

Sports Nutrition

Nancy Clark MS RD CSSD
www.NancyClarkRD.com

The Athlete's Kitchen

The American College of Sports ([ACSM.org](https://www.acsm.org)) is a professional organization for sport science researchers, educators, exercise physiologists, sports dietitians and doctors. At ACSM's Annual Meeting (May 2024, Boston), more than 4,500 members from around the globe presented their latest research. This summary highlights some hot topics discussed at a session hosted by [PINES](#) (Professionals In Nutrition for Exercise & Sport).

Fueling endurance: How much carb is enough?

When athletes consume the recommended 30-90 g/hour of carbohydrate during endurance exercise, they tend to perform better than athletes who fail to maximize their carb intake. Given muscle might be able to take up 120-140 g carb/hour if it can get through the gut, the question arises: Would >100 g carb/hour be even more beneficial? However, in some athletes, these potential benefits come with a higher risk of creating gastrointestinal distress. Training the gut to tolerate a higher carb intake might take about a month or more. Hence, endurance athletes should routinely practice their fueling strategies during training sessions to figure out their individual fueling and hydration sweet spot. The type of carb (liquid, solid, sports drink, energy bar) used for fuel doesn't matter as long as the athlete is drinking enough fluid.

Caffeine for performance: how much is enough?

Caffeine is a popular pre-exercise energy booster, with some athletes being more sensitive to caffeine's effects than others. Approximately 45% of athletes have genes that metabolize caffeine quickly, 45% moderately, and 10% slowly, meaning it stays in the system longer. Despite this, caffeine's rate of metabolism doesn't dictate its ergogenic effect; caffeine stays in the system for hours, even among fast metabolizers. There is no other good evidence to suggest other genotypes influence caffeine's performance-enhancing effects. Given caffeine's benefits appear unrelated to a specific gene, athletes need not spend money on getting "caffeine genotyped"! Athletes can simply take caffeine in the form of pills (3 to 6 gm caffeine/kg body weight; 200-400 mg for a 68 kg/150-lb athlete) or drink some coffee (about 150-200 mg/ 12-ounce cup) an hour before exercise—though be aware coffee's caffeine content is highly variable. For a quicker fix, caffeinated gum (developed by the military) gets caffeine into the system within 15 minutes. Words of wisdom: more caffeine is not better; high doses can hurt performance so plan to keep that upper limit to 6 g/kg!

Placebos are powerful

When translated from Latin, *placebo* means *I shall please*. A placebo offers a pleasing effect and can enhance performance in its own right. For example, if you take a supplement that you believe in (it pleases you), the chances are good you will be able to perform better—even if research suggests the supplement doesn't actually work. The stronger your belief, the larger the effect.

Hot Topics from #ACSM2024

The supplement industry commonly exploits the placebo effect. Some companies make a lot of money off of a supplement proven to *not* work. That said, all supplements come with risks. Just because it works doesn't mean it is safe. Use supplements wisely...

Collagen supplements for tendons—questionable!

Collagen supplements are touted to strengthen tendons and ligaments, with the end goal those connective tissues become less likely to get injured. Research suggests tendons can get bigger & stiffer with collagen supplements — but this also happens with whey supplements. Ingesting collagen to enhance skin, hair, knees, joints, and other collagen-dense tissues is also questionable. If any small effect is seen, it's likely due to having boosted one's protein intake. Consuming adequate protein is probably key to proper tendon, ligament, and joint health.

Hydration for performance

Several studies suggest 52% of NBA players start games underhydrated, as well as 50-80% of other athletes. Does this impact their performance? It is indeed plausible athletes would improve their performance if they were better hydrated. Making the effort to drink enough in hot weather is important.

Some athletes routinely test their urine to determine hydration status based on the concentration of metabolites in the urine. Given each athlete is an experiment of one, having concentrated urine doesn't always mean an athlete is dehydrated. For example, muscular athletes, like rugby players, tend to have darker/more concentrated urine than runners. Urine tests should be adjusted according to each individual's baseline measurement.

Effect of menstrual cycle on performance

Empowering a woman to track her cycle and look for how it impacts her, as an individual, is a big step forward for the sports world; only recently has menstruation even been discussed by coaches and trainers. Although recent research studies have found no definitive effect of the menstrual cycle on female athletes' ability to perform, some women talk about symptoms (ranging from mild to very severe) that can lead to suboptimal performance. Cycle Syncing—tailoring food and exercise to menstrual cycle phase—is currently practiced by some athletes and teams, but such practice is without any good evidence to support it. There are no hard-fixed physiological reasons to cycle sync; we don't want to set athletes up to believe they will perform worse at certain times of the cycle. But belief has a strong effect. If a team believes cycle syncing offers benefits, it will!

Nancy Clark MS RD CSSD counsels both fitness exercisers and competitive athletes in the Boston-area (617-795-1875). Her best-selling *Sports Nutrition Guidebook* is a popular resource, as is her online workshop. Visit [NancyClarkRD.com](https://www.NancyClarkRD.com) for more information.