



SPECIAL REPORT

Renew Your Body

Most of the 37 trillion tiny cells that make up your body's tissues and organs are continually dying off as they age, are injured or become defective, and are replaced by brand-new ones. By facilitating this innate natural regenerative process, you can renew your body.

Words LINDA MOON

In *Star Wars*, Luke Skywalker's critically injured body is regenerated in a "bacta tank". You might not be out fighting aliens but your body cops a regular beating from environmental toxins, modern diets, stress, infections, negative emotions and other figurative baddies.

Four years ago, Jennifer Green (real name protected for legal reasons) was bedridden for months after exposure to neurotoxic chemicals. Formerly fit and healthy, Green developed potentially fatal damage to all her body systems, including liver and brain tumours, neurological impairment, gallstones, chronic fatigue, skin lesions, a compromised immune system, dental damage and reduced fertility. Determined to recover, she healed her body using largely natural therapies.

In *The Miracle of Regenerative Medicine* (2017), author Elisa Lottor says you can heal yourself, reverse the ageing process and improve the quality of your life by tapping into your body's natural regenerative potential. Central to this is improving the efficiency of your biochemistry and cell functions, she writes. Mounting research suggests this involves following a diet and lifestyle that suit the body you've inherited from your ancestors.

The five pillars of body renewal

The evolutionary diet

Tim Altman, a Melbourne-based naturopath and producer of the *Take A Breath* podcast (*Health and Lifestyle Show*), says genetic and anthropological research suggests "at the level of DNA, our body still thinks we live the way we did 40,000 years ago, which means [when] we were hunter-gatherers. I would have hunted animals, eaten vegetables, fruits, nuts and seeds and drunk water. There was no such thing as getting a bread roll.

"Of all the nutrition research over the years, the most overwhelming common denominator is the more fruits and vegetables you eat, the better off you are." Our ancestors also enjoyed food straight from the source, uncontaminated by modern chemicals.

According to the research of biochemist Dr Valter Longo, author of *The Longevity Diet* (2016) and professor of gerontology and biological sciences at the University of Southern California, the best diet for rejuvenating your body is a pescan/pescatarian one, rich in plant-based foods, antioxidants and good fats and low in protein, saturated fat, sugar and wheat.

Fasting and calorie restriction

Prior to the advent of supermarkets and refrigeration, food wasn't as readily available. It turns out your body has evolved to thrive on occasional lack. Research shows regular periods of calorie restriction promote cell regeneration and longevity. When you fast, the body goes into starvation mode and uses superfluous cells as food, Longo explains: "Once we begin eating normally again, the body focuses on building new, healthy cells."

Exercise

Exercise physiologist Dr Bill Sukala says exercise is central to rejuvenating the body. It helps activate fat and sugar sponges in your body that reduce your risk of metabolic and heart problems and increase mitochondrial function and delivery of nutrients and oxygen — all of which has a potent effect on the body.

Sukala says, "Think of your muscles as a motor. Basically it's a tune-up for your muscles — it makes everything work more efficiently. However, we've largely engineered exercise out of our lives."

Sleep

While you sleep, your body remains productive, repairing the body. During sleep, you fight infections, flush toxins from the brain and release hormones that help cells regenerate and recover from stress — and much more. Insufficient sleep can disrupt your metabolism and lead to weight gain, inflammation, impaired cognition, depression, premature ageing and even death.

How much shut-eye do you need? US sleep expert Dr Michael Breus says data on sleep suggests the average adult needs between seven and nine hours a night. What matters most is consistent quality sleep.

Mind and mental health approaches

The impact of how you think and feel on your regenerative capacities can't be overstated. Studies suggest emotions like stress and loneliness can be as bad for your body as smoking.

Research shows we thrive best in the social, nature-based environments humans evolved in. Whether it's meditation, massage, spirituality, gardening, hiking or socialising, it's vital to find ways to promote positive moods in an imperfect world.

Each person and their history is unique, so additional approaches may be needed to encourage body renewal. These might include, for instance, detox therapies or energy healing.

