

## Response to the Comment on “A New Taxonomy for Postactivation Potentiation in Sport”

We thank Dr Smith and Professor MacIntosh for the opportunity to further discuss the implications of the new proposed taxonomy. In their letter,<sup>1</sup> they claim that the definition they propose is in contrast with that cited in our article<sup>2</sup> and argue that, while their definition does not stipulate a mechanism, our definition does so. Honestly, we find it challenging to distinguish between the 2 definitions.<sup>1,2</sup> When comparing the terminology, we see quite similar nomenclature and no mechanisms proposed. Furthermore, our definition does not differ substantially from prior classical definitions.<sup>3</sup>

Smith and MacIntosh state: “This is an important point because Boullosa et al justify their commentary based on assumed mechanisms.”<sup>1</sup> However, it has been ubiquitously agreed since the pioneering works in the 80s that the mechanisms for postactivation potentiation (PAP) are well established. In fact, Professor MacIntosh’s own impressive work has helped to define these mechanisms.<sup>4,5</sup> Hence, the literature has consistently agreed upon the mechanisms of PAP over the last 30 years.

On another point, Smith and MacIntosh state: “Twitch potentiation dissipates over the ~6-minute period immediately after a conditioning contraction.”<sup>5</sup> For this reason, any enhancement of performance or contractile response outside of this time cannot be attributed to PAP.<sup>1</sup> However, the time course of PAP is not as static as Smith and MacIntosh propose, with examples in the literature of PAP recorded >6 minutes after the conditioning activity.<sup>2,6</sup>

Smith and MacIntosh continue: “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.”<sup>1</sup> In our article, we agreed with this statement.<sup>2</sup> Our contention was that voluntary contractions have a lower signal-to-noise ratio, making it more difficult to detect voluntary changes associated with PAP.

It is interesting that Smith and MacIntosh indicate that there should only be 2 descriptors (PAP and postactivation performance enhancement [PAPE]) and that there is no possibility for alternative terminologies. The proposed taxonomy highlights the conditioning activity, testing activity and population, factors causally related to the onset, and magnitude of potentiation effects. For instance, the rationale for a lack of increased voluntary performance would be more apparent in the case of the following descriptor: “Post low-intensity squats jump potentiation in sedentary males.” In this case, the conditioning activity and population are less likely to induce and experience potentiation, respectively. There is no reason that

more general descriptors such as PAP and PAPE cannot coexist with our proposed taxonomy, as we clearly stated in our article.<sup>2</sup>

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