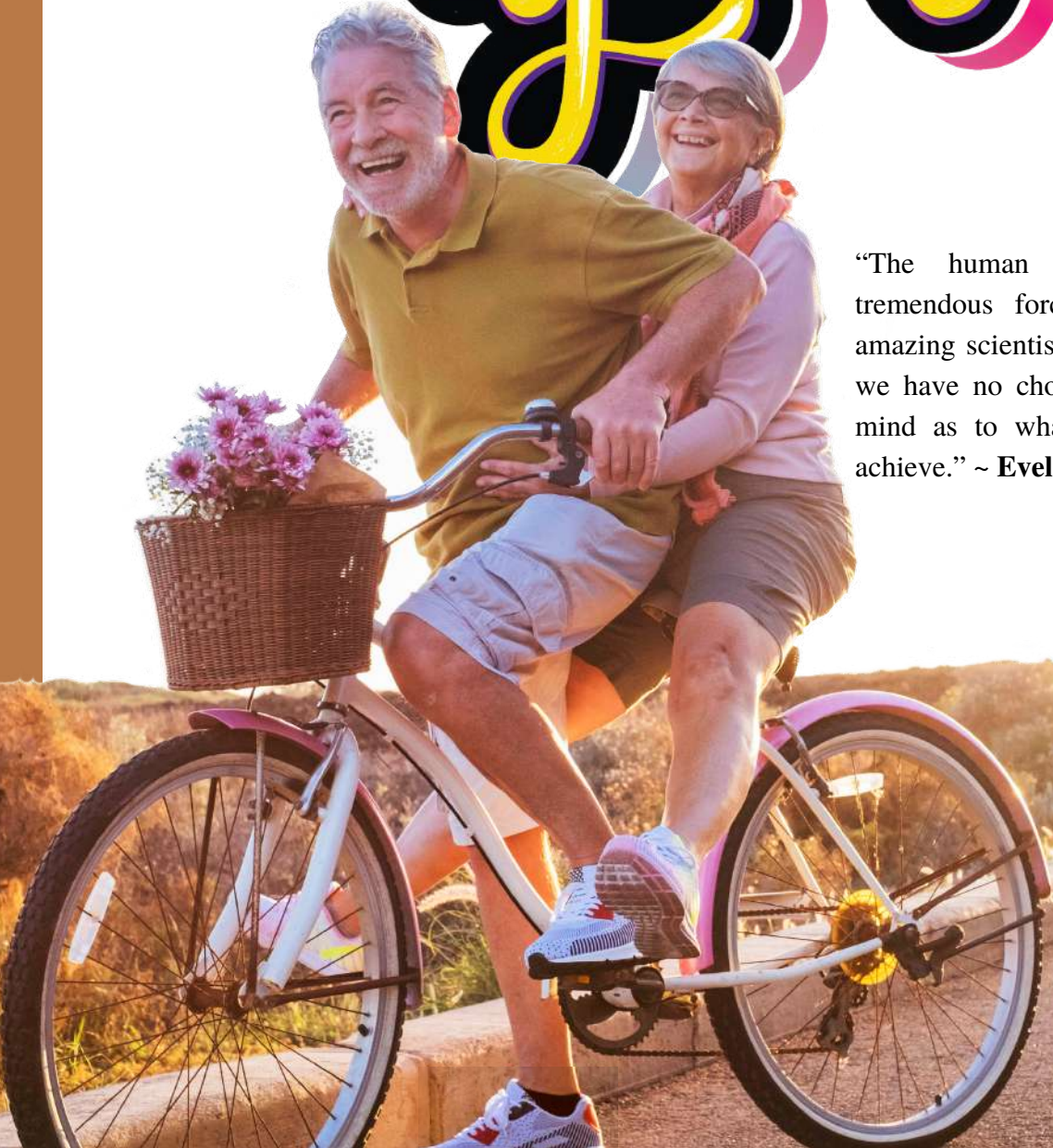


Forever Young



“The human body and mind are tremendous forces that are continually amazing scientists and society. Therefore, we have no choice but to keep an open mind as to what the human being can achieve.” ~ **Evelyn Glennie**

Disclaimers

- This PDF is provided for educational information only;
- It is recommended not to change or add medications or supplements without consulting your personal physician;
- The writer does not practice medicine, diagnose, treat or advise sick or diseased patients. Kindly relate accordingly;
- The data and facts of this PDF have been compiled from various online resources and personal experiences. Anyone has the right to accept it fully or partially and even reject the ideas discussed.

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The human body is a remarkable machine and very impressive (apart from the concept of consciousness and self-awareness). Every minute of every day our cells are in a constant state of change, building a new body, repairing it and regenerating it. Each tissue has its own renewal time, depending on how much that particular organ or area is used by us each day.

(a) Your stomach lining replaces itself every 4 days and the stomach cells that come into contact with digesting food are replaced every 5 minutes;

(b) Your taste buds are replaced every 10-14 days;

(c) Your outer layer of skin, the epidermis (apart from thicker dermis beneath), replaces itself every 35 days;

(d) You grow a whole new head of hair in every 2 to 7 years;

(e) You are given a new liver every six weeks (a human liver can regenerate itself completely even if as little as 25% remains of it);

(f) The entire human body, right down to the last atom, is replaced every 5-7 years;

(g) Your entire brain replaces itself every two months. Interesting point to ponder: If my brain replaces itself every two months (meaning I have more than 300 completely new brains since the day I was born), how is it that I am still able to have memories from when I was a young boy?