An intimate understanding of how your body systems work, and their deep interconnectedness, aids your journey to renewal. At the heart of most degenerative disease is free-radical damage and inflammation. And, increasingly, microbes, the oldest life forms on earth, are being recognised as fundamental to health.

The brain and nervous system

A vast and intricate network of neurons (nerve cells) and electrochemical circuitry, your nervous system extends throughout your body and includes your brain, spinal cord, nerves and senses. The master in command is the brain, the most complex structure in the universe.

In *The Brain: The Story of You* (2015), neuroscientist David Eagleman notes, "Unlike any part of your body, if you damage a small piece of the brain, who you are is likely to radically change." Damage to brain neurones (there's about 86 billion of them) can be incurred by stress, alcohol, environmental toxins, physical and emotional trauma and more.

According to Dr Sandrine Thuret, head of the Neurogenesis and Mental Health Laboratory and Cells and Behaviour Unit at King's College, London, the fully developed adult human brain produces new neurones only in the hippocampus, the part of the brain that handles memory, learning,



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spatial navigation, mood and emotions. Age slows the creation of new brain neurones (neurogenesis) in the hippocampus. However, there's plenty you can do to boost it!

Sleep: Sleep nourishes the nervous system and brain. Even a small amount of sleep deprivation can decrease neurone replacement by 50 per cent, Dr Thuret says.

Stress less: "Even a little bit of daily, chronic stress may impair neurogenesis and produce symptoms of depression," says Dr Thuret. In a Harvard study, people who meditated 27 minutes a day for eight weeks increased grey matter in the hippocampus.

Exercise: Studies suggest aerobic exercise, including running and sex, is a powerful promoter of neurogenesis, Dr Thuret says. Exercise is also a natural antidepressant.

Raw power: Japanese research shows neurogenesis decreased 30 per cent in mice when their diet was liquefied, according to Dr Thuret. Chewing crunchy food promotes circulation and blood flow to the brain.

Intermittent fasting: Thuret found reducing calorie intake to 20–30 per cent or following the 5:2 diet (normal eating five days of the week, 600 calories on two days) increased pattern separation, a gauge of increased neurogenesis.

Mediterranean diet: This promotes more neurogenesis than Western diets high in saturated fat and sugar. It's thought flavonoids (antioxidant-rich compounds in plants) and omega-3 are responsible. According to Dr Thuret, fish and supplements of DHA and EPA omega-3 fatty acids improve memory and depression. Research by Deakin University shows a Mediterranean diet nourishes mental health.

Antioxidants: Ngairé Hobbins, a dietician, food, ageing and brain health expert and author of *Better Brain Food* (2017), also advises consuming lots of colourful plant-based foods for a rich supply of antioxidants. "All antioxidants are protective to the brain," she says. "There are hundreds of antioxidants; you don't have to think about eating individual ones. The science is that any one doesn't work on its own. You need to blend it up."

Spices and herbs: Herbs like turmeric, rosemary, thyme, cumin and coriander are highly antioxidant, anti-inflammatory and useful to the brain, Hobbins says: "They also all work together."

Keep it real: Hobbins advises choosing foods as close as possible to their natural state: "Processing changes the molecular structure. The more things you do to a food, the more chance [there is] you put in a change that can drive chronic inflammation. Consume as many fresh, local, seasonal foods as you can. Fibrous vegetables also boost gut bacteria, which assists in the facilitation of brain health."

The digestive system

The digestive system includes the gastrointestinal tract, accessory organs of the salivary glands, pancreas, gall bladder and the powerfully regenerative liver.

Your digestive system is like a second brain, says Tim Spector, professor of Genetic Epidemiology at Kings College, London, and author of *The Diet Myth* (2015): "It's a very complex system that's evolved over millions of years, with a huge surface area of mucous layers and folds in our intestines. It's a key to our immune system; it's a key to at least half the circulating blood chemicals in us called metabolites; it also controls our mood and appetite; and most of it is regulated by a combination of genes and enzymes but also a hundred trillion organisms that are our microbiome. It's light years away from the idea of a simple waste-disposal system."

