Supplemental Table 4. Characteristics of exercise training, testing mode and results of all studies

| **Author + Date** | **Intervention(s)** | **Program Length + Total Sessions** | **Experimental Exercise Session Length, Frequency + Intensity** | **Physical Fitness Test(s)** | **Baseline**  | **Follow-Up** | **Change** |
| --- | --- | --- | --- | --- | --- | --- | --- |
| *(Quasi-) Randomized Controlled Trials* |
| Boyd (2012)36  | Aerobic exercisev. Usual care + asthma education | 12 wk, 36 | 30 min, 3 x wk, 60 – 75% HRmax | Max treadmill test | VO2peak (mL/kg/min): Exercise: 24.5\*Control: NR | VO2peak (mL/kg/min): Exercise: 27.5\* Control: NR | ↑ VO2peak (mL/kg/min):Exercise: +2.6 (*P*≤ .04)Control: NR(difference within groups) |
| Bundgaard (1983)37 | Aerobic and resistance exercisev.Stretching exercises + breathing exercises + low intensity aerobic exercise | 8 wk, 20 | 60 min, 2 x wk, NR,3 sets x 50% max repetitions in 30 sec x 6 exercises | Max treadmill test | VO2max (mL/kg/min): Exercise: 27.6Control: 28.2 | VO2max (mL/kg/min): Exercise: 30.4Control: 27.7 | ↑ VO2max (mL/kg/min) Exercise: *P* =.02Control: *P* =.33 |
| Cambach (1997)61 | Aerobic exercisev. Inactive control | 12 wk, 36 | 45 mins, 3 x week, ≥60% HRmax; 60-75% Wmax | 6MWT,Submax cycle test | 6MWD (m):Exercise: 598±126 Control: 639±132Submax HR (bpm):Exercise: 134±24 Control: 135±19  | 6MWD (m): Exercise: +63±89Control: +8±63Submax HR (bpm):Exercise: -7±12 Control: -1±6 | ↑6MWD: *P* <.05(difference between groups)↓Submax HR:*P* <.05(difference between groups) |
| Coelho (2018)38 | Aerobic exercise (unsupervised) + asthma/exercise educationv. Asthma/exercise education  | 12 wk, 60 | >30 mins, 5 x wk, mean no. steps increased by 1000 bi-weekly | 6MWT | 6MWD (m):Exercise: 535.5±41.5Control: 522.7±76.4 | 6MWD (m): Exercise: 549.7±46.1Control: 515.5±75.6  | ↑6MWD:*P* =.006 (difference between groups) |
| Dogra (2010 & 2011)62, 63 | Supervised aerobic + resistance exercisev.Unsupervised aerobic + resistance exercisev. Waitlist control | Supervised:12 wk, 36Unsupervised:12 wk,60 | Supervised:NR, 3 x wk, 70-85% HRpeak  Unsupervised:30 min, 5 x wk, 70-85% HRmax | Max treadmill test | VO2max (L/min): Supervised: 2.63±0.20Unsupervised: 2.88±0.26Control: 2.66±0.27Submax HR (bpm):Supervised: N/AUnsupervised: 172.9±9.6 Control: 170.2±6.6 | VO2max (L/min): 12 weeksSupervised: 2.88±0.21Unsupervised: 2.76±0.28Control: 2.77±0.29 Submax HR (bpm):Supervised: N/AUnsupervised: 168.4±10.4Control: 167.8±8.1 | ↑VO2peak: Supervised v. Control: NRUnsupervised v. Control: *P* =.662Supervised v. Unsupervised: NR (different papers)↓Submax HR:Supervised v. Control: N/AUnsupervised v. Control: *P* =.659Supervised v. Unsupervised: N/A (different papers) |
