### Table S1. Characteristics of studies

| Study (country) | Design and Sample | Green Exercise Conditions | Non-Green Exercise Conditions | Outcomes (measure) |
|----------------|-------------------|---------------------------|-----------------------------|-------------------|
| Byrka & Ryczko 2018 (Poland) | **Design:** RCT **Acute** **Sample:** 64 dancers (28, outdoor group; 36, indoor group) with least 3 months of salsa experience (80% female, 20% male). Age (mean ± SD): 29 ± 9 y | 40-min of outdoor salsa dancing at moderate-vigorous intensity **Description:** “park condition” in Southern Park in Wrocław. “The area was surrounded by a knee-high wall and old trees on two sides.” **Temperature:** NR | 40-min of indoor salsa dancing at moderate-vigorous intensity **Description:** “dance room condition... 30 square meters in size, with 4-meter-high ceilings, mirrors on one wall and windows on the other” **Temperature:** NR | Affect (combined positive emotions via EFI); Physical activity (via accelerometers); Physical exhaustion (via EFI) |
| Calogiuri 2018 (Norway) | **Design:** non-RXT (outside trial first, random order of other conditions) **Acute, 3 sessions separated by at least 15-min** **Sample:** 26 healthy university students and employees (46% female, 54% male). Age (mean ± SD): 26 ± 8 y BMI (mean ± SD): 23.1 ± 5.0 kg/m² | 1) 10-min self-paced walk outdoors in a natural environment. **Description:** “a paved trail by a river, with view of grassland and some trees” **Month:** May **Temperature:** 7-17°C 2) 10-min self-paced walk on a manually driven treadmill, with VR goggles and headphones reproducing a 360-video and sound of the same walk as above (1). **Temperature:** 21°C. | No non-green exercise intervention included. | Affect (PAAS); Effort (6-20 Borg RPE scale); Enjoyment (1-item scale); HR; Perceived potential for restoration (PRS); Walking speed (outdoors: GPS, Indoors: treadmill computer); Presence and cyber sickness (VR only). |
| Calogiuri 2015a (also 2015b) (Norway) | **Design:** RCT **Brief longitudinal, 2 sessions with 2 week and 10 week follow-up** **Sample:** 14 healthy employees, sedentary or moderately active (50% female and 50% male) Age (mean ± SD): 49 ± 8 y BMI (mean ± SD): 25.2 ± 2.5 kg/m² | Two sessions of 25-min outdoor cycling, and 20-min outdoor strength session using elastic rubber bands with handles (intensity: 55% HRR, overall) **Description:** “track in a forest area nearby both workplaces. Strength | Two sessions of 25-min indoor spinning cycling, and 20-min strength session using elastic rubber bands with handles (intensity: 55% HRR, overall) **Description:** “‘typical’ exercise setting (gym-hall), and, the subjects did not have visual contact with nature.” | Affect (PAAS); BP; Effort (6-20 Borg RPE scale); Enjoyment (1-item scale); Exercise behaviour (modified LTEQ); Future exercise intention (3-item scale TBP-based); HR (% of HRR); Perceived potential |
| Study (Year, Country) | Design | Sample | Sample Characteristics | Description | Indoor Temperature | CRF (6MWT distance) | Walking Performance (self-selected and max speed over 30 m) | Mood (Polar HR monitor); Mood (BRUMS); Effort (Borg 6-20 RPE scale); Affect (FS, FAS, and EFI); Intention to exercise (single-item percentage scale); PA enjoyment (PACES). |
|-----------------------|--------|--------|------------------------|-------------|-------------------|-------------------|----------------------------------------------------------|---------------------------------------------------------------|
| Carvalho 2010 (Sweden) | RXT    | Acute, 3 trials separated by at least 5-min rest | 36 post-stroke patients (31% female and 69% male) | Outdoor 6MWT at self-selected on a 30 m course and 30 m walk test at max speeds. Description: “an outdoor walkway in a calm garden and quiet neighborhood” Temperature: NR (“the walkway was free of snow and ice and was treated with sand”) | NR  | CRF (6MWT distance); Walking performance (self-selected and max speed over 30 m). | | |
| Duncan 2014 (UK)      | Non-RXT, counterbalanced | Acute, 2 visits separated by 24 h | 14 year 5 (ages 9-10) primary school children (50% female and 50% male) | 15-min of cycle ergometer exercise at a moderate intensity (50% HRR and cadence of 70–80 rpm) while watching a nature video Description: “film of cycling in a forest environment (Through the Forest; World Nature Video, Lunteren, The Netherlands)” Temperature: NR | NR | | |