What Spector calls the "human part" of our gut (the hard-wearing mucous layer, as opposed to our live-in population of warring bacteria) upgrades every few days. Our microbes renew about every 30 minutes: "We get rid of about half of them down the toilet about every 24 hours."

Their demography is unique in each of us and Spector says recent research suggests this might be the reason people respond differently to the same food. If you want to renew your gut, he says to focus on your microbiome and nurture it like a garden. A healthy microbiome is a diverse one. He adds that studies on the microbiomes of Hunza people suggest modern Western people have lost 40 per cent of their gut species.

Weed these out: Stress, sleep deprivation, antibiotics (also in animal foods), processed foods and pesticides all damage your microbial garden. Spector says artificial

sweeteners, emulsifiers, preservatives and other chemicals in processed food negatively affect the microbiome. Infections and antibiotics decimate good gut microbes: "If you have repeated [antibiotic] doses when the system's weakened, you can permanently damage it and they never return."

Feed your inner garden: Diverse, seasonal, local, unprocessed and preferably organic food is best for your microbiome, he says, and advocates the Mediterranean diet, rich in olive oil, garlic, onions and fresh vegetables.

Fibre: "Fibre's an amazing fertiliser for microbes," Spector says. "You want a diversity of fibre. Not all microbes feed off the same fibre."

Polyphenols: These are found in bright fruit and veg, nuts and seeds. "Microbes use them for energy and that helps them proliferate, reproduce and regenerate," he says. The Hunza consume five times the fibre and 10 to 20 times the polyphenols of modern Westerners.

Get dirty: Evidence suggests a more natural, earthy lifestyle favours our microbes. "People who have dogs or live on farms have much healthier microbes than people who live in cities," Spector says.

Intermittent fasting: "If you could sample your microbes regularly every hour you'd see this changes. After we've stopped eating for six hours, different microbes come out that eat the sugary, mucous layer of the gut lining. They live off it and they clean it all up. It keeps the gut barrier nice and intact. It's also why you shouldn't be snacking all the time."

Sleep: The above is one of the reasons sleep is so key to gut regeneration. "It allows this process to occur."

The immune system

Although largely invisible, your immune system defends your body from invading bacteria, viruses, fungi and other foreign substances. The headquarters and arsenal of this complex police force includes your bone marrow, tonsils, thymus, spleen and lymph nodes. Together they produce and accumulate an army of cells — including white blood cells, antibodies and proteins — with highly specialised tasks. Travelling through the lymph and blood, our host army identifies, traps and destroys invaders and infected, damaged and cancerous cells.

Dr Valter Longo says malnourishment, allergens, chemotherapy drugs, infections and environmental toxins compromise our immune system. The most common impairment is simply ageing which, he says, is why the elderly die of pneumonia or the flu.

Your defence system can also end up attacking you. One example is when pro-inflammatory ingredients in your diet (such as gluten) confuse your immune system, Longo says. Thus, avoiding allergens and addressing other health issues is key.

Mimic fasting: Longo's research shows a "fasting-mimicking diet" can reset and regenerate the immune system. It involves



regular fasting four to seven days on between 300 to 1100 calories, depending on what you're trying to achieve, and following the below diet the rest of the time.

Go pescatarian: A wholefood pescatarian diet, low in sugar, wheat, saturated fat and alcohol, is best for repairing and building a resilient immune system, according to Longo.

Lifestyle health: Rebecca Warren, naturopath, lecturer and director of Practical Naturopathy in Surry Hills, Sydney, says moderate exercise, rest and sleep are also important. "A lot of people don't allow themselves time to recover properly from illness, so the immune system often hasn't got the time and resources to repair," she says. "The other thing we know that lowers the immune system is stress." Thus, stress-management techniques are important.

Sort your gut: "Gut health plays a really big role in the immune system," adds Warren. "About 70 per cent of our immune system is in our digestive tract."

