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Skin Regeneration through Skin Care

**An indication for
Inhaling energised air**

A scientific disputation

Skin Regeneration through Skin Care

An indication for inhaling energised air

At the beginning of 2008 the American Society of Plastic Surgeons (ASPS) published a study on 186 monozygotic twins with the predictable result that lifestyle shows clear signs in people's faces. Worries and stress and divorce or illness accelerate the aging processes of an organism and especially the skin.

"It is true that genes also determine how a person ages, but life circumstances will dictate how quickly". This is the comment from the study director.

The results were obtained using independent assessors who looked at suitable photos and then estimated the ages of the people concerned then made a comparison with their actual life circumstances and the difference was two years on average.

How young or healthy we look depends to a great extent on our skin and in particular on the exposed areas such as the face and hands. The skin is not only a protective barrier against external hazards (bacteria, harmful substances, heat and cold) or internal hazards (dehydration), it also says a great deal about our age and health (mental and physical). It is no coincidence that the skin plays such an important role when it comes to anti-aging, wellness and beauty.

There is a desire to delay the natural aging process.

Topical (local) treatments and costly surgical procedures are used quite often with unsatisfactory results.

Our skin ages from birth onwards. Early on in life it appears elastic, fresh and firm but with increasing age it becomes rather thin, lacking in oil and collagen and "exsiccated" (dried out).

Besides the "time aging" factors of the skin, environmental and behavioural aspects have a strong effect on skin aging such as nicotine abuse, UV exposure and exposure to radicals. Effective combative measures are thought to be a healthy diet, regular physical exercise, sufficient sleep, limited alcohol, ongoing de-stressing and avoidance of intense solar radiation.

Can the inhalation of energised air also be defined as a protective measure or even as a way of "rejuvenating" the skin, as claimed by many end users based on their personal experience?

Beauty

Beauty is an abstract concept and it relates to all aspects of human existence. Its positive emotional effect has been proven and how it is perceived depends on different criteria and purposes, as determined by particular conventions within society.

In everyday usage "beautiful" usually describes something which leaves a particularly pleasant impression behind, whether it be the body, a piece of music, a movement or even experiences. Beauty overlaps with the concepts "harmony" and "symmetry" and a demarcation in respect of what is "sensually overpowering" or "merely" pretty is sometimes difficult.

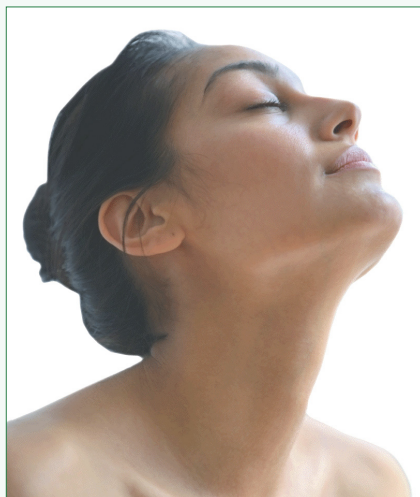


Fig. 1: Beauty

While psychology and sociology base their evaluation of what is "beautiful" on the ideals formulated by society, and philosophy defines "beauty" as a property of an object (in medieval times) or as a judgment based on reason (in the modern era), the natural sciences tend when defining "beauty" to focus solely on stating the "ideal proportions" for that which is generally considered beautiful. Yet the debate continues as to whether such "ideal proportions" are applicable in a general sense



Fig. 2: Leonardo da Vinci (Self-portrait, ca. 1516)

or merely the particular expression of changing fashions and ideals of beauty.

Aging

During a person's lifetime his/her appearance undergoes the type of changes we are all familiar with. Posture, proportions and especially the skin and its adnexae, the hair and nails, are all affected.

Young people are naturally affected far less (though sometimes by acne). (Premature) aging of the skin tends to occur in the prime years of life. It can cause concern during the menopause and becomes even more pronounced during a person's declining years, from which time it can have serious psychological implications.

There are countless comments about the aging process, which as a rule mainly concern psychosocial and cognitive aspects but also relate to external appearance - at least where concrete questions are asked - it plays a significant role when it comes to increasingly negative feelings of self-worth and how others regard us.

The most striking feature of a person is their face and this is because it can hardly be covered up like other parts of the body, and its perceived or "actual" deficits are mercilessly exposed.



Fig. 3: Albrecht Dürer's "Portrait of Dürer's Mother" (Charcoal drawing, 1514).

Even though the aging process may differ greatly from one person to another there are certain principles which are inescapable and undeniable.

