

Introductions

Our skin is our body's first line of defense. It is an organ, just like our liver or heart, and like any organ, it performs a long list of life sustaining tasks. It is the body's antenna, registering pressure, temperature, and pain. It is a barrier against the elements and a shield against bacteria, viruses and other outside threats to our health. In addition, it is the body's mirror; when we are chronically tired, undernourished, physically or emotionally stressed, our skin responds. It also regulates body temperature, so you know when you are fighting an infection. Lastly, the skin is also an excretory organ, eliminating toxins from the body via our pores. Our skin is our body's first line of defense!

Our skin is an incredible organ, the body's largest, but it is frequently taken for granted. As such, it is easily damaged, both by external causes—sunlight, air pollution—and internal factors, such as cigarette smoke or a diet that lacks nutrients, particularly antioxidant nutrients such as vitamin C and E. Premature aging is one consequence of failing to give our skin the care and attention it needs.

What does your skin say about you? Maybe more than you think. A glimpse at the body holistically, your skin—or integumentary (an outer protective layer or part of an animal or plant, for example, a shell, rind, husk, or skin) system—is very illuminating about how well your body systems are working. For example, jaundice is a characteristic of liver dysfunction; flushing is a sign of fever, and unusually heavy sweating is a possible warning to underlying cardiac problems. Likewise, very dry, scaly skin may indicate a deficiency in essential fatty acids. Overall, poorly functioning vital body processes due to acute and chronic toxicity from environmental factors, severely nutrient deficient diets, alcohol, smoking, stress, excessive sunlight exposure, and exercise, coupled with just plain abusive lifestyle choices are responsible for a number of skin disorders that afflict far too many people. To name a few:

- Psoriasis
- Eczema
- Skin cancer
- Acne
- Cellulite
- Seborrheic dermatitis
- Rosacea
- Hives
- Cold sores

The skin is your body's mirror to your internal functions.

Skin is such a dedicated organ that it has its own immune system. It has been suggested that defective skin immunity influences the entire immune system. Sunlight can infiltrate deep into skin and modify immunity directly, or it can produce changes in the dermis and epidermis that can incite immune changes. Sunlight has an effect on hormones. It decreases melatonin, norepinephrine, and acetylcholine, and increases cortisol, serotonin, GABA, and dopamine. The issue of aging skin goes well beyond looks or even cancer risk. Skin is vital for regulating internal temperature and shielding us from pathogens. It also protects internal organs from direct injury. Consequently, when the skin is threatened, the rest of the body is at risk, too.

In order to genuinely understand what our skin is up against—and to grasp its intricacy—you must understand its structure. Your skin consists of three fundamental layers: the epidermis, the dermis, and a fat layer.

The Epidermis- This is the outer layer of your skin. It consists of three types of cells: keratinocytes, melanocytes and langerhans cells. On top of the epidermis is the stratum corneum, which is a protective coating of dead skin cells (keratinocytes) that forms when fresh cells made in the skin's deeper layers push their way to the surface, flatten, and die. The stratum corneum is thinner than a sheet of tissue paper and is almost pure protein. Dead cells from stratum corneum continuously slough off and are substituted by new ones coming from below. As we age, however, this sloughing process slows down. When we were younger, cell turnover occurs about every 28 to 30 days. By the time we are in our 60's, the progression takes 45 to 50 days, which is one of the reasons our skin loses the newness or youth as years go by. Although the stratum corneum is basically "dead", it serves an exceptionally important skin crosssection function: It assists your skin in holding in moisture and oil.

Another major group of cells in the epidermis are melanocytes, the cells creating melanin, the pigment responsible for skin tone and color. Although we all have about the same number of melanocytes, the actual tone of your skin depends on your skin's distinctive

amount and concentration of melanin, a trait you inherit from your parents. Ultimately, there are the Langerhans cells which are essentially the front door of the immune system in the epidermis. They avert unwanted foreign substances from breaching the skin.

The Dermis- The dermis is the middle layer of the skin situated between the epidermis and subcutaneous tissue. You may identify the dermis, which lies under the epidermis and makes up 90 percent of the thickness of your skin, the skin's nerve hub—it's where a good deal of the skin's important work is done. It is the thickest of the skin layers and consists of a tight, sturdy network of collagen and elastin fibers. Together, collagen and elastin are significantly important skin proteins: collagen is in charge for the structural support and elastin for the pliability of the skin. The dermis includes nerve receptors, which are responsive to pressure (silky shirts, the touch of loved one), temperature, and pain; sweat glands, sebaceous glands (which manufacture skin-protective oil), hair follicles, and blood vessels. The most crucial type of cells in the dermis are fibroblasts, which produce collagen, elastin and other structural molecules. It is very important that the correct function of fibroblasts is optimal for overall skin health.

The sweat and sebaceous glands in the dermis, located around hair follicles, assist in the production of the skin's acid mantle (sebum), a thin coating of oil and perspiration that facilitates the protection from infections— bacterial and fungal. This acid mantle is a valuable barrier. When sebaceous glands manufacture too little sebum, as is frequent in older people, the skin becomes extremely dry and more prone to wrinkling. On the other hand, the overproduction or unacceptable composition of sebum, as is widespread in adolescents, often leads to acne. Sadly, we regularly strip away the sebum in the course of using harsh soaps, which upsets your skin's natural balance of acidity and alkalinity (called pH). Structural integrity, elasticity and resilience are the job of the dermis and wrinkles occur and develop in the there. For that reason, preventing wrinkles will only succeed if it can reach as deep as the dermis.

Subcutaneous Tissue (The Fat Layer)- This is the deepest layer of the skin situated under the epidermis and dermis and is made up mainly of fat. The fat performs as a shock absorber and heat insulator, shielding the underlying tissues from cold and trauma. The shortfall of subcutaneous tissue, frequently occurs with age, leads to facial sag and emphasizes wrinkles. The customary procedure carried out by dermatologists to counteract this process is to inject fat (gathered elsewhere in the body) under the wrinkles on the face.

Why Does The Skin Age?

- Intrinsic Aging-** (Internal) This is the type aging that takes place with the passing of time.
- Extrinsic Aging-** (External) This is intrinsic aging mixed with external causes such as sunlight, air pollution, and inflammation caused by harsh detergents, rough treatment, cosmetics laced with chemicals and disease processes.

Let's take a look at some of the factors that can hasten skin aging:

- Sun Exposure
- Artificial tanning
- Drug use
- Lack of exercise
- Poor liver function
- Cigarette smoke (inhaled or secondhand)
- Environmental toxins
- A diet lacking in nutrition
- A diet lacking in supplements: Vitamin A, C, E, and folic acid
- A diet high in fat, sugar, and salt
- Dehydration (don't drink enough water)
- Excess alcohol consumption
- Stress
- Personal care products full of chemicals and detergents
- Sleep deprivation

Sun Exposure—The sun's rays include infrared radiation, visible light, and ultra-violet radiation. The ultra-violet radiation spectrum can be separated into three types:

UVA: (315-400 nm) wavelengths

UVB: (280-315 nm) wavelengths

UVC: (100-280 nm) wavelengths

Characteristics of UVA Rays:

- Penetrates deep into the skin far deeper than UVB
- Causes sun tolerance
- Rays are potentially carcinogenic

- Rays can pass through regular cotton fabrics such as natural fabric (standard weave)
- Alters the body's immune system
- Has the longest wave length and can infiltrate glass
- Thought to cause cataracts
- Triggers drug photosensitivity**

***For instance, drugs such as Vibramycin, tetracycline, Minocycline (Minocin), that are used to treat acne are the most reactive to UVA rays, and may cause a red skin rash for some people.*

Characteristics of UVB Rays:

- Chiefly responsible for tanning and burning
- Initiates malignant tumors (skin cancer), such as basal squamous cell carcinomas and melanoma
- Responsible for photo aging
- Produces changes in the body's immune system
- Mainly absorbed at the skin's surface

Characteristics of UVC Rays:

- People are fortunate that UVC only gets through to the earth in minute quantities, as these rays are very destructive to the skin.
- UVC rays are absorbed by the earth's ozone layer.

