July/August 2018

The art of **growing** young®

Vitamin B12

Feature Article

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In this Issue...

Cracking Up: Why Laughter Is the Best Medicine

When They Just Don't Eat the Rainbow

All by Myself: Alone Time for Self-Care

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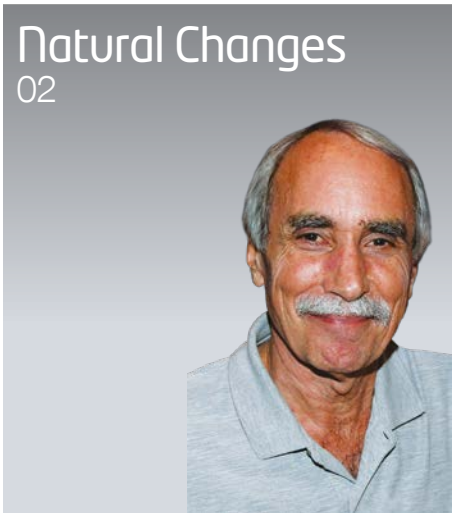
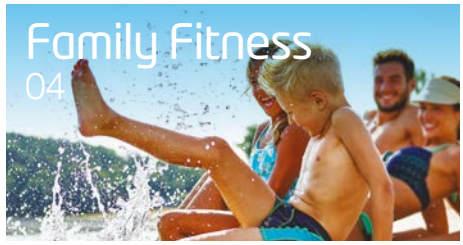




02 Natural Changes

03 Nutritional News

04 **Fitness**
Family Fitness

06 **Feature Article**
Hot and Cold: Positive Benefits of Environmental Stress

10 **Lifestyle**
Cracking Up: Why Laughter Is the Best Medicine

12 **Nutrition**
Within and Beyond Your Gut

14 **Feature Article**
Vitamin B12

18 **Herbs and Supplements**
Amazing Avocado

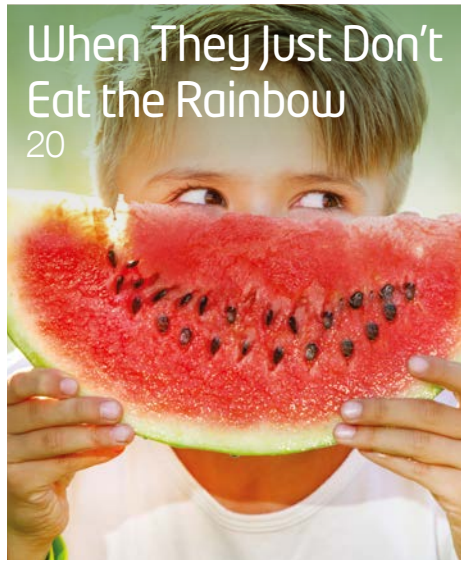
20 **Family Health**
When They Just Don't Eat the Rainbow

22 **Family Health**
Living Longer or Looking Younger?

24 **Family Health**
All by Myself: Alone Time for Self-Care

26 **Family Health**
Skin Deep

29 Ask the Expert



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Natural Changes

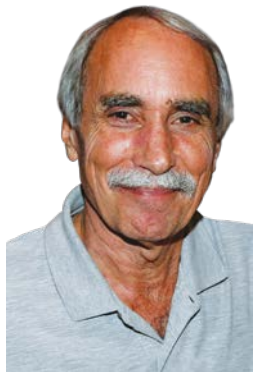
Change is good. Change is hard. Change is healthy. Change is scary. These four basic statements about change are all true for most people. Change is a wonderful tool in the art of growing young that helps us all grow and become our best selves. But changing our lives and ourselves isn't always easy; as the last of the four statements says, change is—or can be—scary.

It is my sincere hope that the articles we choose to include in *The Art of Growing Young* magazine help people all over the world find change a little less scary. Whether you are reading about the nutritional benefits of a particular food you have never tried or learning tips on how to start a new exercise regimen, I hope you are gaining knowledge that increases your confidence. The more knowledge and confidence you have, the easier it is to make changes in your life—no matter how big or small those changes are.

The way you choose to think about change also plays a big role in how hard and scary you perceive making changes to be. If you have a generally positive outlook on life, you will find making changes easier. If you tend to be a pessimist and dwell on the negative aspects of your life, change will seem much more daunting.

Viewing change as an inevitable force for good in your life, with a focus on all the positive things, people, experiences and ideas that have come from making positive changes, will help you live a life in which you are continually adapting and changing for the better.

As new science emerges and we learn new things about the body and the body-mind connection, we will all have to change to adopt the best possible lifestyles for our minds and bodies. Practicing the art of growing young, engaging in lifelong learning and maintaining a positive outlook will all help make these changes a natural, easy part of life instead of something to be worried about.



Dwight L. McKee M.D.

Dwight L. McKee
Scientific Director

Nutritional News

Live Longer by Drinking More Water

According to new research, sugary sodas and juices might be even worse for our health than previously thought. A groundbreaking study of over 17,000 Americans found that people who drink sugar-free drinks such as water are less likely to die prematurely than are those who drink lots of soda, juice, or sugar-filled tea and coffee.

Eat This Sweet Treat to Improve Your Mood

The first human trials looking at the effects of dark chocolate on the brain have shown the flavonoids in cacao support cognitive, endocrine and cardiovascular health. Eating small amounts of at least 70 percent cacao chocolate can help reduce stress, boost mood, improve memory and decrease inflammation. As with most things in life, moderation is key. Eating an entire candy bar every day is not healthy. But a few ounces of dark chocolate after dinner can help protect your brain.

Exercise Your Brain to Protect Your Body

A recent study of almost half a million people revealed a link between muscular strength and cognitive health. As revealed in this study from the United Kingdom, strength measured by handgrip is an indicator of how healthy our brains are. Researchers are unsure exactly what causes this link, but it clearly shows yet one more benefit of maintaining lean muscle mass as we age.

Improve Your Sense of Taste by Staying Healthy

New evidence shows obesity-caused inflammation can reduce taste bud abundance and inhibit renewal. In other words, food tastes better when we are at a healthy weight. Moreover, researchers believe obese individuals might be driven to eat more calories in an effort to attain the same level of pleasure a healthier person gets from smaller portions.

Sleep Your Way to a Longer Life

According to a six-and-a-half-year-long study of adults in the United Kingdom, people who reported being night owls were 10 percent more likely to die younger than those who preferred to go to bed earlier. Researchers are quick to point out that more studies are necessary before they can say for sure if staying up late too often is the cause of higher mortality rates, but they did note that previous studies have already linked body-clock disruption to diabetes, hypertension and depression. It appears that cultivating healthy sleeping habits can have a long-lasting impact on your overall health.

Family Fitness

When families participate in physical fun and activities together, it is good for not only our relationships but also our bodies and minds. Doing things together is fun and can boost your motivation and teach your children good habits for the future.

Demonstrating and Establishing Good Habits

Rising childhood obesity rates throughout the world are contributing to poorer health outcomes at younger ages. Children today are significantly more sedentary than they were a generation ago. While health is multifactorial, a key practice in maintaining wellness is movement and activity.

We can tell our children to exercise, but if we do it with them or especially as a whole family, we are showing them that we truly value exercise.

But beyond just showing your children the importance of establishing good habits, you are also doing so for yourself and your spouse.