Amongst these are horizontal wrinkles or lines in the region of the forehead, nose and corners of the mouth and furthermore fine lines running outwards at the lateral corners of the eyes (crow's feet) and then, later, wrinkles running from the lower region of the chin to the front areas of the neck.

Facial features become coarser and the nose and earlobes appear to grow. Age spots increase considerably. As a result of the additional loss of subcutaneous fatty tissue, wrinkles and lines deepen further, giving the familiar appearance of an "old bat".

In addition, a change in facial appearance can be caused by changes in skin turgor (plumpness) triggered by a decrease in the supply of fluids to the connective tissue together with uneven distribution of fat (a change of fat density downwards in the cheeks resulting in "drooping jowls") as a result

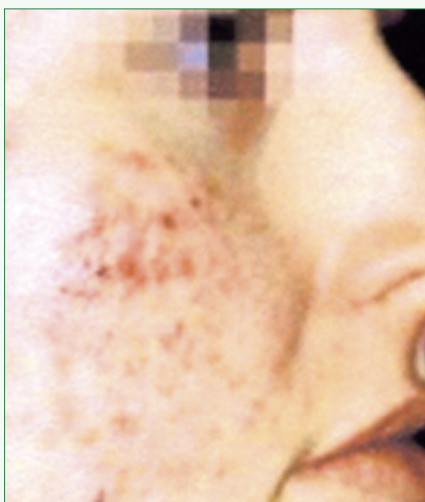


Fig. 4: Typical Acne Vulgaris

of connective tissue weakness or loss of elasticity in the connective tissue.

Because of localised loss of fat (subcutaneous fatty tissue) the face becomes thinner. The eyes sink back into the eye sockets. Increasingly there is the impression of frailty and even cachexia.

Depending on the propensity of the individual, sooner or later there is a reduction in elasticity of the cutis and subcutis, leading later to the development of "aged skin".

Thinning, white head hair is usually lank and dry, with a tendency towards brittleness. Lips appear thin, dry and cracked.

The visual impression of age is reinforced by any loss of teeth and jaw atrophy (recession) due to bone loss.

Influence of the Mind

Intra and interpersonal problems play a key role when it comes to the trigger mechanism of skin affections and how they progress.

This is thought to be the case especially in acne, allergies, eczema, neurodermatitis, pruritis, psoriasis, urticaria and warts.

Theoretical ideas under discussion about psychosomatic-guided dermatology involve deep psychological, and biological response aspects and psycho-neuro-immunological factors.

Anxiety and depression often accompany skin disease. Those affected undergo appropriate psychotherapy generally only if the anticipated success of their treatment fails to materialise. It is by no means rare for referrals to a psychotherapy practice which are made too late or even possibly with undertones of aggressive frustration to lead to feelings of guilt, blame and denial. In such circumstances the entire treatment programme is virtually destined to fail.

The evaluation of psychological factors in the occurrence of skin affections today compared with previous times shows that psychosomatic factors are thought to be more significant than ever.

Anatomical Physiological Foundations

The skin is a vitally important organ making up the body's external surface and so forming the boundary between the environment and the body's internal milieu.



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The role of the skin is:

- To protect the organism from mechanical, chemical and physical damage and from the penetration of micro organisms
- To prevent dehydration by guaranteeing physiological water evaporation (from the body)
- To allow blood vessels to contract or dilate for the purposes of heat regulation
- To support the elimination of metabolic end products through perspiration
- To help the body react to pressure, traction, vibration, temperature and pain sensations / stimuli.

The skin consists of the outer layer of skin (epidermis), its adnexae (glands, hair and nails) as well as a connective tissue portion, the dermis (corium). Both parts together form the cutis under which is found the bottom layer of connective tissue, (the subcutis) which merges without any sharp demarcation into the dermis and attaches it to the bottom layer.

The outer layer (epidermis) has a thickness of 0.5 to 5 mm and is at its thickest at those points most exposed to mechanical stress (palms of the hand and soles of the feet). It contains no blood vessels, its nutrition comes from the dermis. It consists of several definable portions (the corneal layer right on the surface down to the deep base layer, from where it also regenerates itself and where the synthesis and storage of the skin's main pigment, melanin takes place).

