THE SUITABILITY AND RELIABILITY OF PERCEPTUALLY REGULATED EXERCISE AT RPE 13 IN CHINESE ADULTS USING A TRANSLATED BORG 6-20 SCALE.
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Introduction: This study evaluated the suitability and reliability of perceptually regulating exercise intensity using a Chinese-translated (Cantonese) version of the Borg 6-20 Rating of Perceived Exertion (RPE) scale. Previous research has demonstrated a Chinese-translated RPE scale to be valid and reliable when used in estimation mode (Leung et al., 2002), however work on its use in production mode has not previously been investigated. Current guidelines (ACSM, 2006) suggest exercising at a minimum of RPE level 13 is required to bring about positive changes in cardiorespiratory fitness. This study aimed to see if a Chinese population using a translated RPE scale regulated exercise at the appropriate intensity in relation to suggested %HRmax guidelines (ACSM, 2006) of 64% – 94%HRmax. A further aim was to assess the reliability of the translated RPE scale when used in production mode at RPE 13.

Method: Forty one healthy Chinese participants (twenty-three females, eighteen males; mean age (SD) 32 (3) years) initially performed a graded cycle test to determine VO2max (34.9 (4.1) ml/kg/min) followed by three perceptually regulated exercise tests at RPE level 13, using a Chinese translated version of the Borg 6-20 scale. This required the participant to instruct the researcher to adjust the workload until a level was achieved that they perceived as RPE 13, participants were given three minutes to adjust the intensity. Once the participant had achieved a workload perceived as RPE 13 they cycled at that workload for four minutes, HR and VO2 were recorded in the last 30 seconds. Each exercise bout was followed by 20 minutes rest. The reliability of the scale was assessed using the 95% limits of agreement (LoA) technique (Bland and Altman, 1986) and intraclass correlations (ICC).

Results: When participants perceptually regulated the exercise at RPE level 13 in the three trials (t1, t2 & t3) they elicited mean %HRmax of 73%, 74% and 73% respectively. LoA (bias(95%LoA) between t1 and t2 were -0.5 (11.51)% and t2 and t3 0.6 (9.43)%). ICC for %HRmax between t1 and t2 were 0.74 and t2 and t3 were 0.78. %VO2 values were 65%, 64% and 66% respectively over the three trials. LoA between t1 and t2 were -0.7 (18.1)% and t2 and t3 were 1.6 (15.8)%. ICC on %VO2 between t1 and t2 were 0.77 and t2 and t3 were 0.80. The narrowing of the 95% LoA and improvements in the ICC in both %HRmax and %VO2 suggest an improvement in reliability by habituation to the RPE scale. The percentage of participants falling within the suggested %HRmax range in each trial was 88%, 93% and 93% respectively.

Conclusions: Perceptually regulating exercise using a Chinese translated RPE scale at level 13 produced a %HRmax which fell within the current recommended guidelines for improving cardiorespiratory fitness and can be used as a general guideline for exercise prescription. The participants also demonstrated the ability to produce similar exercise levels when the procedure was repeated which also improved with practice. Exercise intensity can be regulated using a Chinese-translated RPE scale at level 13 and is a useful tool when heart rate monitoring is difficult.

References
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