



- I. Hydration
- II. Musculoskeletal Healing

Like anything I tell you, make sure what you have isn't something worse ("first do no harm!"). For example, if you keep having to sprains, strains, and or bruises, then you need to have a professional check it out and get it fixed. By "fixed" I mean at least find out how to avoid the triggers if not decrease the susceptibilities.

First up:

I. Hydration

Take your body weight in pounds, divide that number by two, and that's the number of ounces of fluid to drink a day as a baseline for most of us. If the climate is dry, e.g. most of indoor Chicago during the winter, then even drink more fluid. If you sweat, e.g. in exercise (good for you! way to go!), then even drink more fluid.

If you're doing long sessions of sweaty exercise, then replenish with fluid that has electrolytes in it and some carbohydrate in it. There are many commercial liquids designed for this. The Sports Medicine website links to the American College of Sports Medicine (<http://www.acsm-msse.org/pt/pt-core/template-journal/msse/media/0196.htm>) which says be hydrated before exercise (e.g. 500 ml = 17 oz 2 hours before), 600-1200 ml (20-40 oz) per hour of exercise, and if the exercise is longer than one hour then electrolytes etc.

If the fluid has caffeine, then you'll have to drink more non-caffeinated fluid. For example, for most people a cup of coffee costs them 2 cups – they can't count that cup and they have to drink an extra cup of water to compensate. Even decaffeinated coffee might cost you a bit. Brown caffeinated tea usually doesn't count as fluid but you don't have to compensate with an extra cup. Green tea might actually count as cups of water, if you detox caffeine well. (This is Phase I of the liver detoxification pathways; more on this in a later Newsletter.) You can tell what the caffeine, or even decaffeinated version, does to you by drinking it and paying attention to how much you urinate in the next 2-3 hours.

If the fluid is sweet, it might only count partly, e.g. sweet juices often count for half their volume. If the fluid is loaded with fat or protein, e.g. milk, it might count only partly. Once you get hydrated, you can tune into some dehydration signs better: Eyes, nose, lips, mouth, and/or throat feel dry, lips stick together a bit, opening mouth and talking has a bit of a smacking sound, headache tendency (part of the tight muscles and/or twitchy nerves that dehydration can cause), and/or a generalized feeling of "I'm dry". In the longer run, skin and/or hair is dry. In the even longer run, a wide array of problems gets more obvious.

Think of all those TV commercials for skin lotions, lip balm, and conditioners for hair...often it's dehydration! Commonly, it's also lack of beneficial fats, less commonly low thyroid function, and other things...but more about those things in future newsletters.



The famous book, *The Water Cure*, shows how adequate hydration can make a difference in many diseases too.

The color/tint of your urine is not a reliable indicator of dehydration. Urine sinking into the toilet bowl of water says dehydration that has been around for hours and the body couldn't compensate around it. It's not a quick enough indicator. Besides most of us don't look that closely.

Thirst is not a reliable indicator of dehydration for most people. So many of us are routinely dehydrated that the body adapts, assumes they're living in a desert, assumes they're forced to be not fully healthy, so stops telling them they're dehydrated. We are built for survival, less so full health, so the body often stops, or maybe won't even start, telling you something is wrong. Thankfully, we have ways of testing things....

A Bioimpedance Analysis can tell you if you're dehydrated sooner than a blood test. Dehydration has to be almost emergency room bad to show up in blood. Most people are found to be dehydrated with their first BIA – that's how common dehydration is.

BIA can also tell you how much lean vs. fat body mass you have. Most of us as we grow older, lose lean, and gain fat. That's called sarcopenia. So many people who diet, actually diet unwisely -- they actually lose both fat **and** lean. That lean is muscle and helps you burn calories. No wonder so many end up saying "I just look at a calorie and gain weight" – they don't have enough lean body mass, enough muscle. Muscles also help your joints be stable so you are less likely to get arthritis, tight achy muscles, sprains, and strains.

BIA can also pick up on a kind of systemic inflammation that lab tests often don't. Inflammation is now ("written in stone") known to be a part of cardiovascular disease, nerve and brain diseases of old age, cancer, bone thinning, poor skin and gum health, and, of course, all the kinds of arthritis (the arthritides).