| Focht 2009 (USA)      | RXT, counterbalanced | Acute 2 single visits 48 h apart | 35 active college-age women Ethnicity: 30 Caucasians, 4 African Americans, 1 Native American Age (mean ± SD): 22.1 ± 1.7 y BMI (mean ± SD): 22.6 ± 2.6 kg/m² LTEQ PA (mean ± SD): mild, 3.3 ± 2.6 | 10-min outdoor walk at a self-selected intensity (59 ± 8 % HRmax) Description: “standardized route on sidewalks and walking paths”. Clear views of nature such as grass, trees, and plants.* Temperature: 21°C (range: 14-28°C) | 21°C (range: 14-28°C) | 10-min walk at a self-selected intensity (57 ± 8 % HRmax) on an indoor treadmill Description: “laboratory setting” Temperature: NR | |
| Study                  | Design                  | Sample                                                                 | Temperature                  | Measures                                    |
|-----------------------|-------------------------|------------------------------------------------------------------------|------------------------------|---------------------------------------------|
| Fuegen 2018 (USA)     | Quasi-RCT Acute         | 181 undergraduate psychology students (41 in outdoor green exercise group, 52 in indoor virtual green exercise group, 32 in outdoor resting group, and 56 in virtual green resting group) (60% female and 40% male) | NR, but above 0°C, and “no evidence that variations in the weather were related to changes in mood or attention” | Affect (PANAS); Attention (backward digit span task and Symbol digit Modalities Test); Mood (AD-ACL) |
|                       |                         | Ethnicity: 79% Caucasian, and 9% African American                      |                              |                                             |
|                       |                         | Age: 21.6 ± 7.69 y                                                     |                              |                                             |
|                       | 1) 15-min outdoor walk at a “comfortable pace”.                        |                           |                              |                                             |
|                       | Description: “route circled a lake and included views of both natural elements (i.e., trees, small plants, lake) and built elements (e.g., classroom buildings, parking lot).” (images provided) |                              |                                             |
|                       | 2) 15-min treadmill walk at a “comfortable, self-selected speed”.      |                           |                              |                                             |
|                       | Description: “laboratory room equipped with a treadmill, computer, projector, and screen” Participants viewed via projector screen (140 cm tall · 147 cm wide) sights seen by a participant who walking along the same path as the outdoor exercise group. |                              |                                             |
|                       | Temperature: NR                                                     |                           |                              |                                             |
| Gatersleben 2013 (UK) | RCT                     | 34 students (17 in nature group and 17 in laboratory group) (59% female and 41% male) | NR                           | Affect (ZIPERS); Experience of visiting country parks (1-item); Fatigue task (amended Stroop task created using E-Prime 2.0 which used both colours and shapes); Attention (NCPCT); HR (digital BP monitor). |
|                       |                         | Age (mean ± SD): nature group, 23.2 ± 8.2 y; laboratory group, 20.9 ± 5.0 y |                              |                                             |
|                       | 1) Two separate nature walks at participants “own speed”, one in a) high prospect, low refuge (high levels of accessibility and prospect and few hiding places), and one in b) low prospect, high refuge (less accessible environments with low levels of prospect and many hiding places). Average walk duration: laboratory, 9.1 |                              |                                             |