Some of the basic systems of the human body are given below:

The Skeleton

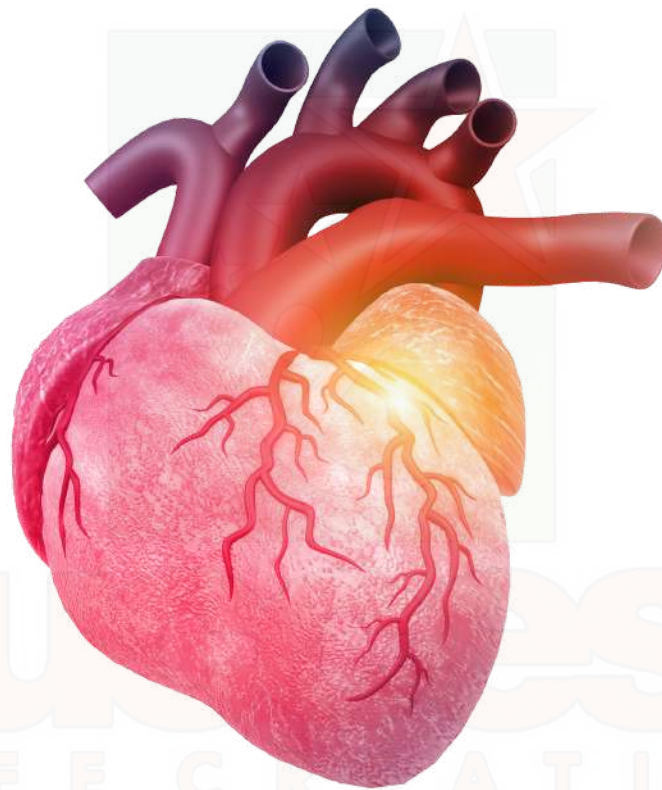
The human skeleton is made up of 206 bones . Study has shown that each bone's shape is perfectly adapted to its function within the body.



A skeleton will completely renew itself about every ten years. This obviously does not happen all in one go, but over our lifetime, this process ensures optimum protection of our internal organs.

The Heart

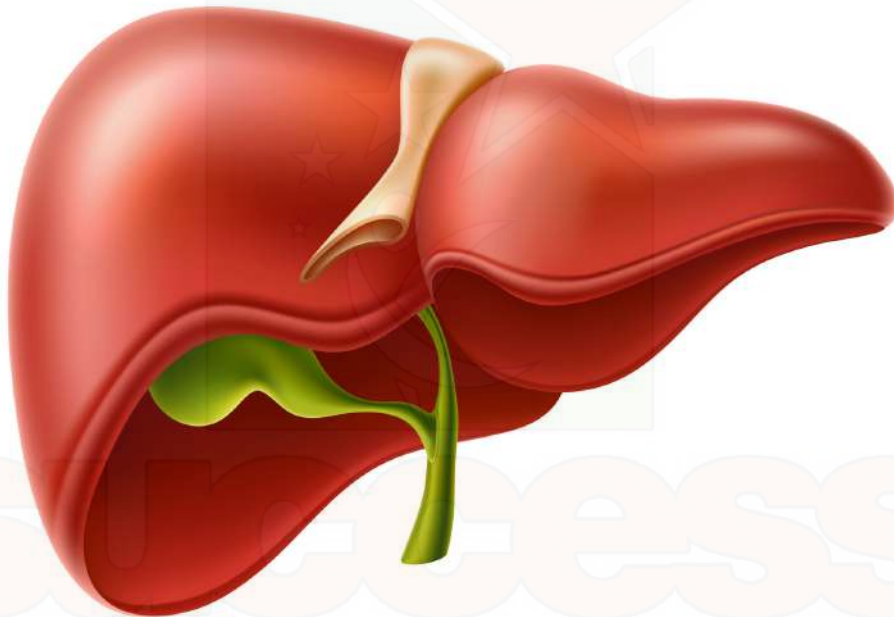
The heart is an extraordinarily reliable muscular pump, pumping around 6 liters of blood around the body every minute.



Researchers have confirmed that some heart cells renew themselves over the course of a person's lifetime, although this process can take decades. This means that by the age of 70, up to 40% of our heart may be renewed. This provides great potential for anyone who has suffered damage to their heart .

The Liver

The liver is the body's largest internal organ. It consists of around 50,000 tiny units called hepatic lobules, which filter blood from the heart and intestines.

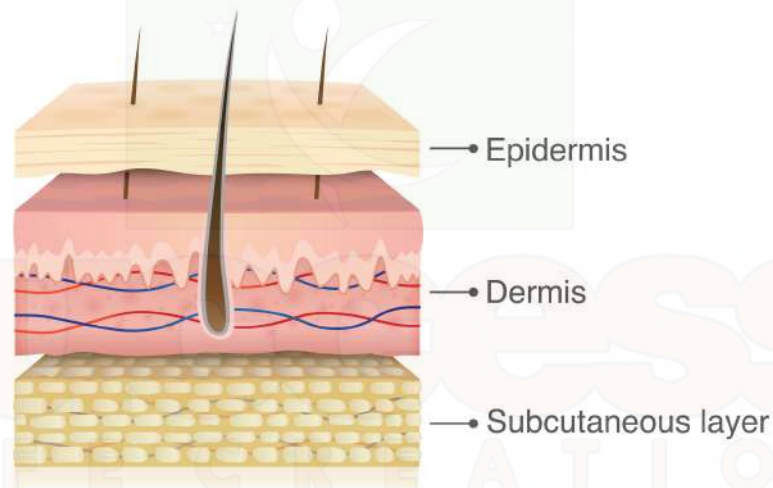


These liver cells, or hepatic cells, renew themselves regularly. These cells are exposed to toxins on a daily basis, which increases their potential for damage. The approximate lifespan for a liver is 150 days, after which the cells begin to renew themselves and the liver regenerates. This ensures the liver continues to work optimally. However, excess toxic intake from harmful substances can put extra strain on this process and cause damage to occur at a greater speed than regeneration, resulting in permanent damage to the cells.