| Emtner (1998 & 2005)65, 66 | Land-based aerobic exercisev. Water-based aerobic exercise | 10 wk,26 | 45 min, 2-5 x wk, 80-90% APHRmax, RPE: 7-8 (/10) | 12MWT | 12MWD (m):Land exercise: 1430Water exercise: 1384 | 12MWD (m):Land exercise: 1520Water exercise: 1485 | ↑12MWD (m):Both groups significantly improved (*P* <.05) walking distance |
| 3-yr follow-up | Adherers:NR, 2 x wk, RPE: 7.1-7.7 (/10)Non-adherers:NR, <2 x week, RPE: 2.3-7.5 (/10) | Submax cycle test | Submax HR(bpm):Adherers: 151±18 Non-adherers: 155±20 | Submax HR(bpm):10 weeks: Adherers: 143±20Non-adherers: 139±243 years:Adherers: 143±23 Non-adherers: 144±23 | ↓Submax HR(bpm):Both groups: *P* <.05 (difference within groups between baseline and both follow-up assessments) |
| Evaristo (2020)73 | Aerobic exercise + educationv.Breathing exercise + education | 12 wk,24 | 40 min, 2 x wk,60-80% HRR | ISWT | ISWD (m):Aerobic exercise: 342±96 Breathing exercise: 360±104 | NR | ISWD (m):Aerobic exercise: 90 [65, 116]Breathing exercise: 73 [37, 109] |
| Farid (2005)40 | Aerobic exercisev. Inactive control | 8 wk,24 | 35 min, 3 x week, NR | 6MWT | NR | 6MWD (m): Exercise: +307.5 Control: -18.78 | ↑6MWD (m):Exercise group improved significantly more than control (*P* <.05) |
| Franca-Pinto (2015)41 | Aerobic exercise + breathing exercise + educationv. Breathing exercise + education | 12 wk, 24 | 35 min, 2 x wk,Vigorous | Max treadmill test | VO2max (mL/kg/min): Exercise: 27.0±4.2Control: 25.5±5.9Max workload (W):Exercise: 190±32Control: 203±67 | NR | ↑VO2max (mL/kg/min): Exercise: +1.0 [-0.5, 2.4], Control: -2.4 [-4.5, 0.2]*P* <.02 difference between groups; NS difference within groups)↑Max workload (W):Exercise: +57.1 [41.1, 73.1],Control: +3.3 [-18.9, 25.4] |
| Freitas (2017 & 2018)68, 69 | Aerobic + resistance exercise + diet + psychology counselling + educationv. Breathing exercises + stretching + diet + psychology counselling + education  | 3 mo, NR | 30-90 min, 2-4 x wk, 50-75% VO2peak,2-3 sets x 10 reps @ 50-70% 1RM | Max cycle test,+1RM x pectoral, calf, deltoid + quadriceps muscles  | VO2peak (L/min):Exercise: 1.42 {1.32, 1.59}Control: 1.29 {1.18, 1.48}VO2peak (mL/kg/min):Exercise: 16.0±2.4Control: 15.0±2.6 1RM (kg):PectoralExercise: 5.0 {4.0, 6.0}Control: 4.0 {4.0, 5.0}CalfExercise: 70.0 {60.0, 90.0}Control: 70.0 {53.7, 82.5}DeltoidExercise: 5.0 {5.0, 6.0}Control: 5.0 {4.0, 6.0}QuadricepsExercise: 75\*Control: 75\* | NR | ↑VO2peak (L/min): *P* <.001Exercise: +0.16 {0.09, 0.23}Control: +0.01 {-0.10, 0.08}↑VO2peak (mL/kg/min): *P* <.001Exercise: +3.0 {2.4, 4.0}Control: +0.9 {-0.3, 1.3}↑1RM (kg):Pectoral *P* <.001Exercise: +2.0 {1.0, 4.0}Control: +1.0 {0.0, 1.0}Calf *P* <.001Exercise: +40.0 {30.0, 70.0}Control: +10.0 {0.0, 25.0}Deltoid *P* <.001Exercise: +3.0 {2.0, 4.0}Control: 0.0 {0.0, 2.0}Quadriceps *P* <.001Exercise: +50\*Control: +15\* |