|                       | 2) No non-green exercise intervention included.                       |                           |                              |                                             |
| Study                        | Design                      | Sample Description                                                                 | Temperature |
|-----------------------------|----------------------------|------------------------------------------------------------------------------------|-------------|
| Harte 1995 (Australia)      | Non-RXT, counterbalanced   | 12 km run completed course on less than 45-min                                      | NR          |
|                             | Acute, 4 single visits on separate days | Description: “12km run outdoors on a designated route around James Cook University campus” |             |
|                             | Sample: 10 male amateur triathletes or marathon runners | Mean (range) age: 27 (18-37) y                                                    |             |
| Irandoust 2017 (Iran)       | RCT, parallel group        | Four 1-hour outdoor exercise sessions/week for 12 weeks. Exercise sessions: 5-min stretching, 50-min running at target HR 55-75% (Intensity progression: weeks 1-2, 55%; weeks 3-4, 65%, weeks 5-12, 75%) and RPE 11-12, and 5-min stretching | NR          |
|                             | Longitudinal, 12 weeks     | Description: “outdoor conditions”*                                                 |             |
|                             | Sample: 75 “severely depressed women” with Vitamin D deficiency (15 outdoor PA with vitamin D, and 15 without vitamin D; 15 indoor PA with vitamin D, and 15, without vitamin D; 15 control) | Age (mean ± SD): 43.2 ± 12.4 y BMI (range): 30.0-35.0 kg/m^2                    |             |
| Kerr 2006 (Japan)           | Non-RXT, counterbalanced   | Four 1-hour indoor exercise sessions per week for 12 weeks (same structure and intensity of outdoor condition) | NR          |
|                             | Acute, 2 single visits 1 week apart | Description: “treadmill walking under supervision at a health club.”             |             |
|                             | Sample: 44 male students, recreational (50%) and competitive (50%) runners | Age (mean ± SD): recreational runners,                                         |             |
|                             |                             | Description: “participants ran 5 km on a tree-lined footpath… outdoor running pathway ran alongside two |             |
|                             |                             | 5 km run at 60% HRR in natural environment                                          |             |
|                             |                             | Description: “treadmill located in the university sports medicine laboratory”       |             |
| Study | Design | Sample | Age (mean ± SD) | BMI (mean ± SD) | PASE PA (mean ± SD) | Environmental preference (indoor/outdoor) | Description | Temperature | Months | Temperature | Description |
|-------|--------|--------|----------------|----------------|---------------------|---------------------------------------------|-------------|-------------|---------|-------------|-------------|
| Lacharite-Lemieux 2015 (also 2016) (Canada) | RCT, parallel groups | 23 healthy, sedentary postmenopausal women divided into two groups (11, indoor, and 12, outdoor) | indoor, 59.4 ± 3.8 y; and outdoor, 62.0 ± 5.5 y | indoor, 25.7 ± 1.8 kg/m²; and outdoor, 25.4 ± 1.9 kg/m² | indoor, 148.0 ± 75.2 kcal/wk; and outdoor, 148.3 ± 54.5 kcal/wk | indoor, 5/6; and outdoor, 5/7 | Three weekly 1-hour mixed aerobic (10-min: ‘performing movements’ and 20-min: circuit training; intensity 65%-95% HRmax) and resistance training (15-min) sessions conducted in outdoor natural park | NR | Apr-Jul | NR | Research Center on Aging... The floor was carpeted and the room had many windows, with a view of the parking lot on both sides. |