The Skin

The skin is the largest external organ of the body and is made up of three crucial layers: the epidermis (the outer layer), the dermis (the second layer) and the sub-dermis (the third layer). The surface of the skin consists of flat, interlocking dead cells, which wear away and are replaced by cells moving up from below, like a conveyor belt. The cells are produced at the base of the skin's outer layer, the epidermis.

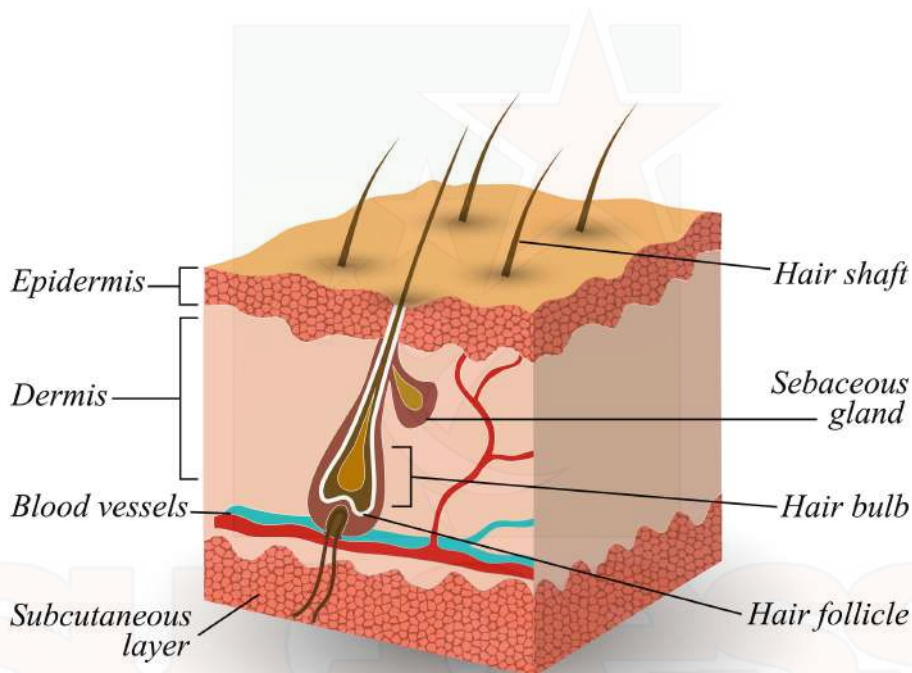
Three Main Layers of The Skin



We shed around 60,000 particles of skin a day, and it is completely renewed every 28 days.

The Hair

Hair follicles, from which hairs grow, are found in the second layer of skin, the dermis. Only the base of the hair, where it grows, is alive, and the shaft that shows above the surface is dead.



The speed at which our hair grows is dependent on where it is on the body. Head hair grows at a rate of 1 mm every three or four days and renews every six years, so after six years the hair on our head will be a completely different batch to the one six years prior. Hair elsewhere may be renewed quicker if exposed to daily damage or removal.

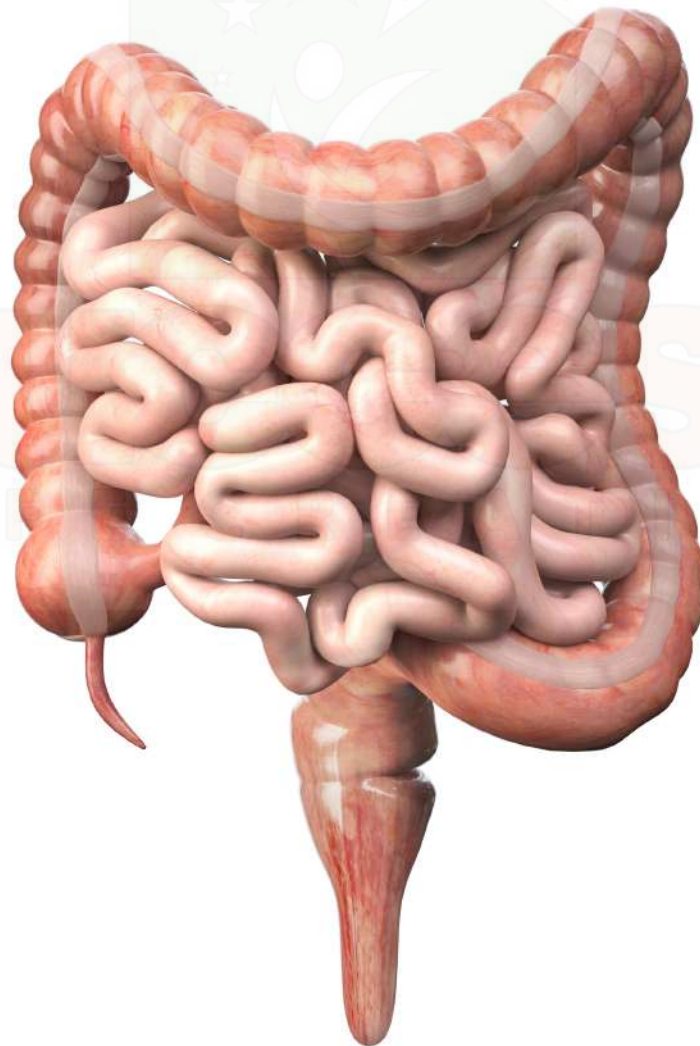
The Red Blood Cells

Red blood cells are some of the smallest cells in the body - only one drop of blood contains millions of red blood cells. 45% of our blood is made up of red blood cells, and they are the main way that oxygen is delivered to the internal organs. They are a fundamental part of our ability to thrive, so red blood cells are renewed every three to four months.



