

zones using python coding script. Values were compared using two-tailed t-tests.

RESULTS: Performers spent an average of 2.06 hours/game as the mascot, *Willie the Wildcat*, and 4.23 hours/game total (mascot performance + spirit team performance). While performing as the mascot, team members had significantly higher average heartrate (146 vs 108, $p=0.002$); average maximum heartrate (181 vs 164, $p=0.004$); and time spent within heartrate zones 3, 4, and 5 (70-80%, 80-90% and 90%-100% of HRmax respectively) than while performing as spirit-team. Performers also had significantly higher average core body temperature (100.6 vs 99.5, $p=0.002$), and despite as-needed hydration, team members lost an average of 2.69 pounds per performance as the mascot compared to 1.73 pounds as spirit team.

CONCLUSIONS: Mascot-performers undergo significant exertion for extended periods of time. Participants will likely benefit from professional athletic and health screening required for most official college sports.

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Comparative Effects Of Time-restricted Feeding Versus Normal Diet On Physical Performance And Body Composition In Healthy Adults With Regular Exercise Habits: A Systematic Review And Meta-analysis

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(No relevant relationships reported)

BACKGROUND: This systematic review and meta-analysis aimed to compare the effects of time-restricted feeding (TRF) versus normal diet (ND) on physical performance and body composition in healthy adults with regular exercise habits. The study seeks to provide evidence to optimize physical performance and body composition through dietary interventions.

METHODS: MEDLINE, PubMed, Embase, SPORTDiscus, Web of Science, CINAHL, and the Cochrane Central Register of Controlled Trials (CENTRAL) electronic databases were searched for relevant studies. Randomized controlled trials (RCTs) that examined the comparative effects of TRF versus ND on physical performance and body composition in healthy adults with regular exercise habits were included. Subgroup analyses were conducted based on the duration of intervention and type of exercise. Physical performance was analyzed using standardized mean differences (SMDs) and 95% confidence intervals (CIs), whereas body composition parameters were analyzed using mean differences (MDs) and 95% CIs. The quality of the included studies was examined using the revised Cochrane risk-of-bias tool.

RESULTS: In total, 15 RCTs with 319 participants were included in the systematic review. In comparison with the control group, TRF significantly decreased body weight (MD = -1.80 kg, 95%CI -2.74 to -0.87, $p = 0.00$, $I^2 = 0.0\%$), body fat (MD = -1.50%, 95%CI -2.21 to -0.79, $p = 0.00$, $I^2 = 0.0\%$), fat mass (MD = -1.52 kg, 95%CI -2.02 to -1.02, $p = 0.00$, $I^2 = 0.0\%$). No between-group differences in physical performance-related variables and fat-free mass were found. According to the result of the risk-of-bias assessment, three studies showed a low risk of bias, 11 showed some concerns, and 1 showed a high risk of bias.

CONCLUSION: The review has demonstrated the effectiveness of TRF combined with daily exercise training in reducing body fat while maintaining fitness and strength, compared to ND with an equivalent amount of daily exercise training. The finding underscores the effectiveness of TRF as a valuable nutritional strategy to optimize body composition and maintain physical performance in healthy adults engaged in regular exercise.

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Acute Effects Of Using Mask During Exercise On Physiological Indices

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Wearing a mask during exercise may impede breathing, cause dyspnea, exacerbate perceptual feel, discomfort accompanied by sympathetic stress response.

PURPOSE: Investigate the use of cloth mask (CM) on time-to-exhaustion (TTE), physiological indices, OMNI Rate of Perceived Exertion (RPE) and Ratings of Mask Discomfort (RMD) on lactate threshold (LT) and peak exercise.

METHODS: Sixteen healthy males (age: 30.6 ± 8.4 years; height: 1.72 ± 0.04 m; weight: 67.0 ± 5.8 kg; body mass index (BMI): 22.6 ± 1.9 kg·m⁻², body fat percentage: 16.0 ± 4.7 %; maximal oxygen consumption (VO_{2max}): 44.2 ± 4.8 mL·min⁻¹·kg⁻¹) volunteered and were randomly assigned to either CM or no mask (NM) with a cross over design and a 7-day washout period. Body composition was measured using Bioimpedance Analysis machine. Participants underwent a discontinuous incremental running treadmill protocol.