| McMurray 1988 (USA) | Non-RXT | 8 male runners | 21-41 years | 70.2 ± 1.3 kg | 59 ± 3 ml/kg/min | | 10 mile outdoor run (same intensity as indoor run) | | | 10 mile run on indoor treadmill at speed and grade setting equal to 70% VO2 max | Indoor “laboratory” setting | | | Affect (GAS); VO2 (via open circuit spirometry and Douglas Bags); HR (via ECG and palpitation); Plasma beta-endorphin and lactate concentrations (via blood samples). |
| Study     | Design | Sample | Description | Month/Temperature/Humidity/Wind Speed | Parameters Measured |
|-----------|--------|--------|-------------|--------------------------------------|--------------------|
| Mieras 2014 (USA) | RXT, counterbalanced Acute, 2 sessions (no fewer than 2 days and no longer than 2 weeks apart) | 12 recreationally trained male cyclists | 40 km outdoor cycling on set course at self-selected intensity (consistent effort) | Aug-Oct | VO$_{2max}$ (Mean ± SD): 53 ± 2 ml/kg/min |
| Niedermeier 2017a (Austria) | RXT | 42 healthy adults (48% female and 52% male) | 3-h of outdoor mountain hiking in groups of five (6 km of uphill walking in ~1.5 h to 15000m at average speed 4 km/h; 10-min rest; walking downhill for 70-min at average speed 5.2 km/h) | May, Aug, Sept/Oct | Temperature: NR |
| Niedermeier 2017b (also 2017b) (Austria) | RXT Acute 3 single sessions with mean time between sessions of 1 week (1-14 day range) | 48% female and 52% male | 3-h of indoor treadmill walking in groups of five (6 km of walking uphill on inclination of 10% for 1.5 h at 4 km/h; 10-min rest; 70-min of level walking at average speed 5.2 km/h) | | Affect (FS, FAS); Affective states (MSS & STAI); BP; Effort (Borg 6-20 RPE scale); HR; Performance power output (power meter); Skin temperature (Thermostor patch); USG (via digital refractometer). |
| Reference | Design | Sample | Sample Description | Temperature | Outcome Measures |
|-----------|--------|--------|-------------------|-------------|------------------|
| Nisbet 2011 (Canada) | RCT x 2 | Study 1: 150 University students (57% female, 37% male, and 6% unspecified) | 1) 17-min walk in nature of groups of 1-11 students. **Description**: “walking and biking path along the Rideau Canal... a green corridor... 8 km through the heart of Ottawa... relatively picturesque... urban nature.” | 2.5-14.6°C (“Walks conducted in Fall on days with no rain.”) | Affect (PANAS); Nature Relatedness (INS scale); Relaxation, Fascination, curiosity, and interest (modified PANAS scale). |
|          |        | Study 2: 80 participants (no participant characteristics were reported) | 2) Participants received description of walk and rated their anticipated effect before walking in a different outdoor environment to above **Description**: “on-campus... walking path between a road and a river that borders the campus.” |  | |
| Peacock 2007 (UK) | Non-RXT | 20 participants (65% female and 35% male) | 30-min outdoor walk. No intensity provided but “continuous walking was preferred... participants were allowed to stop briefly to admire the scenery... social interaction was also encouraged” **Description**: “Belhus Woods Country Park, which has a diverse landscape of woodlands, grasslands and lakes.” | NR | Enjoyment (via 1-5 Likert scale); Mood (POMS); Self-esteem (RSE scale). |
|          |        | Age range: 31-70 y (aged 31-50 y: 47%; aged 51-70 y: 53%) |  |  | |
| Plante 2003 (USA) | RCT, parallel groups | 154 undergraduate psychology students (66% female and 34% male) | 1) 20-min brisk (~3 mph) outdoor walk. **Description**: “Garden at the campus of Santa Clara University”* | NR | Mood (AD-ACL); Social Desirability or defensiveness (MC-SDS). |
|          |        | Age: NR | 2) 20-min VR with walking (speed: 2.7-3.5 mph) in laboratory. **Description**: “No visual stimulus was presented before the walk to the participants” |  | |

*Note: Details about the study design and sample characteristics are sourced from the referenced studies. The table includes summaries of the study designs, sample sizes, and outcomes measured, with specific details about the environments and interventions used in each study. The table aims to provide a comprehensive overview of the studies conducted by Nisbet in 2011, Peacock in 2007, and Plante in 2003, focusing on the acute effects of nature exposure on mental well-being.