The dermis located underneath is rich in stabilising fibrils and immune-competent cells, in capillaries and nerve endings, its deeper portion in strong interwoven bundles of collagen fibres and elastic fibres guaranteeing

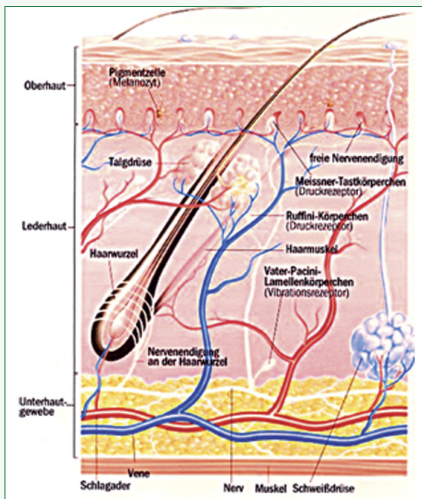


Fig. 5: Anatomical Structure of the Human Skin

the stability and elasticity required in equal measure.

The subcutis consists of loose connective tissue which houses more or less abundant fatty tissue (protection against the cold, energy store and padding). Bursae are also found here especially in places where the skin presses against hard underlayers (elbows and knee caps).

The sebaceous glands, sweat glands, apocrine sweat glands, hair and nails form the adnexae (appendages) of the skin.

The sebaceous glands produce sebum from fat droplets. The sebum covers the surface of the skin and hair to form a protective fatty layer. If there is over-production this leads to seborrhoea and if it is too low, sebastasis.

Around 2 million sweat glands produce an acid secretion - sweat, which besides water also contains different electrolytes and amino acids, urea, lactic acid, pyruvic acid and histamine. Disorders in terms of over or underproduction as well as variations in composition can occur.

Apocrine sweat glands occur in humans in the armpits, external auditory canal, in the nipple region, in the eyelids and genital region. They produce a fatty alkaline secretion which is increased in women.

Hairs are flexible, high tensile protein filaments, 5 – 200 µm thick, which grow approx. 0.4 mm a day and which are nourished from the hair root from where they also obtain their colour. Hair loss can have many causes and atrophy of hair papillae with loss of its nutrition is the most decisive factor. Greying of the hair results from a lack of pigment formation or from air bubbles (in the hair shaft).

The nails are protective organs and also serve to counteract pressure exerted on the tactile elevations (small areas in the palms and soles especially rich in sensory nerve endings). The nails start growing from the nail matrix in the

depths of the nail pocket and from the white area at the lower end of the nail edge.

Some basic data about the skin may help explain its importance for the organism as a whole (cf. Tab. 1).

Barrier Function Example

The skin, alongside the mucosa of the respiratory, gastrointestinal and urogenital tracts, also offers effective protection against infections. Intact skin protects against the penetration of pathogens and at the same time its symbiotic bacteria living on the skin potentially prevent pathogenic bacteria taking over. Changes to the natural flora (through the administration of antibiotics, too frequent washing with aggressive substances, weaknesses in the immune system and contact with harmful substances) can lead to colonisation with pathogenic bacteria.

Damage to the barrier function is frequently the starting point for infections, mainly bacterial but occasionally of the viral type.

Temperature Regulation Example

Homoiothermic (constantly warm) living organisms such as man are capable of keeping their body temperature virtually constant within a wide range of different ambient temperatures. The important requirements for this are potentially high energy conversion with increased heat formation and the possibility of increased heat release. Both mechanisms must be fine tuned to one another and balanced so that humans feel comfortable.

Factors which increase heat generation are primarily an increase in muscle tension (emotion and/or cold) and the conversion of energy especially through the completion of mechanical work while the heat given off can be regulated by and large via the ambient atmosphere, by clothing and the circulation of blood in the skin.

Tab. 1: Important Key Data about the Skin

General	Surface	1.5-1.8m ²
	Weight (cutis)	Approx. 3 kg
	Weight (cutis and subcutis)	11-15 kg
	Proportion of the total weight	7-20%
	Total cell count	Approx. 110 billion
	Cell count/cm ²	6 million
	Vessel length/cm ²	Approx. 1 m
Metabolism	Circulation	500-1500 ml/min
	O ₂ requirement	5 ml/min
	Amount of 'flakes' a day	10g
	Cell formation to shedding	20-30 days
Glands	Sebaceous glands	Approx. 250 000
	Sweat glands	Approx 2 million (55-750/cm ²)
Receptors	Length of nerve fibres/cm ²	4 m
	Number of nerve fibres/cm ²	500

To do this, heat must be transported from the centre of the body mainly through the medium of blood to the body's periphery where it can be released through the skin or mucous membrane surface into the environment. The body's regulating mechanism works according to the constriction or dilation of the skin's vessels and the functionality of the sweat glands, whereby the corresponding receptors (cold and warmth receptors) ensure feedback to the temperature regulating centre of the brain (hypothalamus), from where the necessary readjustment of the desired value is made.

