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1 **Title: Response to the comment on “A New Taxonomy for Post-activation**  
2 **Potential in Sport”**

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

39  
40 Smith and MacIntosh state: “This is an important point because Boulosa and  
41 colleagues justify their commentary based on assumed mechanisms.”<sup>1</sup> However, it is  
42 ubiquitously agreed since the pioneering works in the 80’s that the mechanisms for PAP  
43 are well established. In fact, Professor MacIntosh’s own impressive work has helped to  
44 define these mechanisms.<sup>4,5</sup> Hence, the literature consistently agrees upon the  
45 mechanisms of PAP over the last 30 years.

46  
47 On another point, Smith and MacIntosh state: “Twitch potentiation dissipates  
48 over the ~6 min period immediately after a conditioning contraction.<sup>5</sup> For this reason,  
49 any enhancement of performance or contractile response outside of this time cannot be  
50 attributed to PAP.”<sup>1</sup> However, the time course of PAP is not as static as Smith and  
51 MacIntosh propose, with examples in literature of PAP recorded >6 min after the  
52 conditioning activity.<sup>2,6</sup>

53  
54 Smith and MacIntosh continue: “However, it is important to realize that PAP is  
55 not limited to isometric twitch contractions and that PAP of other contraction types  
56 could theoretically contribute to PAPE if the effects coincide temporally.”<sup>1</sup> In our article  
57 we agreed with this statement.<sup>2</sup> Our contention was that voluntary contractions have a  
58 lower signal-to-noise ratio, making it more difficult to detect voluntary changes  
59 associated with PAP.

60  
61 It is interesting that Smith and MacIntosh indicate that there should only be two  
62 descriptors (PAP and PAPE) and there is no possibility for alternative terminologies.  
63 The proposed taxonomy highlights the conditioning activity, testing activity and  
64 population, factors causally related to the onset and magnitude of potentiation effects.  
65 For instance, the rationale for a lack of increased voluntary performance would be more  
66 apparent in the case of the following descriptor: “Post low intensity squats jump  
67 potentiation in sedentary males.” In this case, the conditioning activity and population  
68 are less likely to induce and experience potentiation, respectively. There is no reason  
69 that more general descriptors such as PAP and PAPE cannot co-exist with our proposed  
70 taxonomy, as we clearly stated in our article.<sup>2</sup>

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