Bonding and Quality Time

Time for family fitness means time away from screens, daily chores, to-do lists and other distractions. When we are moving our bodies, we are more present in the moment. And those moments add up to create lasting memories.

With family exercise, you are creating connections between one another that may not occur in other activities of daily life.

Family Communication

Part of the bonding has to do with the opportunity to communicate with each other in unique and positive ways. If we are playing together as a team, then we must communicate in order to achieve or win the game. Or if we are simply exercising together, it creates intentional time during which we can open up to one another and share more intimately about life's happenings.

Inexpensive Entertainment

Going to the movies together or visiting an amusement park can be expensive. Going out to eat is also expensive. But many options for family exercise are free!

Silly Fun

So much of life is dedicated to responsibilities. It is important for children and adults to play simply and leisurely.

Spending time together in a positive way, moving our bodies, and being silly and laughing will boost our endorphins and improve our moods.

Ideas for Fitness as a Family

So, we know that getting exercise as a family is good for us on so many levels, but sometimes we need a little inspiration as to what exactly to do together. Here are some ideas.

Family Boot Camp

Each family member chooses three or four exercises (write them down, if you'd like), such as a dance move, jumping jacks, a martial art move, or a general exercise like crunches or push-ups. Go on a family walk or jog, and do a different one of the chosen exercises for a minute. Then go back to the walk or jog!

Dance Party
An easy and simple rainy-day option. Every family member gets his or her selection of a few songs to mix into the rotation. Then play the combined playlist and dance it out in the living room!

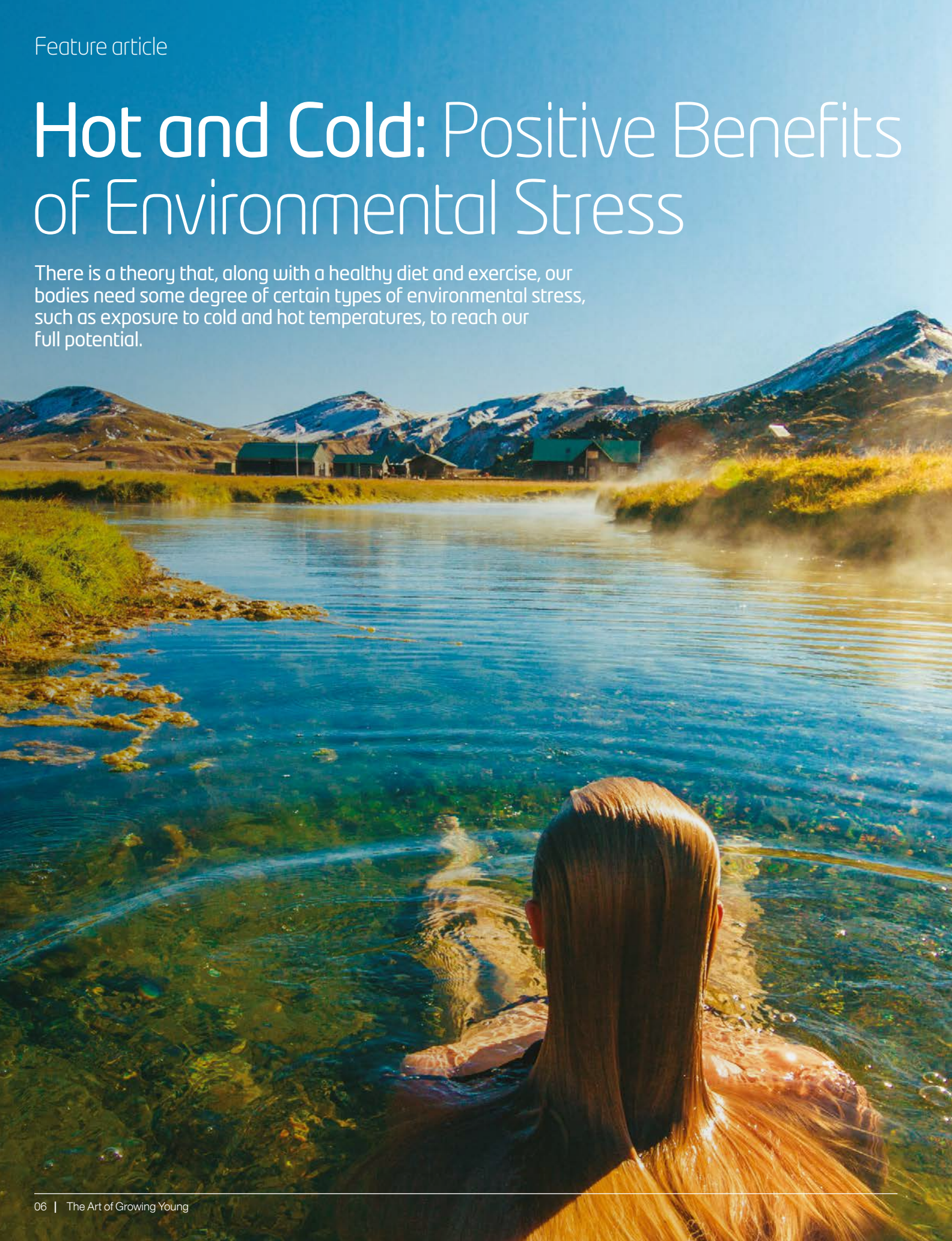
Yard or Park Tag
It's that simple! Go to the park (or your yard, if it's large enough) and run around playing tag.

Family Walks
Sometimes getting the motivation to get creative with these activities can be overwhelming. So go for something that is just more about ritual and routine—a family walk.

Choose a time each day that works for your family—maybe before or after dinner. Or perhaps you are all early risers, so a walk after breakfast on weekend mornings is a better option. This gets you moving while also making it part of everyday (or weekend) life. If you need a bit more excitement added to the walk, try doing seasonal scavenger hunts or "I spy" searches. In spring, you can look for the first blooms of tulips, wildflowers or lilacs. In fall, search for red maple leaves or the first tree you see with no leaves left on it.

Hot and Cold: Positive Benefits of Environmental Stress

There is a theory that, along with a healthy diet and exercise, our bodies need some degree of certain types of environmental stress, such as exposure to cold and hot temperatures, to reach our full potential.



Followers of this theory purport that for several hundred years, our ancestors were not protected from the winters and summers by posh luxuries such as indoor heating or air-conditioning. Instead, our ancestors' bodies adapted to the changes and, according to those who believe in this theory, benefited from the extreme changes. Today, some advocates of this concept participate in re-creating this exposure.

The scientific thought behind the idea is built on ideas of how our body creates energy within the mitochondrial function. The mitochondria are organelles within the cells in our body that help produce energy. It is believed that the number of mitochondria cells in our body ranges from roughly 15 quadrillion to 50 quadrillion.

In order for our body to effectively generate a robust amount of energy, the mitochondria need to be renewed.

In other words, out with the old and in with the new.

There are certain strategies or activities that can help stimulate the creation of mitochondria. One of the ways to do it is through exposing our bodies to extreme temperatures, and often a shift back and forth between the extreme temperatures.

While stress is often detrimental to our bodies, a concept called hormesis relies on the idea that a short burst of stress can actually benefit the body by increasing its resilience.

