. The diameter of the circle which the device makes around the follicular unit is between 0.75 and 1.00 mm. The diameter must not be greater than 1.00 mm in order not to leave visible scars in the donor region after the intervention. The other possibility of extracting follicular units is by means of the so-called punchers, which mimic the work of the machine, but the actual work is altogether manual.

Follicular units which are extracted from the donor region are sorted and placed on special surfaces into a normal saline solution. Throughout the time during which the follicular units are outside of the body, they are cooled at a lower temperature, thus avoiding injury.

After the necessary number of follicular units has been extracted a break is usually made to refresh both the patient and the team performing the intervention.

After the follicular units have been extracted from the donor region, the receiving region is prepared, which means washing it in disinfectant and covering with sterile cover.

Anaesthetic is applied in a manner to anaesthetize the region into which the follicular units will be implanted, and the procedure of applying the anaesthetic is the same as with the donor region.

Follicular units are implanted by making a puncture on the skin with a special instrument with which the space of follicular width is created. Thereupon,

the follicle is placed inside it with micro tweezers. The other option for implantation is with a pencil-shaped instrument into which the follicular unit was previously placed. With the tip of this instrument a puncture is made on the skin and the follicular unit is thrust into that space.

Finally, after the treatment, both regions are sprayed with an antibiotic spray. Bandaging of the treated areas is not necessary.

POST-OPERATIVE COURSE

After the intervention the patient is free to leave the polyclinic with written instructions for home care and a baseball cap which he/she gets in desired colour.

Recommendations after the intervention

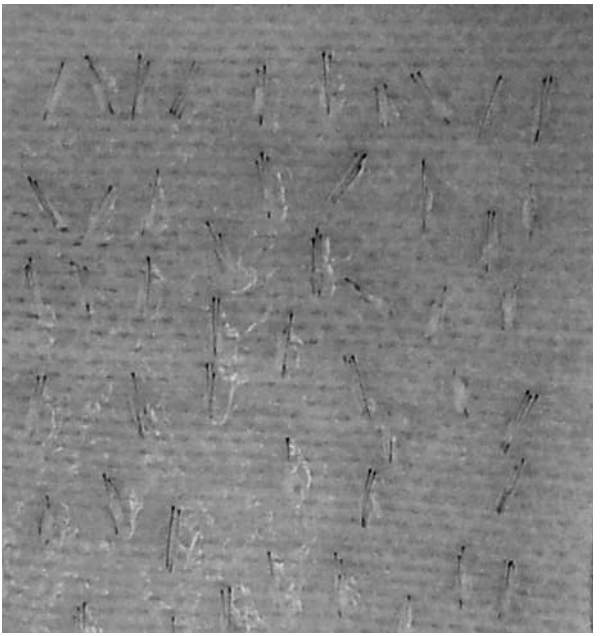
After the intervention the patient should sleep for 3 days with a raised pillow at 45 degrees in order to reduce the swelling of the scalp. Also, in the first three days he/she should spray the treated areas with Bivacyn spray. For the first seven days he/she should take care not to hit something with the head, and it is advisable to wear a baseball cap. In the first seven days following the intervention heavy physical effort should be avoided, group sports in the first 14 days, and swimming and diving for at least 10 days. The third day after transplantation the hair may be washed with a mild baby shampoo. Depending on the cause of balding, 10 days after transplantation the patient may start taking minoxidil.

Follow-up

A follow-up is foreseen on the day after the intervention, i.e. within 24 hours. The next follow-up is several months later, while the assessment of success in men is made after 6 – 8 months and in women after 10 – 12 months. In the meantime, the patient is interviewed by telephone, or additional follow-up visits are arranged, as per need.

COMPLICATIONS

Possible development of oedema, cyst in the scalp area, itching, folliculitis (infection), necrosis (tissue death), effluvium on the donor region (lack of hair), poor attachment of follicular units, pigmentation disorders, visible scars. The complications are very rare if the intervention is done in appropriate conditions, in an operating theatre, with all the measures of asepsis and antisepsis, which means that the patient showers before the intervention with disinfectant, and the scalp is washed additionally before the intervention, the operation is carried out with sterile instruments, and the intervention is performed by an educated team led by a physician.