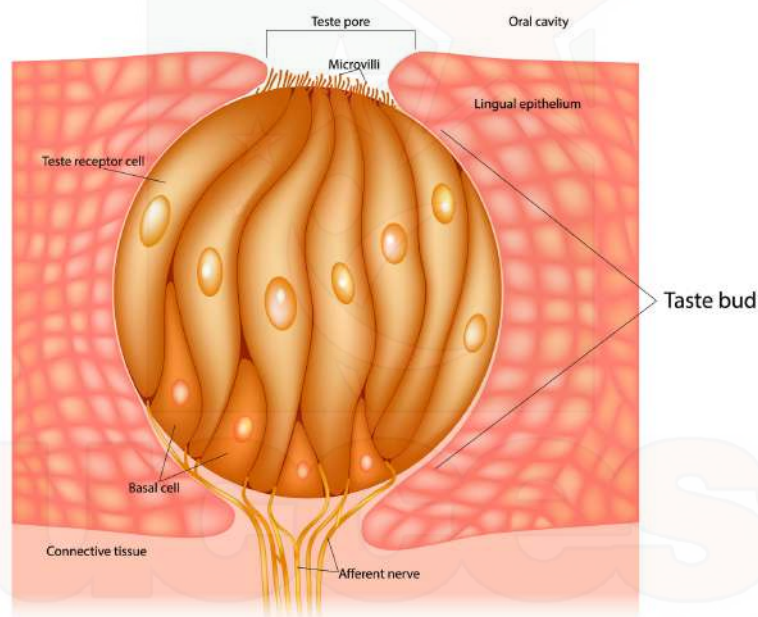
The Intestines

The "villi", which look like tiny hairs, are the parts of the small intestine that are vital for the absorption of nutrients from food. There are around 4,000 villi in an area the size of a fingernail, so they provide a huge surface area to maximize absorption of nutrients. These structures are used every time we eat or drink for the stomach acid needed to break down food, so are essential for optimum health . As a result, they need to be renewed regularly. New villi take the place of old cells every two to three days.



The Mouth and Taste Buds

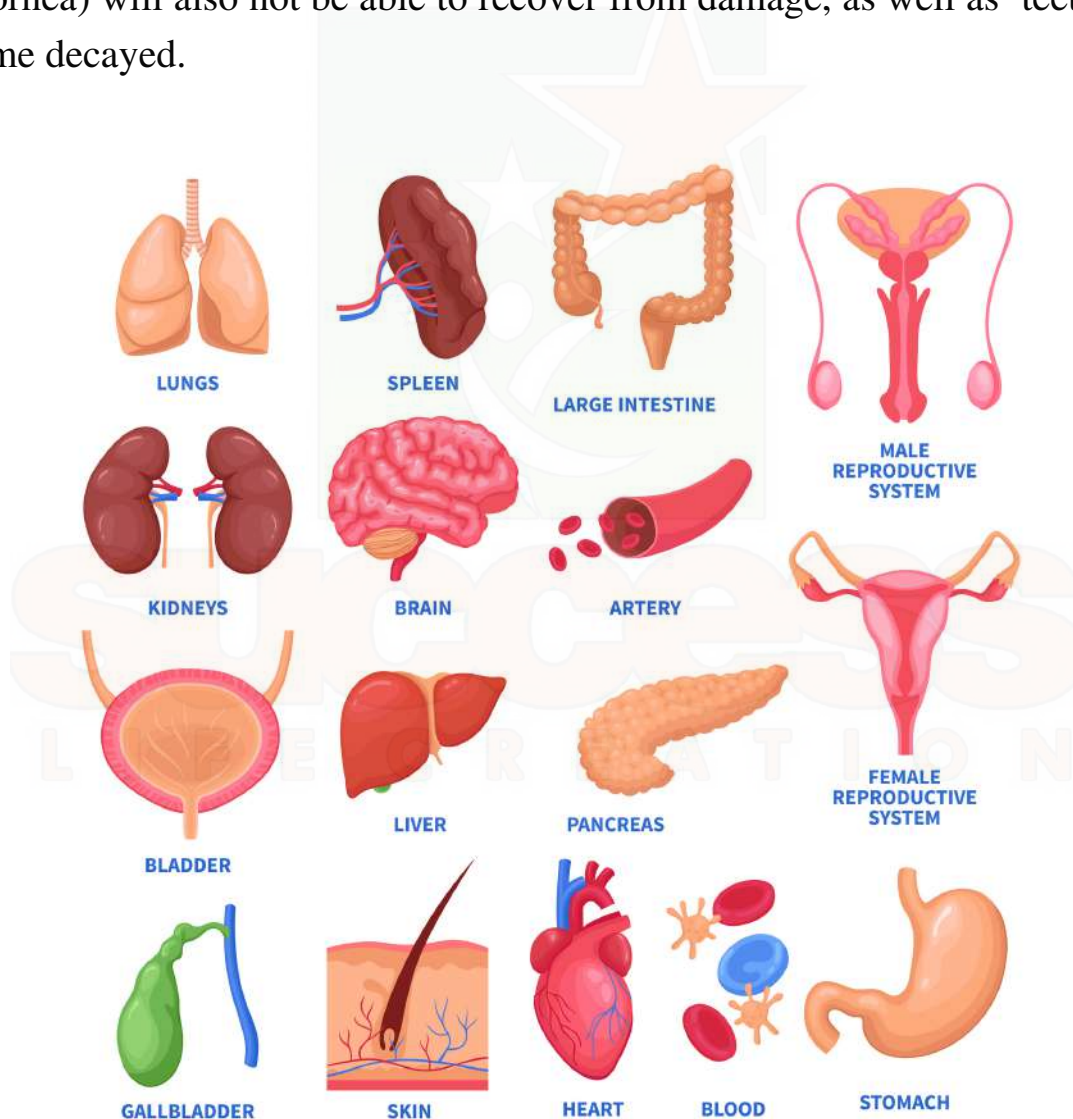
The cells of the mouth's lining including the inside of the cheeks and surface of the tongue multiply to renew themselves every few hours. This rapid replacement is needed to cope with the continual wear and tear of biting, chewing and swallowing.