| Gonçalves (2008)43 | Aerobic exercise + breathing exercise + educationv.Breathing exercise + education | 3 mo, 26 | 30 min, 2 x wk, 70% max power | Max treadmill test | VO2peak (mL/kg/min): Exercise: 20.6 (16.3-24.5) Control: 22.2 (17.7-26.0)Anaerobic Threshold (O2 mL/kg/min):Exercise: 15.0 (11.9-19.7) Control: 16.2 (13.2-21.0) | VO2peak (mL/kg/min): Exercise: 25.8 (16.2-31.3)Control: 20.5 (17.3-24.1)Anaerobic Threshold (O2 mL/kg/min):Exercise: 17.4 (10.1-23.3)Control: 15.4 (12.5-19.9) | Exercise group significantly improved aerobic fitness between baseline and follow-up, leading to a significant difference between groups at follow-up (both *P* <.05) |
| Haas (1987)44 | Aerobic exercisev.Untrained control | 12 wk, 36 | 20-40 min, 3 x wk, 60-80% APHRmax | Max treadmill test | VO2peak (mL/kg/min): Exercise: 33.8±2.25Control: 35.2±2.83VE (L/min):Exercise: 70.7±6.6Control: 73.5±6.0 | VO2peak (mL/kg/min): Exercise: 38.8±3.02Control: 34.5±3.00 VE (L/min):Exercise: 73.3±5.4Control: 69.2±6.3 | Exercise group significantly increased VO2peak by 15% (*P* <.01).No significant changes to VE.  |
| Hiles (2021)74 | Yoga + mindfulness + PA educationv. PA education | 16 wk,32 | 75 min,2 x wk,NR | 6MWT | 6MWD (m):Yoga: 436 [384, 488]Control: 526 [424, 628] | 6MWD (m):Yoga: 453 [392, 513]Control: 546 [441, 652] | 6MWD (m):Yoga: 33 [−2, 67]Control: 20 [−40, 80] |
| Lage (2021)75 | Inspiratory muscle training + educationv.Education | 8 wk,80 | 11 min, 2 x day x 5 x wk,50% maximal inspiratory pressure, RPE: 4-6 (/10) | ISWT | ISWD (m):Exercise: 393.2 (26.7) Control: 424.0 (25.9) | ISWD (m):Exercise: 320.6 (27.5)Control: 312.5 (25.4) | ↑ISWD (m):Exercise: 30.9 [−14.3, 58.3]Control: −8.1 [−34.4, 17.5]Difference between groups: *P* =.165 |
| Majd (2020)76 | Aerobic exercise + resistance exercise + educationv. Usual care | 12 wk, 24 | 60 min,2 x wk,60-85% VO2peak, 2 sets x 6-12 reps @ 80% 1RM | Incremental treadmill or cycle test,ISWT,ESWT | VO2peak (mL/kg/min):Treadmill testExercise: 22.5±6.2Control: 22.9±3.9Cycle testExercise: 17.5±6.0Control: 16.9±4.3ISWD (m):Exercise: 418±172Control: 443±121 | VO2peak (mL/kg/min):Treadmill testExercise: 23.2±7.6Control: 22.3±2.4Cycle testExercise: 18.8±6.9Control: 16.1±2.8ISWD (m):Exercise: 450±199 Control: 403±104 | Mean difference between groups over time↑VO2peak (mL/kg/min):Treadmill test1.4 [-1.1, 3.8]Cycle test2.0 [-0.3, 4.2]ISWD (m):74 [25, 124] |
| Mendes (2010 & 2011)21, 72 | Aerobic exercise + breathing exercise + educationv.Breathing exercise + education | 12 wk, 24 | 30 min, 2 x wk, 60% VO2max for 2 wk, then 70% VO2max, then increased by 5% of HR up to 80% HRmax  | Max treadmill test | *2011*VO2max (% predicted):Exercise: 73.5 (43.6–96.3)Control: 73.4 (52.5–98.3) | *2011*VO2max (% predicted):Exercise: 88.0 (64.9–109.3)Control: 75.6 (57.6–99.5) | *2011*Exercise group increased VO2max compared with the control group (*P* <.001)  |