Connect: Recent research reveals loneliness can reduce immune function. A 2015 study found loneliness impaired white blood cells.

Supplements and herbs: Key nutrients for immune function are vitamin C and zinc, Warren says. She adds that olive leaf extract and Echinacea can build immune capacity and response. Garlic can also be used as a preventative.

Experience nature: Japanese research by Dr Qing Li shows walking in green woods increases the immune system's natural killer cells and reduces stress. Also bathe in sunshine — vitamin D is important to the immune system and combats inflammation. "Cold water therapy (which boosts the immune system and circulation) is another emerging area," Warren says. "We can use those principles, like cold-water swimming in the ocean or getting out in nature, to improve immune function as well."

The cardiovascular system

The hardest-working muscle of the human body, your heart beats roughly 100,000 times daily to pump your blood. Assisted by your lungs (the respiratory pump) and muscle contraction (the skeletal pump), it pushes nutrients and oxygen through a vast network of veins, arteries and capillaries. This 96,000km-long transport route also trucks hormones, enzymes and other vital substances to your cells and removes waste.

Once damaged, your heart is one of the least regenerative parts of your body. A 50-year-old still has half the cardiac muscle cells (cardiomyocytes) they had at birth, according to research reported in *Science*. A 25-year-old replaces 1 per cent of their cardiomyocytes a year; for a 75-year-old the rate is halved. However, the cellular lining of the body's blood vessels, the endothelium, regenerates more rapidly.

Dr Ross Walker, consultant cardiologist at Sydney Heart Health Clinic, believes it's



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possible to renew cardio health and has helped many patients reverse heart disease using principles outlined in his 2012 book *Dr Ross Walker's 5 Stages of Health*. "What is powerful is lifestyle change," he says.

Quit your addictions: Cigarettes, drugs, too much alcohol. "Anyone who has any addictions to anything is sick," Walker says.

Eat like a Mediterranean: "The Mediterranean diet is basically don't eat processed, packaged rubbish masquerading as food but eat buckets of fruits and vegetables." Fish, nuts, olive oil and small amounts of meat and dairy are also enjoyed. "The other problem with our society is we take in too many calories. Nutrition is basically eat less but eat more naturally." Avoid trans and processed fats — they're linked to cardiovascular disease.

Avoid white carbs: Walker calls them the "white death" — think sugar, white rice, pasta and wheat. "When your blood-sugar levels are higher, the sugar combines with protein and fat and you get these things called glycation end-products, which are like little bits of toffee apple sitting in your arteries."

Exercise: "The sweet spot is three to five hours a week. It should be two-thirds cardio and one-third resistance training."

Quality sleep: "Seven to eight hours of good quality sleep every night is as good for your body as not smoking." A Dutch study found sufficient sleep reduces cardiovascular disease risk.

Get happy: "People who are happy and manage their stress have much less disease than people who don't. The MORGEN Study showed people who are in the top quintile of those five lifestyle keys versus the people in the lowest quintile had an 83 per cent reduction in cardiovascular disease."

Supplements: Along with pharmaceutical therapy, Walker prescribes supplements including magnesium orotate, vitamin K₂

(to shift calcium from the arteries back to the bones), aged garlic extract, nicotinic acid (to open and flush out the arteries) and bergamot from Calabrian oranges (which has a metabolic effect and opens small blood vessels).

A good diet and lifestyle habits also help you avoid risk factors for atherosclerosis, obesity, diabetes, insulin resistance, hypertension and auto-immune disease.

The respiratory system

The respiratory system's role of delivering oxygen to fuel the body and removing carbon dioxide waste leaves it vulnerable to airborne toxins, particulates and pathogens.

It starts at the nose and mouth. Inhaled air travels down the windpipe, which divides into two tubes (the bronchi). These lead into the spongy lobes of the lungs. Here, the bronchi continue into smaller tubes (bronchioles) like the branches of a tree, terminating in the pulmonary alveoli: tiny, fragile air sacs where the exchange of gas takes place. According to *National Geographic*, the average adult lung harbours about 600 million alveoli, about the surface area of a tennis court.

