METHODS: Eighteen middle-aged adults (CT: N = 9, 49.7±8.4 yrs; RT: N = 9, 49.3±11.7 yrs) completed 4 weeks of either CT or RT exercise. Pre- and post-intervention, CV health measures, including fasting glucose, blood lipids, carotid artery intima media thickness (IMT), body composition by bioelectrical impedance analysis (BIA) and central and brachial BP were determined. Fitness testing involved measurement of maximum oxygen consumption (Vo_{2max}), and indices of balance and strength.
RESULTS: Between group analyses revealed no differences between groups with exercise training, although several variables tended to improve in both groups. In the CT group, we noted improvements in central BP (SBP: 108.9±11.6 to 104.9±7.8; DBP: 76.1±8.2± to 72.3±5.6 mmHg, p<0.05). No changes in body weight, lean mass or fat mass occurred in the CT group; however, body weight (84.5±20.7 to 83.8±20.7 kg), lean mass (57.5±15.8 to 59.5±15.8 kg), and body fat (31.9±8.6 to 29.0±7.9 %) all changed in the RT group (p<0.05). For fitness measures, the CT group improved balance (right leg: 78.3±70.4 to 152.2±122.1; left leg: 41.2±39 to 167.9±206.6 sec) and 2-min stair climb (266.1±37.8 to 314.1±46.7 stairs), while the RT group improved 12-step sprint (3.3±0.5 to 2.7±0.4 sec) and maximum strength measures (leg press: 164.3±91.0 to 178.9±92.9 kg; bench press: 29.1±43.3 to 32.9±43.9 kg) (all p<0.05). Both groups improved wall sit (CT: 44.5±18.2 to 96.4±56.9; RT: 69.6±42.5 to 100.1±65.7 sec, p<0.05). No changes in lipids or glucose were found in either group.
CONCLUSION: Our results suggest that 4 weeks of CT or RT improves CV health and fitness measures, with no differences between these two types of training.

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Acute Effects of the Power Snatch on Vertical Jump Performance

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(No relationships reported)

Postactivation potentiation can increase a muscle's ability to generate force. In practical terms, this may mean that acute weight lifting could improve vertical jump performance.
PURPOSE: To examine vertical jump performance after performing prior power snatch exercises.
METHODS: Following a standardized warm up, ten trained Olympic-style weight lifters performed power snatch exercises at increasing intensities (40% 1 repetition max [RM], 60% 1RM, and 80% 1RM) followed by vertical jump performance. Their vertical jump was measured using a Vertec in a control condition and following each power snatch intensity. Each condition was counterbalanced and separated by at least 48 hours. Two-way repeated measures ANOVA analyzed each lift intensity using vertical jump height as the dependent variable. Also, vertical jump performance in every post-power snatch condition was compared to control using a Student's t-test.
RESULTS: There was no statistical difference in jump height in the repeated measures ANOVA or the t-test. However, there were small improvements across group means (0.3 to 0.6 inches) in the power snatch conditions. Power analysis for that effect size showed that 58 subjects would be needed to demonstrate significance.
CONCLUSION: Power snatch exercise may be either inappropriate for eliciting postactivation potentiation or the effect was not large enough to demonstrate improvement in vertical jump performance. Future studies could examine this effect using different exercises, a single gender, or more experienced weight lifters.

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Hip, Knee and Ankle Joint Power in Three Weighted Squat Jump Techniques

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INTRODUCTION: The vertical jump is one movement used to train and assess power output of the legs. Specifically, loaded vertical jumps have been proven to increase vertical jump performance in a training environment.
PURPOSE: The purpose of this study is to evaluate three loaded vertical jump training methods: the barbell back squat jump (BB), the goblet squat jump (GB) and the dumbbell squat jump (DB) on lower limb, peak joint powers.
METHODS: Nine male volunteers (age: 22.1 ± 1.2 yrs; Ht: 1.75 ± 0.05 m; Wght: 76.0 ± 10.0 Kg) with at least 2 yrs experience in weight lifting performed 5 trials in each condition of the goblet, back and dumbbell squat jumps (randomized order) utilizing 10% of their 1-RM back squat as the experimental weight. Ten infrared cameras (200Hz) and an AMTI force plate (1,000Hz) collected a full body, 3-marker per segment model and ground reaction force data. All data were smoothed using a 4^{th} order Butterworth filter of 20Hz. GRF data were interpolated down to 200Hz to temporally align camera and force data. Commercial software was used to calculate 3D lower limb joint angles, moments and powers via inverse dynamics. Differences in peak ankle, knee and hip power values during the jump were compared with RMANOVA (alpha ≤ 0 .05) with Bonferroni post hoc tests.
RESULTS: DB resulted in greater COM maximal jump height compared to BB (p < .0001) and GB (p = .005). No differences were noted for peak hip joint power (p = .23). Peak knee power was larger for DB compared to BB (p = .01) but not GB (p = .06). At the ankle, DB produced greater power than BB (p = .01) and GB (p < .001); but no differences were noted between GB and BB (p = .40).
CONCLUSION: DB produced a greater COM maximal jump height, and greater knee and ankle powers. DB may be a superior training tool to produce increased knee and ankle joint powers.

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Assessment of Sprint Performance Following the Use of Resistance Training Masks During Dynamic Warm-Up

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A proposed method of increasing warm-up intensity without inducing muscular fatigue is using a respiratory training mask to provide breathing resistance. Despite the lack of research-based evidence and equivocal anecdotal evidence, this particular warm-up strategy does appear to be of increasing popularity among both athletes and active individuals.
PURPOSE: The purpose of this study was to investigate sprint performance following the use of training masks during dynamic warm-up in Division I American football athletes.
METHODS: Seventeen male (mean±SD: age = 17.94±.75 years, weight = 104.43±23.02 kg, height 184.93±7.06 cm) NCAA Divison I, American football athletes from a Midwestern university were recruited to participate in this study. Athletes were informed of risks, and completed 3 testing sessions separated by 7 days each. All testing sessions took place at the same time of day on artificial turf in the university's indoor training facility. Testing sessions began with a warm-up (WU) under the instruction of a member of the university's Strength and Conditioning staff. The WU consisted of dynamic exercises targeting the lower body musculature. During the initial visit, participants completed the dynamic WU and tested on 5x10-meter sprints without a respiratory training mask and all data collected during the initial visit were used to establish baseline measurements. During the second and third visits, participants were randomly selected to complete the WU with the respiratory training mask set to simulate an altitude 3,657.6 (EXP) m or 914.4 m (SHAM). Upon completion of the WU, participants removed the mask and performed 5 × 10-meter sprints. A one-way repeated measures