You can do a BIA through me -- I have the detector and computer combo. Let us know ahead of time, make sure it gets put into the appointment book as such, so I can set up the BIA combo. I keep it stored away to save us space in the office. It takes a half hour to do a BIA once it's set up.

Our second topic:

II. Musculoskeletal Healing

If you keep having to sprains, strains, and or bruises, then you need to have a professional check it out. It is quite rare that topical (= applying on the surface) dry heat is good for injuries to muscles and connective tissues (cartilage, fascia, ligament, tendon, etc.) – sprains, strains, and bruises. Of course, you might have a rare instance where dry heat is helpful, so ask us if you aren't sure.



For sprains, strains, and bruises they eventually want moist heat. The dry heat might feel good because heat relaxes muscles **but** the dryness pulls water into the area, making the edema, the inflammation, worse, thus the dryness prolongs healing time -- it works against you in the long run.

Initially put cold on them to slow inflammation. Inflammation in small, controlled amounts, is a healthy part of the immune system. However, that very simple, primitive part of the immune system can get carried away – inflammation can get excessive. So while the pain is sharp and piercing (vs dull and achy), while the injury to the soft tissue is new, for about the first 36 hours, put cold on the injury.

The cold will feel cold, of course, then, if it's very cold, you might feel a cold burning, then you feel numb. While you might be grateful for the numb ("pain is less"), actually it can make things worse in the long run, e.g. the local area can get a version of frostbite. So take the cold off just as it's **starting** to get numb. And keep the cold off until the area feels warm, body temperature, to your touch and to your mind. By "to your mind" I mean think about the area and see if your internal sensors tell you it has warmed back up also. Then you can put cold on it again.

Some authors have too much simplified that by saying, e.g., "ice for 10 minutes out of every 30 minutes". The healthy rule is "no numb" then "let it warm back up" -- it's not a particular number of minutes. You can put a frozen bag of peas inside a towel on it. Peas are nice because they conform to whatever shape is needed. If the towel is too thick, it may never start to get numb. You could put a paper cup of water in the freezer. When it's frozen, peel off a top part of the cup. Then use the lower paper part as a handle to hold the frozen chunk of ice. Rub the ice on the area and it will start to get numb very quickly. And there are options in between, e.g. an ice bag containing ice cube chunks.

Past that initial stage, past the sharp piercing pain, the first 36 hours, professional athletes and daredevils have a trick you can do. These are the kind of people who show up in specialized clinics, e.g., on a Monday and say "I better be functional by Friday because I have a million dollar gig I have to be in". Here it is:

10 minutes of moist warm, followed by 5 minutes of moist or dry cool, over and over and over. I got training by one of these clinics. They have rooms set up where the athlete/daredevil can do this for hours at a time 24/7.

By the way they also tell them to move any part of their body that isn't injured, that doesn't hurt, to keep circulation going, keep metabolism going, keep their strength up, etc.

By "warm" I mean about 140 degrees. By "cool" I mean about 45 degrees **not** hot and cold. Enough difference that you notice it but not so much difference that you get a jerk, tightening reaction – we don't want alarm.



HEALING HANDS HELPER

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To get moist warm, e.g.: microwave or heat in an oven a moist cloth, microwave or heat in an oven a hot pack and put inside a moist cloth, dip a cloth in warm water, or even put the body part in warm water.

Don't put a moist cloth on just any old heating pad – don't want you to get electrocuted! Fortunately, enough consumers have gotten hip to the value of moist heat that manufacturers now make some heating pads water-proof, with a cloth covering that can be moistened.

To get the cool, it can be moist or dry, so lots of options like “ice” and “warm” above. The warm relaxes muscles and vasodilates (widens blood vessels). The cool reduces inflammation and vasoconstricts. The alternating vasodilation and vasoconstriction pumps the blood, and thus lymph, through the area, increasing waste product removal and nutrient and oxygen delivery. Such a deal! So much better than just icing the area!

OK, enough for now.

See you later,

“Doc Ray”