

**Hydration 101** by Christopher Drozd  
**Team in Training — Fall, 2006**  
Long Beach / Nike Womens' Marathons

LESS IS MORE —

Based on conventional wisdom, possibly derived from late 1960s lab research, runners have been implored to drink as soon as possible and to consume as much as possible, living the Camelbak mantra of *hydrate or die*. The American College of Sports Medicine recommends drinking enough to *fully* replace fluid lost through perspiration, up to 1.2 litres *per hour* of running. Sports beverage companies, obviously, see no reason to challenge such advice. But a recent study published in the New England Journal of Medicine (April 14<sup>th</sup>, 2005), found, further supporting a decades-old conclusions of South African, Tim Noakes, MD, a renowned Capetown University professor and author, that it is over-hydration, in fact that threatens distance runners, not dehydration.

Noakes points to comprehensive evidence indicating correlation between dehydration and purported, subsequent heat illness is improperly inferred. Further, on hot days heat injury will affect a significant number of runners *regardless of how much fluid they drink*. Prime factors inducing heatstroke, besides ambient temperature are running speed (intensity), acclimatization (which also encompasses fitness) and individual susceptibility. And, heatstroke tends to occur during shorter, faster races — 5K and 10K. — where hydration isn't really a factor.

The American College of Sports Medicine, since 1975 has become progressively more specific and adamant promoting its stance that heat-induced injury be eliminated by complete fluid replacement, while conceding that ostensibly, athletes, especially elites aren't likely to come close to their 1.2 litres / hour prescription, or even be *able* to drink such volume without gastro-intestinal distress. Gatorade's Sport Science Institute website while paying lip service to the idea of hyponatraemia, and erecting the legal shield of athletic / nutritional individuality posts a fluid replacement calculator that would have me consume 112 oz. of fluid — er, make that Gatorade — over marathon distance in an effort to offset predicted fluid loss. That's about a quart an hour, (and about twice what I've found to be reasonable for any fluid but beer). In fact, you'll be hard pressed to find a reference, aside from Noakes' *Lore of Running*, pointing to proper hydration as anything other than balancing fluid loss, one to one with fluid intake.

But, there have been a number of event related illnesses, hospitalizations and deaths — 1985 & 1988 Comrades ultra-marathons, 2000 Houston marathon, 2002 & 2003 Boston marathon, to name a few — specifically attributable to hyponatraemia (due to water intoxication). And, not just from water, but from sports drinks, too. The woman who died in Boston (2002) had over-consumed Gatorade. A New England Journal of Medicine study followed 488 runners in the 2002, Boston Marathon and determined following the race that thirteen percent were hyponatraemic, and at least two runners were considered *critical*, and one...well.

Hyponatraemia is a dilution of blood sodium (serum sodium concentration of 135 mmol / litre, or less) that causes both the body and brain to swell. If not allowed to abate it results in vomiting, confusion, unconsciousness, seizure, coma, and possibly death. Those at highest risk tend to be on the road for over four hours — a large portion of LA Marathoners, to be sure — and ultimately consume over three litres of fluid. Vomiting is, according to a study done during the 2000 Houston marathon, the single symptom distinguishing the hyponatraemic from those suffering from exercise related conditions such as heatstroke or hypoglycemia, though some literature says otherwise.

By the way, typical collapse after a marathon is often just a result of a drop in blood pressure — postural hypotension — due to finishing the race and standing around. So, walk for about 20 minutes following your race. Or, if you're lightheaded and do collapse, lie on your back with your legs and hips raised above your heart for about 20 minutes. Sip a sport drink ad libitum. Staggering across the finish line might indicate a different condition and treatment, however. But one thing's for sure, *you* won't be hyponatraemic, right?!

The chart below provides a rough guideline to reasonable fluid consumption over time, based on slightly more than a pint per hour, 500ml — not quite one standard water bottle.

pace / mile	6	7	8	9	10	11	12	13	14
fluid oz. / mile	1.7	2	2.3	2.6	3	3.2	3.5	3.7	4.3
total fluid oz.	44	52	60	68	78	83	91	96	112
total time	2:37	3:04	3:29	3:56	4:22	4:48	5:14	5:41	6:07

Elite athletes tend to drink a little less than half this recommendation, 200ml / hour, and are expectedly dehydrated by about three percent following their marathon. You should run quite well with the guidelines above, nonetheless *err on the side of less fluid*, rather than more. Normal dehydration doesn't hinder the elites, and it won't hurt you either.

Since you're winging it in this race, I'd suggest taking fluids (sport drinks) from the course and carrying with you three to five *eGels* for calories. Have one gel every 45 minutes, with fluid. Should you decide to mix and carry your own bottle and fluid, I'd recommend any of three powders — Power Bar's Endurance, GU O2, and Accelerade — based on their ingredients relative to other products. None of the manufacturers of these products sponsor me, know I recommend them...or for that matter, even know I exist.



Also —

Eat (oatmeal, perhaps) and drink (500ml — a standard water bottle — of water or sport drink) 2 hours prior to training and racing. Then, immediately (well, within a couple of minutes, anyway) before your workout or race begins, drink 1/2 to 1 full standard water bottle of sport drink or water. Have a Power Gel (or something similar) at this time, too.

Use sport drink at each workout, especially if it lasts over an hour. Plain water is OK if the workout is under an hour, but there is a benefit to the sugar and electrolytes in sport drinks, even during short sessions. It promotes faster recovery.

Experiment during training days so that on race day you're SURE of what works for you.

Finally, using a RECOVERY beverage within 15 minutes of finishing exercise will allow you to replenish your body following the progressively more challenging sessions we're going to move into. Make recovery as important as the training, 'cuz it is as important. Recovery beverages include Endurox R4, Ultragen and Powerbar Recovery. Ultragen is probably the best of the bunch — available at Triathlete Zombies on Santa Monica Blvd. just west of Centinela.

Here's a list of products to try. I've used all of them, myself. The ones with the stars (\*) to the right are the ones I'd buy right now, for myself, but it's YOUR race, so you need to explore and decide for yourself which is best. You'll spend some money, over the months, but at the end of it all a good 42K race awaits.

Hydration / electrolytes

**Ultima** [www.ultimareplenisher.com](http://www.ultimareplenisher.com)

**Cytomax** [www.cytosport.com](http://www.cytosport.com)

**G1 Hydration** [www.gpush.com](http://www.gpush.com)

**Extran Thirstquencher** [www.extranusa.com](http://www.extranusa.com)

\* **Gatorade** [www.gatorade.com](http://www.gatorade.com)

\* **First Endurance EFS Energy Drink** [www.firstendurance.com](http://www.firstendurance.com)

**ACCELERADE** [www.accelerade.com](http://www.accelerade.com)

Energy

\* **Philsbar** [www.philsbar.com](http://www.philsbar.com)

**Power Gel** [www.powerbar.com](http://www.powerbar.com)

**EGel** [www.cranksports.com](http://www.cranksports.com)

**Clif Shot** [www.clifbar.com](http://www.clifbar.com)

**GU** [www.gusports.com](http://www.gusports.com)

\* **X Tran** [www.extranusa.com](http://www.extranusa.com)

Recovery

Recovery [www.powerbar.com](http://www.powerbar.com)

**Endurox R4** [www.enduroxr4.com](http://www.enduroxr4.com)

- **UltraGen** [www.firstnutrition.com](http://www.firstnutrition.com)