| Study          | Design          | Sample Size | Age (mean ± SD) | Exercise Interventions                                                                 | Mood Measures       |
|---------------|-----------------|-------------|-----------------|----------------------------------------------------------------------------------------|---------------------|
| Plante 2006   | RCT, parallel groups | 112 students | 19 ± 1 y        | 1) 20-min brisk outdoor walk (speed ~4.8 km/h) 2) 20-min walking (speed: 4.3–5.6 km/h) on a laboratory treadmill while watching a video projected on a screen of the same route around campus that walkers in condition 1 (sunny day) | Mood (AD-ACL); PA enjoyment (PACES); Social Desirability or defensiveness (MC-SDS). |
| Plante 2007   | RCT, parallel groups | 88 students  |                 | 1) 20-min moderate intensity walk (60-70% HRmax) along a prescribed route on the university campus. 2) Same walk as above but accompanied by a friend All conditions performed “same exercise task in terms of type and intensity of exercise.” | Mood (AD-ACL); PA enjoyment (PACES). |
| Rider 2016    | RXT, counterbalanced |             |                 | 10-minute (~0.5 km) nature walk (intensity not reported) 10-minute (~0.5 km) indoor walk (intensity not reported) | Memory (Free recall test, Forced-choice recognition) |
| Study 1) participants studied a word list, then walked; Study 2) participants walked, then studied a word list. **Sample**: Study 1) 24 undergraduate students (83% female and 17% male) Mean age: 22 y Study 2) 24 undergraduate students (79% female and 21% male) Mean age: 22 y | **Description**: “walk through a number of stands of trees, bushes, and grassy areas along a relatively quiet asphalt path on University campus.” (image provided) **Month**: Sept-Oct 2014 **Temperature**: -5°C to 21°C (weekday mornings or afternoons) | “hallways on three floors of the University building and did not provide much exposure to natural or urban outdoor elements” **Temperature**: -5°C to 21°C |

| Rogerson 2016 (UK) | **Design**: RXT, counterbalanced Acute, 3 visits - baseline, indoors, outdoors (baseline to first condition separated by 6 ± 3 d; condition 1 and 2 separated by 9 ± 8 d). Participants took part in pairs (who already knew each other) **Sample**: 24 participants (79% female and 21% male) (1 staff member, 10 students, 13 public) Age (mean ± SD): 35.1 ± 20.1 y Weight (mean ± SD): 70 ± 15 kg | **Rating of experience** (asked to indicate which walk was most enjoyable, most beautiful, least distracting). | **Rating of experience** (asked to indicate which walk was most enjoyable, most beautiful, least distracting). |

| Rogerson 2015 (UK) | **Design**: RXT, counterbalanced Acute, 4 visits separated by 7-25 days (average: 13 days) **Sample**: 12 healthy adult participants (50% female and 50% male) Age (mean ± SD): 27.8 ± 5.5 y Weight (mean ± SD): 65.4 ± 10.5 kg | Directed attention (backward digit span task); Effort (Borg RPE); Mood (11-point scale, -5 = very negative, 0 = neutral, +5 = very positive); Rating of experience (asked to indicate which walk was most enjoyable, most beautiful, least distracting). | Directed attention (backward digit span task); Effort (Borg RPE); Mood (11-point scale, -5 = very negative, 0 = neutral, +5 = very positive); Rating of experience (asked to indicate which walk was most enjoyable, most beautiful, least distracting). |
| Study | Design | Sample | Activity | Duration | Description | Temperature | Affect | Effort | Vitality |
|-------|--------|--------|----------|----------|-------------|-------------|--------|--------|---------|
| Ryan 2010 (USA) | RCT, parallel groups (study 2) | 80 undergraduate university students (82% female and 18% male) | 15-min walk in outdoor setting (no intensity reported) | Sept-Oct | “Participants in the outdoor condition walked on a largely tree-lined footpath along a river that runs parallel to the university campus.” | NR | State vitality (SVS) |
| Teas 2007 (USA) | Non-RXT | 19 healthy, non-smoking, postmenopausal women | 1-hour walk at a “comfortable” self-chosen speed (mean: 5.1 km/h) | May | “campus horseshoe (grassy area lined with brick paths, old trees, and flowerbeds).” | 22°C | Negative affect (NAS); Positive affect (PAS); Salivary cortisol and alpha amylase |
| Turner 2017 (UK) | RXT, counterbalanced | 22 adult competitive and recreational runners (36% female and 64% male) | 6 km run - first 3 km at steady-state pace, second 3 km at maximum intensity (fast as possible) with the second half completed at maximum effort, followed by 10-min recovery | 17.5°C | “Large woodland area, with walking/running trails lined with trees and bushes... Dog walkers and other runners were present.” | 19°C | Affect (FS, FAS); Effort (Borg 6-20 RPE scale); State vitality (7-item SVS). |
| White 2015 (UK) | **Design:** RXT  
Acute, 4 visits ~1 week apart  
**Sample:** 37 postmenopausal women  
Age (mean ± SD): 50.1 ± 3.7 y  
BMI (mean ± SD): 25.3 ± 4.7 kg/m²  
Self-reported instances of at least 30-min of light-moderate exercise per week (mean ± SD): 4.5 ± 2.9 instances.  