Reduction of the ozone layer is liable to aggravate existing health effects caused by exposure to UV radiation, as stratospheric ozone is a particularly effectual UV radiation absorber. As the ozone layer becomes thinner, the defensive filter offered by the atmosphere is progressively diminished. Accordingly, human beings and the environment are exposed to elevated UV radiation levels, and particularly higher UVB levels that have the biggest impact on human health, animals, marine organisms and plant life. Computational models forecast that a 10% reduction in stratospheric ozone may well cause an additional 300,000 non-melanoma and 4500 melanoma skin cancers and between 1.6 and 1.75 million more cases of cataracts worldwide every year. The Environmental Protection Agency provides a simple measure of the UV radiation level at the earth's surface and a gauge of the potential for skin damage. It functions as a significant vehicle to raise public awareness and to alert people about the necessity to adopt protective measures when exposed to UV radiation. It is calculated during the noon hour and is updated everyday.

The consequence of exposure to even ambient UV rays multiplies the risk for long-term, damaging effects characterized by wrinkles and loss of skin tone and resilience. Photo-aged skin exhibits major alterations in the cellular component and the extra cellular environment of the connective tissue. The bottom line is that the sun is the chief cause of harmful changes in aging skin. How wrinkled your skin develops into depends principally on how much sun you have been exposed to in your lifetime. It might interest you to know that 80 percent of your lifetime sun experience occurs before 18 years of age. According to the American Academy of Dermatology, even a few blistering sunburns in your youth multiplies the risk of later skin cancer.

Initially, as you leisurely walk through the park on a bright sunny day, the molecules in our skin soaks up sunlight. Suddenly—free radicals are triggered. The sunlight also triggers an enzyme that breaks down fats in skin cells. This fat breakdown creates a chemical called arachidonic acid, the forerunner to molecules that can agitate the skin. Currently, we know that these inflammatory molecules increase the aging of skin.

There are so many people that believe they look healthier with “a little” sun. According to a recent survey by the American Academy of Dermatology, 80% of respondents were under the opinion that they appeared their best after having been out in the sun. Guess what? If you have been out in the sun a sufficient amount of time to turn color—tan or pink—you have been out too long. Don't get us wrong, we need regular sun exposure of very little time, about 15 minutes a day on average, just to aid in the protection against osteoporosis and maintain mood. More, however, is absolutely detrimental. Credible evidence confirms that all three types of skin cancer—basal cell carcinoma (BBC), squamous cell carcinoma (SCC), and melanoma—are caused by sun exposure. The population who are truly “shooting craps” with their lives include:

- People who use tanning beds or sunlamps. (No, we don't mean lamps that put out natural light)
- People who are constantly out in the sun during their jobs such as: construction workers, landscapers, lifeguards and farmers
- People who have had sunburns in the past or benign skin injury such as brown spots and hyperpigmentation
- People who spend a lot of time in the sun for recreational purposes

Sun Mistakes:

- Up to 80% of the sun's rays can breach light clouds, mist and fog.
- Water, sand, snow and concrete can reflect up to 80% of the sun's damaging rays.
- Fabric that is wet or has a loose weave will allow more UV to reach your skin.

Sunbeds and Tanning Salons. Your Ticket to Wrinkles and Cancer

The need to obtain a tan for fashion or cosmetic purposes has led to an increasing demand for tanning salons and sun beds. Use of sun beds for tanning continues to rise in popularity, especially among young women. The World Health Organization (WHO), says

that there is an anticipated 132,000 cases of malignant melanoma (the most severe form of skin cancer) annually, and an estimated 66,000 deaths from malignant melanoma and other skin cancers. These numbers go on rising: in Norway and Sweden, the annual incidence rate for melanoma is projected to have more than tripled in the last 45 years, while, in the United States, the rate has doubled in the last 30 years. Escalation in the use of tanning beds, combined with the yearning and fashion to have a tan, are believed to be the principal reasons behind this rapid growth in skin cancer.

The UVB lights in a tanning salon emit up to 2-5 times as much UV exposure as natural light, and are a major cause of skin cancer and premature aging. You will hear that their equipment is sometimes safer than the sun because tanning beds emit ultraviolet-A (UVA) rays, the so-called cool rays, rather than the ultraviolet-B (UVB) rays, which are most often implicated in sunburn. It has been established, however, that UVA rays can cause skin cancer as well as UVB rays can. Do not be deceived by claims to the contrary. The essential difference between UVA and UVB rays are that UVA rays are more likely to penetrate deeper into the skin, and are more likely to lead to skin damage such as wrinkling and collagen damage and, perhaps, melanoma.

Remember—while the damage your skin will receive from the use of tanning beds may not appear to be immediate it will contribute to the appearance and condition of your skin as you age!

The Vitamin D Issue

According to the Harvard School of Public Health, a 15 minute walk in the sun every day is optimum. If you reside north of the line linking San Francisco to Philadelphia, chances are you don't get sufficient vitamin D. This is also true if you don't get out for a stroll for at least 15 minutes a day. African-Americans and others with dark skin are likely to have much lower levels of vitamin D, due to less formation of the vitamin from action of sunlight on skin. A survey of people admitted to a Boston hospital, for instance, showed that 57% were lacking in vitamin D. Vitamin D helps guarantee that the body absorbs and maintains calcium and phosphorus, both essential for building bone. In addition, lab research indicates that vitamin D may keep cancer cells from growing and dividing.

Some initial studies reveal that insufficient intake of vitamin D is related with an increased risk of fractures, and that vitamin D supplementation may prevent them. It could also prevent falls, an everyday problem that leads to significant disability and death in older people. Additional early studies show an association between low vitamin D intake and increased risks of prostate, breast, colon, and other cancers.

Drugs, Smoking, Alcohol and Your Skin

When it comes to aging of the skin, it's not Father Time that is public enemy number 1. It is the very active, very vicious little molecule called the free radical. Our cells use oxygen to create energy. In the process, they produce free radicals—unsound oxygen molecules produced during such basic metabolic functions as circulation and digestion. Free radicals are also generated by toxins such as cigarette smoke, drugs and alcohol. In your body, free radicals literally bounce about, attaching themselves to other atoms and molecules, whether they are wanted or not.

Skin does not keep track of your age; it merely reacts to how it is treated, so if you expose it to smoke, drugs and alcohol, the skin will start 'acting old'. It will lose its glow and its elasticity. Lines will appear or open pores will not go away and it will not matter whether you are 20, 30 or 40 years of age.

Effects:

•**Stimulants such as amphetamines are the culprit in various skin disorders.** New research findings indicate that people heavily exposed to certain chemicals or substances such as cocaine and amphetamines may be at higher than normal risk for scleroderma.

•**Smoking is the 2nd leading cause of skin damage after sun exposure.** The nicotine constricts your blood vessels & decreases the flow of oxygen to the skin. Increasing wrinkles is a natural part of the aging process, but smoking successfully accelerates aging and makes the smoker appear years older than they actually are. Premature wrinkles, with dry, grayish skin drawn across sunken cheeks could all be part of the gaunt façade of the constant smoker. There can be other, more severe, consequences for smokers, including the higher risk of certain types of skin cancer and a thinning of the skin. In 1985, Doctor Douglas Model published an article in the British Medical Journal in which he coined the term, "smoker's face."

In this article, Doctor Model talked about how roughly half of the long-term smokers studied (smoked ten years or more) came to display the same facial characteristics as a result of the damage instigated by smoking. These characteristics were representative of long-term smokers and could be observed in spite of the age of the smoker, their weight, or the degree of the exposure to the sun. As the chemicals from cigarettes are absorbed into the bloodstream, they constrict the blood vessels, including the tiny capillaries located near the surface of the skin. The amplified carbon monoxide manufactured by smoking diminishes the amount of oxygen that is then circulated to regions of the skin. This equates to less oxygen and nutrients reaching the skin via the constricted blood vessels. Mingled with this is the capacity of direct contact to cigarette smoke to irritate and dry-out skin. In the case of the smoker, their skin's moisture levels may already be diminished because of the diuretic effect that nicotine has on the body.

•**Want clear skin and bright eyes?—Don't drink alcohol!** Alcohol is deemed a food with non-nutritional calories that rapidly add up. When you misuse alcohol, you are inclined to be undernourished, producing dry hair, cracked lips, intensifying acne, making your eyes appear glassy, and leaving your skin puffy with a broken vein appearance. In addition, the abuse of alcohol can also cause your levels of bilirubin to become elevated and cause jaundice, which in turn can turn your skin and eyes yellow (bilirubin is a waste product manufactured by the liver during the breakdown of old red blood cells. It normally exits the body in your stool.)