Your lungs reach their full function by the time you're 20–25 years old then start to decline naturally at a rate of 1 per cent a year, according to a 2017 article in *Gerontology*.

Pulmonologist Dr Ni-Cheng Liang says currently there's no definitive way to reverse damage to the alveoli. "However, parts of the lung can slowly regenerate or repair such as the airway lining," she says.

On the upside, examples exist of recovery from lung cancer and research suggests you can improve lung function and boost undamaged tissue.

Plant power: According to Professor Lisa Wood of the Priority Research Centre for Healthy Lungs, University of Newcastle, NSW, several large-scale studies show a diet high in vegetables and fruit, some fish and wholegrains reduces the risk of lung-function decline, asthma attacks and COPD. It's thought antioxidants, vitamin C and soluble fibre reduce free-radical damage and lung inflammation.

Lung-healing foods: Along with the above, naturopath, breathing educator, lecturer and author Mim Beim prescribes onions and garlic for their antibiotic properties. They're also good at breaking down mucus. Foods rich in omega-3 fatty acids, like oily fish, help combat inflammation. Vitamin A is another important nutrient for the lungs, she says.

Protect the airways: Avoid allergens, infections, smoking, environmental irritants and fumes, including those from household products, Beim says. Treat mucus problems: "Pooling mucus is a breeding ground for infections, bacteria and fungi."

Herb power: Lung tonics include thyme, elderberries, mullein, grindelia and liquorice, Beim says. These can be taken as



a tea. Ginger, cumin and turmeric reduce inflammation, Liang notes in a 2017 article on integrative medicine for the lungs.

Microbiome health: Probiotics help strengthen the lungs through the immune system (via the lung-gut axis). The respiratory tract has its own less-known microbiome.

Mind and body practices: Research suggests yoga, tai-chi, breathing exercises and other mind/body practices can increase lung function and exercise capacity as well as reduce stress, Dr Liang says. Reducing negative emotions helps due to the link between emotions and our lungs.

Buteyko breathing: This gentle breathing technique helps restore your normal breathing pattern and improve oxygen availability and lung function, Beim says. It emphasises breathing through the nose, which filters bacteria, viruses and fungi, warms the air before it hits the lungs, avoids over-breathing and helps activate the diaphragm (the “breathing muscle” of the lungs). It also switches on the parasympathetic nervous system.

The endocrine system

The endocrine system is a name for all the hormones of your body and the glands and organs that produce them: the pituitary, thyroid, adrenals, pancreas, ovaries, testicles, pineal gland, hypothalamus and thymus.

Human hormones control digestion, sleep, metabolism, growth, puberty, mood, hunger and more. When they’re in tune, you’re unlikely to notice. When they’re out of rhythm (producing too much or little), discord can reign. As you age, their production tapers off.

Michele Chevalley Hedge, nutritionist, health writer and author of *The Australian Healthy Hormone Diet* (2018), says common signs your hormones are out of whack include weight change, exhaustion, mood disorders, sleep disturbance and low libido.

Chevalley Hedge, who has helped many of her clients heal their endocrine problems, says we can renew hormonal health. “Our bodies love to come back to balance and can recalibrate in a couple of weeks.”

Clean eat: Remove added sugars, gluten, and reduce dairy. “In many people, these

may be causing inflammation, the underlying pathology in most diseases. Sugar is the main culprit in most blood glucose and insulin issues. Many people with thyroid issues feel better off gluten as well.” Exclude processed, packaged and junk food, and unhealthy fats. “Sugars, unhealthy fats and toxins contribute to hormonal imbalance. Eat foods full of vitamins and minerals that our endocrine system requires.”

Helpful foods: “Proteins [Chevalley Hedge recommends eggs] are a building block for your immune system and stabilise blood sugar. Foods like green tea and chilli can assist in weight loss and stimulating a sluggish thyroid. These raise your basal metabolic rate.”