Follicles extracted from the donor region

Immediately after a "mega" hair transplantation by the FUE method

Before hair transplantation

After hair transplantation

Before hair transplantation

After hair transplantation

Before hair transplantation

After hair transplantation

LASER TREATMENTS

LASERS IN DERMATOLOGY, AESTHETIC AND VASCULAR SURGERY, GYNAECOLOGY AND UROLOGY

Laser (*Light Amplification by Stimulated Emission of Radiation*) is a name for an optical device which emits a coherent beam of photons. The name explains the principle of creation of the laser light, but today we also use it as a name for devices which produce this light.

According to its features this is a monochromatic, coherent light of great power. In order to bring it closer to the reader, let us say that the sunlight which we perceive as white is actually a mixture of colours which all together give the appearance of white-coloured light. The spectrum of colours in nature is only visible in rainbows, when the sunlight passes through drops of water and creates a range of colours of which the sunlight actually consists. By contrast to sunlight, laser light consists of only one colour and only one wavelength.

Various parts of the skin differently absorb various wavelengths (colours) of the laser. Therefore, we choose an appropriate laser depending on the part of the skin on which we wish to produce a certain effect. Ideal laser ray is the one which is well absorbed in the part of the skin on which we wish to produce the effect, and which is not absorbed by the surrounding structures inside the skin.

The three targets in the skin on which laser is applied are as follows: the first is pigment (in small hair, skin or tattoos), haemoglobin (pigment in red blood cells – essential for the treatment of capillaries), and water – which is a constituent part of all cells – essential for rejuvenation (resurfacing, laser peeling).

Medical lasers emit a far stronger light from CD readers. This strength is necessary to achieve the desired result, and to work with lasers one should obtain a special education. This is irrespective of the fact whether someone is a physician, dermatologist or surgeon; he or she should be additionally educated for handling of every particular type of laser and get to know the precautionary measures which should be undertaken to protect both the patient and the person who administers the treatment.

ABLATIVE LASERS are important in rejuvenation of the skin surface – laser peelings, removal of the surface skin layer – the epidermis. These peelings can be ablative (removal of the entire surface layer of the skin) or fractional ablative– producing dotted defects while preserving surrounding skin, thus leading to dandruffing – exfoliation. The recovery in the latter approach is

much faster than in ablative lasers. By contrast to classical dermabrasion, the intervention with lasers is very precise.

The target for this type of laser is water which is contained in the cells and intracellular space. In the fraction of a second water evaporates under the impact of the laser beam, and it seems as if a part of the skin had vanished.

TYPES OF ABLATIVE LASERS:

The main representatives of this group are Er:YAG (erbium) and CO_2 lasers. They differ in the characteristics which reflect their different wavelengths – Erbium (2940 nm) and CO_2 (10600 nm). Erbium lasers are in any case the most precise and most sparing in terms of redness, pain and recovery of skin after treatment. This precision is additionally enhanced in fractional erbium lasers which, according to present-day knowledge, are best for work on rejuvenation, especially if we work with a scanner – a device which moves the laser beam according to a certain programme. Fractional treatments are most popular today. The term comes from the word fraction – a part. With this treatment, only a part, a fraction of the skin is treated in a dotted manner not unlike openings on a sieve.

Ablative fractional laser in this dotted manner removes small tube-like columns of the skin from the surface, and with the heat which it generates it triggers regeneration in deeper layers of the skin. In such a way a new, more shining and rejuvenated skin is obtained which is additionally tightened by new collagen and elastin from the underlying tissue.

Several years back the application of erbium laser made huge strides in gynaecology - for the tightening of the vaginal canal (rejuvenation of the vagina), treatment of urinary incontinence, reduction of the prolapse and treatment of vaginal atrophy. The device was first patented and the first protocol published by Fotona – the laser factory in Ljubljana, Slovenia. This factory has been producing lasers for a full 50 years (since 1964), and in the last twenty years it concentrates exclusively on lasers for the medical purposes. These lasers are used in dermatology, surgery as well as dentistry and most recently gynaecology.