•**Prescription drugs affect your skin as well.** Levels of bilirubin may become elevated can cause jaundice in people using the protease inhibitors atazanavir (Reyataz) and indinavir (Crixivan). A slight yellowing of the skin and the whites of the eyes is an acknowledged side-effect of atazanavir and indinavir. Most of this takes place, according to research, during the first few weeks of treatment with the drugs. In April of this year (2005), Dutch researchers have associated a group of rheumatoid arthritis drugs to skin problems. Humira (adalimumab), Remicade (infliximab), and Enbrel (etanercept) are cited in the study, which appears in the journal *Arthritis Research and Therapy*. All of those medications are biologic treatments for rheumatoid arthritis (RA). They are a contemporary type prescription drugs of treatment approach that inhibits TNF, a chemical made by the body to encourage inflammation. These chemical substances lead to joint inflammation seen in RA. The investigation “shows that dermatological situations are a significant and clinically key problem in RA patients receiving TNF-alpha-blocking therapy, write the researchers.” Out of 289 RA patients taking biologic agents, 72 (25%) talked to a dermatologist about skin problems over an average of two years. In contrast, in a group of RA patients who had never been given these drugs, 37 (13%) conferred with a dermatologist. There were 128 skin problems among the 72 patients using biologic agents who consulted a dermatologist. Their most widespread conditions were skin infections (33 cases), eczema (20 cases), and drug-related skin eruptions (15 cases). None needed hospitalization but seven patients came to a decision to stop using the drugs because of skin problems.

Stress

Lose your cool, and the next thing you know, you might break out. “Stress may affect the levels of the male-like hormone called androgen in the body, which activate the sebaceous glands to manufacture more oil, leading to clogged pores and pimples,” says Diane Berson, M.D., an assistant professor of dermatology at Weill Medical College of Cornell University, in New York City. In addition, stress also encourages the skin's nerve endings, causing flare-ups of skin conditions ranging from eczema to psoriasis. Even cold sores may be attributed to too much stress. “Stress deteriorates your immune system enabling the viruses that cause these sores to reactivate,” says Rena Fortier, M.D., a dermatologist with Long Ridge Dermatology, in Stamford, Connecticut.

Here is another reason to cut down on your stress levels. A study from Ohio State University, in Columbus, established that psychological stress can make injuries take longer to heal. During their research, the physicians gave women who were taking care of chronically sick relatives and women in a control group small skin wounds on their forearms. In spite of receiving the exact same treatment, the caregivers' wounds took an average of nine days longer to heal.

Stress is like a termite that undermines a structure by working to undermine the body, mind and emotions. The results, however, can become all too obvious by showing up on your skin. Whereas dermatologists are, to this day, considering whether stress actually causes skin disorders, they seem to be in agreement that stress undeniably triggers or aggravates skin conditions such as acne, hives, eczema, psoriasis, rosacea, warts, cold sores and blisters.

Just remember that your body has its own way of dealing with stress. During periods of, “fight-or-flight,” the flow of blood (and nutrients) is directed to the areas of the body thought to be important for responding to the stress and taken away from areas considered non-essential, such as the skin. In addition, the flow of oxygen is also inhibited, making it hard for the skin to breathe. When this situation happens consistently, the skin is then constantly left without blood or oxygen, making it dull and lifeless, less supple, less hydrated and more inclined to manufacture clogged pores and breakouts.

If stress is getting the better of you and you are afraid of its long-term effects, don't be afraid to get help. You may not find instant gratification or permanent fix, but in time, you will be able to recognize the signs that pressure is building and find the optimal way to lighten the load.

Sleep

Ok, let's talk about the classic nature-versus-nurture debate: Is it your genes or your lifestyle that establishes how you look as you get older? According to Tina Alster, M.D., of Washington Institute of Dermalogic Laser Surgery, in Washington, D.C., the rule of thumb is that it is 10 percent genetics and 90 percent environment and lifestyle. If that is true, it means that the remaining 90 percent gives you big time control. I know it's not as much fun as partying for eight hours every night, but markedly better for your complexion!

Sleep allows your skin the opportunity to repair and rejuvenate itself. A lot of things affect the skin later in the day:

- New skin cell production is highest at midnight and lowest at noon.

- Production of oil in the skin is twice as high at noon than it is at 2am.
- Your skin is more apt to absorb whatever you put on it after 4pm
- You are more likely to experience an allergic skin reaction in the morning than in the evening.

When you are asleep, your skin is given the chance to repair and rejuvenate itself. Your cells need roughly 8-10 hours of rest to replenish themselves and maintain a healthy immune system. Without adequate sleep, you run the risk of impeding the lymphatic activity, which is critical to the body's ability to drain off toxins. Without enough sleep—and hence good drainage—you will wake up puffy and sallow with dark circles under your eyes.

Another key issue is the position you sleep in. The objective is to reverse at night what gravity does during the day. When you are awake and standing up, gravity progressively pulls down on your skin, which is why your face begins to look tired and saggy at night. Gravity affects how old you look, so beat the gravitational pull by sleeping on your back.

Lastly, please don't fall asleep with your makeup on. The buildup of dirt, skin oils and makeup that accumulates up everyday by bedtime clogs pores, which may lead to acne. So, wash your face with a gentle, nourishing cleanser before you go to sleep and allow your skin to breathe.

The simplest good deed you can do for your skin is a good night's sleep.

Exercise

A standard exercise regime will not only help to lengthen your life and improve your appearance, but benefits your skin by helping to maintain circulation. If your life is void of a regular program, your cells are not being renewed and your skin will be more sluggish and look pasty. Have you ever noticed that when you are at the gym or involved in some sort of work out, your face gets red? It means it is receiving lots of healthy blood flow, bringing nutrients to your skin and carrying away toxins. Aging is inevitable—but a gradual decline in good health and good looks is not.

For those of you who wish to avoid spending tons of money on medical intervention against aging skin, there is an alternative. It is yoga for your face, and is a series of toning and strengthening exercises for the muscles of your face. Yoga gives your skin a healthy glow by balancing your hormones and boosting the flow of oxygen-rich blood to your skin. It keeps your skin resilient and prevents dryness and excessive sagging. Yoga also tones the muscles of your face and neck.

Environmental Toxins

Would it surprise you to know that there are 70,000 synthetic chemicals in commercial use with an estimated 1000 new chemicals being introduced each year? Only an insignificant amount of these chemicals have ever been effectively tested to determine their effect on humans and other forms of life (complete fundamental statistics for only 7% of these chemicals).

Don't let anyone tell you that your skin does not absorb toxins into your bloodstream. If that were true, then why does the medical community sell transdermal medication? Sources of toxins that are absorbed by your skin fall into many categories; some of which you would not even think about.

Here are just a few:

- Cosmetics**—The National Institute of Occupational Safety and Health (NIOSH) found that 884 chemicals used in personal care products and cosmetics are known to be toxic. High levels of phthalates (plasticizing compounds found in cosmetics and various household products) have been discovered in the blood and urine of Americans, according to the first National Report on Human Exposure to Environmental Chemicals, released in March/2001 by the Centers for Disease Control and Prevention (CDC) in Atlanta. Phthalates are known to disrupt hormone function and cause fetal malformations in animals, but no studies have been performed to determine whether such effects occur in humans.

California must be concerned about it, because in June of 2005, an article regarding the necessity to catalog toxic chemicals used in cosmetics was released.

- Personal hygiene supplies.** Benzene, for instance is one hazardous substance that is found in many forms. It is used in the production of deodorant, soap and perfume. Despite its widespread presence in the environment and its classification as a cancer-causing agent, benzene is generally considered a hazard only for the two million or so industrial workers who are exposed to elevated levels at their jobs.

- Poly-vinyl alcohol** (the carcinogenic formaldehyde-based substance that creates “perma-press fabrics) can be absorbed by the skin.

