



Pausa Practical Guide: Physical Activity

Deliberate, repeated physical activity (exercise) improves cardiovascular, metabolic, musculoskeletal and brain function, and is a core root-cause lever for preventing and treating chronic disease.[1–3] Regular exercise lowers risk of heart disease, diabetes and several cancers, improves mood and cognition, and extends healthspan by preserving mobility and mental sharpness.[3–6][33–35]

1. Why exercise is “medicine”

Exercise acts on multiple systems at once: heart and vessels, muscles and bones, metabolism, immune system and brain.[2–3][11–13] It reduces pro-inflammatory cytokines and stress hormones, improves insulin sensitivity and lipid profiles, and supports cognitive function and mood via neurochemical and vascular changes.[12–13][35–37]

Small steps

- **Reframe:** Treat exercise as a daily “dose” (like a medicine) rather than an optional add-on.
- **Minimum viable move:** Commit to just 10 minutes of intentional movement per day this week.
- **One-sentence prescription:** Write your own: “For my heart/brain, I will move X min, Y days/week.”

2. Main types of exercise (and what they do)

2.1 Aerobic (cardio)

Aerobic exercise uses large muscle groups rhythmically and relies on oxygen to meet energy demands. It improves cardiovascular health, lowers blood pressure, improves cholesterol, supports weight management and enhances endurance.[36–37]





Small steps

- **Brisk-walk baseline:** Start with 10–20 minutes of brisk walking (you can talk, but not sing) 3 days/week.
- **Swap commute:** Once per week, walk or cycle part of a usual car/transport route.
- **“Stairs rule”:** When possible, always take the stairs for 1–3 floors.

2.2 Interval training (including HIIT)

Interval training alternates higher-intensity efforts with lower-intensity recovery, and can efficiently improve VO₂max, cardiovascular health and glycemic control.[16–19] Low-volume HIIT can improve insulin sensitivity and blood-sugar control in people with type 2 diabetes.

Small steps

- **Gentle intervals:** During a walk, do 30–60 seconds slightly faster, 90 seconds easy, repeat 4–6 times.
- **Once-weekly HIIT:** If medically appropriate, add 1 short HIIT session (e.g., 6–8 × 30s hard / 90s easy).
- **“Speed play”:** On one run or walk per week, vary pace intuitively (fartlek) between landmarks.[17–18]

2.3 Strength / resistance training

Resistance training increases muscle strength and mass, improves bone density and raises resting metabolic rate.[21–22] In older adults, progressive resistance training increases both muscle strength and bone mineral density and supports independence.[21–22]

Small steps

- **Two-day strength rule:** Schedule 2 non-consecutive days per week of simple resistance work (e.g., squats, hinges, pushes, pulls).
- **Bodyweight first:** Start with bodyweight movements (squats to chair, wall push-ups, hip bridges) for 1–2 sets of 8–12 reps.
- **Habit anchor:** Pair strength with an existing habit (e.g., 5 squats every time you make coffee).





2.4 Flexibility and balance

Flexibility and balance reduce injury risk, support posture and reduce fall risk, especially with aging.[23–25] Programs that combine stretching and balance work help prevent falls in older adults.[24–25]

Small steps

- **5-minute mobility:** Pick 2–3 stretches or gentle mobility drills each morning or evening.
- **One-leg stand:** Once per day, stand on one leg near support for 30–60 seconds per side.
- **Weekly mind-body:** Add 1 short yoga, Pilates or tai chi session per week.[23–25][65–66]

2.5 Speed and power (optional)

Speed and power work (sprints, plyometrics, agility drills) build neuromuscular capacity and performance but require good base conditioning and careful progression.[26–27] In trained or athletic populations, these methods improve performance and muscle adaptations.[26–27]

Small steps

- **Only if base is solid:** After 8–12 weeks of consistent aerobic/strength training and if joint/heart health allow, add very small doses of faster running, short hill sprints or basic jumps.
- **Rule of thumb:** Keep total all-out efforts short (seconds), with long rests, 1×/week max initially.