The Benefits of Cold

When your body gets cold, it very much wants to get warm. Its main goal is not to get hypothermic, and therefore your body makes a hormone called norepinephrine. Norepinephrine causes the constriction of your blood vessels in order to conserve heat. It also signals your body to make more of the aforementioned mitochondria within cells, particularly in the fat tissue. It tells the body to make energy. And when your body makes energy, it also makes heat.

One benefit is that this process essentially breaks down, or metabolizes, fat to generate energy and heat.

Another benefit is that it is preparing the body for the next time it is exposed to cold.

The more times the body is exposed to cold, the more mitochondria will be in your fat cells participating in this process. Other benefits include norepinephrine's ability to help us focus, its antidepressant and feel-good properties, and its anti-inflammatory properties.

One simple way to expose yourself to more cold is by simply turning your morning shower down to cold for a couple of minutes.

It might be a bit difficult to endure during those few minutes, but it might also be a great mood booster!

The Benefits of Heat

When the body is exposed to more extreme heat, it triggers a process within your cells that augments heat shock proteins. These proteins aid in preventing plaques from developing in your vasculature. Heat shock proteins also contribute to longevity.

Exercise is a wonderful example of heat stress on our bodies. When we exercise, we raise our core temperature.

Exercise initially creates an inflammatory response, and then about an hour after you've stopped exercising, the body begins an anti-inflammatory response.

Other ways to raise our core temperature are saunas, hot baths and steam rooms. Many cultures around the world believe in the healing effects of varying degrees of hot and cold therapy.

In South Korea (and in Korean immigrant communities in the Western world), it is a common wellness practice to visit a *jjimjilbang*.

A *jjimjilbang* is a public bathhouse that features pools or tubs of varying temperatures, as well as saunas and steam rooms that have different temperatures.

Many of the saunas also feature different minerals, such as gold, amethyst or charcoal. Korean spa goers see these spas as a place to relax and socialize while attending to their health and beauty. Most Korean bathhouses also feature massage, skin exfoliation and specialty skin treatments. More elaborate Korean spa complexes include in-house restaurants, movie theaters, hair and nail salons, or even karaoke.

Popular in Russian culture, especially in arctic villages, is a hot-and-cold sauna experience called a *banya*. Traditionally, sauna seekers spend time in a very hot hut with temperatures for the bravest participants creeping up to 100 degrees Celsius (212 Fahrenheit). The sauna-sitting villagers then scurry to take a cold dip in the nearby outdoor water (lake, pond or sea).

Indigenous peoples throughout the Americas—from the far south in the Andes, such as the Incas (*Chulla Chaka*), to the Mayas of southern Mexico and Guatemala (*Temazcal*), to the Plains Indians in Canada and the northern United States (*Inipi*—Lakota peoples)—have long used sweat lodges as a spiritual space for cleansing. Depending on the tribe and cultural understanding of the sweat lodges, many believe that the extreme heat stimulates blood circulation and helps the body sweat out impurities and toxins. Sometimes herbs or medicinal plants, such as sage or eucalyptus, are incorporated for aromatherapeutic healing.

Very famous are the *hamams* of Turkey. These are often immaculate bathhouses that are in spacious buildings typically made of marble. The standard Turkish bathhouse has the participant travel through a corridor of increasing heat intensity.

This hallway usually leads to a room with divided-off slabs or stalls for the soap and massage experience of a professional masseur. Here you will get soaped up and scrubbed down before being doused with a cold-water rinse. After the professional bathing, often there is a steam room of a more comfortable (yet still quite warm) temperature in order to relax before leaving. For everyone from sultans to peasants, *hamams* are quintessential to Turkish culture, and a visit to Turkey is not complete without this spa experience.

How do you know when too much is too much? The absolute importance of listening to your body is essential when experimenting with heat and cold exposure. It isn't a challenge of seeing how much you can endure or how miserable you can be for a given amount of time. Too extreme of either temperature can be dangerous and even fatal. Therefore, it is imperative to start off slowly and increase quickly. If you feel uncomfortable (besides a feeling like, "Wow, this cold-water shower sure would be nicer if it were a warm bubble bath"), then pay attention to that and adjust appropriately.

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Cracking Up: Why Laughter Is the Best Medicine

Laughter is more than just something that feels good in the given seconds it occurs. Laughter is also actually good for your overall health.

Laughter has been shown to improve your mood beyond the funny moment (recalling funny memories often rekindles the laughter), diminish pain, boost your immune system (helps it relax and fires off life-giving hormones) and help mitigate the damage that stress causes.

During childhood, we laughed dozens of times a day.

However, in adulthood, we live a more serious life that inspires less humor and laughter. There are intentional practices and simple ways to add more laughter to your life and, in turn, improve our health.

Laughter, just like kindness or, unfortunately, anger and aggression, is contagious. Furthermore, it builds human relationships. When we witness others revel in the joy of hilarity, it can be hard not to join in. Mirror neurons account for this. This is a recent discovery (in this century) in the complex world of neuroscience that contributes to human behaviors and thought processes.[1]

When we see someone smile, it is quite natural for us to smile in return. Laughter is simply an extension of that.

Laughter fosters a sense of connection with others. It can contribute to stronger human ties and trust. We should nurture friendships and relationships that are trusting and deep but that also allow space for silliness. It helps soften feelings of defensiveness during tough times and helps diminish sentiments related to resentment, judgment and criticism.

Not only is it important to seek interpersonal connections that are witty and lighthearted, but it is also essential for us to put that energy out into the world and give the gift of humor to others.

Laughter boosts our immune system. It diminishes the amount of stress hormones circulating in our body and increases immune cells' response.

On a basic level, it lowers the stress response by contracting muscles, which stimulates more blood flow and oxygen throughout the body. Because laughter powerfully moves the diaphragm, it also enhances lymphatic circulation, for which the diaphragm acts as the major "pump."

On a cellular level, laughter releases endorphins that are helpful to the body's immunity. A recent study even showed how laughter generates an internal opioid effect that helps not only with disease protection but also pain management (hence the opioid effect).[2] Another study found that natural killer-cell activity (part of the immune system's response to diseases) increased with participants who engaged in hearty laughter versus those who were given a distraction method.[3]

On a personal growth level, laughter helps us be more resilient. We've all known someone who takes himself or herself too seriously. Often those sorts of people can feel heavy or burdensome to be around. We are afraid we might say the wrong thing or that they are judging us. Contrarily, people who can see mistakes or failure as a natural part of life as opposed to just a negative inevitability tend to be more resilient.

[1] Acharya, Sourya, and Samarth Shukla. "Mirror Neurons: Enigma of the Metaphysical Modular Brain." Journal of Natural Science, Biology, and Medicine, Medknow Publications & Media Pvt. Ltd., 2012, www.ncbi.nlm.nih.gov/pmc/articles/PMC3510904/.
[2] Manninen, Sandra, et al. "Social Laughter Triggers Endogenous Opioid Release in Humans." Journal of Neuroscience, Society for Neuroscience, 21 June 2017, www.jneurosci.org/content/37/25/6125.
[3] Bennett, M P, et al. "The Effect of Mirthful Laughter on Stress and Natural Killer Cell Activity." Alternative Therapies in Health and Medicine., U.S. National Library of Medicine, 2003, www.ncbi.nlm.nih.gov/pubmed/12652882.

And that resilience can help us overcome difficulties with our peace and spirit intact.

