in VO_2 were observed among the three AVRGs (F (1, 28) = 9.128, p = .005; range = 13.53 - 23.04 ml/kg/min). However, there were no differences between settings in VO_2 or enjoyment (p > .05). **CONCLUSIONS**: Different AVRGs elicit varying exercise intensities, yet the setting in which they are played does not affect VO_2 or perceived enjoyment. These results suggest AVRGs can be studied reliably across multiple settings (lab, gym, and home) without having to consider environmental influences. As VR systems become more accessible and affordable, future research should continue investigating the effects of AVRGs during at-home play.

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A Superjump® Into ACSM Guidelines

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SuperJump® (SJ) is a fitness activity combining aerobic and anaerobic exercises performed on a mini trampoline. The exercise intensity can be modified by changing countermovement depth, jump height, and frequency. Although it has been hypothesized that practicing SJ may contribute to daily physical activity recommendations, no study has quantified intensity. **PURPOSE:** To investigate heart rate (HR) and perceived exertion responses of a SJ workout. **METHODS:** Seventeen (Males: n=9; Females: n=8) young adults (age: 25.8±2.7 years; height: 1.7±0.1 m; weight: 66.2±12.1 kg) volunteered for the study. The intensity of the activity was assessed by means of HR monitors during a SJ session (30-min). At the end of each bout of exercise, session ratings of perceived exertion (sRPE) on a CR10 scale were recorded. Percentages of age-predicted maximal HR (%HRmax) were utilized to quantify intensity. %HRmax data were categorically separated according to the American College of Sports Medicine (ACSM) classes of intensity (very light: <57%HRmax; light: 57-63%HRmax; moderate: 64-76%HRmax; vigorous: 77-95%HRmax; near maximal to maximal: ≥96%HRmax). Repeated measures ANOVA was used to evaluate differences (p<0.05) in relation to gender and exercise intensity. *Post hoc* analysis was applied using Bonferroni correction. **RESULTS:** No difference emerged for gender for HR and sRPE data. Frequency of occurrence of %HRmax was significantly higher (p<0.005) for the moderate intensity (48.9±34.9%) with respect to very light (5.5±9.5%), light (16.5±24.4%) and vigorous (29.1±37.7%) intensities, while none of the subjects experienced near maximal to maximal values. According to sRPE values (3.1±1.2) subjects rated the SJ session as moderate. **CONCLUSION:** Findings indicate that SJ can be classified as moderate physical activity according to ACSM guidelines. Therefore, SJ may contribute to meet daily physical activity recommendations by representing an alternative form of low-impact aerobic exercise. Further studies should investigate the long-term effects of SJ training on health-related physical fitness parameters.

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A Lower Limb Functional Screening Tool For Predicting Lower Limb Injury: A Prospective Cohort Study

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PURPOSE: The purpose of the current study was to assess the usefulness of the lower limb functional screening tool (LoLiFST) for predicting low back and lower limb injury in active athletes.
METHODS: Fifty athletes (32M,18F; mean age: 19.4 ± 2.5 yrs) from six different sports volunteered. Athlete injury history and general information were recorded. The LoLiFST is based on five lower limb movements in different movement planes, directions, modes, and at varying intensities. Both legs were assessed in a random order and each athlete was given both technique and symptom scores. Intra-rater and inter-rater reliability was evaluated. Participants were followed up for 12 months, and their exposure to sport and injuries were recorded. Independent samples t-tests were performed to determine if a significant difference existed in LoLiFST scores between those injured and non-injured athletes. Receiver operating characteristic (ROC) analysis was employed to assess the instrument's capacity to predict injury.
RESULTS: The inter-rater reliability was 0.900 and the intra-rater reliability was 0.955. Fourteen participants experienced injury within the following 12 months. Injured athletes had significant lower scores than non-injured in both technique and symptom scores of the LoLiFST (df=48, t=4.149, P<0.05; df=16.402, t=2.979, P<0.05). When technique or symptom score alone was included in the ROC analysis, the area under the ROC curve (AUC) scores were 0.793 (P<0.05, 95%CI: 0.649-0.936) and 0.761 (P<0.05, 95%CI: 0.599-0.923), respectively. When technique and symptom scores combined, the AUC discrimination score was 0.835 (P<0.05, 95%CI: 0.709-0.962). When injury history was added into the variable set, the AUC discrimination score was 0.860 (P<0.05, 95%CI: 0.746-0.974), resulting in 86.0% of cases being correctly predicted as low back or lower limb injured/non-injured.
CONCLUSIONS: The new functional assessment tool LoLiFST had excellent intra-rater and inter-rater reliability. The findings from the current study suggest that the technique, reported symptoms, and injury history should be used in combination to maximize its capacity for predicting injuries. Future larger sample size research is warranted to explore the validity of the LoLiFST in predicting low back and lower limb injury in various sports.

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An Automated Excess Minute Ventilation Method To Detect The Respiratory Compensation Point

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Ventilatory changes during incremental exercise to maximum effort are represented as two inflection points: the ventilatory threshold (VT) and the respiratory compensation point (RCP). RCP is not frequently reported and detection methods have not been well validated. **PURPOSE:** To introduce an automated excess minute ventilation (ExVE) method to detect the RCP. **METHODS:** 171 peak cycle tests were performed by 96 healthy subjects (M/F) of varying body weight and training status. Expired air was collected for metabolic gas analysis (ParvoMedics TrueOne™). We compared RCPs from the proposed ExVE and the V-slope method (Davis, et al. 1985). Novel method: We extended the excess VCO_2 ($ExCO_2$) concept used to detect VT (Gaskill et al. 2001) and calculated ExVE as ($[VE^2/VCO_2]$-VE) to determine RCP. The V-slope method may not be capable of providing automatic solutions (Panteleimon et al. 2008). Thus we applied a parametric global method (Lavielle, 2005) to automatically find the first sustained rise in the $ExCO_2$ and ExVE curves. **RESULTS:** The detected RCP in the ExVE curve (Figure a) was located at the point of an increase in both the VE/VO_2 and VE/VCO_2 and a decrease in end-tidal CO_2 ($PetCO_2$) (Figure b) (Jesús et al. 2016). There were extremely strong positive correlations in both RCP Time and RCP VO_2 between the ExVE and V-slope methods (0.934, 0.920). There was no significant difference between the ExVE and V-slope methods in both RCP variables (0.610 and 0.162) (Table). **CONCLUSION:** The ExVE method can determine the RCP. Our novel and automated protocol may increase the methodological consistency in both research and clinical practice.