NON-ABLATIVE fractional lasers have a similar mode of action as the ablative ones, but they do not remove (evaporate) the tissue; instead, they only warm it at a deeper level, where heat leads to the regeneration of the dermis. Generally, a number of lasers are classified among non-ablative lasers (they do not remove the surface layer) and they are used for the so-called photo-rejuvenation, rejuvenation by the source of light. Except lasers, other

sources of light are used in this application such as LED diode panels and IPLs (intense pulsed light), and frequently other energy (non-light) sources such as radiofrequency (RF), ultrasound and magnetic devices. Some act more superficially, some more deeply, but there is no removal of the surface of the skin. As there is no removal of the skin surface and the no creation of (even the minimal) wounds, such non-ablative devices are often used in cosmetology.

NEODYMIUM (Nd:YAG, 1064 nm wavelength) lasers and diode (808 nm wavelength) lasers are the golden standard for epilation. Nd:YAG lasers are marginally better suited for darker skin types. During treatment the laser beam passes through the skin and is absorbed, mostly by melanin (pigment in hairs and skin). Due to this absorption the small hairs are heated and damaged, and the cells which produce hairs, in the zone of the root of the hair, are also damaged. Of course, only those hairs will be damaged which are at that moment in the phase of growth. In these treatments it is mandatory to wear protective goggles, for both the physician and the patient.

Epilation is the most frequent indication for this laser method, followed by a number of other indications – such as vascular lesions and capillaries, warts, acne, fungous infections of the nails. With respect to the effects of non-ablative laser on the blood vessels, laser operation of the veins is also being done. For a long time we have been using subcutaneous laser treatment against excessive sweating in axillary regions.

The application of laser in medicine fits wonderfully into the trend which imposes early start (in the thirties) of skin care and maintaining its vitality for the purpose of continuous rejuvenation. In such a way, youthfulness of the skin texture and tonus is prolonged, and a major intervention of the face-lifting type is postponed into older age (50 – 60 years of age).

On the other hand, with less invasive laser procedures (which can be repeated for optimum results) a lengthy recovery period is avoided and a quick return into normal life is possible, which is another imperative of life in this day and age.

LASER REMOVAL OF SMALL HAIRS (LASER EPILATION)

Epilation is the procedure of permanent removal of unwanted small hair.

There are three phases in the life cycle of hair and these are: the phase of growth, the phase of regression and the phase of rest. The laser beam can act on, i.e. destroy only the hairs in the phase of growth; for this reason repeated treatments are necessary to destroy all the unwanted hairs.

During treatment we bring the laser beam into contact with the skin. Passing through the skin the laser beam is absorbed mostly by melanin (pigment in the hair and skin). Due to absorption the small hairs are strongly heated and damaged. Likewise the cells which produce the hairs (if the hair is in the phase of growth) are damaged. The aim of the treatment is to inflict damage on the cells which produce hairs, because this is the only way a permanent effect can be guaranteed. In order not to damage the surrounding tissue, modern lasers are used along with cooling devices which cool the surface of the skin while the treatment is under way.

For facial hair usually 7 – 8 treatments are necessary, and for the body 5 – 6 treatments. The time intervals of the treatments are around 2 months.

In the Maletić Polyclinic a very powerful Nd:YAG laser produced by Fotona is used.

INSTRUCTIONS BEFORE TREATMENT

1. On the part of the body which will be treated hairs should not be plucked for 2 weeks prior to treatment. Shaving is allowed.
2. One day before treatment the zone which will be treated must be shaved.
3. Parts of the body which will be epilated must not be exposed to sunlight, solarium or tanning creams for at least one month prior to treatment.
4. On the day of the treatment the skin must be clean, without make-up, creams and perfumes.

INSTRUCTIONS AFTER THE TREATMENT

1. The skin can be mildly red. In order to reduce this reaction a layer of anti-inflammatory cream will be placed on the skin. The redness usually goes away within an hour, or at most, a day.

2. The treated area can be freely washed with water. In the first several days Bepanthen cream can be applied to the treated zone.

3. EXPOSURE TO SUNLIGHT IS FORBIDDEN, AS WELL AS SOLARIUM AND CREAMS FOR TANNING. This rule is effective for the next 4 weeks. When leaving closed space sunlight protection cream with a factor 50 should be used.

4. The destroyed small hairs will gradually emerge during the next 3 weeks and fall out. At the first moment it might seem that they are growing as usual. However, they should not be plucked, but only shaved, according to need.

5. Between the treatments, the small hairs should only be shaved or trimmed.

LASER TREATMENT OF ENLARGED CAPILLARIES

Enlarged capillaries on the face and legs represent a very frequent aesthetic problem, both in women and in men.