But unlike during childhood, our current options for humor and laughter might be less constant. True, there are the old standbys, like watching a funny movie or internet clip, hanging out with funny people, or reading a funny book or story. There are many other options for incorporating laughter into your life more routinely.

Invite friends to a comedy or improv show. A popular activity right now is something called laughter yoga. It feels goofy and perhaps contrived at first, but if you let go of your own judgments and give in to the experience, rolling laughter can ensue.

Another option is to host a monthly game night at your house with friends with a mix of simple, interactive games.

Then there is the simple action of letting yourself laugh more often. When you maintain a soft smile as your resting face (as opposed to just a neutral face), you are on your way to laughter. Additionally, spend more time with children in your life and loosen up to allow their levels of joy and wonder to integrate into you and your mood.

Within and Beyond Your Gut

Why you should consider taking a probiotic supplement, how to ensure you're taking the right one and how to tell whether it's actually working.

Gut health has taken center stage in the world of natural health for many years, and it is finally breaking into the mainstream. Probiotics are the center point of this movement aimed at understanding and promoting our internal microbiome.

Probiotics are supplements or food-based products that contain healthy bacterial strains in order to colonize (live in, exist in and interact with) our gut.

Our gut houses a tremendous collection of microorganisms that affect much of our body's internal activities, from how we digest nutrients to our immune function and even our brain function!

The benefits of probiotics are being highlighted in much evidence-based research. They occur naturally in our bodies but often need an extra boost. They are part of the flora of our colons. Beyond the gut, they help ward off unhealthy bacteria and have positive effects on urinary and vaginal health.[1,2] Sufferers of bacterial vaginosis and recurrent urinary tract infections have been greatly aided with the use of probiotics. While the mechanism is not fully understood, probiotics have been shown to be useful in reducing allergic tendencies.[3] Some evidence suggests that enhancing an individual's gut flora has positive effects on skin conditions such as acne, as well as on too much sun exposure and accelerated skin aging.[4]

Finally, there is more research being conducted on the benefit of the gut-brain connection. The gut-brain connection is a concept that contends that the microflora in our digestive tract help with our neurological health, including memory, focus and learning, anxiety and depression, and stress.

Certain people should definitely be taking a probiotic supplement at certain times in their lives. If you are on antibiotic medication, probiotics help restore the natural bacteria that the medication might wipe out. Begin the course of probiotics immediately after the course of antibiotics, as the antibiotics might immediately kill off the good bacteria you're introducing through supplementation.

If you're traveling abroad, take probiotics right before and during your trip to help ward off food-borne illnesses.

Or if you think you might have a case of food poisoning when you are staying domestic, take probiotics to help the good bacteria ward off the bad ones making you sick. Exotic travels aside, people who suffer from a variety of gastrointestinal disorders can benefit from probiotics. Probiotics can help with everything from minor issues with gas or diarrhea, to debilitating conditions like inflammatory bowel disease and Crohn's disease, to temporary infections from *E. coli* and *H. pylori*.

But not all probiotics are created equal. In fact, many strains of probiotics are not even capable of surviving the acid and bile of our stomach (the first stop in the digestive tract after the mouth)!

Obviously, if the healthy bacteria can't make it beyond the first stop, it really isn't doing any good. How do you know if you are taking the right probiotic?

Although there are many species with probiotic activity, most probiotics belong to one of two genuses—*Lactobacillus* or *Bifidobacterium*. Then there are different species types, such as *Lactobacillus acidophilus* and *Bifidobacterium bifidus*. Beyond that, nomenclature is the strain type, such as Lactobacillus acidophilus DDS-1. Many supplements won't include the strain type, but it is important to know, since different strains serve different purposes.

As a general guide, choose a supplement that has at least seven distinct strains and at least 5 billion colony-forming units, or CFUs. Additionally, live probiotics are the only form that are truly beneficial, since they can colonize and grow in the intestine only if they are alive. It's common to find supplements that contain living microbes at the time of manufacture. But often there isn't a guarantee they're alive by the time you consume them. Check to see if the supplement needs to be refrigerated or if it's okay at room temperature. Most important, be sure you are buying from a manufacturer that is impeccable with quality.

[1] Cribby, Sarah, et al. "Vaginal Microbiota and the Use of Probiotics." Interdisciplinary Perspectives on Infectious Diseases, Hindawi Publishing Corporation, Mar. 2008, www.ncbi.nlm.nih.gov/pmc/articles/PMC2662373/.
[2] Falagas, M E, et al. "Probiotics for Prevention of Recurrent Urinary Tract Infections in Women: A Review of the Evidence from Microbiological and Clinical Studies." Drugs, U.S. National Library of Medicine, 2006, www.ncbi.nlm.nih.gov/pubmed/16827601.
[3] Yang, Gui, et al. "Treatment of Allergic Rhinitis with Probiotics: An Alternative Approach." North American Journal of Medical Sciences, Medknow Publications & Media Pvt. Ltd., Aug. 2013, www.ncbi.nlm.nih.gov/pmc/articles/PMC3784923/.
[4] Kober, Mary-Margaret, and Whitney Bowe. "The Effect of Probiotics on Immune Regulation, Acne, and Photoaging." International Journal of Women's Dermatology, Elsevier, 20 May 2015, www.sciencedirect.com/science/article/pii/S2352647515000155.

Vitamin B12

Vitamin B12, also known as cobalamin, is popularly known as the "energy vitamin." It helps boost mood and alertness. In fact, many people report they cannot have foods or supplements high in vitamin B12 too close to bedtime, as it can keep them awake.

It's also good for cardiovascular health, and it's known to promote healthy skin and nails. Additionally, it is an important vitamin for neurological health, including boosting cognitive function and reducing risk for dementias.[1] B12 is essential to the more complex internal body processes involving the myelin sheath, bone marrow, DNA synthesis and regulation, blood production, nervous system health, and amino and fatty acid metabolism.

B12 is structurally the largest and most complex of all vitamins, and much of the way it works in the body is unclear. It is made externally by bacteria in soil and water. Animals that we raise for consumption, be it for their meat or for products like eggs or milk, graze on the ground where these bacteria are found.

These bacteria can then be incorporated into their body systems, and we get B12 from these animals.

Factory farming has created a problem with this system because massively produced, farmed animals are rarely eating from the ground.

Absorption can be tricky and complex when it comes to how our bodies utilize B12. When consumed, whether as a food or a supplement, vitamin B12 needs to bind with a protein that is produced in our stomach. Chemicals involved in cigarette smoking can prevent absorption. Heating foods in a microwave can also alter B12.

Review with your health care provider how your medications might affect all nutrient absorption. B12 can be malabsorbed by people who take metformin (a common medication used for diabetes), anti-seizure medication, or certain gastrointestinal acid inhibitors (medically known as proton pump inhibitors) and antacids.[1] People with poorly functioning kidneys will also likely have absorption issues. People who have an autoimmune disease called pernicious anemia also have poor B12 absorption.

There are four major forms of vitamin B12: cyanocobalamin, hydroxocobalamin, methylcobalamin, and adenosylcobalamin. The latter three forms can be produced in the body from cyanocobalamin, which is the form of B12 that is often used to fortify cereals, vitamin drinks, and vegan milk and meat substitutes. Ironically, due to the increasingly widespread practice of factory farming, it is also used in animal and farmed fish food.