The tongue's surface is roughened by papillae or “pimples” of several shapes and sizes. Around 10,000 microscopic taste buds are scattered around these pimples and also on the roof of the mouth and upper throat. Used on a daily basis, our taste buds can get very worn out. In order to maintain our ability to taste and detect different flavors, our taste buds are renewed every ten days to two weeks.

The Six Body Parts which can Repair itself

There are some areas of the body that are not regenerated. Although some parts of the brain can be renewed by stem cells, the majority of it cannot and it is the reason why most brain damage is permanent. The eyes (apart from the cornea) will also not be able to recover from damage, as well as teeth that become decayed.



Antioxidants play a fundamental role in both repairing damage to old cells and also to renewing them. A diet packed with antioxidants is vital to support the regeneration process or to protect organs like the eyes or brain from damage. Found naturally in fruits, vegetables, nuts, pulses or through naturally sourced food supplements, these beneficial substances are crucial for a healthier and younger-looking body.

Your diet, mental and emotional states of mind, your relationships, exercise, meditation and other arenas has a major impact on how successfully your body is at these regenerations.

"Regeneration is actually a default state when we are embryos (up to the second month within the mother's womb)," says David L. Stocum, Ph.D., Researcher and Dean of the school of science at Indiana University-Purdue University in Indianapolis. "We gradually lose that ability as we develop – except in certain kinds of tissues."

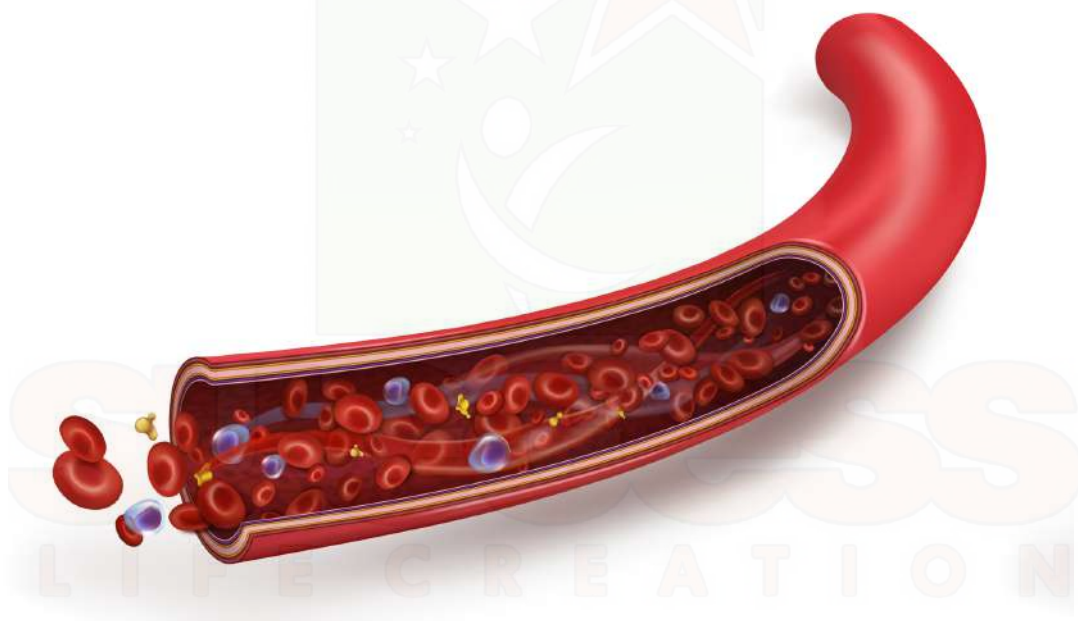
Your arteries, skin, liver, lungs, and digestive tract, and certain parts of your brain are all continually refreshed - if you are healthy. "It is called maintenance regeneration. It is kind of like working on your car," says Dr. Stocum. "You have got something going on – you are low on oil, you buy a quart. A taillight goes out, you replace it. The clutch is acting up, you fix it. It is the same thing with your body." (A few parts - including the liver and severed bits of fingertips - can even grow back. Studies suggest that adult stem cells in those areas play a role).

Make sure your body has all the tools and parts it needs for a tune-up. Sometimes it is as simple as revving your engine.