In women this condition manifests most frequently during pregnancy and taking of oral contraceptives, and the main role in their formation is played by the genetic factor.

Laser removal gives the best result on capillaries and thinner veins. Optical energy of the laser beam is used; it is absorbed by haemoglobin in the red blood cells and thus the treated capillary is destroyed. Smaller capillaries disappear immediately, and for larger ones a short time is needed for their disappearance. With the destruction of the small blood vessel, inflammation is created by which the organism removes capillaries and veins. In this period, the blood vessels are usually more pronounced, but this effect is gradually lost, until the vessels have eventually disappeared. The end result is visible after 3 – 6 months. The number of treatments depends on the individual and cannot be foreseen, but in most cases 1 – 3 treatments suffice. Treatments are done with the Nd:YAG laser.

INSTRUCTIONS BEFORE TREATMENT

There must be no exposure to sunlight, solarium and tanning creams for 3 – 4 weeks before treatment. The skin before treatment must be clean, without creams.

INSTRUCTIONS AFTER THE TREATMENT

After the treatment the regions which were treated will be red and mildly swollen for a certain period of time. Bepanthen cream can be placed on these zones once to twice daily during 4 – 5 days.

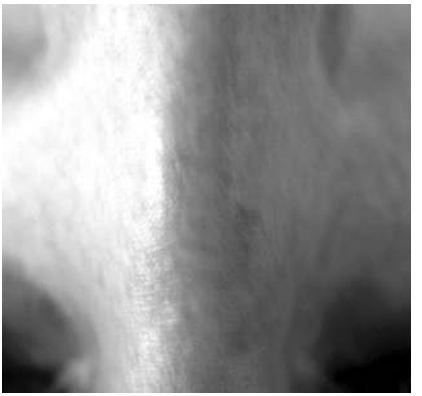
On the legs, compression socks should be worn 4 – 5 days.

EXPOSURE TO SUNLIGHT, SOLARIUM AND TANNING CREAMS IS FORBIDDEN FOR A PERIOD OF ONE MONTH!

For capillaries on the face a daily placement of the cream with a protection factor 50 is mandatory.

We recommend avoidance of bathing in hot water and visits to the sauna in the first ten days.

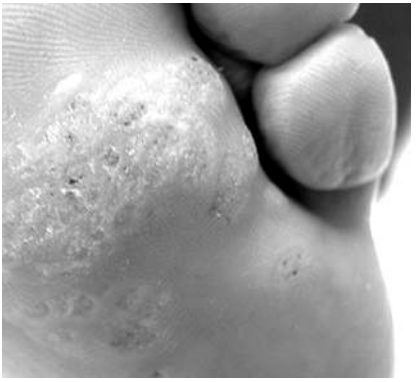
Capillaries on the nose before laser treatment



After laser treatment of the capillaries on the nose

Before laser treatment of viral wart

After laser treatment of the viral wart

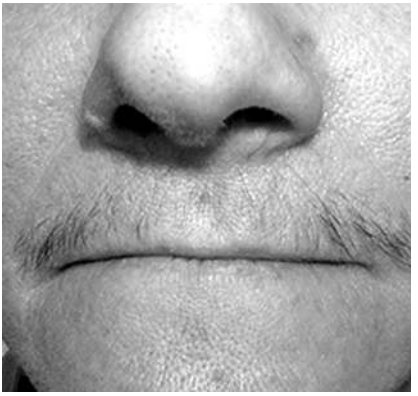


Before laser treatment of viral wart

After laser treatment of viral wart

Before laser treatment of small hair removal

After laser treatment of small hair removal



Before laser treatment of small hair removal

After laser treatment of small hair removal

TREATMENT OF ENLARGED VEINS

ABOUT VARICOSE VEINS OF THE LOWER EXTREMITIES

Enlarged veins of lower extremities (varices) appear as a consequence of dilatation of subcutaneous veins. They do not represent a problem for aesthetic reasons only, but also for possible health complications (inflammation, thrombosis, venous ulcers) which may appear if the treatment is unduly delayed.