Methylcobalamin is an active form of vitamin B12 and is somewhat more easily absorbed in its interactions in the body. However, it costs significantly more and is not very stable. While it might seem that an active form of a vitamin would be the better choice, in reality, cyanocobalamin works just as well in averagely healthy people. Unless you have kidney failure or are a smoker, cyanocobalamin should be just fine for your needs.

Daily recommended doses depend on age (children have different doses based on their age due to the fact that they are just smaller human beings than we adults) and pregnancy or breastfeeding status.

The National Institutes of Health in the United States recommends nonpregnant and nonlactating women and men take 2.4 micrograms (mcg) daily. Pregnant women should take a bit more, with the recommendation being 2.6 mcg, and breastfeeding mothers should take 2.8 mcg.[1] The United Kingdom's National Health Service recommends slightly less for adults, at 1.5 mcg daily,[2] while the European Food Safety Authority recommends 4 mcg daily.

Signs of vitamin B12 deficiency include extreme fatigue and overall lack of energy, tingling sensation in body parts, macrocytic anemia (a deficit of red blood cells, which are also abnormally large in size), muscular weakness, cognitive impairments, and depression.

Vegetarians and vegans are most at risk of developing a vitamin B12 deficiency since this vitamin is most available and bioavailable in animal products. Much of the intake for vegetarians and vegans comes from fortified grains and cereals. For both populations, supplementation may be the best option for getting the daily recommended intake.

[1] "Office of Dietary Supplements—Vitamin B12." NIH Office of Dietary Supplements, U.S. Department of Health and Human Services, 2 Mar. 2018, ods.od.nih.gov/factsheets/VitaminB12-HealthProfessional/#h7.

In addition to supplementation, vitamin B12 is available in many foods, mainly animal-derived products. Though not everyone likes it, the best source of vitamin B12 is beef liver. Beef liver provides a whopping 71 mcg of vitamin B12 per three-ounce serving.

The next best options for B12-concentrated foods, like beef liver, are foods that not everyone enjoys.

Mussels have 20 mcg per three-ounce serving.

Mackerel (at 16 mcg for a three-ounce serving) and sardines (at 8 mcg for a three-ounce serving) are also rich in B12.

Red meat, such as beef or lamb, and salmon are two options that might be a bit better accepted at the dinner table on a regular basis. Beef has about 5 mcg per three-ounce serving, and salmon contains 4 mcg.

Milk and yogurt have about 1 mcg per one-cup serving. Considering these are more commonly consumed on a daily basis, these are decently viable options for obtaining your vitamin B12 through food sources.

Fortified soy products (veggie burgers and soy meat alternatives), cereals and grains are other options for food-based B12. Fortified ready-to-eat cereals (ones you purchase in a box or bag at the store) generally have about 5 mcg per one-cup serving. Soy-containing products and fortified grains will vary in terms of the amount per serving.

Vegan sources of vitamin B12 include nutritional yeast, seaweed and algae.

Nutritional yeast is not the same as baking yeast or brewer's yeast. Nutritional yeast has a nutty, cheesy taste and can be sprinkled on popcorn, mixed into soups, tossed into salads or used as a Parmesan cheese substitute. However, some research suggests that nutritional yeast isn't always sufficient for supplementation.[3] But evidence does suggest nori, a type of Japanese seaweed, and other forms of its algae cousins are fruitful vegetarian sources of B12.[4] The gradually more popular spirulina (comically also known as "pond scum") has also been highlighted for its vitamin B12 content; however, studies have shown that spirulina and other members of its class (known as cyanobacteria) actually contain large amounts of pseudovitamin B12, which is not biologically active in humans. The eukaryotic algae known as *Chlorella* can contain substantial amounts of biologically active vitamin B12; however, the amount is highly variable, depending on the strain of *Chlorella* and its culture conditions, with some samples containing up to several hundred micrograms of active vitamin B12 per 100 grams and some others containing no vitamin B12 at all.[4]

[2] "B Vitamins and Folic Acid: Vitamin B12." NHS Choices: Your Health, Your Choices, NHS, 3 Mar. 2017, www.nhs.uk/conditions/vitamins-and-minerals/vitamin-b/.
[3] Donaldson, M S. "Metabolic Vitamin B12 Status on a Mostly Raw Vegan Diet with Follow-up Using Tablets, Nutritional Yeast, or Probiotic Supplements." Annals of Nutrition & Metabolism, U.S. National Library of Medicine, 2000, www.ncbi.nlm.nih.gov/pubmed/11146329.
[4] Watanabe, Fumio, et al. "Vitamin B12-Containing Plant Food Sources for Vegetarians." Nutrients, MDPI, May 2014, www.ncbi.nlm.nih.gov/pmc/articles/PMC4042564/.

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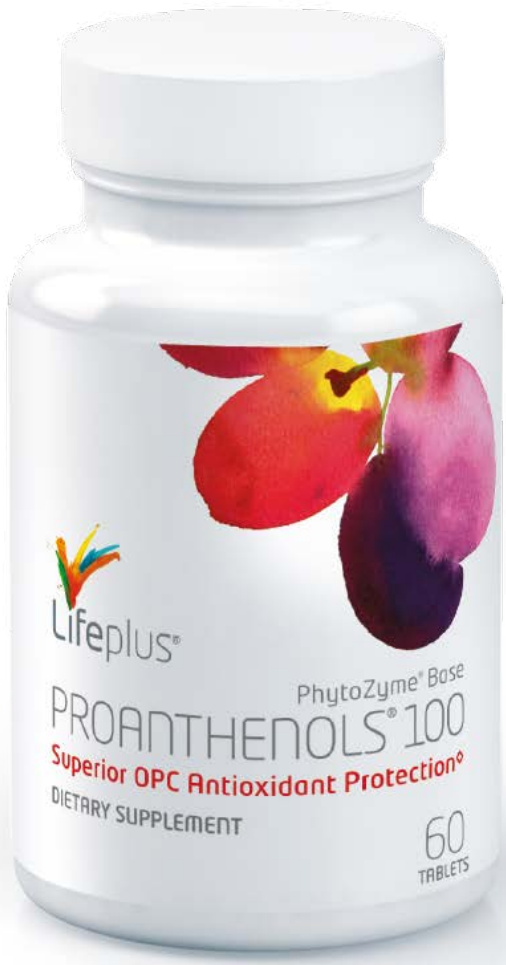

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Amazing Avocado

Why avocado has become so popular: one of the most nutrient-packed and health-benefiting fruits available and ways to enjoy it (not just eating it).

The term "superfood" is being bandied about these days with reckless abandon. But the avocado may be the real deal when it comes to a food that is chock-full of vitamins, nutrients, fiber and healthy fats, all the while being completely crave-worthy. From the standard guacamole to the trendy avocado toast, from facial masks to hair conditioners—avocados have plenty of uses.

Avocados are native to the Americas. The name comes from the Nahuatl (native people of Mexico popularly known as the Aztecs) word "ahuácatl," which some antiquity linguists believe also meant "testicle" due to the visual similarity.

The Spaniards converted this native name to a more Hispanicized version, "aguacate," which is the word used most commonly in Spain and Latin America today.

In English it is also sometimes referred to as alligator pear, due to its rough, dark skin and pear-like shape.

While commonly attributed to Mexican cuisine, a form of it also was (and still is) cultivated in what is modern-day Peru and called "palta," most likely originating from the Quechua (descendants of the Incas) word for the fruit.