| *2010*NR | *2010*VO2max (mL/kg/min): Exercise: +5.7 Control: NR | *2010*Exercise group significantly increased VO2max, leading to a significant between-group difference (both *P* <.001) |
| Meyer (2015)48 | Aerobic + resistance exercisev. Control | 12 mo, 52 | 60 min, 1 x week,>60%HRpeak | Max cycle test | VO2max (mL/kg/min): Exercise: 15.7±5.0Control: 15.8±4.0 Peak workload (W):Exercise: 97±32Control: 107±22 VE (L/min): Exercise: 38.2±17.3Control: 42.1±10.0 | VO2max (mL/kg/min): Exercise: 20.4±4.0Control: 16.8±6.2 Peak workload (W):Exercise: 116±31Control: 100±28 VE (L/min): Exercise: 51.5±20.3Control: 42.1±10.3 | Exercise group:↑ VO2max (mL/kg/min): 4.6±4.36 (*P* <.005)↑ Peak workload (W): 18±18 (*P* =.005)↑ VE (L/min): 13.2±18.72 (*P* <.005)Between groups:↑Peak workload(W):*P* <.05 |
| Rekha (2020)77 | Resistance exercisev.Incentive spirometer | 4 wk, 16 | NR, 4 x wk,8-10 repetitions x 4 exercises | Manual muscle testing | Resistance exercise: 2.33±0.98Incentive spirometer: 2.33±0.98 | Resistance exercise:3.60±0.99Incentive spirometer:2.73±0.88 | Resistance exercise:*P* =.001Incentive spirometer:*P* =.009 |
| Scichilone (2012)53 | Aerobic exercisev. Control | 10 wk, 23.7±3.9 | 40-70 min,2-3 x wk, 20% of session @ max power output, 10% @ 75–90%, 70% @ 60–65% | Max rowing test | Mean power output (W/stroke) Exercise:1000m test: 123±63 2000m test: 118±52Control: NR | Mean power output (W/stroke) Exercise: 1000m test: 148±662000m test: 131±54Control: NR | ↑ Mean power output (W/stroke) Exercise: 1000m test: *P* =.022000m test: *P* =.03Control: NR |
| Shaw (2010)54 | Aerobic exercise (Ex) v. Diaphragmatic breathing exercise (DB)v. ExDBv. Control | 8 wk, NR | 30 min, 3 x wk, 60% APHRmax | Submax cycle test | VO2max (mL/kg/min): Ex: 33.6±7.83Control: 39.4±6.9ExDB: 37.4±9.6DB: 38.5±8.5 | VO2max (mL/kg/min): Ex: 42.6±7.8Control: 39.2±7.2ExDB: 47.3±8.3DB: 38.8±7.6 | ↑ VO2max (mL/kg/min): Post-training: Control vs ExDB: *P* =.001 DB vs ExDB: *P* =.000 Ex vs ExDB: *P* =.047Amount of change: Control vs Ex: P =.043 Control vs ExDB: *P* =.047 |
| Toennesen (2018)55 | Aerobic exercise (Ex) v. Diet counselling (D)v. ExDv. Usual care control  | 8 wk, 22 | 20-30 min, 3 x wk, 30-90% “max intensity” | Max incremental test | VO2max (mL/kg/min): Ex: 38.4±8.9D: 33.8±6.7ExD: 31.5±6.2Control: 33.5±7.5 | NR | ↑ VO2max (mL/kg/min):Ex: +3.1±3.6D: +0.8±2.8 ExD: +5.3±2.5Control: +0.2±4.6 |