Enlarged veins of lower extremities are relatively common. It is assumed that between 4% and 15% of population has enlarged veins. They appear with greater frequency in women due to predisposing factors (hormonal changes, pregnancy). Also, it is known that enlarged veins are more frequent in certain families due to genetic frailty of connective tissue in the walls of veins and venous valves. A longer sitting or standing at a workplace can lead to an increase of pressure in the veins of lower extremities and, consequently, to the pathological enlargements of the veins.

The most frequent complications of untreated enlarged veins on lower extremities are venous inflammation (thrombophlebitis), ulcers on the legs and thrombosis of deep veins (phlebothrombosis).

Thrombophlebitis appears in cases where there is a thrombosis of a variable length of a superficial vein. The blood clot (thrombus) is created because of a slowed blood circulation in the pathologically changed vein, and it is manifested as a painful induration on the leg and redness of the surrounding skin.

Wounds (ulcers) on the legs occur most frequently in the lower part of the calf due to pathologically changed superficial veins in this region. Overlying the altered veins the skin loses its resistance and every trauma, even minimal (blow, scratch, frostbite) can lead to the creation of a wound which heals with great difficulty. The treatment of such wounds is long-term, frequently taking months and it is not unusual that after healing another wound appears in the same place.

Thrombosis of deep veins on the legs (phlebothrombosis) is a disease which can lead to serious complications, unless it is properly treated. The most frequent complication is lung embolism which represents a life-threatening condition.

The venous system of lower extremities is subdivided into the superficial and the deep one, whereby blood from the superficial veins pours into the deep venous system. This direction in the flow of blood toward the heart is

controlled by venous valves. In enlarged veins the valves cannot perform their function any more (they are leaky in both directions), so the blood returns from the deep veins into the superficial ones, increasing the pressure in them which spreads all the way to the foot. Due to this reversible flow the blood remains in lower extremities with ensuing swelling, pain and feeling of tension, and greater or lesser alterations of subcutaneous enlarged veins are visible to the naked eye.

Depending on the calibre and location of enlarged veins, there are different ways of treatment and relief of these conditions for which a patient may decide:

- External pressure on the veins (compression) by means of elastic bandages or medical compression socks
- Sclerosation of the superficial veins by injecting chemical preparations and wearing of elastic bandage (applicable for spider veins, enlarged skin veins and enlarged branches of larger veins)
- Laser treatment of enlarged capillaries on the skin of the body (only for the capillaries and blood vessels of tiny profile)
- UGFS (Ultrasound guided foam sclerotherapy), sclerosation by foam using the colour Doppler device; the method is applicable in veins up to 10 mm in diameter
- EVLT (endovenous laser treatment), closing of the larger superficial veins by laser, which we recommend instead of the vein stripping operation.

In case of smaller varicose changes on the veins of lower extremities we recommend to our patients the procedure of sclerosation or mini-phlebectomy.

Sclerosation is a procedure by which we inject the sclerosing agent into the varicose vein. All sclerosing agents act upon the lining of the wall of the blood vessels (endothelium). After the application of the sclerosing agent inflammatory reaction occurs in the wall of the treated vein, which manifests as a painful induration blocking the flow of venous blood in the treated vein. As this painful swelling lasts for several weeks, we prefer the procedure of mini-phlebectomy.

We perform the **mini-phlebectomy** by doing skin incisions of up to 2 mm in diameter through which we remove the varicose vein. The intervention is done under local anaesthesia. There are no sutures, and the aesthetic effects are excellent. It is necessary to point out that sclerosation by foam (the UGFS method) is also possible, but this method is less successful than the laser

treatment for a long- term solution for varicose veins. This is true for all larger main veins (VSM, VSP), and especially those greater than 10 mm in diameter.

LASER VEIN SURGERY

Endovenous laser treatment (EVLT) is a minimally invasive procedure in the treatment of enlarged veins. The name of the method itself implies that the surgical trauma and intrusion into the integrity of the body is minimal.

Laser treatment of the veins is one of the most recent and most modern methods of treatment of enlarged veins. This method is practiced in the Maletić Polyclinic since 2008, and in the world medicine it has been used for approximately ten years. During this time it has proven to be extraordinarily effective with very rare complications. For this reason it is called the method of first and best choice. In our Polyclinic we use the Crystal pulse laser Nd:YAG 1064 nm (XP-2 Focus by Fotona). With this procedure the large saphenous vein (VSM), small saphenous vein (VSP) and possibly some of the accessible perforating veins can be treated.