Avocados have made their way across the globe and now are also grown in Southeast Asia and in some areas of India. There they are praised and named for their butter-like quality.

Avocados are rich in vitamin K (twenty-six percent of the recommended daily allowance) and folate (twenty percent of the recommended daily allowance). They also contain more potassium than a banana, as well as vitamins C, B6 and E. They are full of fiber, coming in at over twenty-five percent of the recommended daily allowance for a three-ounce serving.

The avocado is a high-fat food, with more than seventy-five percent of its calories coming from fat. Remember, long gone are the days when people lived in fear of fat. Today's focus is on healthy fats, which are essential to the body, and avocados are full of them. They contain the monounsaturated fatty acid called oleic acid, which is also found in olive oil. Oleic acid is linked to reduced inflammation.[1] Avocado oil has a higher smoke point and resistance to oxidation that comes from heating an oil, which makes it a great option for cooking (though always keep heat as low as possible when cooking with any oil or fat).

In terms of eating avocados, there are options beyond just making guacamole (though who wouldn't want to do that?).

Try dicing them into salads to add a creamy component.

Or drinking them in a smoothie. Or try trendy avocado on toast. Take a good-quality slice of artisan bread and toast it. Then slice or smear avocado on top. To make it extra tasty, try sprinkling some sea salt over it and adding a drizzle of olive oil. Avocados also pair well with fatty fish such as salmon—slice some on top or make an avocado dressing to pour over the fish. Add avocado to fruit salads with chopped-up mint and a lime vinaigrette.

Beyond eating avocados, try adding them to your self-care routine. The fruit's oils help moisturize the skin. Slather avocado on your body and leave it on for about fifteen minutes. Then wash, shower or simply rinse. It also helps with soothing the discomfort of burns, especially sunburn. Simply take a small scoop and gently rub it into the affected area. The amino acids and antioxidants in avocados make for an all-natural weekly facial. Mix up a concoction of avocado, yogurt and a small amount of honey and apply it to your face.

For a moisturizing hair treatment, apply mashed-up avocado directly to your hair or mix it with olive oil and egg. Let it sit for 20 minutes and then wash it out. For a deeper treatment, warm the mixture for a few seconds before applying. Avocado can also serve as a scalp moisturizer. Mix with some drops of tea tree essential oil and massage into your scalp to help treat dandruff and flaky scalp.

Eat them, rub them on hair or skin—whatever you do with them, know that avocados are truly one of nature's most amazing gifts to life on earth.

[1] Yoneyama, S, et al. "Dietary Intake of Fatty Acids and Serum C-Reactive Protein in Japanese." Advances in Pediatrics., U.S. National Library of Medicine, May 2007, www.ncbi.nlm.nih.gov/pubmed/17545695.

When They Just **Don't Eat the Rainbow**

There's a funny saying that goes, "I was a perfect parent before I became a parent." Many of us can giggle at that and heartily agree. Before we became parents, we often had strong opinions on how we would communicate with our children, what our daily activities would involve and, perhaps most commonly, what mealtimes and eating would be like.

Many of us imagined family meals around the dining room table that involved engaged conversations, laughs and inside jokes, and eating a well-balanced meal. Prior to becoming parents, we probably vowed that our kids would eat exactly what we cooked. We thought of the fun we'd have as a family, picking out unique vegetables and fruits at the farmers market and trying them at home. We watched our friends' children as they pushed around the peas on their dinner plates and demanded chicken nuggets or french fries, and we swore that would never be our reality.

But then reality set in. Despite trying to encourage and praise our children for eating a well-balanced diet, often kids get into a routine of eating just a select few chosen foods.

We try to feed them a variety of different kinds of foods, and they insist on plain toast, buttered noodles and cereal. They insist on processed, starchy, carbohydrate-based foods instead of following our lead in filling half our plates with vegetables.

A hilarious example is when Ruth Reichl, the famous editor of the now-defunct foodie magazine *Gourmet*, wrote about her school-aged son who refused to eat any foods that were not the color white!

Despite our best attempts, struggles with nutritional health and battles over eating at the dinner table are often the reality for parents of toddlers, school-age children and even teenagers.

For many parents, taking a deep breath of acceptance and letting go is the first step, and the next step is giving kids a much-needed daily multivitamin.

While medical experts agree that people should get most of their nutrients, minerals and vitamins from food-based sources, the truth of the matter is that many of us—children and adults alike—do not get all the nutrition we need from our meals.

Kids who don't eat well-balanced meals from fresh, whole foods, as well as picky eaters, are prime candidates for daily multivitamins.

Children who eat well but have a chronic medical condition—particularly one that affects their gastrointestinal tract or immune system—should also take a daily supplement.

Similarly, children who are vegetarian or vegan should probably consider taking multivitamins or at least supplementing with calcium, iron or a B-complex vitamin. The various B vitamins are important fuel for play and activity.

Nearly all children (and adults) should take a vitamin D supplement, especially in the colder months. Vitamin D and calcium are particularly important in childhood, since that is when most of a person's bone mass is formed.

Multivitamins can fill in some nutritional gaps. But they are just a supplement. They should complement a healthy diet. Even children who eat a variety of fruits and vegetables might not be getting all of the necessary micronutrients their growing bodies and minds require.

Other important additions to today's children's multivitamin formulations are probiotics and antioxidants. These additions—either included in the multivitamin or taken separately—are valuable for boosting immune system health. Vitamins C and A are also significant immune system boosters.

Teach them that it is a vitamin or a supplement and not candy, so as not to condone eating candy as a daily habit.

Tell them that it is for their health, and maybe teach them about what is in the supplement and what foods a particular nutrient is found in (e.g., "Vitamin A is in this, and we eat vitamin A in mango and carrots too"). It helps them establish healthy practices that inform them about nutrition.

Living Longer or **Looking Younger?**

Which is more important: longevity or beauty? According to a large research study of twins out of Denmark, science has shown that beauty might complement a healthier, longer life.[1] But beyond just superficial attempts to battle the appearance of aging—with Botox, fillers or face creams—science shows us that thinking and acting in accordance with a youthful, wellness-focused mind-set are what truly keep us living longer and healthier.

Aging is inevitable, but how we choose to age relies much more heavily on our lifestyle and mental health choices than our genetics. While we cannot halt the process of growing older, we can reduce the effects by maintaining a positive and youthful mind-set, eating healthy foods, and regularly moving our bodies with exercise.

The key to this is on the cellular level in something called telomeres. Telomeres are the bookends of our chromosomes.

Another analogy is that they are similar to the wax or plastic endcaps on shoelaces. When they get destroyed or damaged, our shoelaces can unravel and become shorter. Telomeres and chromosomes are similar—when telomeres get destroyed, this leads to the degradation of our bodies' cells. And the primary result is the aging process. People with shorter telomeres have a greater risk for age- and lifestyle-related health conditions, such as cardiac disease.

People who have longer telomeres are also people who are routinely physically active. Researchers for a large-scale study have discovered that sedentary adults are older on the cellular level.[2] The effects of cumulative and chronic stress also shorten telomeres—in a similar fashion to how obesity does.[3] And let us not forget the absolutely essential element of sufficient, quality sleep. Many of us remember looking at photos of ourselves right before having a baby and then looking in the mirror afterward.

The lack of sleep takes a toll on our youthful appearance.