- In autopsies, they have found that all the deceased had styrene in them**, which comes from Styrofoam cups. It is magnified when used with hot drinks! For more information, please check out this link: bss.sfsu.edu/raquelrp/projects/Styrofoam.ppt

- Chemical or fragrance additives** that are added to soaps and cleansers

- Fabric softeners** may contain hormone-disrupting chemicals that can affect thyroid absorption and cause weight gain along with many other serious health problems.

The National Institute of Occupational Safety and Health (NIOSH) US analyzed 2983 chemicals used in personal care products. The results were as follows:

- 884 of the chemicals were toxic
 - 314 caused biological mutation
 - 218 caused reproductive complications
 - 778 caused acute toxicity
 - 146 caused tumors
 - 376 caused skin and eye irritations
- toxins

The U.S. Food and Drug Administration have a list of ingredients that have been banned for use in cosmetics.

Lastly, please don't shower in chlorine! According to Francis T. Mayo, the Director of the Municipal Environmental Research Laboratory, "Chlorine is used almost universally in the treatment of public drinking water because of its toxic effect on harmful bacteria and other waterborne, disease-causing organisms. But there is a growing body of scientific evidence that shows that chlorine in drinking water may actually pose greater long term dangers than those for which it was used to eliminate."

These effects of chlorine may result from either ingestion or absorption through skin. Scientific studies have linked chlorine and chlorination by-products to cancer of the bladder, liver, rectum, and colon, as well as heart disease, atherosclerosis (hardening of the arteries), anemia, high blood pressure, and allergic reactions. There is also evidence that shows that chlorine can destroy protein in our body and cause adverse effects on skin and hair." For more information please use the links below:

So how do you minimize chlorine exposure?

- Avoid highly chlorinated swimming pools and jacuzzis
- Use a high quality shower filter
- Drink filtered or distilled water

Dehydration

The skin echoes the state of the body's health and looks it best when all cells in the skin's layers are suitably nourished and hydrated. There are scores of benefits of water for the body and your skin, and these are just a few:

- Eliminates waste—moves toxins out
- Controls body temperature—when properly hydrated, we sweat more efficiently, which helps keep skin clear.
- Helps the body & skin absorb nutrients
- Aids in the conversion of food to energy
- Guards and cushions vital organs
- Carries nutrients and oxygen to all cells in the body
- Moistens oxygen for breathing
- Keeps your skin supple and soft

Ample intake of pure, clean water generates the body's healing process. It is required by the body to prevent toxins and chemical substances from accumulating and injuring cells and to carry neurotransmissions from one nerve cell to another efficiently. Water also helps preserve proper muscle tone, by giving muscles their natural aptitude to contract and by preventing dehydration. Shrinking cells are buoyed by water which plumps our skin and leaves it clear, healthy and resilient.

Without sufficient water, we would poison ourselves with our own metabolic wastes. Your kidneys eliminate waste products that must be dissolved by water. In other words, by consuming at least 8 glasses of water a day, you are flushing out the toxins that would typically escape through the pores of your skin hence preventing acne breakouts. Your kidneys cannot perform properly without enough water. When they do not function to capacity, a portion of the load is then dumped into your liver. One of your liver's first jobs is to metabolize stored fat into usable energy for your body. Unfortunately, if your liver has to do some of the kidney's work, it cannot work at complete capacity. A liver that is not working optimally can worsen acne because it cannot break down and clear surplus hormones from your body.

The question of how much water you should drink will usually get you several answers. A good rule of thumb is to drink 8-eight ounce servings of pure, filtered water a day to maintain the health of your body and skin. Most tap water contains chemical and toxic contaminants, so please replenish your body water with pure, filtered water. This does not include coffee, black tea, sodas or soup.

In addition, please make sure that you drink your clean water from a glass or stainless steel bottle. Bis-phenyl A is a chemical that is distributed worldwide, and is used in numerous plastic containers including plastic bottles. This chemical produces a powerful estrogenic effect.

When water in your blood is polluted with chemicals, it alters the cell structure, which may lead to changes in DNA and the commencement of the disease process, which is very akin to the aging process. Pure water transports the minerals and nutrients necessary for cell metabolism, and removes materials that can injure the cell.

Facts:

- Bones are composed of 22% water
- Your body is approximately two thirds water
- Normally, the body loses 4 ½ pints of water each day
- Muscles are 75% water
- By the time you feel thirsty, your body is already undergoing the first stages of dehydration

Here is something to remember: The skin is the last organ to receive nutrients from the body, and first to show signs of nutritional deficiency, imbalance or illness.

High Fat, Sugar & Salt

Here is a straightforward fact—an appropriate diet eradicates many skin complaints. Many people, including some medical practitioners, think skin wears out. On the contrary, skin is perennial, self-repairing and almost indestructible. So, if you genuinely want fabulous skin—radiant, lively, and yes, younger-looking skin, make sure you are putting food for healthy skin on your plate. Everything you eat develops into not only your inner being, but the outer fabric of your body as well. The more nutritious the foods are that you eat, the better your skin will look. Unfortunately, the reverse is true as well. The less consideration you pay to what you put into your mouth, the more problems you will see produced through your skin. “You may find yourself suddenly breaking out in acne, eczema, and psoriasis. Any number of chronic skin problems can be directly linked to diet,” say biochemist Elaine Linker, PhD, co-founder of DDF skin care.

Years of investigation has established that the best diet formula for staving off everything from the visible effects of aging skin to heart disease and cancer is to consume large amounts of protein, make excellent selections about carbohydrates, and pick organic fruits and vegetables rather than refined, processed foods. The reasoning behind this shift in philosophy comes from the study of the effects of carbohydrates on levels of insulin and sugar in the body. When you eat carbohydrates, your blood sugar starts to elevate and insulin is produced by your pancreas to keep that sugar under control. The drawback is that the release of insulin pushes your cellular metabolism into a mode in which it makes inflammatory chemicals (which sets in motion the skin aging process) and encourages your body to squirrel away fats. So, if you are consuming a lot of foods that are high on the glycemic index, they will boost your blood sugar because the sugar they present into your system is absorbed very quickly.

We now understand that sugar networks with the collagen in the body in a way that produces a phenomenon called glycosylation. Glycosylation—also called the Browning reaction—triggers the cross-linking of collagen, which makes skin inflexible and prone to discoloration such as age spots (passed on by overworking the melanocytes—the cells that generate pigment in the skin). What is the best way to avoid age spots?—keep refined and packaged sugar in your diet to either a minimum or not at all! If you insist upon feeding you sweet tooth, look into using products that don't impact your body with as much damage as white sugar. Birch sugar and Xylitol are two exceptional natural sugar substitutes that can be used, and remember to avoid all engineered sugar substitutes such as sucralose, aspartame, and nutrisweet.

A number of studies assess that diet may be involved in 40 to 60 percent of all cancers. More explicitly, a high-fat diet has been connected in colon and breast cancers. In animal research, a high fat intake increased the probability of skin cancer after introduction to UV radiation, while changing to a low-fat diet after exposure reduced the incidence of skin cancer. The crucial key to skin care is healthy monounsaturated fats and essential fatty acids while decreasing unhealthy saturated and trans fatty acids.

Especially devastating are trans fatty acids. Trans fatty acids are unsaturated oils that are treated with hydrogen (hydrogenated) to initiate an artificially saturated fat. Trans fats perform just like saturated fats, only worse! Don't get the wrong idea, however, as fat is not the enemy. Societies such as the Greeks and the Japanese consume diets that are somewhat higher in fat than the standard American diet, yet these societies have much lesser rates of skin cancer, skin problems, heart disease, obesity and other maladies than their American counterparts. This indicates that the total percentage of fat in the diet is not the significant factor—it is the form of fat that is being eaten!

As the threats of trans fats have become more evident, the government has taken some baby steps to combat the problem:

“In July 2003, the U.S. FDA issued a final rule requiring manufacturers of conventional foods and some dietary supplements to list trans fat on a separate line, immediately under saturated fat on nutrition labels. This policy will be mandatory by 2006.”

What does this mean to you and your skin? Do not eat fried foods or reuse heated oils. Heating oils to a high temperature creates trans fats. Instead, sauté, poach, bake or steam your foods and you will be doing your skin and your health a big favor. If you must use oil to cook, make sure you use an oil that is resistant to higher temperatures such as coconut oil.