| Türk (2020)56 | Bodyweight HIIT + diet counselling + psychological counsellingv. Bodyweight HIIT + diet counselling + psychological counselling + self-management support (SMS)v. Usual care | 12 wk, 36 | 40-60 min, 3 x wk, 90% VO2max; RPE ≥7 (/10),3-6 sets x 45sec work/30sec rest x 4 exercises | Max cycle,6MWT | VO2max (%predicted):Bodyweight HIIT: 51.1±17.7Bodyweight HIIT+SMS: 60.6±11.3Usual care: 56.5±11.36MWD (m):Bodyweight HIIT: 578±76Bodyweight HIIT+SMS: 606±56Usual care: 587±73 | NR | ↑ VO2max (%predicted):Bodyweight HIIT: +13.2±9.2, *P* <.005Bodyweight HIIT+SMS: +11.2±13.5Usual care: −0.1±10.5↑ 6MWD (m):Bodyweight HIIT: 52±40, *P* <.005Bodyweight HIIT+SMS: 63±40, p<0.05Usual care: −14±51 |
| Turner (2011)58 | Aerobic + resistance exercisev.Usual care | 6 wk, 14 | 80-90 min walking training 45 min circuit training, NR,Walking: 80% mean 6MWT speed; Circuit training: RPE 12-14 (/20) | 6MWT,Handgrip dynamometer, + Quadriceps strain gauge | 6MWD (m):Exercise: 569±88 Control: 522±111Quadriceps strength (% predicted): Exercise: 84±30 Control: 78±30Hand grip strength (% predicted): Exercise: 109±23 Control: 110±27 | 6MWD (m): Exercise: 605±98Control: 528±114Quadriceps strength (% predicted): Exercise: 88±24Control: 75±32Hand grip strength (% predicted) Exercise: 109±20 Control: 115±29 | ↑ 6MWD (m):Exercise: 36±37 (*P* < .01)Control: 6±38 (*P* = .54)(Not significant between groups) |
| *Pre-Post Experimental Studies* |
| Afzelius-Frisk (1977)35 | Aerobic exercise | 8-12 wk, NR | 30 min,2 x week 85-90% HRpeak | Max + submax cycle tests | VO2max (L/min): Max: 1.66±0.31Submax: 1.16±0.09Peak workload (W): 109±21 HR (bpm): Max: 183±17Submax: 154±14VEmax (L/min):Max: 59.7±10.6Submax: 35.8±4.3 | VO2max (L/min): Max: 1.94±0.42Submax: 1.06±0.19Peak workload (W): 134±18 HR (bpm): Max: 186±13Submax: 137±14VEmax (L/min):Max: 74.6±11.8Submax: 32.7±4.2 | ↑ VO2max (L/min): +0.28 (17 %)↑ Peak workload (W): +25 (23 %)↓Submax HR (bpm): -17 (11%)↓Submax VEmax (L/min):“Significantly reduced” |
| Candemir (2017)60 | Aerobic exercise + resistance exercise | 8 wk,24 | 30 min,3 x wk,85% VO2peak, 2-3 sets x 10 reps @ 45-70% 1RM | ISWT,ESWT | ISWD (m): 281±104 ESWT (min):13.3±7.4  | ISWD (m): 339±95 ESWT (min):17.5±4.5 | ↑ ISWD (m): *P* <.001↑ ESWT (min):*P* =.005 |
| de Nijs (2020)78 | Exercise + education + psychology counselling + medication optimisation  | 12 wk, NR | NR | ISWT | ISWD (m): High altitude: 418 ± 224Sea level: 492 ± 305 | ISWD (m): High altitude: 575 ± 261Sea level: 549 ± 324 | ↑ ISWD (m): High altitude: 156.9 (20.1), *P* <.001Sea level: 57.6 (16.0), *P* <.001 |
| Deniz (2019)39 | Aerobic exercise + resistance exercise + breathing + stretching exercises | 2 wk, 4 | 30-120 min,2 x wk,60-90% HRmax | 6MWT | 6MWD (m):374±93 | 6MWD (m):415±96 | ↑ 6MWD (m):*P* <.001 |