Here is how to mend broken bones, bypass clogged arteries, sprout new brain cells, and more - by optimizing your body's regenerative powers:

Your Arteries

The human skeleton is made up of 206 bones . Study has shown that each bone's shape is perfectly adapted to its function within the body.



The Damage: Narrowing of the blood vessels!

The Natural Defense: When your pipes start to clog, a healthy body can handle the traffic by enlarging existing arteries and even growing new ones. It is a natural process called angiogenesis, and here is how it works.

Links between blood vessels, called arterial anastomoses, normally supply local tissues with blood, like exit ramps shunting traffic away from expressways. These exit ramps can be pressed into service as full-fledged arteries.

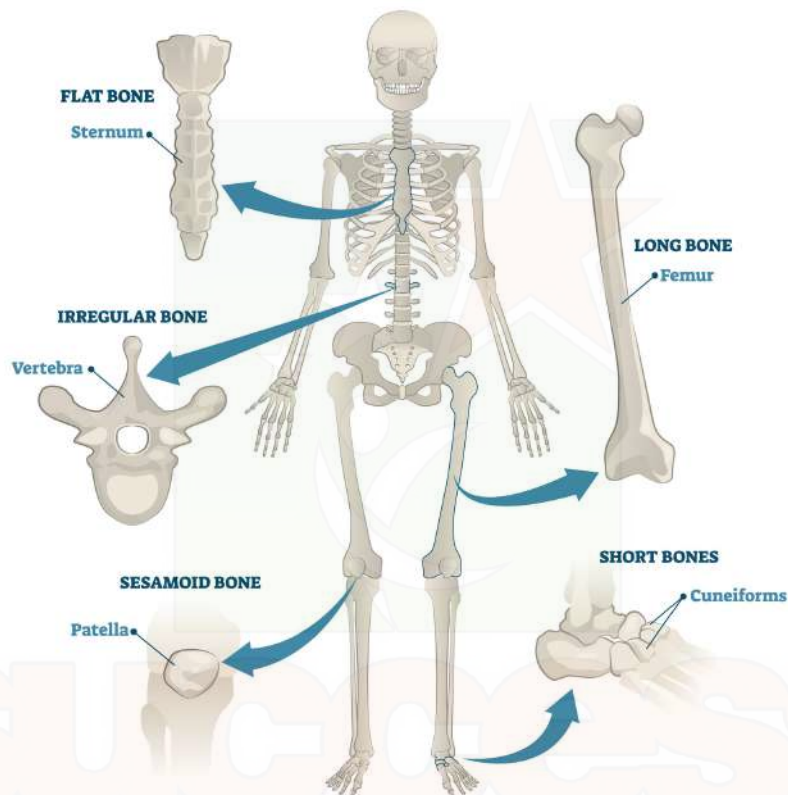
"The cells in the vessel are able to detect when stress is increased, and that prompts signals that enlarge the anastomoses," explains Ronald L. Terjung, Ph.D., associate chairman of the University of Missouri's department of biomedical sciences. "Blood can cross over (to an unclogged vessel) and keep going."

What You Can Do: First, clean your pipes. Cholesterol can hinder the repair process. Researchers at Harvard medical school compared tissues from two groups of open-heart patients - one group with clogged vessels and the other with clear ones - and found that the clogged blood vessels weren't able to respond to growth signals. "Angiogenesis cannot occur if the cells in the blood vessel are damaged or blocked by cholesterol," says author Roger J. Laham, M.D., Director of the Angiogenesis Research Center at Harvard Medical School. So, keep your cholesterol low.

Make your own detours by brisk walking, running, and swimming - whatever it takes to get your blood pumping. A 2004 study published in the journal "BMC Physiology" found that "endostatin", a factor involved in arterial growth, shot up by an average of 73 percent in healthy volunteers after about 10 minutes on a treadmill at an average of 5 mph. Even better: The effects lingered for up to 2 hours, and the harder the subjects worked, the more endostatin was released.

Your Bones

TYPES OF BONES



The Damage: A broken bone!