What about salt? According to the U.S. Department of Agriculture, most of us consume a little more than 4,000 mg a day. But what does your body really need? The National Academy of Sciences says we need about 500 mg a day. Boy, that's quite a difference! The majority of all this excess salt comes from processed foods like canned soups, frozen pizzas and entrees, soy sauce and chips. For instance, Lay's potato chips have more than 200 grams of sodium in a single serving. Where does the excess salt go? Well, some of it is deposited underneath your skin, where it draws a layer of water that, much like body fat, blocks out the muscle you have labored so hard to build up.

Caution: In certain cases, water retention signals something more serious. If your skin remains plump or your finger leaves an indentation when you press on your skin, you may have a problem with your heart, kidney, liver or thyroid. Please see your physician.

What Are You Putting On Your Skin?

As a consumer, you must be on the look out for chemicals and toxic ingredients that may be injurious to your skin and your body. You would not even consider eating products that contained chemicals or cancer causing agents, so don't let these toxins cross the threshold and enter your system through your beauty product either!

Insignificant amounts of research are available to provide evidence of the safety or health risks of low-dose repeated exposures to chemical combinations like those in personal care products, but let's get one thing straight—the absence of data should never, never be mistaken for confirmation of safety. The more we investigate low dose contact with these products, the more we comprehend that they can cause adverse effects ranging from the subtle and reversible, to effects that are more critical and permanent. On the whole, our research of product safety reveals a cause for concern.

Interestingly enough, 450 ingredients that are used in this country are banned for use in cosmetics in the European Union by the industry. The dictatorial vacuum in the United States gives cosmetic companies enormous leeway in selecting ingredients, while it shifts potentially considerable and unnecessary health risks to the users of the products.

Cosmetics and personal care products are promoted based on the quality and ingredients of their formulas. Numerous products allege to be filled with expensive vitamins, oils, and perfumes. Others profess to use an all-natural formula. How can you be certain that the products you purchase contain the ingredients they claim to have or that they are safe? Read the label? Guess again! Unless you happen to be a scientist or a chemist, the ingredient list on the majority of cosmetic and personal care products will look like a laundry list of monotonous, tongue twisting names that make no sense at all. If you want to educate yourself, there are several books that will really bring you up to speed on what is in your personal care products. One would be, *Dangerous Beauty*, by Mark Fearer; and the other is called, *Drop Dead Gorgeous*, by Kim Erickson. Additionally, there are many groups that are pushing for safe products such as WomenandEnvironment.org.

Why should you have reservations about the safety of ingredients in body care products that you spread over your body and hair? There are many reasons, yet here is the most compelling one:

Hongran Fan and her coworkers at the Veteran Affairs Palo Alto (Calif.) Health Care System and Stanford University School of Medicine planned to demonstrate the effectiveness of intramuscular gene injections by comparing them with simply dripping a DNA vaccine solution onto the skin of mice. Well, they discovered that it was possible to distribute the vaccine through the hair follicles on unbroken skin.

So, if you can absorb an effectual prescribed amount of a vaccine simply by having it come in contact with your skin, how much of the toxic ingredients that are in your personal care products are you absorbing through your skin? Think about it—you are literally bombarding your tissues, your organs and your brain with man-made chemicals and their processing residues!

Link to study

Always question and investigate chemical ingredients that you cannot pronounce. Shun phony “organic” and “natural” body care products that are filled with, “derived from” synthetic chemicals. Support the companies that actually create non-chemical, true organic products that are considered safe and don't need to be tested on animals (for obvious reasons). You really can make a difference for you, the environment and your loved ones.

Just a few of the chemicals most commonly used for you to mull over:

- Sodium Lauryl Sulfate (SLS)/Sodium Laureth Sulfate (SLES)
- Imidazolidinyl Urea And DMDM Hydantoin
- Triclosan
- DEA (diethanolamine) MEA (monoethanolamine) TEA (triethanolamine)

- FD&C Color Pigments
- Propylene Glycol (PG)
- Mineral Oil
- Synthetic Fragrance
- Phthalates
- Isopropyl Alcohol

Be sure to check out our full article on the top ten toxic ingredients in cosmetic products.

Therapeutic Recommendations: Nutrients

Vitamin A- This vitamin may be one of the better documented vitamins to protect against skin problems. One of its properties is to encourage healthy differentiation and apoptosis (a form of cell death necessary to make way for new cells and to remove cells whose DNA has been damaged to the point at which cancerous change is liable to occur) of aged cells. The significance of vitamin A in safeguarding the skin is to help assist cell renewal and possibly prevent skin cancers. Vitamin A is a fat-soluble vitamin that genuinely works wonders for the skin.

- It slows the aging process of the skin
- It is a well-known wrinkle eliminator
- A deficiency can cause dry skin
- A deficiency may cause acne
- Protein cannot be utilized by the body without vitamin A
- It is needed for the restoration of epithelial tissue, of which the skin and mucous membranes are composed

The carotenoids are a class of compounds linked to vitamin A. In many cases, they can function as precursors of vitamin A; some work as antioxidants or have other key functions. The best recognized sub-class of the carotenoids are the carotenes, of which beta-carotene is the most extensively known. Also, incorporated into this group are alpha-and gamma-carotene, and lycopene. When food or supplements containing beta-carotene are consumed, the beta-carotene is converted into vitamin A in the liver. According to recent studies, beta-carotene appears to scavenge or neutralize free radicals.

Suggested dosage: 5,000 IU of Vitamin A or 25,000 of Beta-carotene

Note: Taking large amounts of Vitamin A (such as 100,000 international units daily, over extended periods of time may be toxic to the body—specifically the liver. If you already suffer from liver disease, do not take a daily dose of over 10,000 international units of vitamin A in pill form, or any amount of cod liver oil. If you are pregnant, do not take more than 10,000 international units of vitamin A daily due to testimonies of problems in fetal development. Children should not take more than 18,000 international units of vitamin A on a daily basis for over a month. For the majority of people, beta-carotene is the optimal source of vitamin A because it is transformed by the liver into no more than the amount of vitamin A that the body truly needs. If you have diabetes or hypothyroidism, there is a sound likelihood your body cannot convert beta-carotene into vitamin A. Antibiotics, laxatives and some cholesterol-lowering drugs interfere with the absorption of vitamin A.

Recommendation: Life Extension Foundation - Beta Carotene

B-Complex- A number of vitamins are included in creating a B-complex supplement, and each vitamin creates a distinctive contribution to keeping you healthy and giving you a beautiful complexion. B-complex vitamins are crucial links in a number of enzyme-related chemical reactions that protect skin, and your health in different ways. B-complex vitamins act as coenzymes, assisting enzymes to react chemically with other substances, and are engaged in energy production. To receive the optimal benefit from the B's, take a supplement that combines them as B-complex so that you get a balanced amount of each nutrient in the group.

Suggested dosage: Start with B-complex, 50 mg, best taken in the morning with your meal.

Recommendation: Life Extension Foundation - Complete B Complex

Vitamin E-This is a fat-soluble nutrient and antioxidant, which has been commemorated as a benefit for:

- Heart disease
- Sunburn
- Improving circulation
- Necessary for tissue repair
- Treating premenstrual syndrome
- Fibrocystic disease
- Normal blood clotting

- Reducing scarring from some wounds
- Reducing blood pressure
- Aids in preventing cataracts
- Promotes healthy skin and hair
- May prevent age spots
- Prevents cell damage by inhibiting the oxidation of lipids (fats) and the formation of free radicals

Vitamin E is, in fact, a family of eight different but related molecules that fall into two major categories: the tocopherols and the tocotrienols. Inside each group, there are alpha, beta, gamma, and delta forms. Of all eight of these molecules, it is the d-alpha-tocopherol form that is the most powerful. Natural sources of Vitamin E are far superior to synthetic Vitamin E because natural Vitamin E is more available for utilization by the body than the synthetic form. The synthetic form is only 67% as active as the natural form. Please read the labels closely. The natural form is listed as d-alpha-tocopherol, and the synthetic is listed as dl-alpha-tocopherol.

We recommend a form of Vitamin E called tocotrienols, which have the capacity to completely disperse in a cell membrane, travel at top speed, and round up free radicals far more rapidly than alpha tocopherols. The bottom line is this form of E encompasses all the properties of alpha tocopherol or a prescription of mixed tocopherols, but is 40 to 50 times stronger and more effectual at repairing skin damage, shielding the heart and circulatory system, and driving out free radicals.

