A Comment on “A New Taxonomy for Postactivation Potentiation in Sport”

In their recent commentary, Boulosa et al¹ present a discussion about the terminology “postactivation potentiation” (PAP) and “postactivation performance enhancement” (PAPE), but they do not, apparently, understand these terms. In fact, their misinterpretation of PAP is the very reason the term PAPE was proposed.²

To begin with, the authors define PAP as “a muscular phenomenon which consists of an acute increment in strength and power performance as a result of the recent voluntary contractile history.” Compare this with a more historically accurate definition: an enhanced muscle contractile response for a given activation following a voluntary contraction.³ Note that no mechanism is stipulated in this definition. This is an important point because Boulosa et al¹ justify their commentary based on assumed mechanisms.

We would like to resolve this misconception by clearly explaining the distinction between PAP (defined above) and PAPE. PAP and PAPE are similar in that they require voluntary activation of muscles to induce an enhancement; hence, “postactivation” is common to the 2 terms. In the case of PAP, the enhancement is due to changes within the muscles. The improved contractile response is revealed by evaluation with the same stimulation as prior to the conditioning contraction. Without assessment with a controlled method of activation, an improved contractile response cannot necessarily be attributed to PAP. Twitch potentiation dissipates over the ~6-minute period immediately after a conditioning contraction.⁴ For this reason, any enhancement of performance or contractile response outside of this time cannot be attributed to PAP. However, it is important to realize that PAP is not limited to isometric twitch contractions and that PAP of other contraction types could, theoretically, contribute to PAPE if the effects coincide temporally.

Clearly, performance can be enhanced by prior intense voluntary effort. We call this effort warm-up. PAP could contribute to this enhanced performance. However, when performance of a

voluntary activity is enhanced by prior intense voluntary activation, it should be called PAPE. This term does not imply or stipulate the mechanism.

Several papers published in the last 20 years have mistakenly used the term PAP to describe an enhanced performance (lift, jump, sprint, and power) attributed to a prior voluntary activation but without confirmation that the contractile response to a given stimulation is changed. We introduced the term PAPE to be used in this circumstance. A new taxonomy is unnecessary.

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References

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