

Salt increases physical performance in resistance competitions

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Spanish researchers have analysed the effectiveness of salt on sports performance in triathletes. The athletes who added salt supplements to their usual hydration routines during the competition took 26 fewer minutes to complete a medium-distance triathlon course than those who only used sports drinks.

Maintaining a suitable balance of water and electrolytes (mainly [sodium](#) and chloride) is essential for the functioning of all organs. Human beings compensate for their daily loss with the water and salts provided by their diet's food and drinks.

"However, doing exercise, especially resistance sports and activities carried out in the heat, can compromise the regulation of water and electrolytes," explains Juan del Coso Garrigós, researcher at the Camilo José Cela University (UCJC) and lead author of a study on the effect of salt on [sports performance](#), to SINC.

Scientists from the Exercise Physiology Laboratory at UCJC have analysed the effectiveness of the salt capsules during a Half Ironman, a medium-distance triathlon race which consists of 1.9 km of swimming, 90 km of cycling and 21.1 km of athletics. Their study has just been published in the *Scandinavian Journal of Medicine & Science in Sports*.

During the research, a group of triathletes supplemented the rehydration drinks that they usually consume with 12 salt capsules divided into three doses during the competition, with the aim of replacing 71% of the sodium lost through sweat.

Their results were compared to those of another group of athletes of the same age, experience and with better times previously in a Half Ironman, who during the competition drank sports drinks and capsules filled with a placebo, who therefore only replaced 20 percent of the lost sodium.

The triathletes who had ingested salt ended the competition 26 minutes before the control group on average. Above all, their running and cycling speeds improved.

"This positive effect on performance relates to an increase in the concentration of electrolytes in the blood, making them drink more fluids during the race (as salt stimulates thirst) and improves the water and electrolyte balances during the competition," adds Del Coso.

As the specialist mentions, sports drinks do not replace 100 percent of the electrolytes lost through sweat. Nevertheless, for the majority of sports activities lasting less than two hours, the electrolytes that they do contain are sufficient to maintain performance and avoid imbalances.

Not just any liquid can be used as a replacement

Sweating is the main mechanism for losing body heat. Sweat glands filter the blood plasma (which contains 142 milliequivalents per litre (mEq/L) of sodium) to obtain a hypotonic fluid, sweat, which evaporates through the skin and dissipates heat.

On the other hand, body water and electrolytes are lost through sweat. In healthy people, the filtration in the glands reduces the concentration of sodium in sweat to 40-60 mEq/L. For this reason, the main aim of rehydration in sport is to replace lost water and electrolytes.

"If we choose a mineral water as a rehydration drink in sport (which contains 2 mEq/L of sodium), we could generate hypotonicity, given that we would be replacing only the liquid while the concentration of sodium in our blood would gradually become diluted," states Del Coso.

Sports drinks are designed to replace lost liquids and electrolytes in sport, but even the best on the

market only have a sodium concentration of around 20 mEq/L, approximately half of that lost through sweat.

Flavour or performance

For experts, there is a balance between what is considered physiologically recommendable and that which is economically profitable in the world of sports drinks.

"Despite [sports drinks](#) companies knowing that including more sodium in the drinks would be more beneficial to maintain the balance of fluids and electrolytes during exercise, a greater concentration of sodium would also make the drink have a more salty taste and would reduce the possibilities of succeeding in a market where flavour is key to obtaining good sales figures," says the researcher.

However, in long-distance tests in which large quantities of drinks are ingested to avoid dehydration (marathons, long-distance triathlons, ultra-resistance competitions, etc.) rehydration with these specialised drinks may not be sufficient to maintain the concentration of salt in the body fluids.

"It may be necessary to eat food that contains high amounts of salt, such as fruits or nuts, or even salt capsules to reduce the effect of the loss of [electrolytes](#) on physical performance," he concludes.

More information: Del Coso J, González-Millán C, Salinero JJ, Abián-Vicén J, Areces F, Lledó M, Lara B, Gallo-Salazar C, Ruiz-Vicente D. 'Effects of oral salt supplementation on physical performance during a half-ironman: A randomized controlled trial'. *Scand J Med Sci Sports*. 2015 Feb 14. [DOI: 10.1111/sms.12427](#). [Epub ahead of print]

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