Suggested dosage: 200-400 IU, in the morning

Note: In order to maintain the proper level of Vitamin E, the body needs zinc. If you take iron supplements, please take them at different times of the day. Inorganic forms of iron (such as ferrous sulfate) destroy Vitamin E. In contrast, organic iron (ferrous gluconate or ferrous fumarate) leaves Vitamin E intact.

Caution: If you are taking an anticoagulant medication (blood thinner), do not take more than 1,200 international units of vitamin E daily. If you are diagnosed with diabetes, rheumatic heart disease, or an overactive thyroid, do not take more than the recommended dose. Lastly, if you have high blood pressure, start with a small amount (200 international units daily) and increase slowly to the desired amount.

Recommendation: Life Extension Foundation - Gamma E Tocopherol/Tocotrienols

Vitamin C-This is a biggy! Vitamin C is an antioxidant that is essential for at least 300 metabolic functions in the body. We could make a list that would cover several pages, but we will a few, including those that pertain to skin.

- Tissue growth and repair
- Adrenal gland function
- Healthy gums
- Inhibits free-radical damage
- Helps to manufacture collagen
- Helps to protect you from abnormal blood clotting and bruising
- It aids in the production of anti-stress hormones and interferon (an important immune-system protein)
- It protects against the harmful effects of pollution
- Enhances immunity
- It can combine with toxic substances, such as certain heavy metals, and help to eliminate them from your body
- Promotes the healing of wounds and burns

Alcohol, analgesics, antidepressants, anticoagulants, oral contraceptives and steroids may decrease the degree of vitamin C in the body. Additionally, smoking anything initiates a serious depletion of vitamin C.

Suggested dosage: A minimum of 1,000 milligrams of C daily. Remember that vitamin C is water soluble and (your body does not stockpile it), you have to restock the supply on a daily basis. If you are over 50 years of age, 3,000 to 5,000 milligrams a day is a good dose in divided doses—twice daily.

Note: Medications for diabetes such as chlorpropamide (Diabinese) and sulfa drugs may not be as effectual if taken with vitamin C. In addition, taking high doses of vitamin C may produce a false-negative reading in tests for blood in the stool.

Caution: If you consume aspirin and standard vitamin C (ascorbic acid) together in large doses, you may experience stomach irritation—possibly leading to ulcers. So, if you have to take aspirin regularly, please use an esterified form of vitamin C, and take it separately from the aspirin. Pregnant mothers are advised not to take more than 5,000 mg of vitamin C daily. A growing fetus may become dependent on this supplement and acquire scurvy when deprived of the accustomed megadoses after birth.

Recommendation: Any esterified vitamin C is our first suggestion as we feel that it is a remarkable form of C. It is created by having the vitamin C react with a necessary mineral, such as calcium, magnesium, potassium, sodium, or zinc. This produces a vitamin C that is non-acidic and includes metabolites identical to those produced by the body. Esterified vitamin C comes into the bloodstream and tissue four times faster than standard forms of vitamin C because it moves into the blood cells more effectively and also remains

in the body tissue longer. The concentration of vitamin C in white blood cells achieved by using esterified vitamin C are four times higher than those attained with standard vitamin C. Furthermore, and a very important fact; only one-third is lost during excretion in the urine.

Alpha Lipoic Acid- If it's crucial role in health is any sign, alpha-lipoic acid may very well unite with the ranks of vitamin C and E as a function in your first-line defense against free radicals. It deactivates free radicals in both fatty and water regions of cells, in contrast to vitamin C (which is water soluble) and vitamin E (which is fat soluble). What that equates to is that ALA is the only antioxidant that is both fat and water soluble. Not coincidentally, the levels of ALA in our bodies decline with age as the free radical action increases. Supplementing with ALA can help reverse this process.

Alpha lipoic acid is powerful antioxidant and has been said to be 400 times stronger than C or E and raises the levels of these two vitamins in the body. It can also inhibit inflammatory reactions in the body and slow the onset of illnesses such as Alzheimer's, heart disease and arthritis.

There is a factor called AP-1 that can be activated negatively or positively. If you expose your skin to the rays of the sun, AP-1 can be activated negatively and damage the skin by producing free radicals. If AP-1 is activated by alpha lipoic acid, then it generates enzymes that digest specifically the damaged collagen. As we become older, proteins may become glycosylated. Glycation is a process where a glucose molecule is attached to the protein and is commonly measured in the body by estimating the blood levels of glycosylated hemoglobin (HbA1c). Alpha lipoic acid may decrease glycation, decrease pore size, and activate AP-1. Frequently the effect of this is a decrease in facial lines when applied topically.

The body requires ALA to generate energy. It performs an important function in the mitochondria, the energy-producing structures in cells. The body, in fact, makes sufficient ALA for these basic metabolic functions. This compound performs as an antioxidant, however, only when there is an abundance of it and it is in the "free" state in the cells. Sadly, there is a very small quantity of ALA circulating in your body, unless you take supplements. What makes ALA stand out as an antioxidant is its flexibility—it assists in the deactivation of an extended range of cell-damaging free radicals in many bodily systems.

Suggested dosage: 100 milligrams in divided doses (breakfast and lunch)

Note: All ALAs are not equal! There are actually two types of ALA on the market. The first is R-ALA, which is the form naturally occurring in the body. The second is S-ALA, which is a synthetic form that can, in fact, interfere with the action of R-ALA. Most of the products out there have a 50/50 combination of each, because the process used to manufacture pure R-ALA is more complicated and expensive.

Caution: Alpha-lipoic acid supplements may affect the optimal dose of medications used to control blood glucose in diabetics. Individuals on such hypoglycemic agents should monitor their blood glucose levels and consult their health care provider for dosage adjustments if necessary to prevent hypoglycemia.

Recommendation: Life Extension Foundation - "R"-Dihydro-Lipoic Acid

Coenzyme Q10- Coenzyme Q10 is a vitamin-like substance located in almost every part of your body. Its actions mimic those of vitamin E and just may be an even more powerful antioxidant. It is almost imperative that you make sure that you have this supplement in your nutrition regime. It helps with circulation, stimulates the immune system, increases tissue oxygenation, and has vital anti-aging effects. It is also important because it gets into the cell membrane and safeguards it from free-radicals damage. It also performs in the mitochondria—the energy creating portion of your cells. This antioxidant is critical for healthy skin and a healthy heart. By the way, it is also an antioxidant that is easily depleted in the skin by things like sun exposure and toxins.

Suggested dosage: For people under 50 years of age, we suggest 30-50 milligrams. For over 50, we suggest 50-100 milligrams a day.

Note: Coenzyme Q10 is oil soluble and is best absorbed when taken with oily or fatty foods, such as fish. Be careful when purchasing this supplement, as not all Coenzyme Q10 is in the purest form. The best form is in the liquid gel form.

Recommendation: Jarrow's Q-Absorb Co Q-10

Acetyl L-Carnitine- Acetyl-L-carnitine are key to important functions in the cell. First of all, the carnitines initiate the oxidation of fats, simultaneously removing toxic metabolites from the cell, In fact, a deficiency in L-carnitine not only interferes with fatty acid oxidation, but also allows toxic fatty acid metabolites to accumulate. The reduction in cellular beta (fatty acid) oxidation is yet another cause of impaired energy production. This process results in a lower level of protein synthesis with aging, and a consequent increase in weight, and decline in body mass. Whenever you improve your body's energy metabolism, age-related conditions such as congestive heart failure, atherosclerosis, osteoporosis, loss of skeletal muscle strength, loss of hair and skin tone, and fat tissue accumulation will all respond. Improving you body's energy metabolism can turn back your body clock! Taking carnitine and CoQ10 is a no-brainer and are the twin pillars of anti-aging medicine.

Suggested dosage: We strongly recommend this supplement for people who are over 40 and fighting back to repair their skin. A daily dose of 500-1,500 milligrams assists in repairing the mitochondria, the energy-producing portion of your cells.

Caution: Particular medications, especially the anti-seizure drugs such as valproic acid (Depakene) and phenytoin (Dilantin), may diminish carnitine levels; however, whether taking extra carnitine would be helpful has not been established. Heart muscle tissue, because of its high energy prerequisite, is particularly susceptible to carnitine deficiency. Individuals with low or borderline low thyroid levels should check with their physician before using any form of carnitines, as it may impair the action of thyroid hormones.