**Description:** Cycle ergometer for 15-min while watching a 1) green video and 2) blue video.  
**Temperature:** NR |  |  |  |  |  |
| Yeh 2017 (UK) | **Design:** Non-RXT, counterbalanced  
Acute, 3 20-min treadmill runs with minimum 7 day gap between conditions  
**Sample:** 30 adults (40% female and 60% male)  
Age (mean ± SD): 28 ± 9 y  
BMI (mean ± SD): 22.2 ± 2.1 kg/m²  
1) 20 minute treadmill run at self-selected pace looking at static image of nature (visual only)  
2) 20 minute treadmill run at self-selected pace looking at dynamic image of nature (visual only)  
**Description:** Dynamic image condition: video of the “Sheffield Botanical Gardens... series of paths within the gardens, capturing the trail through lawns, trees and flower beds... sunny spring afternoon”  
**Temperature:** NR |  |  |  |  |

**Key:** RXT: Randomised crossover trial; BMI: Body Mass Index; RCT: Randomised comparative trial; VR: virtual reality; VO₂ max/peak: maximal/peak oxygen uptake; CVD: cardiovascular disease; HR: heart rate; HRV: Heart Rate Variability; PA: physical activity; CRF: Cardiorespiratory Fitness; SF: short form; BP: blood pressure; LTEQ: Godin’s Leisure Time Exercise Questionnaire; CNS: Connectedness to Nature Scale (1-5 scale, higher the score, greater the connectedness to nature); PAAS: Physical Activity Affective Scale; PRS: Perceived Restorativeness Scale; CAR: Cortisol Awakening Response; 6MWT: 6-min walk test; BRUMS: Brunel Mood State Inventory; FS: Feeling Scale; FAS: Felt Arousal Scale; EEF: Exercise-Induced Feeling Inventory; GAS: General affect scale; PACES: Physical Activity Enjoyment Scale; ZIPERS: Zuckerman Inventory of Personal Reactions; NCPCT: Necker Cube Pattern Control task; RPE: Rate of Perceived Exertion; DXA: dual energy X-ray absorptiometry; SVS: Subjective Vitality Scale; PAS: Positive Affect Scale; NAS: Negative Affect Scale; WHR: Waist-Hip Ratio; BF: body fat; TESI: Tension and Effort Stress Inventory; RSE: Rosenberg Self-esteem; POMS: Profile Of Mood States; RLEQ: Recent Life Events Questionnaire; AD-ACL: Activation–Deactivation Adjective Check List; TTE: time to exhaustion; PANAS: Positive and Negative Affect Schedule; MC-SDS: Marlowe-Crowne Social Desirability Scale; TAF: Tammen Attentional Focus; PASE: Physical Activity Scale for the Elderly; CBTC: Core Body Temperature Capsule; USG: Urine Specific Gravity; INS: Inclusion of Nature in Self; SEQ: Sport Emotion Questionnaire; 1-RM (one repetition-maximum).