RESULTS: ANOVA repeated measures (df, 1, 8) indicated significant differences between overall variables and groups ($F = 10.75$, $p = 0.001$); between groups for oxygen uptake (VO₂) (NM: 32.02 ± 8.78 vs CM: 26.92 ± 7.34 mL·kg⁻¹·min⁻¹, $p = 0.00$); Overall mask discomfort (OMD) (NM: 1.96 ± 1.74 vs CM: 4.02 ± 2.11 , $p = 0.00$); Breathing resistance (BR) (NM: 1.69 ± 1.69 vs 4.36 ± 2.18 , $p = 0.00$); hotness, warmth, stuffiness (HWS) (NM: 1.64 ± 3.46 vs CM: 3.46 ± 2.14 , $p = 0.00$); Odor (NM: 0.20 ± 0.59 vs CM: 0.42 ± 0.94 , $p = 0.00$). Significant differences were found at peak exercise between conditions for TTE (NM: 122.00 ± 13.23 vs CM: 106.00 ± 17.65 min, $p = 0.00$), VO_{2max} (NM: 44.17 ± 4.84 vs CM: 31.73 ± 9.00 mL·kg⁻¹·min⁻¹, $p = 0.00$); heart rate (NM: 185.75 ± 10.75 vs CM: 178.63 ± 1.98 beats·min⁻¹, $p = 0.00$); minute ventilation (NM: 86.03 ± 12.66 vs CM: 55.77 ± 13.30 L·min⁻¹, $p = 0.00$), lactate (NM: 7.44 ± 1.01 vs CM: 6.04 ± 1.98 mmol·L⁻¹, $p = 0.001$) and respiratory rate (NM: 52.67 ± 9.43 vs CM: 48.00 ± 8.79 breaths·min⁻¹, $p = 0.005$).

CONCLUSION: Amidst significant changes in physiological indices associated with mask during exercise, there were higher perceptual discomforts though generally tolerable by healthy active population from light exercise intensity to LT. CM during exercise at high intensity levels are generally not advisable as almost all indices were significantly different and may potentially cause adverse physiological or physical response.

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Blood Pressure Responses To Serial Wingate Testing With And Without An Audience

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Previous studies have found changes in cycling performance based on audience presence, but the mechanisms responsible are not fully understood.

PURPOSE: To measure the blood pressure response to Wingate tests performed with and without an audience.

METHODS: We tested 37 subjects (22 females, 15 males) on a Wingate cycle ergometer. Each subject was tested twice, 72 hours apart. One trial was performed with age-matched audience members. The order of the trials was assigned in a counter-balanced design. Blood pressure was collected 60 seconds before and 60 seconds after each cycling session. Paired-samples t-tests compared blood pressure responses in the two sessions. Linear regressions assessed the effect of blood pressure response on the difference in Wingate power based on audience presence.

RESULTS: Subjects were 20.4 ± 1.4 years of age. During session 1, pretest systolic blood pressure (SBP) was 115.8 ± 9.3 mmHg and diastolic pressure (DBP) was 63.8 ± 6.7 mmHg. No differences were observed in pretest SBP ($p=0.932$), posttest SBP ($p=0.135$), pretest DBP ($p=0.551$), posttest DBP ($p=0.341$), pretest pulse pressure ($p=0.564$), or posttest pulse pressure ($p=0.436$) between audience conditions. From session 1 to session 2 (regardless of audience presence), there were no differences in pretest SBP ($p=0.796$), posttest SBP ($p=0.246$), pretest DBP ($p=0.551$), posttest DBP ($p=0.494$), pretest pulse pressure ($p=0.768$), or posttest pulse pressure ($p=0.521$). From pretest to posttest, SBP increased 21.5 ± 10.2 mmHg without an audience ($p<0.001$; 95% CI: 18.0 to 24.9 mmHg) and 24.0 ± 11.5 mmHg with an audience ($p<0.001$; 95% CI: 20.2 to 27.9 mmHg); the difference was not significant ($p=0.202$). From pretest to posttest, DBP decreased 12.5 ± 12.7 mmHg without an audience ($p<0.001$; 95% CI: -8.3 to -16.7 mmHg) and 10.4 ± 11.5 mmHg with an audience ($p<0.001$; 95% CI: -6.5 to -14.2 mmHg); the difference was not significant ($p=0.224$). Linear regression found the difference in SBP increase based on audience presence did not predict the difference in peak ($p=0.786$) or average ($p=0.803$) Wingate power based on audience presence.

CONCLUSIONS: Audience presence did not influence blood pressure response to a Wingate test, and Wingate power was not predicted by blood pressure response. Performance improvement is likely explained by other variables.