Recommendation: Life Extension Foundation - Acetyl-L-Carnitine

L-Glutamine-This is a non-essential amino acid, which means that it can be quickly synthesized by the human body through activity of the enzyme glutamine synthetase. It is also the most dominant amino acid in the bloodstream, accounting for 30-35% of the amino acid nitrogen in plasma. Glutamine easily passes the blood-brain barrier and enhances the amount of glutamic acid and GABA; thus augmenting normal nervous system function. As amino acids chemically transform, ammonia is discharged. Glutamine takes part in the elimination of this toxic ammonia from the brain.

Since glutamine plays such an important role in the nervous system, when we are stressed, ill, had surgery; almost one third of our glutamine stockpile is released for nervous system usage. When this happens, it causes extensive muscle deterioration and loss as well as prompting a decline in beneficial levels of collagen for our skin. In addition, the concentrations plummet with age, so dietary supplementation can help to protect the skin.

Suggested dosage: It should be spread out in three equal dosages, preferably between meals. We suggest using your weight to determine the dosage. For every kilogram of body weight, you would use 0.5 grams of glutamine. For example: 110 pound person (50 kilograms) = 25 grams of glutamine daily

Caution: If taken too close to bedtime, it may cause insomnia.

Recommendation: Life Extension Foundation - L Glutamine Powder

Omega-6/Omega-3 EFAs- Together these oils work to dependably fight inflammation in the body. Since it is almost impossible to eat fish every single day, it is imperative to take EFAs in supplement form to be sure you consistently have adequate amounts in your system.

Aging causes a progressive deterioration in our ability to internally synthesize the essential fatty acids (EFAs) needed by the skin to preserve a youthful, moist appearance. When the skin is properly nourished, it shows less of the effects of aging. In fact, one of the omega-3 fatty acids, Evening Primrose, is essential if one has a tendency to develop eczema.

Suggested dosage: For fish oil, 1-2 teaspoons a day with meals. For super GLA/DHA, 3 capsules, 2 times a day with a meal

Recommendation: Life Extension Foundation - Arctic Cod Liver Oil and Super GLA/DHA

Silica-When we were young, our tissues soaked up and maintained high levels of silica—allowing our bodies to stay flexible, resilient, and energetic. Unfortunately, as we get older, our silica levels steadily drop. It has been suggested that silica supplementation may be a critical factor in helping us maintain a healthier, more youthful, and pain-free body. In addition, it may reduce the body's natural recovery time. Research shows that without sufficient silica, the body cannot sustain optimum skin elasticity, strong hair, nails, teeth and gums. Silica enriches the strength and functioning of connective tissue and it is through connective tissue that nutrients are absorbed and wastes are expelled. When silica is in attendance in the tissues in ideal amounts, these developments happen effectively, so the tone of the tissues will be improved, with greater vitality and less toxins. Your skin will be better hydrated (as long as you are drinking plenty of clean water), your hair will have more luster and your nails will be stronger.

It is important to make sure what kind of silica you choose. It comes in many forms and from many sources. A lot of the silica supplements that are on the market today come in tablet form and are not easily absorbed by the body. It is necessary to secure a form that starts with highly purified mineral silica, is pH neutral and easily absorbed by the body.

Be sure to check out our complete page on the many benefits of silica!

Suggested dosage: 15 drops in 8 ounces of clean water, twice daily.

Recommendation: Cellfood's Essential Silica Formula

Therapeutic Recommendations: Herbal

Green Tea- Studies into the health-promoting characteristics of green tea is producing information that may guide us to new treatments for skin diseases and wounds. A doctor Stephen Hsu, a cell biologist at the Medical College of Georgia, Department of Oral Biology, has revealed a wealth of information about green tea. It was Doctor Hsu who helped establish that compounds in green tea called polyphenols aid in the elimination of free radicals, which can alter DNA.

Green tea is also good outside as well as inside. The studies have shown that putting green tea on your skin can assist skin in numerous ways. If we could pick one word that would portray the key advantage green tea can bestow on your skin, it would be—anti-aging! Doctor Hsu stated, “A normal skin cell cycle is 30 days. With green tea use, this process is accelerated and the skin cells migrate faster, more new cells are generated. Further tests showed that young skin cells can speed up their growth with the help of green tea, while older cells become more active in DNA synthesis. Therefore, green tea may be utilized not only as a defensive treatment but, in addition, to reverse the signs of aging due to its positive affect on both young and old skin cells.

Suggested dosage: 1-2 capsules a day with a meal.

Note: Green tea extract has a good dose of caffeine, so if you are sensitive, please take early in the day or refrain all together.

Recommendation: Life Extension Foundation - Mega Green Tea Extract

Gotu Kola- Hundreds of years ago, the practitioners of the old Hindu system of healing known as Ayurveda used this perennial therapeutically. They used the leaves of the Gotu Kola plant for medicinal purposes, including the management of skin problems. By the 1880's, gotu kola's status for treating skin and other maladies had expanded throughout Asia and Europe.

What is interesting and most studied about gotu kola is the active ingredient known as triterpenes. These substances are thought to improve the production of the tough, fibrous protein known as collagen, which is found in your skin. It is widely used to diminish varicose veins by increasing the blood flow, increase the tone of the connective tissue sheath that surrounds the veins, and maintaining the suppleness of the veins. In addition, it has even shown promise in controlling cellulite because of its aptitude to reinforce the structure of connective tissue.

Lastly, in regard to your skin, when applied on the surface of your skin, gotu kola has been known to minimize scarring, speed up the healing of burn, keloids and wounds.

Suggested dosage: 40-80 drops of the liquid extract daily. Divide your dose into two and take before your meal.

Caution: Avoid gotu kola is you are pregnant, breast-feeding or trying to conceive.

Recommendation: None

Burdock- This herb is primarily recommended as a blood purifier, but it is also used to treat multiple skin conditions, including psoriasis and acne. Both orally and topically, burdock root preparations have mild antibacterial and antifungal effects which may aid in the relief of athlete's foot, dandruff, diaper rash, dry skin, eczema, and others.

Suggested dosage: Dosage: 40-60 drops of the liquid extract daily.

Caution: Individuals with allergies to plants in the Asteraceae and Compositae family (ragweed, chrysanthemums, marigolds, daisies) may be more likely to have allergic reactions to burdock. Skin allergies to burdock have been reported. Patients with allergies or intolerance to pectin should use caution because certain parts of the burdock plant contain different levels of pectin complex.

Recommendation: None

Pomegranate- Pomegranate is our best resource for antioxidants. When applied externally to the skin, pomegranate extract has an effect on preventing skin cancer in laboratory mice.

Pomegranate is likely the world's most profuse source of polyphenols. This is a very powerful family of antioxidants that work primarily in the skin. They are found in grape seeds and green tea, but most abundantly in pomegranates. It is also very helpful in escalating the protective abilities of sunscreens.

Suggested dosage: Varies

Recommendation: None

Therapeutic Recommendations: Diet

Healthy skin, similar to a healthy heart, begins with a good diet. Escalating evidence indicates that certain foods can help delay skin aging. We are aware, for instance, that carotenoids—flavonoids located in fruits, vegetables, and whole grains—are extremely supportive for the functioning of the heart and recent findings tells us the same is true for the skin.

In an especially fascinating study, researchers examined intake and compared that with skin evaluations of Greek people living in Melbourne, Australia; Greeks living in rural Greece; Anglo-Celtic Australians living in Melbourne; and Swedes living in Goteborg, Sweden. Information was compiled in the course of interview-administered questionnaires, clinical history, and physical evaluation. The participants were asked to estimate the average frequency of consumption of certain foods over a period of a year. The portion sizes were also taken into account for each specific food.

Although asking people what they consumed after the fact is not the compelling design for a study, we think the fact that the results look a lot like those of previous research into heart-healthy foods speaks volumes. For instance, the three key foods for skin health pointed out in the study were prunes, apples, and tea. The top three for your heart according to other research are onions, apples and tea. This is no coincidence, folks! Prunes and dates are full of some of the highest levels of antioxidants of any foods. In addition, apples and tea are plentiful in quercetin, a phytochemical that disturbs the oxidation of LDL.