Take your lifestyle vitamins: Place a priority on sleep and slowing down. According to Chevalley Hedge, “Your endocrine system loves to be nourished with a calm, well-rested lifestyle and a non-toxic environment. Too much cortisol, your stress hormone, will burn out your adrenals and lower your calming progesterone hormone, not to mention create insulin dysfunction. Sleep is more important than food and exercise. The research shows sleep is like a brain cleanse.”

Exercise: “Too much can drive your cortisol and just be another stress. Too little can make us depressed and sluggish,” says Chevalley Hedge. “Find your balance. If you are time poor and working on improving your insulin sensitivity, then HIIT training is excellent. If you are looking to reduce your cortisol levels and calm your adrenals, gentle, mindful yoga might be your solution.”

Avoid endocrine disruptors: Over 1000 different chemicals and substances have been identified as potential endocrine disruptors. The Environmental Working Group’s Dirty Dozen Endocrine Disruptors list includes BPA, dioxin, the herbicide Atrazine, phthalates, lead, arsenic, mercury, perfluorochemicals (in non-stick cookware), pesticides, fire retardants and glycol esters (in paints, cleaning products and cosmetics).

The reproductive system

The hallmark of a good reproductive system is fertility and the ability to produce healthy

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children, states Leah Hechtman, naturopath, educator, author and founder of the Natural Health and Fertility Centre, NSW.

The reproductive system includes (in females) the ovaries, uterus, Fallopian tubes, cervix and vagina; and (in males) sperm-producing testes and penis. While your ova (eggs) can’t technically renew (females are born with all their eggs), you can influence their health as they mature, she says. And the female menstrual cycle means the cells of the female endometrium, which line the uterus, replace themselves every month. “It cleans out all of the residues from the previous month; then all the hormone cascades recognise it’s a clear slate [and] they start afresh.”

Hechtman recommends the following to rejuvenate the female reproductive system.

Eradicate hormone disruptors: Avoid excessive dairy or soy, pesticides, plastics, toxic personal care and hygiene products and toxic cookware. “Environmental exposures are at the heart of everything that’s going to negatively affect our fertility and make everything not work properly.”

Hydrate: “The general calculation of 30mL per kilo of body weight is a way to determine baseline requirements.” Enjoy green smoothies, juices, filtered or spring water. Abstain from overindulging in alcohol and caffeinated beverages.

Exercise: “Exercise is excellent for anti-ageing and enabling the mitochondria [the powerhouse within our cells] to do their job.”

Timed fasting: “Make sure you’re not overeating but still getting what your body needs. To kick-start cell regeneration, try and eat within a six-to-seven-hour timeframe out of your daily 24.”

Stimulate lymphatic circulation: “Skin brushing, dancing, trampoline jumping, skipping, saunas or any exercise that produces sweat and moves the hips and thigh area improves circulation to the reproductive system, helping the body eliminate wastes and encouraging cellular regeneration.”

Stress less: “When stress levels exceed what the body is capable of functioning with, other hormones suffer. A women’s ability to produce enough oestrogen to be fertile, healthy and vibrant is directly correlated to her stress levels. Everything’s hierarchical with the endocrine system and cortisol production will always trump. Choose the de-stress strategy that works personally for you.”

Sleep more: When it comes to cell renewal, getting enough sleep is the top recommendation.

Treat deficiencies: For reproductive health for men and women, the top nutrients are



B vitamins, zinc, vitamin D and magnesium. Other common deficiencies include iron, essential fatty acids and iodine.

Take a herbal tonic: Shatavari (for women) and damiana (for men) help support the reproductive system.

Sunlight: “Seventy per cent of Australians are vitamin D deficient.” A natural source of vitamin D, sunlight is important in reproduction, hormonal balance and mood.

The renal/urinary system

Unless it’s playing up, few of us give much thought to our renal system. In fact, you can even lose 90 per cent of your kidney function and not about know it. Together, the kidneys, bladder, ureters and urethra have the unsexy yet vital role of filtering wastes and excess water from the blood and excreting it, a task that leaves them vulnerable to toxic exposures. Along with the skin, lungs and intestines, they also balance chemicals and water in our body.