3. Exercise as a root-cause lever

Chronic disease often arises from lifestyle-driven metabolic and inflammatory imbalances; physical inactivity is a major driver. Regular exercise reduces chronic inflammation, improves insulin sensitivity, modulates stress hormones and supports detoxification, improving outcomes in cardiovascular disease, diabetes and many other chronic conditions.[11–13][33–37]

Small steps

- **Health focus:** Pick one condition or biomarker (e.g., blood pressure, HbA1c, triglycerides) and tie your exercise goal explicitly to it.
- **Low-bar consistency:** Commit to a weekly minimum (e.g., 3 × 20 minutes), even if intensity is low.
- **Track one metric:** Choose one health marker (steps, resting HR, blood pressure) to follow for 4–8 weeks as you move more.

4. Benefits: bones, heart, metabolism, brain, weight

Weight-bearing and resistance exercise increase or maintain bone mineral density and reduce fracture risk, especially in postmenopausal women and older adults. Aerobic and mixed-mode training improve blood pressure, lipids and vascular function, lowering cardiovascular risk.[33–37] Exercise improves insulin sensitivity, glucose control and lipoprotein profiles, reducing risk and aiding management of type 2 diabetes and metabolic syndrome. [36–37]

Exercise also reduces symptoms of depression and anxiety, improves sleep and enhances cognitive function through increased cerebral blood flow and neurotrophic factors.[9–10] Both aerobic and resistance training support weight management by increasing energy expenditure and modulating appetite and energy balance.[38–39]





Small steps

- **Bone benefit:** Include at least some weight-bearing activity (walking, light jogging, stair climbing) most days, and resistance work 2×/week.
- **Metabolic benefit:** On most days, accumulate at least 20–30 active minutes (can be in 5–10 minute blocks).
- **Brain benefit:** Protect one “movement + daylight” slot per day (short walk outside).

5. Common barriers and how to move through them

Lack of time, physical limitations, all-or-nothing thinking, low motivation, intimidation, sedentary habits and shame cycles are common barriers.[40–42]
Even small amounts of activity below guidelines still improve health compared with being inactive.

Small steps

- **“Anything counts” rule:** Redefine success as “did I move more than zero today?”
- **2-day rule:** Don’t miss more than two days in a row; if you miss two, do something small on day three.
- **Environmental tweak:** Keep shoes/clothes ready and visible; pre-decide when and where you’ll move (not “if”).

6. Factors that make exercise more (or less) effective

Breathing, consistency, technique, mental habits, nutrition, hydration, posture and recovery all influence how much you get out of the same workout dose.[43–50] Proper form reduces injury risk and ensures the right muscles are loaded; adequate fueling, hydration and sleep improve performance and adaptation.[44–50]





Small steps

- **One form focus:** For 1–2 weeks, pick one key movement (e.g., squat) and focus on learning safe technique, possibly with guidance.
- **Hydration habit:** Drink water before and after sessions; aim to start exercise already hydrated.
- **Recovery window:** Protect at least one rest day per week and aim for 7–9 hours of sleep, especially after higher-intensity days.

7. Starting and maintaining a routine

Enjoyment, small steps, SMART goals, visualization, variety, rewards, social support and progress tracking all improve adherence.[51–58] Habit formation research shows that starting tiny, linking behavior to cues, and rewarding completion supports long-term consistency.[52–53]

Small steps

- **Choose joy:** Start with activities you genuinely don't hate (walk with music, dance, hiking, swimming).
- **SMART move:** Set one 4-week SMART goal (e.g., “Walk 20 minutes, 4 days/week, for the next month”).
- **Track and reward:** Use a notebook/app to tick off sessions; reward yourself weekly for consistency (non-food, non-sedentary if possible).

8. Safety, tests and wearables

Pre-exercise assessment and sensible progression reduce risk, especially for those with cardiac, respiratory or orthopedic issues.[59–61][68–71] Good posture, appropriate equipment and attention to pain and dizziness are central to injury prevention.[59–62] Lab panels and functional tests (e.g., VO₂max, ECG, body composition) can help tailor intensity and monitor adaptation in higher-risk or performance contexts.[67–72] