



La Chute Road Runners

Summer 2017

Got Heat?

Jim Cunningham
and
Claude LaChute

Got Heat?

Hey! What do you mean by that?

Not that, Claude, but temperature! How does one deal with hot and humid race days? Last summer we had plenty of them. Will this summer repeat?

If so, there are some novel approaches.

One has to do with Slush Puppies. Yep, Slush Puppies.

At a warm race near Spanish Fort, Alabama, they offered Slush Puppies as a post-race treat. Being very sweet,

they probably would not have been very effective as a pre-race cooling strategy. Interestingly, they are effective in dealing with hot racing conditions.

Slush Puppies! Right! What has that to do with cooling?

OK! Let's first talk about cooling. Does splashing cold water on yourself cool you? During a race, many runners, on hot days, hit the water stand and pour water over their head to cool themselves. Does this work? Surprising, not really! This idea was tested. Subject swallowed a telemetry pill to measure that effect; core temperature was taken before and after splashing and even with drinking cold water. There was no change in the core temperature. But it does feel great!

Right! And I guess you are now going to say that if cold water doesn't reduce core temperature, a cup of coffee does!

Very good! Actually, that is what I was

going to say! Anecdotal evidence demonstrates that. On a very warm day, if one drinks, say a hot cup of water, one begins to sweat.

"How does this work? "What we found is that when you ingest a hot drink, you actually have a disproportionate increase in the amount that you sweat," Jay says. "Yes, the hot drink is hotter than your body temperature, so you are adding heat to the body, but the amount that you increase your sweating by—if that can all evaporate—more than compensates for the added heat to the body from the fluid."

<http://www.smithsonianmag.com/science-nature/a-hot-drink-on-a-hot-day-can-cool-you-down-1338875> Coffee cools!

However, prolonged cool water can cool the core. Some athletes use a cooling jacket on hot days to improve performance. <http://bjsm.bmj.com/content/37/2/164> Unfortunately, it not not really an option for a weekend warrior.

That brings us to slushies: “Olympic athletes have long been using fancy ice vests and cold baths prior to competing in the heat. In 2008, the Australian team unveiled a new, more convenient ‘pre-cooling’ technique: slushies. They brought seven slushy machines to Beijing, using them for soccer, track, cycling, triathlon and a host of other sports. The secret formula: they diluted a standard sports drink by half with water, cooled it to -1° C, and drank 14 millilitres per kilogram of bodyweight shortly before competing.” <http://sweatscience.com/?s=cold+drink> This approach was even used in the last Ironman Kona. <http://www.tandfonline.com/doi/full/10.1080/23328940.2016.1165786>

Many of us have packed ice under our hats and dumped ice cubes down our shirt. Again, it feels great but it doesn’t cool the core. If a slushy is ingested the ice hits the stomach and therefore the core, an endothermic reaction occurs. The melting ice absorbs heat, thereby cooling the core. This is more effective than even drinking very cold water. If then a slushy is consumed just before the race, and during, performance may be improved. (Of course, again, this is inconvenient for the weekend warrior.

Ok, so, besides drinking hot coffee before the race, consuming a slushy, and wearing a cooling vest, is there another option?

Ok, here is the short of it; heat shock proteins, molecular chaperones, can be recruited!

“Endothermic,” and now this; you have to be kidding; speak English!

OK, Claude! Here is the scoop. If a cell notices that proteins in the cell are folded incorrectly, this is what it does. It produces a nanny protein that repairs the damaged proteins. These proteins many have been damaged by heat, cold, injury, sickness, or even age. These nanny proteins can be recruited in advance, by running at the hottest part of the day, or by immersion in a hot tub or sauna.

Here is an elaboration. Heat shock proteins are a family of proteins that are produced by cells in response to exposure to stressful conditions. They were first described in relation to when the body is exposed to shock cause by heat. (They are now known to also be produced during other stresses including exposure to cold and during wound healing.) So, what do they do? They perform chaperone functions by stabilizing new proteins to ensure correct folding or by helping to refold proteins that were damaged by the cell stress. When the cell recognizes that there are a lot of mis-folded proteins, it triggers the heat-shock response thereby improving performance.

Last summer was hot! If this summer is

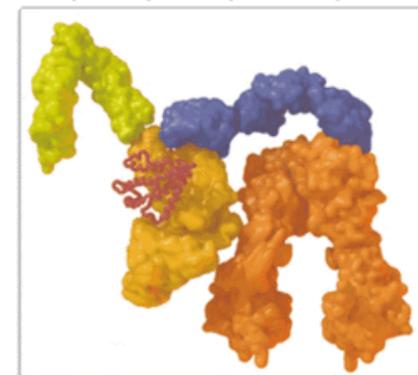
a repeat, there are possible solutions to optimize performance in the heat; here they are: run at the hottest part of the day to develop heat shock proteins, hit a sauna or hot tub with the temperature cranked-up for that same effect, have a hot cup of coffee, cocoa, or tea, just before the gun, or down a slush puppy!

Sounds good to me! I can sit in the hot tub with a cup of coffee!

Podcast Discussion of Adapting to Heat: <http://www.enduranceplanet.com/kona-special-how-to-race-well-in-the-heat-a-few-tricks-to-stay-cool-and-a-giveaway-with-paul-laursen-phd/>

Additional Links For the Cyber Geek: <https://www.scientificamerican.com/article/roles-of-heat-shock-proteins/>
http://web.stanford.edu/group/hopes/cgi-bin/hopes_test/the-heat-shock-response/

Analyze Chaperone System Components



*The New York/Vermont 5k
Champlain Bridge Run
Saturday May 20th, 2017*

Join us for a scenic 5K cross country course as we continue to enjoy the trails, roads, and fields and the beauty of our shared bridge.

TIME: 10:00 AM, Saturday, May 20, 2017

CHECK-IN: Packet-pick up and race day registration 8:30 AM-9:45 AM

LOCATION: On the grounds of the British fort ruins within the Crown Point State Historic Site, Crown Point, NY 12928

ENTRY FEE: \$20.00 for pre-registered till May 1st, \$25 for later registrants. Family rate for those with children available, \$10.00 per child. A parent must register in order to get the family rate for children. (shirt availability only to those who pre-register before May 1st.) Please make checks payable to: La Chute Road Runners and mail to Nancy Ockrin, PO Box 33, Crown Point, NY 12928

SHIRTS: To those who pre-register before May 1st

CLASSES: Male and Female, Age: 14 and under, 15-19, 20-29, 30-39, 40-49, 50-59, 60-69, 70-79, 80 and up.

AWARDS: 1st, 2nd, and 3rd in each age category for males and females and for over all male and female

FACILITY: On site bathrooms, water for runners

E-MAIL: Nancy Ockrin: momockrin@gmail.com or call 518-597-3754

La Chute Road Runners

Goals: Encourage the youth of the community to get involved in a beneficial activity. Provide competitive opportunities for its membership. Provide membership with educational and social opportunities.

Activities: Sponsor the Montcalm Mile, Resolution Run, Champlain Bridge 5K, and other races. Provide a Point Championship Series, hold an annual Awards Banquet, provide a newsletter, and organized training opportunities.

Club Membership Waiver of Participation

I agree that I am a member of the La Chute Road Runners, and I know that running in and volunteering for organized group runs, social events, and races with this club are potentially hazardous activities, which could cause injury or death. I will not participate in any club organized events, group training runs or social events, unless I am medically able and properly trained, and by my signature, I certify that I am medically able to perform all activities associated with the club and am in good health, and I am properly trained. I agree to abide by all rules established by the club, including the right of any official to deny or suspend my participation for any reason whatsoever. I attest that I have read the rules of the club agree to abide by them. I assume all risks associated with being a member of this club and participating in club activities which may include: falls, contact with other participants, the effects of the weather, including high heat and/or humidity, traffic and the conditions of the road, all such risks being known and appreciated by me. Having read this waiver and knowing these facts and in consideration of your accepting my membership, I, for myself and anyone entitled to act on my behalf, waive and release the La Chute Road Runners, and the Road Runners Club of America, all club sponsors, their representatives and successors from all claims or liabilities of any kind arising out of my participation with the club, even though that liability may arise out of negligence or carelessness on the part of the persons named in this waiver. I grant permission to all of the foregoing to use my photographs, motion pictures, recordings or any other record for any legitimate promotional purposes for the club.

Signature: _____

Date: _____

Parent's Signature if under 18 years: _____

Date: _____

Membership type:

Family \$10.00 ()

New () Renewal ()

Individual \$5.00 ()

Student \$2.00 ()

Name: _____

Address: _____

Mail to:

Fred Herbst

13 Lindbergh Landing

Ticonderoga, NY 12883

Email: _____

Checks:

La Chute Road Runners