INDICATION

The indication for the type of surgical procedure is made at the Polyclinic. As a first step it is necessary to do the colour Doppler of the veins of lower extremities. We perform the aforesaid examination within the Polyclinic, but will take into account findings obtained in other medical institutions as well. If the patient wants advice, he/she can send us the colour Doppler finding by e-mail or fax, following which we will swiftly respond and give our opinion on further treatment.

PREOPERATIVE CARE

Just before the intervention ECG and routine laboratory check-up must be done (CBC, blood glucose, urea, creatinine, prothrombin time, potassium, sodium). Also, it is necessary to elicit any potential allergy to drugs, especially those that will be applied.

On the day of the surgery you may eat normally. After the arrival at the Polyclinic, you are accommodated in an apartment in which you change clothes and are prepared for further procedure. Immediately before the intervention we talk to you, make an orientational examination by the colour Doppler device and mark with a skin marker the superficial veins which will be treated. This procedure is important, because with the colour

Doppler device we detect also veins which may not be visible to the eye, but are already pathologically changed and hidden in the subcutaneous tissue.

ANAESTHESIA

The operation is done under local (tumescent) anaesthesia.

OPERATION

After premedication with a tablet of analgesic and mild sedative the procedure in the operating theatre starts with disinfection of the operative area and covering by single-use sterile covers. The laser fibre is inserted in the pathologically altered vein which is the origin of painful and aesthetically unacceptable alterations of the superficial veins on lower extremities. The process is performed under ultrasound guidance.

Laser is a special form of light which, by contrast to ordinary light, has only one colour and one wavelength, gathered into a single beam of great density. Laser which we use for the closing of veins (ablation) has primarily a thermal effect. The heat which is released at the tip of the laser fibre (photo-thermal effect) provokes changes inside and in the wall of the vein, following which the vein collapses (closes), which finally cuts off the circulation through the treated part of the vein.

What follows is the mini-phlebectomy, procedure in which, by special instruments, the preoperatively marked subcutaneous veins are removed through 1 – 3 mm wide openings in the skin. It is not necessary to suture these perforations on the skin, so that the whole procedure can end without a single surgical suture. We like to stress this as a confirmation of the minimally invasive nature of this method of treatment. After surgery, the perforations are covered by sterile dressings, above which an elastic leg compression is placed which should be worn without interruptions for the next 48 hours.

POST-OPERATIVE COURSE

After the intervention we recommend a 20-minute walk before the patient leaves for home. If he/she travels more than 60 km to reach home, we recommend that every full hour of the travel is interrupted by a 15-minute walk. This will prevent possible consequences of long sitting in the vehicle. Local anaesthesia will last for about 60 minutes after the operation. After that, mild pain may be experienced. We recommend the use of analgesics which were also used earlier, and if not we recommend Naklofen duo 1 capsule.

Elastic leg compression should be worn for the next 48 hours without interruption; after that, for the next 4 weeks it should be worn during the day. Bandages can be changed 3 days after the operation, and the gauze is removed. The patient can do this by himself/herself or may be assisted in a medical facility. Intensive physical workouts, aerobic, training with weights, longer standing or sitting is not recommended for a period of 2 weeks after surgery.

WHY EVLT?

There are several reasons why we favour the endovenous laser treatment (EVLT), combined with mini-phlebectomy in the treatment of varicose veins of lower extremities.

This treatment does not require a hospital environment. The intervention is done under local (tumescent) anaesthesia and all the known risks of general anaesthesia are avoided. The type of anaesthesia applied here guarantees a nearly painless procedure.

Thanks to specially designed instruments the surgical trauma is significantly lesser than in any other surgical method, especially the classical (stripping) operation. This implies reduced post-operative pain and a faster and more comfortable recovery. The return to normal activities is possible within 10 to 14 days!

Injuries of nerve structures which lie near the veins are significantly less frequent in laser treatment compared to the classical operation of veins. This is the key reason of significantly lesser post-operative pain after the EVLT.

The aesthetic effect is also better! The entire procedure is performed without a single surgical suture.

COMPLICATIONS

Difficult healing, infections, haematomas, thrombosis with consequent obstruction of the blood vessels (embolism) are extraordinarily rare complications of EVLT. Even if they do appear, they are much milder than those observed after classical methods.