And while those few years of coping with baby and toddler sleep schedules (and regressions!) might be a temporary lapse in sleep sufficiency in the greater story of your life, long-term sleep deprivation indeed takes its toll on your cellular health.[4]

And these cells also have a lot to do with how young we look. Telomeres that are shortened or small correlate to quickened aging, stress, chronic inflammation and premature aging of the skin. According to the previously mentioned Danish study, photographs of nearly 2,000 twins were presented to a group of people in order to rate which twin looked older. The study then tracked these twins in terms of health, life and death over the course of nearly a decade. The results showed that the older-looking twins were the ones more likely to die sooner. The study concluded that the older-looking twins had an increased morbidity rate, which led to a hastened mortality rate. They were in poorer physical condition, had increased memory loss and had shorter telomeres compared to their younger-looking twins. In other words, their less-healthy lifestyles led to less-youthful looks, and that proved to be a factor in determining longevity.

So many antiaging products and therapies are about treating the symptoms instead of getting at the root cause. We buy and apply expensive creams promising to get rid of wrinkles. We see our skin sagging and our under-eyes looking darker. We cover splotches with makeup or apply skin brightening products. Sometimes we do more extreme dermatology treatments, like Botox injections or fillers.

But much of the solution lies in our overall health—both physical and mental.

As highlighted previously, the main culprit is stress, with insufficient sleep being a close second. Simple actions like going to bed a half hour to an hour earlier might be helpful. Meditating for as little as 12 minutes a day can be helpful for neurological and memory health as well as telomere length.[5,6] Eat well, especially vegetables and fatty fish.

And when you think your eating is not optimal, consider taking supplements to ensure you're getting a good balance of vitamins and nutrients.

We must treat beauty and youthfulness from the inside out instead of just on the surface.

[1] Christensen, Kaare, et al. "Perceived Age as Clinically Useful Biomarker of Ageing: Cohort Study." British Medical Journal, U.S. National Library of Medicine, Dec. 2009, www.ncbi.nlm.nih.gov/pmc/articles/PMC2792675/.

[2] Tucker, L A. "Physical Activity and Telomere Length in U.S. Men and Women: An NHANES Investigation." Preventive Medicine, U.S. National Library of Medicine, July 2017, www.ncbi.nlm.nih.gov/pubmed/28450121.

[3] Mathur, Maya B., et al. "Perceived Stress and Telomere Length: A Systematic Review, Meta-Analysis, and Methodologic Considerations for Advancing the Field." Brain, Behavior, and Immunity, U.S. National Library of Medicine, May 2016, www.ncbi.nlm.nih.gov/pmc/articles/PMC5590630/.

[4] Tempaku, P F, et al. "Telomere Length as a Marker of Sleep Loss and Sleep Disturbances: A Potential Link between Sleep and Cellular Senescence." Sleep Medicine, U.S. National Library of Medicine, May 2015, www.ncbi.nlm.nih.gov/pubmed/25890781.

[5] Thimmapuram, J, et al. "Effect of Heartfulness Meditation on Burnout, Emotional Wellness, and Telomere Length in Health Care Professionals." Journal of Community Hospital Internal Medicine Perspectives, U.S. National Library of Medicine, 31 Mar. 2017, www.ncbi.nlm.nih.gov/pubmed/28634520.

[6] Newberg, A B, et al. "Meditation Effects on Cognitive Function and Cerebral Blood Flow in Subjects with Memory Loss: A Preliminary Study." Journal of Alzheimer's Disease, U.S. National Library of Medicine, 2010, www.ncbi.nlm.nih.gov/pubmed/20164557.

All by Myself: Alone Time for Self-Care

Self-care is a trendy concept these days. Magazine articles, research studies, news features and podcasts tout the importance of it. Even many employers and health care companies are getting on board with the concept.

We know that self-care requires a healthy and balanced diet, regular exercise and movement, plenty of hydrating fluids, and, of course, sufficient sleep. Many extol meditation and yoga as excellent and accessible activities of self-care. Others remind you to take time for bigger splurges, such as pedicures or massages.

But one idea that is not only essential but also easy is alone time. Yes—spending time completely by yourself (including no online socializing!). It's a time to center, regroup and simply be by oneself. It doesn't take the discipline of meditation, and it requires absolutely no skills or money.

Alone time is good for our minds. When we are in constant interaction—be it in our work, home or social settings—we don't have the space to think uninterrupted.

Being alone helps us reboot our brains and get to the core of what we are thinking and feeling. That has an added benefit of improving concentration and helping us solve problems. Alone time allows time for deep thinking, which is also good for our spirit.

Being alone is good for our spirit. It helps us unwind by not having to be "on" for someone else.

It creates space for more emotional self-discovery. When we are alone we are able to slow down more naturally, and that provides space for rest and reprieve.

It's also good for our relationships. The University of Michigan Institute for Social Research has been spearheading some interesting research on marriage through a long-term project called The Early Years of Marriage Project. This longitudinal study has analyzed married couples since 1990 and has found that alone time is more important than even sex when it comes to marital success! The research has also found that women in particular are less likely to get alone time in a marriage.

Alone time in an intimate relationship allows each partner to pursue different hobbies and interests. This adds variety to not just the individual but also the couple. It allows space for processing feelings and interactions, which can lead to less-confused communication between spouses. It also fosters a greater sense of independence and decreases neediness, which can be a suffocating force in an adult relationship.

The old adage "Absence makes the heart grow fonder" can certainly be true, as it allows space for missing each other and looking forward to reuniting—even if it is just for an hour-long walk or gardening in the backyard alone for 20 minutes.

In order to more intentionally create alone time in your relationship, consider a few simple points. Be specific with your partner about when and for how long you will have your alone time. Don't say "I need space," which can sound like you are rejecting your partner or distancing yourself from him or her (both very unhealthy behaviors in a relationship). Instead, say something like "I'd like to take a walk by myself each week for 45 minutes."

Be open and honest about what you are going to be doing, and when you get back, talk with your partner about what you did.

These actions foster trust and might give you some fun topics of conversation.

Some creative ways to engage in small acts of alone time include closing your office door at work, taking your lunch break by yourself in a nearby park, and getting up a half hour earlier than the rest of your house to just breathe and putz around. You can also take a mini retreat from technology.

For 15 minutes a day, turn off your phone and just do something more organic—walk, lie down flat and breathe deeply, or simply sit in the yard and watch the clouds or birds.

Children need alone time too. Encouraging unstructured playtime helps children develop problem-solving skills, engages their imagination and allows them to develop as separate individuals from their parents.

Skin Deep

The cliché goes that beauty is only skin deep, but what about skin health? In recent years, beauty companies have begun to develop skin care products aimed specifically at the male consumer. Often these products are little more than the female version but instead with masculinized scents that are woodsy and earthy.

More discussion might need to be geared toward long-term skin health, not just in the way of wrinkle prevention or facial moisturizing but also particularly when it comes to skin health, sun protection and monitoring mole changes.

Know the Basics

The sun is wonderful for us. It gives us much-needed vitamin D and is generally excellent for our emotional health. That said, it wreaks havoc on our skin with some pretty dire consequences later in life. Ultraviolet A (UVA) and ultraviolet B (UVB) are two types of intense sun rays that penetrate Earth's atmosphere. Overexposure to these rays can cause sunburn in the short term, as well as premature aging and wrinkles, and more concernedly, overexposure to the sun accounts for over 50 percent of skin cancers.