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Enhancing Physical And Cognitive Function In The Elderly Through Combined Exercise: Preliminary Results Of Korean National Healthy Aging Project

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Korea's rapidly aging population underscores the urgent need for programs that enhance the well-being of the elderly. Aging factors contribute to muscle atrophy and cognitive changes, leading to functional problems, injuries, and diseases. There is an ongoing debate regarding the beneficial exercises for the elderly, mostly for maintaining their functional abilities and physiological health.

PURPOSE: Our preliminary results from the Healthy Aging Project, examining the impact of the cost-effective and accessible exercise programs on functional performance of older people and to determine the long-term maintenance of intervention through self-directed follow-up period.

METHODS: Ninety healthy individuals aged ≥ 65 years were randomly assigned to the walking (WG), resistance exercise + walking (RWG), or control (CG) groups. WG were given instructions to adhere to their age-adjusted weekly step goals, as per national walking guidelines. RWG participated in a center-based resistance exercise with elastics band alongside the same walking regimen. In contrast, CG were just asked to maintain their usual level of physical activity. We employed smartwatches to monitor the weekly step counts and physiological data (e.g., heart rate, calories) of both exercise groups. The participants' cognitive and physical function were assessed at pre, post (week 12), and follow-up (week 24).

RESULTS: 79 participants (age 73.8 ± 4.9 yrs) completed the study. When comparing pre- and post-data, significant group-by-time interactions were found in the 5-time sit to stand test ($P=.013$). After adjusting for baseline and gender, combined exercise effects were observed in handgrip strength ($P=.046$), timed up & go ($P=.018$), and knee extensor strength ($P=.042$). WG only improved in the stroop ($P=.024$) and 5-time sit-to-stand ($P=.036$). Despite declining trend during follow-up, values remained higher than baseline, with significant pre vs. follow-up differences in knee extensor strength and the stroop tasks in RWG.

CONCLUSION: Combined resistance and walking exercises yields lasting, comprehensive benefits, as demonstrated by the significant and sustained improvements in lower body function and upper body strength over the follow-up period. This underscores the value of accessible exercise programs for older adults.

This research is supported by the Bio & Medical Technology Development Program of the National Research Foundation (NRF) funded by the Korean government (MSIT) (No. 2020M3A9D8038660).

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Effects Of 12-week Tai Chi Chuan Class On Dynamic Balance And Flexibility In Female University Students

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Tai Chi Chuan may improve upper and lower-body flexibility.

PURPOSE: This study evaluated the effects of a 12-week Tai Chi Chuan intervention on female university students' flexibility and dynamic balance.

METHODS: A one-group pretest-posttest design was employed. Seventy-six females (20.4 ± 1.7 years; 1.64 ± 0.18 m; 56.2 ± 8.64 kg; BMI 21.9 ± 3.4 kg-m⁻²) attended Tai Chi Chuan class for a total of 12 weeks, consisting of one 90-min session per week. All participants have no previous experience with the Star Excursion Balance Test (SEBT) and Tai Chi Chuan practice. We employ the sit-and-reach test and SEBT to assess the lumbar and hamstring flexibility and dynamic balance before and after the 12-week intervention. Participants performed the anterior (ANT), posterolateral (PL), and posteromedial (PM) reach directions of both legs in the SEBT.

RESULTS: A statistically significant increase in post-intervention normalised reach distances from 4.8% to 9.7% was seen in all directions of both legs. The paired sample t-test results also displayed a significant normalised reach distance difference before and after the intervention. Left leg: (ANT: $76.8 \pm 9.5\%$ versus $67.0 \pm 13.1\%$; $t(75)=5.78$, $P<0.01$; PL: $88.0 \pm 11.8\%$ versus $81.4 \pm 17.3\%$; $t(75)=3.29$, $P<0.05$; PM: $91.2 \pm 10.9\%$ versus $86.7 \pm 17.0\%$ $t(75)=2.23$, $P<0.01$); Right leg: (ANT: $75.2 \pm 10.8\%$ versus $68.0 \pm 16.6\%$; $t(75)=3.25$, $P<0.01$; PL: $88.6 \pm 10.5\%$ versus $83.7 \pm 17.4\%$; $t(75)=3.17$, $P<0.01$; PM: $92.3 \pm 11.1\%$ versus $85.9 \pm 17.2\%$; $t(75)=2.54$, $P<0.05$). The increase in flexibility was observed after the intervention (38.4 ± 5.4 cm versus 36.4 ± 5.5 cm; $t(75)=4.64$, $P<0.01$).

CONCLUSION: The 12-week Tai Chi Chuan intervention significantly enhanced the female university students' dynamic balance ability and flexibility.

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Effects Of Different Wearable Resistance Placements On Sprinting And Change Of Direction: A Review And Practical Applications