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A comparison of self-reported and heart rate-based training in junior endurance athletes.

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INTRODUCTION:
Analysis of training characteristics provides valuable information to understand the relationship between training stimulus and consequent (mal)adaptations. A common method for training analysis is the use of training diaries, where athletes usually self-report their training duration and intensity by manually allocating time to different intensity zones based on a combination of perceived exertion, heart rate (HR) and goal of the session (1). A nearly perfect correlation between self-reported (SR) and HR-based training duration was observed in senior elite endurance athletes, although athletes consistently SR a lower total training duration (2). However, the association between these two methods has not been assessed among young less experienced endurance athletes. The purpose of the present study was therefore to compare SR and HR-based training data among junior endurance athletes.
METHODS:
SR and HR-based training data of 24 (11 female, 13 male) competitive cross-country skiers and biathletes (17.2 ± 0.9yrs) were collected for all endurance sessions for two weeks during the preparation period. Training duration for HR-based data was calculated both as the total training duration recorded by each athlete's HR-device and the duration performed >55% of HRmax. HR-based data were allocated to intensity zones based on the intensity scale developed by the Norwegian Top Sport Centre: low intensity training (LIT), 55%–82% of HRmax, moderate intensity training (MIT), 82%–87% of HRmax and high intensity training (HIT), >87% of HRmax (3). The SR training duration and intensity distribution were collected from athletes' training diaries and categorized in a 3-zone intensity distribution. The association between SR and HR-based training data was tested using mixed model analysis.
RESULTS:
Total training duration was significantly lower using the SR method (-10.74min, P<.001) compared to HR-based, whereas the opposite (7.62min, P<.001) was observed when training duration >55% of HRmax was analysed. LIT duration was significantly higher using the SR method (6.20min, P<.001) compared to HR-based and the same was observed for HIT (3.09min, P<.001), whereas MIT duration was lower using the SR method (-1.61min, P=.02) compared to HR-based.
CONCLUSION:
These results confirmed previous findings in senior elite athletes (2) with regards to systematically self-reporting a lower total training duration and a higher training duration >55% HRmax. SR and HR-based methods were not concordant in terms of intensity distribution, which indicates they cannot be used interchangeably. The HR-based method likely does not capture the full picture of metabolic and perceptual events during training at different intensities, which might be better represented by the SR method.

References
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Topic: Coaching

Presentation Oral