| Emtner (1996 & 1998)67, 64 | Aerobic exercise | 10 wk, 50 | 45 min,2-5 x wk,80-90% APHRmax RPE: 7-8 (/10) | 12MWT,Submax cycle test | 12MWD (m):1350Submax HR (bpm): 167 | 12MWD (m): 2 wk: 1,4446 wk: 1,48610 wk: 1,461Submax HR (bpm):10 wk: 155 | ↑ 12MWD (m):*P* <.05Submax HR (bpm):*P* <.05 |
| 3 yr,Group A: 353Group B: 216 Group C: 86 | 45 min, Group A: ≥3 x week, 7/10Group B: 1-2 x wk, 6/10 Group C: <1 x week, 4/10  | 12MWT | 12MWD (m):Group A: 1548Group B: 1473Group C: 1425\* | 12MWD (m): Group A: 1481\* Group B: 1473\*Group C: 1355\* | ↑ 12MWD (m):Group A v. Group C = *P* <.05Group B v. Group C = *P* <.05 |
| Freeman (1989)42 | Aerobic exercise | 5 wk, 15 | Varied, 3 x wk,Self-selected (mean = 83.8±10.0% VO2max) | Max treadmill test, 2-mile treadmill time trial +2 x Submax treadmill test | Max treadmill test:VO2max (mL/kg/min): 41.0±8.2  VEmax (L/min): 81.5±91.4 2-mile treadmill time trial:Time to complete: 20.3±4.6Peak VO2: 34.9±7.9Submax HR (bpm): 167\* | Max treadmill test:VO2max (mL/kg/min): 43.8±8.8 VEmax (L/min): 85±21 2-mile treadmill time trial:Time to complete: 18.2±4.3Peak VO2: 39.1±9.1 Submax HR (bpm): 153\* | Max treadmill test:↑ VO2max (mL/kg/min): *P* <.052-mile treadmill time trial:↓ time to complete: *P* <.01↑ Peak VO2: *P* <.01↑ %VO2max used: *P* <.01↓Submax HR (bpm): *P* <.01 |
| Hallstrand (2000)45 | Aerobic exercise | 10 wk, 30 | >30 min,3 x wk,75% VO2max | Max cycle test | VO2max (mL/kg/min): 22.7±4.7VEmax (L/min): 68.5±10.1AT (L/min): 0.99±0.13 | VO2max (mL/kg/min): 25.3±4.7 VEmax (L/min): 67.4±11.9 AT (L/min): 1.09±0.15  | ↑VO2max (mL/kg/min): *P* =.01↑ VEmax (L/min): *P* =.78↑ AT (L/min): *P* =.03 |
| Heba (2013)46 | Aerobic exercise | 12 wk, 36 | 50 min,3 x wk, 40-60% max work rate | Max cycle test | Peak Workload (W): 106.25\* | Peak Workload (W): 131.25\* | ↑ Peak Workload (W): *P* =.000 |
| Hildenbrand (2010 & 2011)70, 71 | Swimming | 12 wk, 36 | 30-45 min, 3 x wk, RPE: 4-8 (/10) | Max cycle test | VO2max (mL/kg/min): 31.2±9.8 | VO2max (mL/kg/min): 33.4±10.4 | ↑ VO2max (mL/kg/min): *P* =.038 |
| Mendes (2019)47 | Aerobic exercise | 12 wk, 24 | 35 min, 2 x wk, 60% VO2max for 2 weeks, then 70% VO2max, then increased by 5% of HR up to 80% HRmax | Max treadmill test | VO2max (mL/kg/min): Summer-to-Winter: 24.4±5.4Winter-to-Summer: 25.6±4.9 | VO2max (mL/kg/min): Summer-to-Winter:28.8±5.2Winter-to-Summer:28.5±3.9 | ↑ VO2max (mL/kg/min): Summer-to-Winter:3.7±3.00, *P* <.001Winter-to-Summer: 2.9±2.93, *P* <.001 |
| Miyamoto (2014)49 | Aerobic exercise + resistance exercise + breathing + stretching exercises | 12 wk, 144 | 60 min, 2 x day x 6 x wk for 2 wk, then 1-2 x wk for 10 wk, 60-80% max ISWT speed | ISWT, Handgrip dynamometer, + Quadriceps dynamometer | ISWD (m): 168±109 Handgrip Force (kg): 20.4±9.0 % predicted: 67±24 Quadriceps Force (kg): 15.1±9.8 % predicted: 52±26 | ISWD (m):222±139 Handgrip Force (kg): 21.0±8.8 % predicted: 68±21 Quadriceps Force (kg): 18.3±9.5 % predicted: 64±30 | ↑ ISWD (m): p=0.006 ↑ Handgrip Force (kg): p=0.577  % predicted: *P* =.692  ↑ Quadriceps Force (kg) p *P* 0045  % predicted: *P* =.029 |
