RESULTS: Linear regression analysis showed a significant relationship between Feeling and RER ($p < .001$) with a strong effect size ($r^2 = 0.559$) and the following regression equation: RER = -0.036*Feeling + 1.033 (95% CI -0.042 to -0.030). Analysis of RPE10+ scale and RER also showed a significant relationship ($p < .001$) and strong effect size ($r^2 = 0.725$) resulting in the following regression equation: RER = 0.039*RPE + 0.795 (95% CI .035 to 0.044). As RER reached levels that indicated increased anaerobic metabolism (i.e.,1.0), Feeling was reported as a value that was neither Good nor Bad (0, Neutral), whereas RPE10+ was reported as a mean of 5.3 (Strong/Heavy).
CONCLUSIONS: Similar to exertion via RPE, affect, via the Feeling scale, is strongly correlated with a change in physiologic intensity, when measured by RER. It appears that combining the measurement of affect with an SPV may enable practitioners to predict certain physiologic phenomenon within ten minutes without the need for metabolic equipment, therefore creating a time- and cost-effective means of determining intensities for exercise prescriptions.

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Individual Effect Of Post-Activation Performance Enhancement After A Re-Warm-Up: Statistically Not Significant But Clinically Meaningful.

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PURPOSE: The primary purpose of this study was to investigate the effect of a simple post-activation performance enhancement [PAPE] re-warm-up on performance. The secondly purpose was to examine individual responses to PAPE.
METHODS: Twenty-eight sub-elite swimmers (males, N=16; females, N=12) underwent a randomized counterbalanced testing regimen (on different days): 1) an experimental training session (TS) consisted of a standard 900 m warm-up followed by a 19 minute passive rest. Thereafter, participants performed the PAPE condition for 60s, and then underwent a 10 min passive rest followed by a 50 m sprint. In the control condition [C] subjects simply sat on a chair for 30 min and then performed the 50 m maximal swim. Performance [time trial] and ratings of perceived exertion [RPE] were collected. The uncertainty in the effect of PAPE on competitive swimming performance was calculated according to the smallest worthwhile change [SWC] and interpreted categorically as "Responders" and "Non-Responders."
RESULTS: Overall, the PAPE stimulus did not demonstrate a significant effect on the 50 m swimming performance [t=-1.850; p=0.075; MD=-0.17 seconds (0.60%)] and the post-exercise RPE [t=-0.679; p =0.503 ; MD=0.14 (1.86%)]. However, 17 of the 28 swimmers [61%; MD=-1.62%] experienced improvements in performance greater than the SWC. Nine swimmers [32%; MD=1.2%] responded negatively, while two swimmers [7%; MD=0.02%] had no change. Nine swimmers [32%; MD=-2.40%] exceeded the threshold of a clinically meaningful effect.
CONCLUSIONS: This study demonstrated that 60s of PAPE stimulus elicited differential effect with clinically meaningful improvements on the 50 m freestyle sprint performance in most of the swimmers (61%).

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The Effects Of Age On Body Composition Differ Between Male And Female Crossfit Exercisers

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Advancing age predicts physiological deterioration. Resistance training helps preserve body composition across the lifespan. Males and females who participate regularly may experience a different time course of decline.
PURPOSE: To evaluate the effects of age and sex on body composition among weight lifters.
METHODS: We assessed 542 men and women on the InBody 770 body composition analyzer. All subjects were active CrossFit members and were evaluated for body weight, body fat mass, body fat percent, skeletal muscle mass, lean leg mass, and arm circumference. Multivariate analyses compared these variables across categorical age groups (10-19, 20-29, 30-39, 40-49, 50-59, 60-69). Linear regression models estimated the effect of age on body composition holding sex constant.
RESULTS: Subjects were 32.2±11.1 years of age, weighed 185.6±46.8lb, had 51.0±33.1lb of fat mass, 26.5±12.0% body fat, 76.3±19.1lb of skeletal muscle mass, 39.3±9.6lb of lean leg mass, and had an arm circumference of 14.1±3.4in. Significant differences were found by age group in body weight ($p=0.001$), body fat mass ($p<0.001$), body fat percent ($p<0.001$), skeletal muscle mass ($p=0.008$), and lean leg mass ($p=0.022$). Arm circumference ($p=0.098$) was not significant. Interaction effects were found with sex in body weight ($p<0.001$), body fat percent ($p<0.001$), skeletal muscle mass ($p<0.001$), and lean leg mass ($p<0.001$). Both sexes increased in body fat percent throughout the lifespan, with body weight reflecting this in men but not women, for whom it remained steady until age 60. Among men, skeletal muscle mass was maintained until age 60 whereas women experienced gradual decline beginning in their third decade. Interaction effects did not reach significant with body fat mass ($p=0.080$) or arm circumference ($p=0.068$). Holding sex constant, each additional year of age predicted a 0.3 percentage point increase in body fat percent ($p<0.001$; 95% CI: 0.238 to 0.388) and a 0.1lb decrease in leg lean mass ($p<0.001$; 95% CI = -0.134 to -0.036), but did not significantly predict change in arm circumference ($p=0.086$).
CONCLUSIONS: Men and women who engage in regular resistance training may experience age-related decline differently. Both sexes are likely to increase in body fat percentage, but men may preserve skeletal muscle mass better under the age of 60.

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Cardio-respiratory Fitness And Cardiovascular Disease Risk Factors Among Medical Students In South Africa

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BACKGROUND: Medical students may need to understand their personal CVD risk factors, CRF level and PA level in order to not only maintain or improve their health but to also assist patients in lifestyle behavior modification.
OBJECTIVES: The aim of this study was to describe the cardiovascular disease (CVD) risk factors, cardio-respiratory fitness (CRF) and physical activity levels of medical students at a South Africa University.
METHODS: Medical students (3rd year of study), in the Graduate Entry Medical Programme (GEMP) at the University of the Witwatersrand, were invited to participate in the study. The PAVS and pre-participation health screening questionnaires were completed and height, weight, waist circumference, blood pressure, blood glucose, and total cholesterol levels were measured during the practical teaching session and used to determine the risk factors for CVD. A sub-maximal cardio-respiratory fitness test was also used to estimate VO2 peak. The number of students meeting the World Health Organization (WHO) physical activity requirements was also determined using the data from the PAVS questionnaire.
RESULTS: A total of 133 medical students were included in the study. The cohort had a median age (IQR) of 22 (2) years; body mass index of 22.9 (6.4) $kg.m^{-2}$ and mean peak VO_2 was 29.1 + 5.9 $ml.kg^{-1}.min^{-1}$. The presence of CVD risk factors included n=11(8.3%) for family history of CVD; n=10(7.5%) for hypertension; n=26(19.5%) for inactivity; n=25(18.8%) for pre-diabetes; n=6(4.5%) for dyslipidaemia, n=10(7.5%) for obesity and n=10(7.5%) for smoking. Lastly, 71% of the students did not meet WHO physical activity requirements.
CONCLUSION: Physical inactivity was the greatest attributable fraction to the CVD risk factors among the medical students and the majority of students did not meet the PA requirements of the WHO. This study highlighted the need for improving physical activity levels among medical students .

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Virtual Cardiorespiratory Fitness Testing During The Covid-19 Pandemic Using A Variable Height Step Test

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Heart rate (HR) responses to aerobic step tests are widely used to estimate cardiorespiratory fitness. However, all available step tests require a prescribed step height, and cannot be done in the home without a standardized aerobic step. Amid the COVID-19 pandemic, it has been difficult for fitness professionals to provide standard aerobic steps to their clients.