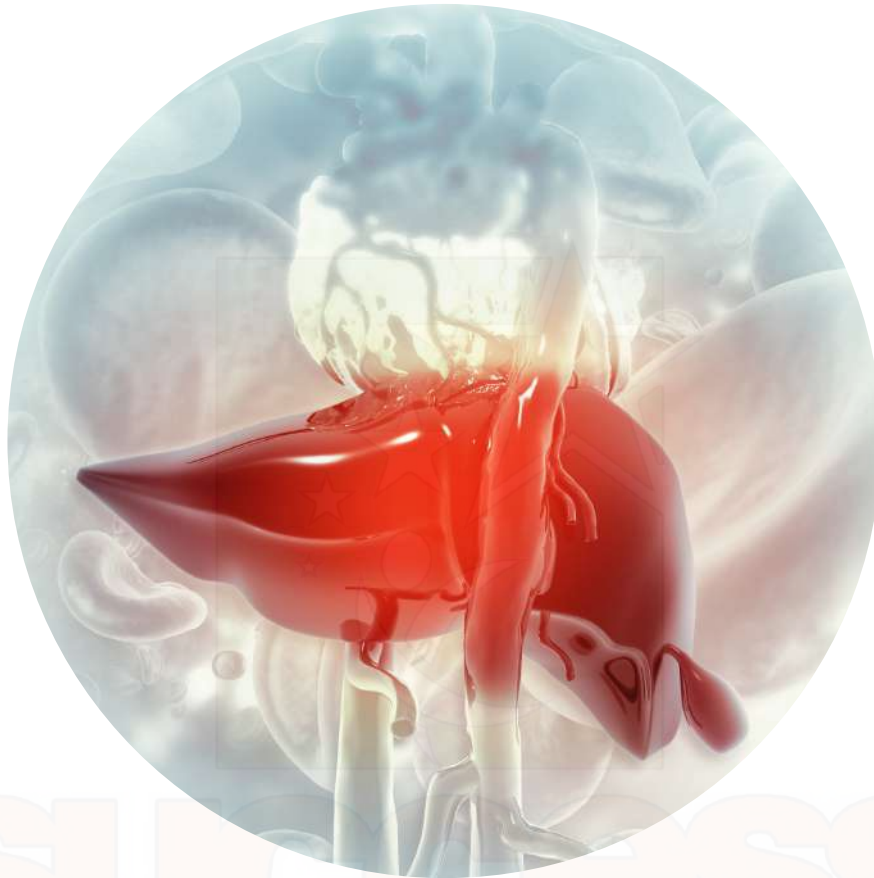
The Natural Defense: "The healing response is generated by the living parts of the bone, the cells that live within the matrix,"; says Sherwin S.W. Ho, M.D., an associate professor of orthopedic surgery at the University of Chicago. Healing faster is not a matter of choosing the red or blue pill. The matrix Dr. Ho is talking about is the lightweight but durable calcium carbonate structure that makes up most of your bone. Inside little pockets in the matrix are living cells, including bone-building osteocytes. "When you break a bone, they are released from the pockets," explains Dr. Ho.

What You Can Do: Eat your greens. They will give you loads of vitamin K, a compound that helps lock bone cells into place as they lay down new scaffolding. One serving of spinach or broccoli provides more than the recommended intake. Avocados and tomatoes are good sources of vitamin K, too. Never heard of vitamin K? No surprise: Less than 50 percent of all men ages 18 to 44 get enough of it, researchers at Tufts University has found this.

Do not take it lying down. A busted bone is not a 6-month excuse to simply sit on your butt. "At some point, you have to introduce a modicum of stress on the bone to stimulate those osteocytes to lay down more bone," says Dr. Ho. Most breaks are ready for light stress at 6 weeks. Initially, Dr. Ho gives his patients squeeze balls and a regimen of light curls for arm breaks, and crutches for leg breaks. "Once you're ready for heavier exercise, you should do a couple of sets of 15 to 20 repetitions per day at the highest resistance you can complete without pain," says Dr. Ho.

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Your Liver



The Damage: Years of drinking or just a binge!

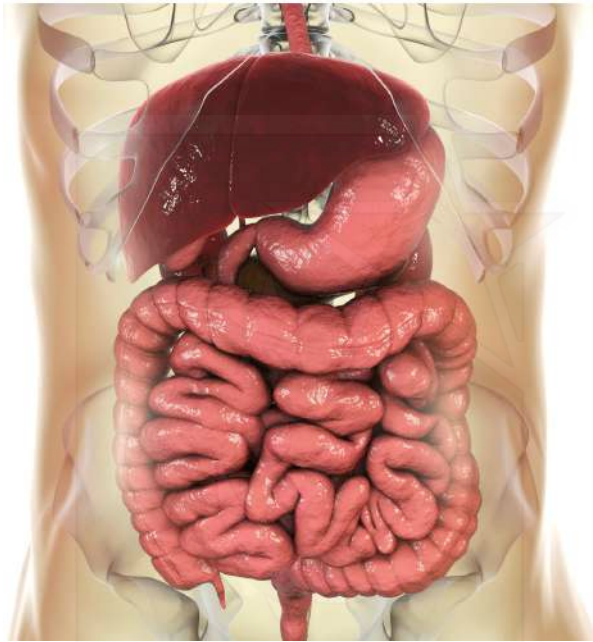
The Natural Defense: Your liver is one of the only organs that can spring back after part of its tissue dies (the process is called compensatory hypertrophy). But that is only if you do not drink to the point of cirrhosis, a chronic liver disease in which normal liver tissue is replaced with scarred, nonfunctional tissue. “People who are at risk consume more than 14 drinks a week or regularly have more than five at a time,” says Mark Mailliard, M.D., Director of the hepatitis C program at the University of Nebraska.

What You Can Do: Balance your liver. It is really just a sponge full of chemicals, and a compound called glutathione (GSH) helps keep everything in check. GSH detoxify things like Tylenol which is a pain reliever and fever reducer (which is why alcoholics should never pop one while drinking as the by-product is toxic). GSH is also essential for liver regeneration. Rats unable to create GSH are also unable to grow back liver tissue, a University of Southern California study found.

"We are not sure how it works. That is the black box," says Shelly Lu, M.D., the lead author of the study. "We know it helps with cell growth, and we know it is involved in cell death, too." Dr. Lu also knows that popping SAM- e, a supplement that converts to glutathione in the liver - can bring your GSH levels back to normal. In Europe, where SAM-e is actually prescribed for liver disease, the standard dosage about three tablets, per day. "If you are a drinking man, you should also be taking folic acid and a B-vitamin complex, because they are essential in the formation of SAM-e and glutathione," adds Dr. Lu.