| Peric (2018)50 | Aerobic exercise | 7 wk,21 | 60 min, 3 x wk, 100-110% HR @ AT | Max treadmill test | VO2max (mL/kg/min):34.1±2.2AT (O2 mL/kg/min):20.1±2.5  | VO2max (mL/kg/min):36.0±2.2AT (O2 mL/kg/min):24.5±2.9  | ↑ VO2max (mL/kg/min):1.9±0.6, *P* =.0004↑ AT (O2 mL/kg/min):4.5±1.9, *P* =.0024 |
| Robinson (1992)51 | Aerobic + resistance exercise | 12 wk, NR | NR,NR,Mean: 80% HRpeak; Peak: 96% HRpeak,1-4 sets x 50sec work/30sec rest x 7 exercises | Max cycle test | VO2peak (mL/kg/min): 27.5 [21.9, 33.0]Peak workload (W): 184 [148, 221] | VO2peak (mL/kg/min): 6 wk: 31.5 [23.5-39.6]12 wk: 31.3 [23.5, 39.1]Peak workload (W):6 wk: 203 [148, 257]12 wk: 210 [156, 264] | ↑ VO2peak (mL/kg/min): Pre, 6 wk and post (*P* <.05)↑ Peak workload (W): Pre, 6 wk and post (*P* <.05) |
| Sahin (2019)52 | Aerobic exercise + resistance exercise + breathing + stretching exercises | 8 wk, 16 | 30-120 min,2 x wk,60-90% HRmax,8-10 reps | 6MWT | 6MWD (m)Partially controlled: 435 {378, 500}Uncontrolled: 370 {290, 435} | 6MWD (m)Partially controlled: 480 {443, 520}Uncontrolled:390 {350, 470} | ↑ 6MWD (m)Partially controlled: 40 {20, 70}, *P* =.001Uncontrolled:40 {10, 60}, *P* <.001 |
| Türk (2017)57 | Aerobic exercise + resistance exercise | 12 wk, 36 | 60 min, 3 x wk,≤ AT + high intensity | 6MWT | 6MWD (m): 580±117 | 6MWD (m): 632±102 | ↑ 6MWD (m): 53±58(*P* <.001) |
| Zampogna (2019)59 | Aerobic exercise | 3 wk, 15 | 30 min, 5 x wk, 50-70% predicted max workload | 6MWT,Resting HR | 6MWD (m): 460±94Resting HR (bpm):78±11 | 6MWD (m): 500±90Resting HR (bpm):77±11 | ↑ 6MWD (m): p<0.001↓Resting HR (bpm):*P* =.01 |
| Data are mean±standard deviation, median (95% confidence interval), median {interquartile range}, or mean [95% confidence interval]. \* = data estimated from graph. Abbreviations: 1RM, 1 repetition maximum; 6MWD, six-minute walk distance; 6MWT, six-minute walk test; 12MWT, 12-minute walk test; 12MWD, 12-minute walk distance; APHRmax, age-predicted heart rate maximum; AT, anaerobic threshold; bpm, beats per minute; D, diet; DB, diaphragmatic breathing; ESWT, endurance shuttle walk test; Ex, aerobic exercise; ExDB, aerobic exercise and diaphragmatic breathing; HIIT, high intensity interval training; HR, heart rate; ISWT, incremental shuttle walk test; m, metres; Max, maximal; NR, not reported; NS, not significant; PA, physical activity; RPE, rate of perceived exertion; SMS, self-management support; VE, ventilation; VO2, oxygen uptake; VO2max, maximal oxygen uptake; Wmax, maximal watts |