| Outcomes                        | Calogiuri 2015                                                                 | Irandoust & Taheri 2015                                                                 | Lacharite-Lemieux 2015                                                                 |
|--------------------------------|-------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Anthropometric outcomes        | Statistical pre to post-intervention reductions in:                           | No statistical time by environment interaction effect for:                              |                                                                                       |
|                                | • Waist-to-hip ratio in exercise groups only (p’s>.05).                        | • Waist circumference                                                                  |                                                                                       |
|                                | • No statistical time by environment interaction effect for:                  | • Fat mass (via dual x-ray absorptiometry [DXA])                                       |                                                                                       |
|                                |                                                                                | • Lean body mass (via DXA)                                                             |                                                                                       |
| Psychological outcomes         | Statistically higher:                                                          | No statistical changes as a function of time or environment in:                         |                                                                                       |
|                                | • Perceived restorativeness of the environment (fascination and being away, p’s<.001); | • Revitalization;                                                                       |                                                                                       |
|                                | • Enjoyment (after outdoor biking, p=.02; overall enjoyment, p>.05);          | • Fatigue scores.                                                                       |                                                                                       |
|                                | • Intention to exercise in the future after correcting for previous exercise behaviour (p<.01). |                                                                                       |                                                                                       |
| Exercise adherence, intensity, and physical fitness | Statistically higher:                                                          |                                                                                        |                                                                                        |
|                                | • Adherence to exercise in the outdoor versus indoor exercise groups (97% vs. 91% of prescribed sessions completed). |                                                                                        |                                                                                        |
|                                | • No statistical differences in:                                               |                                                                                        |                                                                                        |
|                                | • Average and maximal heart rates during exercise (bpm and %, p’s<.05);       |                                                                                        |                                                                                        |
|                                | • Cardiorespiratory fitness (via estimated VO\(_2\)\text{max}. (However, a statistical pre to post-intervention increase with indoor exercise, p=.01), but not outdoor exercise, p=.082) |                                                                                        |                                                                                        |
|                                | • Both green and indoor exercise statistically improved lower body strength (p=.017) |                                                                                        |                                                                                        |
|                                | • Only green exercise statistically improved upper body strength (bench press, p=.006; lat pulldown, p=.017) |                                                                                        |                                                                                        |
|                                | • Both green and indoor exercise improved leg press endurance from             |                                                                                        |                                                                                        |
Muscular endurance at bench press ($p < .001$) and lat pulldown ($p = .023$) only increased with green exercise.

Biological biomarkers

| Statistical improvements in green exercise vs. indoor exercise: | Statistically higher serum 25-hydroxyvitamin D concentrations with: | No statistical changes with either green or indoor exercise in: |
| --- | --- | --- |
| - Salivary cortisol awakening response (CAR) area under the curve with respect to increase (AUCI) in the ($p = .04$). | - Green exercise plus vitamin D supplementation vs. indoor exercise with vitamin D ($p < .05$); | - Fasting glucose and insulin, |
| No between group differences in: | - Green exercise vs. indoor exercise without vitamin D ($p < .05$). | - Homeostasis Model Assessment-insulin resistance (HOMA-IR); |
| - CAR area under the curve with respect to the ground; | | - Triglycerides; |
| - Serum cortisol concentration. | | - Total, low-density lipoprotein, and high-density lipoprotein cholesterol. |
| Study            | Random sequence generation (selection bias) | Allocation concealment (selection bias) | Blinding of participants and personnel (performance bias) | Blinding of outcome assessment (detection bias) | Incomplete outcome data (attrition bias) | Selective reporting | Other bias |
|------------------|---------------------------------------------|-----------------------------------------|----------------------------------------------------------|-------------------------------------------------|----------------------------------------|---------------------|------------|
| Byrka 2010       | ?                                            | ?                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Calogiuri 2015   | ☑                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Fuegen 2018      | ☑                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Gatersleben 2013 | ☑                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Irandoost 2017   | ☑                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Lacharite-Lernieux 2015 | ☑                | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Nisbet 2011      | ☑                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Plante 2003      | ?                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Plante 2006      | ?                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Plante 2007      | ?                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |
| Rysn 2010        | ?                                            | ☑                                       | ☑                                                        | ☑                                               | ☑                                      | ☑                   | ☑          |

Figure S1. Risk of bias summary across comparative trials: review authors’ judgements about each risk of bias item for each included study.
Figure S2. Risk of bias summary across crossover trials: review authors’ judgements about each risk of bias item for each included study.