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Hydration / dehydration: impact on health and productivity

We hear it all the time: drink 8 - 8oz glasses (we'll call it 8x8 from now on) of water each and every day. It's sort of a "Golden Rule" of good health.

But why? And is it the truth?

Well... let me be perfectly honest with you. I don't think it's "the truth," per se. All the medical experts agree that 8x8 is either a good idea or at least not a bad idea, but there is lots of discussion in the literature about how much water is enough water (and even that "water" should not be exclusive: coffee counts in many studies!! YAY!). Some think it isn't enough. Most, however, resist the hard-and-fast rule of 8x8: there are too many variables (male/female, weight, percentage of that weight which is fat, other liquid intake, level of activity, the weather) that play into the formula to be able to simply state 8x8 as "the absolute truth."

There you go. The water guy shot himself in the foot! But now that we can at least sort of agree that the simplistic 8x8 formula isn't precisely the way to go... what is? Well... it starts to get pretty complicated pretty fast if you want to be accurate about it (which, I think, is why most doctors will agree with the idea of 8x8... simple is good) But proper hydration is central to good health and optimal performance, so it is probably worth doing some homework on, right? Let's do that!

Let's start by talking about the human body for just a bit. We've all heard that water makes up 70% of the human body. Well... even that's not entirely true. 70% is pretty much a maximum in a range from 55-70%. Men average a bit higher than women. Thin people (yes, thin) average higher than fat people. The reason women and the obese have lower average percentages is that fat literally displaces water... so as it turns out, hydration can be more of an issue for them... dehydration can hit them more quickly and have a greater effect.

Water is central to every activity in the body. It moves materials around. It is the basic ingredient of the suspension parts for a smoother ride. It works as the cooling agent. It acts as the lubricant in our gut helping to move product to it's final destination. So, it keeps our insides clean, cool, comfortable, and moving... water is involved in every activity of the body.

Without water we experience decreased function very quickly, and death is quite rapid (literally a few days... rarely more than a week). A 3% drop in hydration will be very

noticeable in all individuals, and a 15% drop is deadly (most don't actually survive that level of dehydration) So you can see how critical maintaining proper hydration levels is. Fortunately we are equipped with a very good system for maintaining top-up levels: our kidneys can eliminate a lot of water in a hurry, and our hydrostatic system is very efficient, so being over-hydrated is actually fairly hard to accomplish or maintain. Interesting factoid: we can only absorb about a litre of water per hour... so if you were to sit down and drink a gallon, it would take about four hours to be absorbed... and would generally be eliminated just as fast! The problem with that level of hydration is not the water, as the kidneys can usually take care of that... it is the loss of electrolytes (notably sodium) that causes the problems associated with drinking too much water, especially and usually in a high-physical-stress situation such as sports, hard physical labour in a hot environment, etc.

What is remarkable in the literature is that it consistently indicates a significant loss of performance as we dehydrate, and that loss occurs remarkably early in the dehydration cycle. A 2-3% drop in hydration level will incur reduced short-term memory, decreased cognitive ability and decision-making skills, loss of balance, increased fatigue, and measurable (and significant) drops in physical output (12-25%, depending on the type of activity and level of dehydration). All of these effects listed above have been repeatedly studied and replicated, and so we can safely assume that these are real phenomena. Surprising, isn't it? A couple of glasses of water a few times a day, and you can think better, remember better, and get more work done more safely? Really? Yes... really.

But wait, you may be saying. 2-3%, when 15% is death, is a lot, right? Well... not really. For a person of normal weight (let's say 170 lbs) and normal health, 2% dehydration is less than a litre of water (actually, about 3 8-oz cups). That's not much at all. Frankly, if you are not in the habit of drinking water, that is quite possibly somewhere around your current level of dehydration! And that 2-3% has a big effect, as you read above. Therefore, many of us are operating at a "normal" level that is well below what we are capable of... and it is so easy to fix.

For instance: did you know that more than half of normal (not chronic, bone-on-bone) back-aches can be "cured" by drinking a couple of glasses of water just before you go to bed? The discs in your back will soak up that water overnight, and you will be good to go again the next morning. This has to happen at night while you are laying down, though. The discs cannot absorb that water during the day while busy being used/compressed... but there you go. Two glasses of water and a trip to the bathroom, and a great many back-aches will go away. Try it! A lot of you will find it works. It definitely works for me, and I should know: I've delivered bottled water for 15 years so experience significant (often painful) disc compression, and if I forget to drink that water at night, my back is still sore in the morning. Don't forget, and usually not sore. Those discs are, after all, not much more than simply baggies filled with water, but that water can squeeze out, and if there is not enough water in your body to soak them full again overnight they stay squeezed out and you hurt. And that is just one example of the effects of hydration levels on your body... there are literally hundreds of others that are even more interesting and important.

The fact of the matter is that water, however you get it into your body, is absolutely essential for life at all, and further that getting enough water at the right time will make a huge difference in quality of life. I would be remiss if I didn't here say that in my opinion if you are going to be drinking water for health it only makes sense to be drinking the best water you can get, which I would suggest is the water we deliver at H2Only... but that's all I am going to say about that, because that wasn't really the purpose of this white paper ;-)

I could go on for page after page on the importance of hydration: it's something I am, after all, professionally interested in. I am also personally passionate about it. It's such a simple thing that can make such a big difference for so little. I'm going to stop now, tho... most folks don't like long sermons! But if you want to read more about this from a more technical perspective, I have a list of web addresses below (most of which themselves have further links) that will get you started on your research project... enjoy, and get back to me if you find something really interesting I should put in the next update of this paper!

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<http://www.mayoclinic.com/health/water/NU00283>

http://www.jacn.org/cgi/reprint/26/suppl_5/597S

http://www.heartspring.net/symptoms_of_dehydration.html

<http://en.wikipedia.org/wiki/Dehydration>

<http://www.dailyrecord.co.uk/life/women/health-and-fitness/2010/08/09/colour-of-urine-is-useful-indicator-to-level-of-hydration-86908-22475499/>

http://www.ehow.com/how_4765870_hydrate-body-better-health.html

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