



Want a healthier you? Umm...is this a trick question?

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A healthier you is actually easy to achieve. In order to get there you have to look from the inside out. I'm talking way inside, at the very building blocks of life. CELLS!

Cells, as microscopic units of life, are tiny but terrific in all that they do. They do a lot, essentially running everything in our bodies and that is why there are 37 trillion of them. Yes, 37 trillion! That seems like a spectacular number that is almost too large to comprehend, but it is true, nonetheless. Basic biology tells us that a cell is the building block of life and there are approximately 200 different kinds of cells in the human body. Some examples include stem, fat, bone, blood, nerve, skin and sex. There are six main functions of a human cell:

- Provide structure and support
- Facilitate growth through mitosis
- Allow passive and active transport
- Produce energy
- Create metabolic reactions
- Aids in reproduction

Our bodies cannot function without this list of actions. So the question is, how do we help our own cells to continue their good work? A few obvious answers have been heard from doctors and health experts over and over again, eat healthy foods, drink water, and exercise. I know, I know...it's repetitive. You've heard it all before...but what if you had a deeper understanding of why? Why is this simple list of things to do to stay healthy so important? I'm glad you asked because I have an answer for you.

Cell renewal and regeneration is pivotal to human health and what we do in our everyday lives has a direct effect on maintaining and accelerating it or allowing it to degrade thus opening ourselves up to a host of diseases and ailments. Without our cell functions we essentially wither and...well...you can fill in the rest.

If you are thinking that this all sounds like something to be concerned about, you're right. Cell regeneration and renewal happens on a regular basis. Think of this as a refresh, like when you do spring cleaning, except unlike spring cleaning which is a once a year thing, our cells are constantly regenerating and as we age that process slows (of course! Nothing gets easier on the body when it comes to aging). The turnover rate for infants is 3-5 days, in our twenties 14-21 days and when we are over 50 it is as long as 60-90 days. Cell renewal is dictated not just by age, but also by the type of cell. The heart muscle stops growing at age 10, the enamel on wisdom teeth stops at age 12, and skeletal cells are replaced about every 15 years. In contrast, red blood cells renew in 120 days, skin cells every 39 days, hair grows at a rate of about .35mm daily, and intestinal epithelial cells that separate gut microbiota and host immune cells, every 5 days.

Cellular health, otherwise known as cellular age, tells us how old our body is. This is not the same as how many years we have been on the planet. It is directly related to our environment and what we put into our bodies and how much we move. Toxins are in our air, food, and water and this is definitely getting in our way. It is an unfortunate fact that escaping them is almost impossible. It is even more a reason to understand our nutrition and environment to counteract any damage. Keeping your cellular age young is not about the calendar or the clock, it involves keeping your cells at an optimal regeneration pace.

Science and the medical community are waking up to the connection between cell health, inflammation, immune deficiency, and chronic disease. Prevention is the most important reason to focus on cellular renewal. After all isn't that the ideal result? To prevent harm, pain and discomfort for those we love and ourselves.

A discussion about cellular health cannot leave out the source of a cell's energy. One membrane in particular, the mitochondria, is the primary source of that fuel. In other words, our cellular power. Think of these small but mighty membranes as the light switch that turns on a cell's ability to do its job. When was the last time you heard anyone talking about the mitochondria? Was it science class in middle school? Well, more people should be talking about it, a lot! Dysfunction of the mitochondria is known to be linked to early aging, Alzheimer's, cardiovascular disease, diabetes, and chronic fatigue syndrome to name just a few.

Unfortunately, these powerhouses in our cells are easily disrupted by poor nutrition, exposure to toxins such as pesticides and air pollution, too much alcohol, and smoking (a partial list, but you get the idea). So what is a human to do?

²Because the timing of cellular renewal is so vastly different by age and type of organ, keeping cells in shape takes some attention to detail. Here is an easy three-pronged strategy to eat, drink and move so that you can power up inner cells:

Eat Healthy: nutrition is key. Putting junk in, creates junk. Instead choose foods that invigorate stem cell renewal which is a key building block of life. Eat berries! Goji, blueberries, pomegranate, and raspberries as examples. These natural foods are not only delicious but also are powerful antioxidants.

Ginger root and vegetables like cauliflower, broccoli. Kale, brussel sprouts and cabbage fight inflammation. Additionally, these foods help keep liver enzymes at an optimal level which cleans toxins from the body. Talk about BONUS!

Be mindful of the quality of your vitamins. Remember, cheap junk in results in cluttered and inefficient cells. If you can get your nutrients from food, please do. If not, high quality supplements are just fine. Vitamins C and E and A, lycopene and lutein all promote cell regeneration and protect from inflammation and free radicals. Want a list of foods? Here we go: carrots, onions, peas, spinach, squash, tomatoes, melons and cranberries.

Other honorable mentions are sound sources of Omega-3 like fish (those low in accumulated toxins of course), nuts and seeds and resveratrol, a micronutrient that you can find in grapes, apples, blueberries and plums as well as wine (yes, I said it, wine!).

Stay Hydrated: a hydrated cell is a happy cell! Dehydration creates inflammation and reduces your energy level and interferes with the proper function of every organ, from your brain to your skin. Water is a high percentage of our body weight, 60% for men, and about 55% for women and is mostly found inside cells. Think of your cells like a sponge. When properly saturated they are functional, but when dry, they shrink and are useless. We want fully swollen cells, not shrunken ones. The best way to tell if you are on the right track is the color of urine. It should be clear or a faint yellow. If it's dark, you need to up your intake of hydrating fluids. Keep in mind that high caffeine drinks, coffee and tea may subtract from the ounces of water you need.

Keep moving: There is a mountain of evidence that supports 30-60 minutes of exercise daily helps prevent diseases like cancer, diabetes, heart disease and stroke. The natural chemicals released during all levels of exercise help balance our emotions, immune and

inflammatory responses. A recent study connected exercise with improving muscle health by renewing its power producing mitochondria.

Exercise releases neurotransmitters in our bodies that are directly related to happiness. It is that exciting, almost drunk feeling of goodness. Physical activity, whatever the source, triggers the release of dopamine, noradrenaline, and endorphins and we cannot help but smile and feel positive energy.

Achieving balance, and overall health and well-being, is directly related to the actions we take and what we consume. We have a great deal of control over our physical and mental well-being. Taking an active role will keep you on the right path to a healthier and blissful existence.

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