Intersubjective Comparisons Are Possible with an Accurate Use of the Borg CR Scales

To the Editor:

We recently read the interesting commentary of Lambert and Borresen, which discusses the advantages and disadvantages of the various measures of training load in sports. This commentary addressed an important issue in sport science. As a further contribution, we would like to clarify some arguments presented in the commentary, particularly on the determination of the training load using the RPE and the session-RPE method.

Lambert and Borresen reported in the abstract that because the session-RPE method depends on subjective assessment, the intersubject comparisons may be inaccurate. We believe it is important to clarify that this should not be the case, since by choosing Borg’s category ratio scales (CR10 and CR100) for subjective assessment such systematic variance is minimized in agreement with modern psychophysical theory. Indeed, these scales are level-anchored, semi-ratio scales that combine the advantages of a ratio scale with those of a labeled category scale according to the Borg’s range model. This model asserts that the subjective range of intensity (from minimal to maximal) is equal between individuals, and evidence accumulated during the last 40 y has provided support to this theory. This is why the Borg scales are valid for prescribing and evaluating exercise intensity in both the clinical and sport setting. Failure in intersubject comparisons usually arises from using of scales that (1) have not been developed following the appropriate psychophysical procedures (ie, not valid) and (2) have been modified so that the original properties of the scale are lost or changed (eg, self-translation, modification of the numbers and anchors, and similar), or by (3) correlating the perceived exertion with exercise intensity indicators under different contexts (eg, indicators not ranging from minimum to maximum, such as the percentage of anaerobic threshold). Another crucial point for intersubject comparisons is the use of the correct instructions and administration procedures, including a valid interindividual reference point (the so-called fixed star). Furthermore, the appropriate instructions are also important because the CR scales are general intensity scales and the instructions define the domains measured. This underlines the importance of using appropriately validated psychophysical instruments that comprise both the scale and the relative instructions. Accordingly, when using the session-RPE method, the original CR10 (or CR100) scale should be used.

Another point raised in the commentary requiring further discussion was the suggestion that the session-RPE method may be not suitable for quantifying training load in sports such as rugby union and rugby league. However, there is evidence of convergent validity between session-RPE and other measures of exercise intensity (eg, heart rate and blood lactate concentration) during both rugby union and rugby league, with results similar to those of other sports. Additionally, it has also been shown that the match session-RPE is moderately correlated ($r = 0.54$) to the number of tackles completed during a game in professional rugby league.
suggesting that the global perceived exertion is also affected by tackling. Although further studies are probably needed, on the basis of these studies we suggest that the session-RPE method is an acceptable indicator of training load and can be applied to the rugby codes in the same manner as to other sports.

Finally, we generally agree that gaining consensus and providing evidence-based practice guidelines can improve scientific practice, but we do not believe a consensus on training load measures is warranted at this early stage. Rather, more well-designed studies experimentally investigating the theoretical link between the training load and training outcomes are still necessary before such a consensus can be made.

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References