Somatovisceral Sensory System Example

The subjective perception of our body – body image / body perception – depends predominantly on the activity of the somatovisceral sensory system. Besides the internal organs and the musculoskeletal system this mostly incorporates the sensory functions of the skin. The skin with its sensory innervation acquires its functional efficiency as the first sensory organ as early as the embryonic stage, which is an indicator of just how important it is for the ontogenetic development of each individual. The sensorium around the mouth contributes to the newborn infant finding its mother's breast. The first impressions of the environment are gained through the mouth and hands. The sense of touch from the hand that moves allows the smallest details to be recognised. Blind people read with the help of their moving fingers. Palpation using their hands helps doctors to make a diagnosis.

UV Radiation Example

UV radiation produces reactive oxygen species (oxygen radicals) from whose action broken strands of DNA are produced (destruction of the carrier of genetic information), which together with toxic photo products lead to premature aging of the skin and in the worst case scenario to skin cancer.

The longer the wavelength of the radiation, the deeper into the layers of the skin it can penetrate. In particular the upper tissue layers of the skin are affected by the damaging rays for which the shorter wavelengths are responsible at between 210 and 305 nm.

More than 80 percent of the externally visible and histologically provable changes in "aging skin" can be ascribed to the effects of UV radiation.

It causes a breakdown in collagen by dissolving proteins and the "metabolic slags" thereby produced trigger chronic inflammation with ensuing disorganisation, incomplete repair and the formation of scars. Visible signs of this can be seen in characteristic changes in the skin surface.

From an anatomical analysis of the structure of the skin and especially its physiological tasks it becomes clear just how complex an organ it is, how keenly it affects our health, biological age and well being, how susceptible to disease it is, how many functional processes it coordinates and how closely it is interlinked with other organ systems (cardiovascular system, metabolism, immune system, hormone system, the mind, sensory system, nervous system and the urogenital system).

In this context an anatomical structure (connective tissue) and a physiological function (oxygen supply) should be portrayed by way of example to show their particular way of positively as well as negatively affecting the health of the skin and how they play a leading role in all deviations from the norm.

Extracellular Matrix

Since the studies of Pischinger (University of Vienna) and Heine (University of Witten-Herdecke), it has been known that the cells themselves are not usually the starting point for disease as had been postulated up to that time by leading physicians (Virchow's Cellular Pathology). Rather, it is frequently the extracellular matrix (extracellular space and interstitial connective tissue) which is initially affected. This is where all the interactions of the human organism take place between cell and milieu.

Connective tissue forms the basic system of the body and is its largest organ. Its intercellular portion makes up approx. 70 percent of the whole volume of the body and the cell tissue approximately 30 percent.

Its most important tasks include supplying all the cells of the body with nutrients and disposing body cells from degradation products and metabolic end products.

Other functions include filling the spaces between the cells (interstitium) and protecting and encasing different organs and structures. Connective tissue acts as the main structure for the conduction of nerve impulses (neurons) and functions as a sliding and moving layer.

At the same time the intercellular space is the primary location of all inflammatory and immune processes and therefore of all vital processes. Accordingly it represents an essential control variable which, if allowed to get out of control, frequently leads to disease of the entire organism.

Connective tissue is a three-dimensional network in structure consisting of connective tissue cells and an intercellular substance which is composed of connective tissue fibrils, capillaries, nerve endings and open lymphatics.

The fibrils consist of highly-complex carbohydrate protein structures of which the proteoglycans carry a negative charge and are therefore capable of bonding with water. The extracellular fluid performs transportation, nutrition and storage tasks.

The majority of connective tissue cells are made up of fibrocytes, which produce collagen fibrils. In addition we find macrophages, which break down fibrils. Both cell types are capable of building up or breaking down the appropriate enzymes when certain stimuli are activated.

The basic system (extracellular matrix, intercellular space) fulfils many tasks:

- Nutrition of cells (diffusion from the vessels into the cells through the basic system)
- Disposal of cells
- Filtering of metabolic end products
- Storage of metabolic end products
- Capturing contaminants and toxins
- Immune defence
- Conveyance of information
- Storage of information
- Regulation of the acid-base balance
- Repair mechanism

The intercellular space is the body's quasi "marketplace". It is here predominantly that the exchange, production and storage of "goods" take place.

In particular, the protein carbohydrate complexes produced from the fibrocytes filter metabolic products are able if need be to bond these on account of their negative charge. The capture of harmful substances leads in the long run to the formation of "dumps" and "slagging" of basic tissue. The diffusion capacity



Fig. 5: Airnergy device

decreases both during transportation to and from with consequences of under-supply of the substrates necessary for life, accumulation of metabolic end products, tissue acidosis and ROS increase. This causes functional disturbances, illnesses, poor health and premature biological aging.