From the long-term perspective, the results are better. Large studies which examined the results of "stripping" operations showed a 25% relapse incidence in the first 10 years after the intervention, while the success rate of EVLT is above 95%.

Finally, we are glad to say that our results, obtained through the follow-up of patients from 2008 until present-day fully correspond to the published clinical studies.

Before the removal of veins by laser operation (EVLT)

After the removal of veins by laser operation (EVLT)

Before the removal of veins by laser operation (EVLT)

After the removal of veins by laser operation (EVLT)

MINOR SURGICAL PROCEDURES ON THE SKIN

Minor surgical procedures on the skin are part of aesthetic surgery, provided they are on an outwardly visible place (face) and, following operation, we expect a satisfactory aesthetic result with respect to scarring. Minor surgery includes interventions on all superficial growths such as warts, fibromas, atheromas (tumours of sebaceous glands), smaller haemangiomas (blood vessel tumours) and birthmarks (nevi) which represent a group of changes in the pigmentation of the skin. All these changes are benign as a rule, but it is advisable, especially when one works in private practice, to send every removed part for pathohistological analysis.

Special attention must be paid to moles if they start to change either in colour, secretion, bleeding on the edges or size.

It is indicated to remove the moles located on places of constant mechanical irritation (e.g. shaving in men, pressure of clothes), precisely due to their malignant alteration potential, i.e., not only for aesthetic reasons. It is important to state that the removal of moles does not provoke malignant alteration, which is a frequent misconception on the part of the patients.

The most frequent minor surgical procedures are:

1) Incision (cutting in)

Incision is made primarily to enable the removal of liquid content (e.g. pus in inflamed atheroma and similar). In principle, this method does not lead to healing, because usually the capsule of the inflammatory process cannot be removed in such a way, so that a repeated surgical intervention is necessary in the quiescent phase – when the inflammation calms down.

2) Excision (cutting out)

This intervention implies a complete removal of the altered part all the way to the healthy tissue. The altered part is sent for pathohistological analysis. After the intervention the wound is sutured, and if the defect is too large, one of the methods of plastic surgery is applied.

3) Ablation (cutting off)

Ablation is used to remove changes on the skin on a smaller area, without suturing. If it bleeds, the treated area can be burnt with the electric knife (electrocoagulation) or radiofrequency.

4) Sclerosation (injecting of sclerosing agent)

Sclerosation is applied to enlarged capillaries and veins, usually on the legs. If the changes have progressed, it is mandatory first to perform a radiological examination.

ANAESTHESIA

The above interventions are usually done under local anaesthesia on an outpatient basis, i.e. the patient can go home immediately after the intervention.

POST-OPERATIVE CARE

Within the post-operative care a mild analgesic is prescribed, after the local anaesthesia wears off. Bandaging depends on the wound. Usually it is applied for 1 to 2 days, and the sutures are taken out after 5 to 14 days, depending on the location on the body.

In case of inflammation antibiotic is given. The treatment of the scar, in order to make it aesthetically acceptable, is done in consultation with the surgeon after the removal of sutures.

REMOVAL OF TATTOOS

Tattooing is a method by which colour, i.e. pigment is entered into deep layers of the skin. The wish to remove tattoos usually follows a change of personal aesthetic views or fashion. Problems may also occur with names tattooed for sentimental reasons, which no more carry the same significance as the time goes by. If a person still has the desire for his/her tattoos, but they had become disfigured due to extension of the skin or its looseness (childbirth, aging, putting on weight or losing weight rapidly) the tattoo is removed, and a new one can be put in its place. Usually names are taken down when a romance is over, and new motifs are added before the summer and going to the seaside, or upon enrolment into military or police schools.

Surgical operation is needed for the removal of tattoos by classical excision and suturing of the edges, and sometimes several interventions may be necessary if the surgeon works with a Thiersch knife (it removes only a layer of the skin profile, so, if the pigment is situated deeper to that, the procedure must be repeated once the wound heals from the first intervention). On the other hand, with Q switch laser 6 to 8 treatments are necessary, several weeks apart. As it is not recommendable to expose a surgical wound to sunlight, and after laser treatment it is forbidden for at least one month, the decision on removal of a tattoo should be scheduled in a good time. It is usually done in autumn, winter or early spring.

