

The Placebo Effect

In competitive sport, athletes are constantly seeking novel methods to improve performance and gain an edge on the opposition. The line between what constitutes a legal or illegal ergogenic aid may not be a sharp one, and the prohibited list of substances and methods from the World Anti-Doping Agency (WADA) continues to evolve and be updated. For example, taking human recombinant erythropoietin (r-HuEPO) to improve the oxygen-carrying capacity of the blood is currently banned. However, sleeping in an altitude tent which elicits a similar physiological effect is not banned. Many athletes delve into the ethically grey area of taking supplements which, although not on the prohibited list, claim to produce similar effects to those substances which are banned. Many of these supplements have no clear evidence supporting an ergogenic effect: however, despite such substances potentially being biologically inert, it is possible that the belief of the athlete that such substances are beneficial may improve physiological performance via a placebo effect.

The placebo effect is real and measurable. It is because of this that the placebo controlled trial is the gold standard for medical research. This raises the possibility that some of the benefits of illegal performance enhancing drugs, such as r-HuEPO, may be mediated by a placebo effect.

In recent research, [reported in the August 2015 issue of *MSSE*](#), significant improvement in performance was found following one week of daily placebo administration. Qualitative analysis of interviews with participants suggests that the placebo improved performance in two ways. First, by reducing the perception of effort and, second, by increasing potential motivation – in other words, the highest amount of effort that the athlete was prepared to exert during the race. We also found a role for cognitive beliefs and expectations in mediating the placebo effect – those who anticipated the greatest positive change from taking the placebo and perceived decreased physical effort during training, had the greatest improvements in performance. Thus, like lucky horseshoes, you need to believe in the effect for it to work.

This magnitude of improvement with placebo, at 1.2 percent, was smaller than the reported effect of r-HuEPO on performance in similar competitive events (~5-6 percent). However, this effect is nevertheless of clear sporting relevance. In the 2012 Olympics, the difference between the gold medal and fourth place was less than one percent in all track events from 1500m to 10000m for both men and women. Thus, this real ergogenic effect of placebo perhaps raises an interesting philosophical and ethical issue. Is a coach who provides his/her athlete with “supplements” to improve performance facilitating a placebo effect by instilling the belief that ergogenic effects will occur? Moreover, if they do this in the absence of objective evidence that the supplement is beneficial, are they engaging in a morally questionable and deceptive practice or simply following their duty, as coaches, to use all (legal) means possible to get the best out of their athlete?

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