Bladder cells regenerate readily due to their core role as a protective barrier against harmful substances, including bacteria, in urine. The kidneys, however, have very little regenerative ability, says Dr Jason Fung, a Toronto-based kidney specialist and author of *The Obesity Code*. “You need to prevent damage to the kidneys in the first place,” he says. “Once the damage is done, it’s largely irreversible, except in the early stages.”

Here’s what we can do to renew undamaged parts of the renal system.

Keep blood pressure and glucose down: “The two most common causes of kidney disease are diabetes and high blood pressure,” Fung says. “Diet plays a large role in both these problems.”

Clean your diet: Fung recommends reducing dietary sugar, eating natural unprocessed foods and intermittent fasting.

Avoid kidney toxins: Fung says some pain-killing medications can cause kidney disease. Other toxins are too much sodium or alcohol, excessive protein, heavy metals, pesticides, Teflon, cigarette smoking and fire retardants.

Naturopath Leah Hechtman suggests the following to help repair the urinary system.

Hydrate: Appropriate, quality hydration is number one for the renal system — but avoid tap water: “There’ll be competition for electrolytes and chlorine [as well as] bugs. It’s about having spring or filtered water that’s remineralised so they can actually absorb the hydration into the cell.” Also enjoy mineral-rich broths.

Protect the microbiome: The urinary system has its own microbiome. Have adequate pre- and probiotic foods in your diet and consider taking a probiotic supplement to assist.

Use a herbal tonic: *Crataeva nurvala*, a herb known by the common name varuna, is the best urinary system herbal tonic, she says. It can be taken as a tea. Note however that *Crataeva* is not to be used in cases of existing renal disease.



Zinc, folic acid, magnesium and vitamin D are important skin nutrients.

Salt it right: “The urinary system requires the right minerals in the body.” Avoid sodium chloride, otherwise known as table salt. Use quality salts that contain multiple minerals.

The skin

Designed to protect our insides from the harshness of the outside world, the skin is the body’s largest organ, says Professor Michael Tirant, an internationally renowned leader in integrative dermatology and founder of the Psoriasis Eczema Clinic, Victoria.

Skin cells [keratinocytes] are in a constant cycle of renewal, Tirant reveals: “This occurs over a four-week cycle.” When there’s dysfunction in this process, skin conditions like psoriasis and eczema can result. Free radicals, DNA damage and inflammation severely reduce skin’s ability to regenerate. Cell replacement slows down as you age.

Tirant suggests the following to encourage skin renewal.

Protect it: External and internal stressors include radiation, sunburn, UV, injury, dehydration, a poor diet, smoking, alcohol, infections, chemicals, some medications and pollution. “A lot of external environmental factors cause skin damage, including mutations.”

Antiox it: Fight back with lots of antioxidant-rich plant foods.

Balance sunlight: Protect your skin against sunburn with sunblock but allow enough exposure to ensure optimal levels of vitamin D (an antioxidant, important to skin and general health). Tirant suggests 30–40 minutes daily of early-morning or late-afternoon sunlight. Sunlight therapy is useful in skin conditions like psoriasis and fungal infections.

Individualise skin care: Be cautious of what you put on your skin — that “organic” elixir could be causing micro burns. “When people get micro burns, they call it a reaction. The skin is to be always treated as an individual.”

Hydrate: Drink two litres-plus of water a day to make sure your skin is well hydrated, externally and internally. Adding electrolytes makes it more bioavailable.

Eat natural: Avoid processed food and oils. “Healthy skin requires healthy sebum for its anti-inflammatory, antimicrobial and lubricating properties. Diets high in saturated and trans fats can change the fatty acid composition of sebum, which can lead to skin diseases such as acne.” Eat food rich in omega-3 fatty acids, including (wild-caught rather than farmed) oily fish, to help reduce systemic inflammation, plus nuts, seeds, fruit, vegetables and fibrous complex carbohydrates. Green vegetables, not destroyed by cooking, are healing to skin.