What differentiates special Q switch lasers from others which were tried out on this indication before is that they have a very brief duration of the laser pulse. This is essential if we want to destroy the pigment

by absorption of the energy of the laser beam. During this time high temperature is released which literally melts the pigment, but the surrounding tissue is spared. Later on, the pigment is washed out by the lymph and excreted. Every pigment has a certain range of wavelengths which it absorbs. It is not advisable to treat fresh tattoos because the pigment is still travelling through the skin. Instead, one should wait 6 – 12 months. The first treatment is usually a test treatment, to see how the skin reacts and how the tattoo was done. According to the results of this initial treatment subsequent ones may be made more intensive.

As a rule, after the removal of a tattoo there remains a scar, which is certainly more acceptable than the message that was contained in a tattoo for sentimental or any other outdated motives. Of course, when working with a laser, the scars are almost imperceptible.

If we are dealing with small superficial tattoos we use excision with direct closure after the removal of the tattoo, or by means of flaps. For larger areas, the technique of removal of a layer of skin is used (Thiersch) without reconstruction of the defect, but we pay attention to correct post-operative care and re-dressing, in order to make the scar after such an operation aesthetically as acceptable as possible.

Nowadays, the *Q switch* laser is used more and more in the removal of tattoos. This method is excellent, but must be repeated several times. Also, these laser devices are extraordinarily expensive, which makes the treatment expensive as well.

ANAESTHESIA

As a rule, surgical removal by excision and ablation with Tiersch knife is done under local anaesthesia. Depending on the size of the tattooed area the treatment can be done in several stages. The intervention is on an outpatient basis.

If the tattoo is removed by laser, local anaesthetic in the form of cream is rubbed onto the area of the tattoo. During the intervention cold air is blown over the treated area.

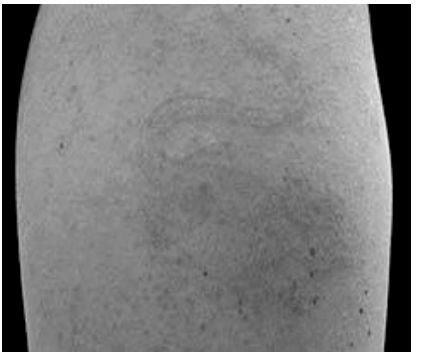
POST-OPERATIVE CARE

After the surgical intervention post-operative care consists of bandaging with vaseline gauze and dressing and application of drugs for a faster epithelisation according to the protocol of the institution where the intervention was done. If the tattoo is removed by laser, the treated area is treated with Bepanthen cream and protected from sunlight.

*Tattoo before removal with Fotona Q Switch laser**

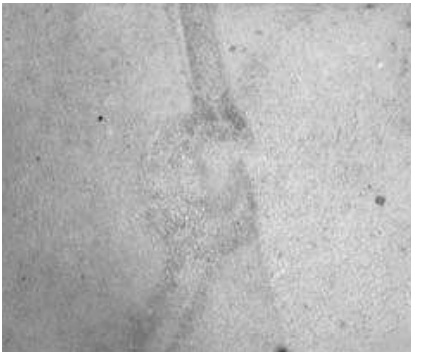
*After the removal of the tattoo with Fotona Q Switch laser**

*Tattoo before removal with Fotona Q Switch laser**



*After the removal of the tattoo with Fotona Q Switch laser**

*Tattoo before removal with Fotona Q Switch laser**



*After the removal of the tattoo with Fotona Q Switch laser**

*Photographs are the property of Fotona

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NOTES

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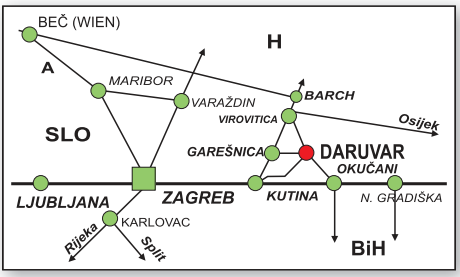
NOTES

Daruvar is a small town in north-western Croatia, 125 km from Zagreb (take the highway to Kutina, then via Garešnica, see the map below).

The town is built on the foundations of the Roman settlement ***Aquae Balissae***. It is known as a thermal resort since antiquity. It is surrounded by the slopes of the Papuk mountain with renown Daruvar vineyards.

All of this makes your stay in Daruvar pleasant and enriching.



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