Sunlight is the most potent, in terms of ultraviolet content, between the hours of 11 am and 3 pm during spring and summer in temperate climates. Avoid skin exposure during these times by wearing long-sleeve shirts, a hat and sunscreen on unclothed body parts.

Allow 20 minutes or so of full-body skin exposure without sunscreen to allow your skin to produce vitamin D whenever possible, but otherwise wear a full-spectrum sunscreen as part of your everyday routine, particularly on your face and hands, which are likely to be the most exposed parts of your body to the sun.

Reapply sunscreen every two hours or after swimming or sweating. Opt to walk on the shady side of the street or sit on a park bench under a tree. If you're at the beach or lake during the summer, bring a large, shady umbrella. If you're out on a hike or long walk, wear a hat with a brim that covers your face and neck.

Map out and monitor your moles. Moles, known medically as nevi, are groups of fleshy, brown-colored melanocytes. Melanocytes are skin cells that produce melanin, the element in the body that gives skin its particular shade or color.

Children are generally born without moles but develop them in infancy and continue to develop them throughout adolescence and adulthood.

Sun exposure, to moles in particular, can influence the number and size of your moles. The sun can also affect the way a mole changes over time.

At least once a year, do a skin check of your entire body (ask your spouse to check places you can't easily see and examine, such as your back and buttocks). Draw or print out a simple drawing of a human body to mark areas on it where you see notable moles, skin growths or brown spots. Write down the size and color of them. With modern technology, you could even take photos of them to compare over the years. Bring this information to your yearly wellness checkup with your health provider, and go to a dermatologist if there is anything significant that a specialist should examine.

Know the Alphabet

A mnemonic device for doing a skin check involves the first five letters of the English alphabet—A, B, C, D, E.

***A* stands for *asymmetry*.**

Benign moles are symmetrical, while asymmetric moles, brown spots and growths are more cause for concern.

***B* stands for *border*.**

A less-concerning mole or brown spot will have a defined border.

A mole that could be cause for concern might be scalloped, wavy or notched.

_C_ stands for _color._
Benign moles and skin growths tend to be unicolor, whereas one that has various shades is something to get your health care provider to examine.

Problematic colors aren't always limited to brown, tan or black. Sometimes they can also be red, white or even blue.

_D_ stands for _diameter._
Moles that aren't as concerning are usually smaller in size, whereas harmful moles are usually larger—6 millimeters or more in diameter. That said, this is a looser precautionary screen, since moles smaller than 6 millimeters can also be malignant.

Finally, _E_ stands for _evolving._
(Older versions of this self-screening mnemonic referred to *E* as standing for *elevation.)* When a mole or skin growth changes in any way, go see a doctor.

Changes can be related to color, size, shape or any other traits you might notice.

Bleeding, itching and becoming crusty are other changes that are red flags. In general, simply noticing a mole that you didn't formerly notice is enough cause to have it evaluated by a health care provider.

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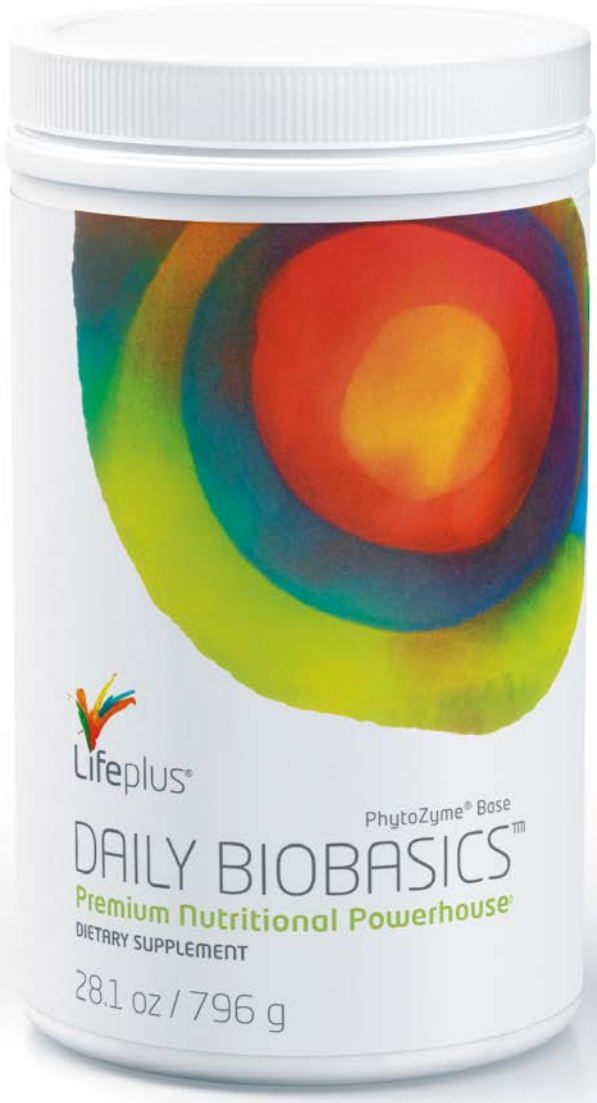

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Ask the Expert

Is aging inevitable?

There are aspects of growing old that we might never be able to stop. However, you would be surprised to learn that many of the health problems we once thought were unavoidable by-products of aging are actually caused by free radical attacks (aka oxidative stress). We can do a great deal to protect ourselves from oxidative stress caused by free radicals simply by consuming more antioxidants.

Eating a diet rich in fruits, vegetables and spices helps ensure that you supply your body with all the antioxidants it needs to help prevent free radical stress.

Popular antioxidants are vitamins C, A, E and K, but there are even stronger ones, such as oligomeric proanthocyanidins (OPCs). OPCs are more potent than vitamin E and vitamin C. OPCs are found in nearly all food plants, but grape seeds and pine bark are especially rich sources, and they are often available in supplements. As for the aspects of aging that aren't associated with antioxidants, a healthy diet, regular physical activity and a positive outlook will go a long way in keeping you healthy and happy for many years to come.

Do visualization techniques actually help?

Positive thinking, mental focus and visualization techniques are now believed to be powerful tools for shaping our lives. The immense power that the mind has over the body and its functions can be an incredible asset in all areas of our lives. When we allow ourselves to keep a positive mental attitude and regularly make time to spend a few moments to "see" ourselves accomplishing our goals, we often find that we can accomplish our goals faster than we thought possible. What we focus on in life is strongly linked to what we attract. Therefore, if we put our energy into focusing on and visualizing the positive things we want to accomplish or experience, we can actually help attract them into our lives.

What's the difference between a fat-soluble vitamin and a water-soluble vitamin?

Nutrients are often limited to which parts of the body they can effectively enter by their fat- or water-soluble properties. A vitamin or mineral is said to be fat-soluble if it can enter the body only with the help of fats (called lipids) already in the body. If the nutrient needs water to be absorbed, it is labeled water-soluble. Because excess fat is stored by the body and excess water is excreted, fat-soluble nutrients tend to stay in the body longer. To give your body the full nutritional support it needs to function, you must consume a mix of fat-soluble and water-soluble nutrients. A diet in which most meals combine fresh fruits and vegetables with clean water and healthy amounts of fats (relative to the amount of energy you expend) will help ensure you are doing just that.

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