Ditch sugar: “High-sugar diets can lead to an increase in advanced glycation end-products, where sugar binds to the protein structures of the skin such as collagen and elastin, damaging the support structures of the skin.”

Nurture your microbiome: “There’s an established link between certain gut diseases and skin disease such as food allergy and hives, coeliac disease and dermatitis herpetiformis and so on.” The skin has its own microbiome. “The face microbiome is different from your neck, under your arms; different from your torso; different from your genital area.”

Exercise: Exercise metabolises stress hormones, regulates blood sugar and improves circulation to the skin. The skin perspires, which opens the pores and gets rid of debris.

Moisturise: Daily application of an emollient helps support the skin barrier and prevent excessive water loss.

Skin-brush: This promotes circulation and supports cellular rejuvenation — but keep it gentle.

Sort stress: Stress has a negative impact on immunity and the microbiome. “When we’re stressed, the skin isn’t able to defend itself.”

Supplement: Zinc, folic acid, magnesium and vitamin D are important skin nutrients.

The musculoskeletal system

The musculoskeletal system broadly consists of the muscles, bones, tendons, ligaments and joints, says Dr David Scott, an exercise scientist and senior research fellow at Monash University, Melbourne: "It really encompasses all of those different parts that essentially help us move."

In a healthy human, there's a homeostasis of old, dead or damaged cells being taken away and stronger new ones forming, he says: "It happens more regularly with muscle; with bone it's a slower process." Our skeleton replaces itself slowly at a rate of 10 per cent a year.

The ageing process blunts the process of natural renewal. Our bodies shift to producing more type-1 fibres, Scott says. These support longer-duration, repetitive muscular movements but don't generate as much force. "That loss of power — we think that's probably a contributor to the risk of older people having a fall," Scott says.

Chronic inflammation and free-radical damage commonly drive deterioration of the musculoskeletal system, he says. Sedentary indoor lifestyles, injuries, diet and some medications also play a part.

Fortunately, it's never too late to give the system a boost.

Move it: Weight-resistance training and impact exercise like hopping and jumping generate force and stimulate the bones to go through their reforming process, Scott says. Resistance training is the most effective exercise for building muscle size and function. Balance and flexibility training, like yoga and tai chi, also help the muscles. "The recommendation is for 30 minutes of activity a day. You could do some resistance training one day, stretching one day, some walking or jogging. The best thing is to find the way you enjoy the experience."

Feed it: Naturopath and sportsman Tim Altman says your muscles and bones need a good supply of minerals, vitamins, protein, essential fatty acids and antioxidants. The latter are important for combating inflammation and free-radical damage that can break down bone and muscle structure.

Altman advocates the evolutionary diet. "You don't need to drink milk for calcium," he adds. "You can get it from a variety of other sources. The highest rates of osteoporosis occur in the parts of the world that are the highest consumers of dairy. The lowest levels are often in areas of the world where they have to exercise — it's part of daily life. It's clever marketing that says you have to have lots of dairy."

Supplement: "Some of the main bone-specific nutrients are magnesium, calcium, D₃, omega-3 fatty acids [and] glucosamine," Altman says. Chondroitin and glucosamine are important for cartilage. Scott warns studies indicate a risk of cardiovascular disease from calcium supplements. Altman suggests supplementing only with quality calcium containing nutritional co-factors.

Sun yourself: Evidence suggests people with higher vitamin D levels have better muscle and bone function, Scott says. Both Scott and Altman say it's best to get vitamin D through sunlight and food, like oily fish. Studies show there's not much benefit in vitamin D supplements.

CAUTION

This information is provided as a general guide only. Anyone with a health issue should consult their practitioner. Pregnant women, the underweight, physically fragile, anorexia sufferers, those with kidney or liver disease and people over 70 years are advised against fasting. 🌱

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- Reduces acid levels and improves pH
- Increases the body's magnesium levels
- Relieves aches, pains, cramps and arthritis
- Assists with sleep and relaxation
- Aids energy, younger looks and longevity

Available in 600ml and new 1.5L bottles.



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