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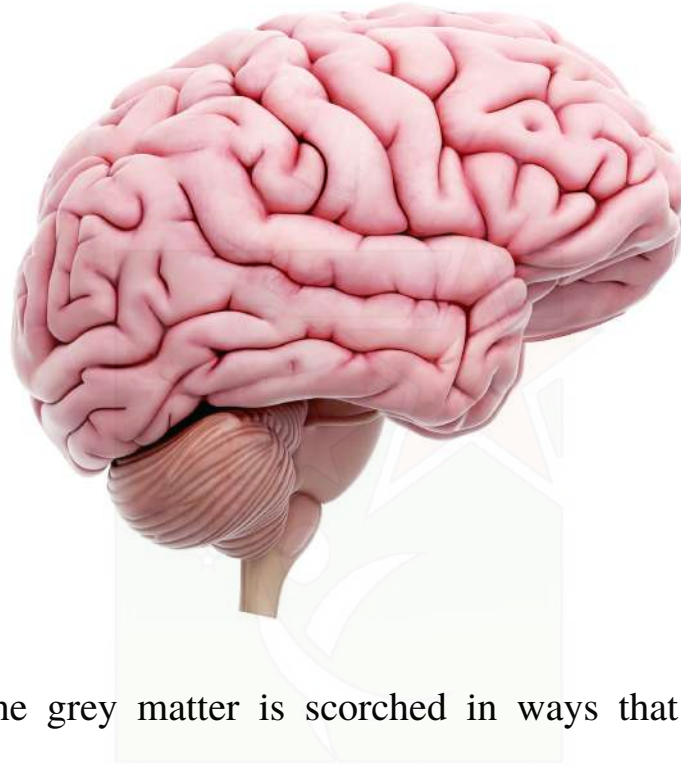
Your Guts



The Damage: Intestinal distress!

The Natural Defense: Torch your gut with booze, barbecue, or both, and the lining of the intestine will simply slough it off. Cells there have one of the fastest cellular turnover rates in the body - each one clocks out after only a couple of days of work, making room for a new one. What You Can Do: Rough it and you will speed up the changing of the intestinal guard. "Having some roughage in your diet helps knock off a few of the older cells, almost like pruning a tree," says Kenneth Koch, M.D., a professor of internal medicine and chief of gastroenterology at Wake Forest University School of Medicine. Aim for 25 to 30 gm fiber a day, starting with a whole-grain breakfast cereal, followed by whole-grain bread at lunch and lots of fruits and vegetables all day long. Dr. Koch recommends foods containing bran because they produce the most "stool bulk."

Your Brain

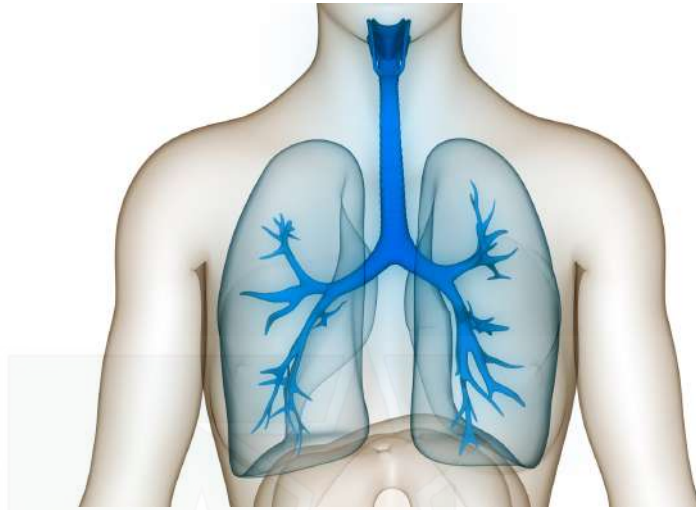


The Damage: The grey matter is scorched in ways that you cannot even remember!

The Natural Defense: For years, it was thought that we stopped making fresh neurons in puberty, meaning that sometime in high school a long die-off of brain cells commenced. Turns out it only seems that way. "The brain is just another organ," says Fred H. Gage, Ph.D., a professor in the laboratory of genetics at the Salk Institute and the first researcher to demonstrate new neuronal growth in mammals. "The brain is attempting to fix itself, just as skin tries to heal itself after a nick or cut."

What You Can Do: Work your body. Animal studies have shown that exercise can induce neurogenesis (the formation of new neurons) in two key areas of the brain: the hypothalamus, which helps form new memories and learning; and the olfactory bulb, where your sense of smell is located. The studies were done on rats, but what is good for a rodent should be good for your brain: Try to get at least 30 minutes of exercise 2 or 3 days a week.

Your Lungs



The Damage: Bad air from smoke or smog has clogged your air-exchange system!

The Natural Defense: The lungs come equipped with a self-cleaning cycle, but overloading them with smoke or smog will gunk up the works. The cilia, or hair like structures in your lungs, flagellate (that's move) upward, coaxing the bad stuff out of the alveoli (little air sacs) and into the trachea, where the gunk grows into a frightening reminder of why you should have been better to your lungs to begin with. "It's like a mucus escalator," says Norman Edelman, M.D., a scientific advisor to the American Lung Association. "That's a major form of defense. Within a few days to a week (after quitting smoking), you start feeling better, and you start coughing up all that bad mucus you have down there."

What You Can Do: Exercise will help loosen the large chunks after you first come clean. But you should be exercising already. Retinoic acid, or vitamin A, could actually help your lungs rebuild. Rats and mice with emphysema (they smoked tiny little cigarettes) given the compound were able to restore alveoli, which swap carbon dioxide for fresh oxygen to pre-emphysema levels, according to a recent study published in the European Respiration Journal. You'll get several times the recommended daily allowance (900 micrograms) in only one serving of carrots, sweet potatoes, or mango.

For extensive details, please go online and gather further resources.

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