Externally these processes are particularly noticeable in the skin and the skin adnexae. Many people are able to see the effects for themselves without understanding or being able to halt the underlying causes.

The Effect of Energised Inhaled Air

The important aim of all therapeutic interventions is considered to be the ability to break this "vicious circle".

A better supply to and removal of the ground substance should be achieved by its purification and harmonisation, especially through the restoration of regulating mechanisms and opening up of self-cleaning and self-healing mechanisms.

The metabolic slags should be released from the basic tissue and removed from the body by improved venous and lymph drainage.

Naturopathic treatments in particular seem to offer a suitable way of doing this. There are several approaches on offer such as stomach and bowel cleansing, a change in diet away from what is considered to be the civilised diet to a wholefood diet rich in vital substances, moderate (aerobic) and regular physical training, pulsed magnetic field therapy and – something which has been on the increase for some years now – Spirovital therapy (inhalation of energised air Airnergy®).

This involves a short-term increase in ambient oxygen (ground state) to a higher energy level

(singlet state) based on the action of light of a specific wavelength and a special photosensitiser.

This higher oxygen energy level "only" remains for fractions of a second before the energy released during the return to the ground state is transmitted to the surrounding water, which together with "normal" atmospheric oxygen in the ambient air is inhaled.

The other stages involved in spirovitalisation have yet to be fully researched. Yet given the numerous individual accounts (of those treated) and case descriptions (from therapists), it does appear certain,

that particularly in mitochondria (the aerobic power stations of cells) and in basic tissue, vital processes take place, which lead to better utilisation of oxygen and to a "purification" of basic tissue (improved diffusion).

Other detailed studies are planned or soon to be implemented and these should reveal the exact modes of action. The effect is in itself proven, as the case studies below clearly demonstrate.

Case studies

- A doctor and scientific journalist: "Even after a short time of inhalation (a few weeks) my skin has clearly taken on a glamorous appearance, which has continued. My skin is smoother, tighter and firmer. Especially the fine lines around my neck which you get at my age have clearly reduced and become smoother. The effect is better than any anti-wrinkle skin cream which I have tried up to now..."
- A business woman: "What pleases me as a woman is that the skin on my face and also on my body has improved..."
- Status following an accident during the triathlon competition (fall from a racing bicycle) "I'd like to list the changes which are most likely to do with Airnergy: My hair and finger nails are growing better and are stronger....my skin looks clearer..."
- The morning line of pills threatened to take on huge proportions: "... and furthermore there are other detectable and purely positive long-term effects.... My skin, hair and nails are giving me virtually no problems (especially in winter)..."
- A freelance medical journalist and doctor: "There are dramatic improvements in the appearance of my skin and the neurodermatitis which previously affected large areas of my armpits and neck and shoulder regions, regressed completely within a few weeks....even my hair became prettier, more shiny and curlier, something which my hairdresser also noticed without my having to draw her attention to it..."
- Racing driver with the beginnings of burnout syndrome: "... My skin has improved since I have been using the device....In winter I have a tendency to develop red areas around my nose and these are now much less noticeable and without any stress have even disappeared completely..."
- Healthy and inquisitive medical technician: "I can tell you that I'm pleasantly surprised by the results....after three weeks the areas of pigmentation which I got when I took the pill about 30 years ago and which remained even after stopping taking the pill, have faded....also I noticed that the appearance of my skin has improved, fine lines have become invisible and wrinkles greatly reduced, spider veins have become paler and even disappeared completely and my husband who is bald found a few new hairs appearing and now he has a growth of fine hair across his whole scalp..."
- A married couple who work as dentists: "We also noticed that the whole appearance of our skin has changed, which I put down to improved circulation..."
- Status post three myocardial infarctions and five stent implants: "Another very positive effect is the improvement in the appearance of my skin. Fine lines have simply 'gone' and my skin looks smoother with better circulation. Spots of pigmentation caused by regularly taking medication have become much paler..."
- Psoriasis: "I noticed that the appearance of my skin improved without using creams and

all signs of the psoriasis disappeared from my hands, elbows and knees....after the second week I had no further deterioration.

- I suffer from various problems including bad skin. The areas of psoriasis on my face have disappeared completely..."
- Emphysema: "My grey hair shone. I had better circulation in the skin on my face, arms and hands and they looked pink. Previously my skin looked grey..."
- Chronic fatigue syndrome for more than 20 years: "The very first improvement I noticed was my hair stopped falling out. I was very worried because I thought that I would soon be bald. My hairdresser also noticed the change and asked me what I had done to bring about the improvement..."



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