In a Dutch research study, elderly participants eating abundant amounts of apples, tea and onions lived longer than counterparts who were not eating these foods on a regular basis. An investigation of the pooled data from the skin study also indicated that a high intake of olive oil, legumes, fish, vegetables, and dried fruits seem to be protective against sun damage.

By contrast, an excessive amount of meat, sugar, alcohol and dairy products appears to be most detrimental to the skin. These are the identical foods that starve your heart of key nutrients and put it at risk. It was also a fascinating observation in regard to the Swedish elderly that those who consumed the most vegetable dishes, eggs and drank the most water; had the least amount of skin damage.

The vast assortment of proanthocyanidins (phenols, polyphenols, and quercetin that add color to fruits and vegetables) have exhibited an exceptional free radical scavenging effect in postponing the oxidative process. Eat sulphur-rich foods such as garlic, onions, and asparagus. Sulphur serves to keep skin smooth and youthful.

So, what should you be eating to protect and maintain beautiful skin? Here are but a few champions that should be on your list:

Fruits: Apples, Cherries, Dried Fruits, Pears, Grapes, Prunes, Melons, Pineapples, Berries

*Vegetables: Asparagus, Celery, Eggplant, Garlic, Onions, Fresh Spinach, Cucumbers**, Leeks, Parsley**, Green & Red Peppers, Cabbage, Sweet Potato & Taro**, Parsnip**, Carrots, Lettuce (Romaine, Boston, Bibb)***

Other: Legumes, Walnuts, Almonds, Olive Oil, Flaxseed Oil, Coconut Oil, Green Tea, Beans, Fish, Brown Rice, Soy Yogurt

Juicing

Green drinks and vegetables juices are essential to the success of beautiful skin. The molecular structure of chlorophyll is so similar to that of human hemoglobin that juicing green drinks and vegetables can perform as “little transfusions” for the blood and tonics for the brain, immune system and skin. They are an exceptional resource of vitamins, minerals, proteins and enzymes. They include large amounts of vitamins C, B1, B2, B3, pantothenic acid, folic acid, carotene and choline. They are high in minerals such as potassium, calcium, magnesium, copper, manganese, iron and phosphorus. They are also packed full of enzymes for digestion and absorption, various containing 1,000 of the recognized enzymes required for human cell response and growth.

In addition, green drinks have anti-infective assets, counterbalance the body’s pH, rid the body of acid wastes, and purge the body of mucous. Lastly, they clear the skin, purify the kidneys and clean and strengthen the blood.

Bottom line—get yourself a juicer and start making it part of your lifestyle and your skin and health will thank you!

****Cucumbers-** This vegetable is high in silica, which is a mineral that fortifies connective tissue. More importantly, silica is excellent for skin elasticity and your complexion. Please use organic and non-waxed cucumbers and be sure you juice the skin where most of the nutrients are located. For more information on silica, please link here:

****Parsley-** This vegetable warrants big kudos for your skin. It is rich in just about all the skin boosting nutrients. It contains beta carotene, chlorophyll, vitamin B12, folic acid (great for firm skin), vitamin C and iron. So, don’t treat it like the orphan décor on the side of your plate anymore—have a half a cup a day for great skin!

****Parsnip-** This vegetable is full of potassium, phosphorus, sulphur, silicon, and chlorine. Consequently, it is great valuable for not only your skin, but your hair and nails.

****Sweet Potato & Taro-** Want an outstanding complexion? This vegetable is a superb source of beta-carotene. They also have tons of vitamin C, potassium, carbohydrates, calcium and fiber. They say that you can actually live solely on sweet potatoes and stay

healthy and strong. Look for the darker color, as it is higher in vitamins.

****Lettuce-** Iceberg—NO! You'll get more nutrients by drinking a glass of water. Use the Romaine, Boston or Bibb for your skin juice. This is a good source of chlorophyll, sulfur, chlorine, silicon and B complex; which all play a role in hair growth and healthy skin.

Skin Cleansing Tonic: Deep greens to cleanse, nourish and tone skin tissue from the inside.

For 1 drink: Juice 1 Cucumber with skin, 1/2 bunch Fresh Parsley, 1 4-oz. tub Alfalfa Sprouts, and 3 to 4 Sprigs Fresh Mint.

Therapeutic Recommendations: Physical

Skin Brushing- Skin brushing creates such remarkable results through each person's own responsibility of duplication. When a person begins skin brushing on a regular basis, they realize that they feel more energized, vital and full of life. Skin brushing is simple, easy to do and gets great results. Be sure to check out our in depth page on skin brushing.

Recommended Dosage: Everyday

Infrared Saunas- Saunas augment circulation and oxygenate the tissues of your skin. Your energy production is amplified, which, in turn, facilitates healing. When you heat up your tissues with an infrared sauna, it speeds up your metabolism and your skin cells are more able to eliminate toxins. In most cases, the skin of the majority of people is inactive. In fact, there are a lot of people who don't even sweat and consequently do not eliminate the toxins that they could. Sedentary lifestyle and sun damage also inactivate the skin. Think about all the chemicals that your skin absorbs during the day: lotions, soaps, deodorants, cleaning solvents, detergent residues and even the chemicals from your bathing water. Frequent use of an infrared sauna slowly reconditions skin elimination and heats the tissues several inches deep. The toxic chemicals and metals are eradicated faster and you feel better.

It is a daily routine that pays big dividends! The prolific sweating achieved in the infrared sauna carries off deeply rooted impurities and dead skin cells, leaving the skin glowing and immaculately clean. Improved circulation draws your skin's own natural nutrients to the surface. You will notice improved tone, elasticity, texture, and better color. Some studies have also revealed that increased circulation has been shown to ease acne, eczema, psoriasis, burns, lesions, and cuts. In the case of acne—three to five sessions with the infrared sauna may open pores that have not been functioning in years, forcing out clogging cosmetics and loosening dead outer skin. Body odor also improves with the repetitive use of the infrared sauna, especially when caused by occupational exposure to odorous chemicals.

Recommended Dosage: Try and locate a local spa or health club that has an infrared sauna available. A usual stay in a sauna is about 20 minutes, followed by a shower. It is not going to do much good to spend time detoxifying if you don't wash those toxins off your skin afterwards. Please drink lots of clean water before, during and after to keep hydrated and clean the toxins out. I like putting a little organic lemon juice in the water for my kidneys, in addition to adding a good electrolyte and mineral replacement formula to your water such as Cellfood or Emergen-C. The more trips you make to the sauna the better you will feel and the healthier you will be.

Using The Right Cosmetics- What is natural or holistic beauty? It denotes skin care with natural ingredients which strengthens the self-regulation of your skin. Each and every substance affects our organism. It is critical that you select products that are made from real living things so that their benefits are passed on to you.

- Skin care products that are made with plant based 100% unadulterated raw material
- Skin care products with premium quality base oils
- Skin care products that utilize 100% pre and natural essential oils and extracts
- Skin care products that are free from synthetic fragrances, colorants and preservatives
- Skin care products that are packaged with the environment in mind

Creams, lotions, cosmetic products and emollients are found far and wide, resulting in bewilderment for the consumer regarding what products are really helpful. Commentators used to argue there was no evidence that topically based products affected skin aging. Well, guess what? An extraordinary number of published studies have confirmed these skeptics incorrect! Science plainly substantiates the role that free radicals play in bringing about skin aging and the fact that topically applied antioxidants gives significant protection and can even partially reverse some aspects of skin aging.

The bottom line is this. The law governing personal care products and cosmetics says that they may not contain "harmful substances". However, how the tests for these harmful substances are conducted is left up to the companies. There are no standards set by the FDA for suitable safety testing—and no prerequisites that companies do testing at all.

With the exclusion of a handful of barred chemicals, manufacturers may add just about any ingredient to those fantastic eye creams, make your hair beautiful conditioners, wrinkle-removing lotions, and kissable lips/lip gloss.

Please—you must be responsible and aware of the real danger that comes to pass from the numerous potentially harmful chemicals used in your beauty products. Remember, they have a molecular weight that is low enough that they can penetrate the internal systems of the body.

Recommendation: Suki's Naturals - Truly Natural Skin Care

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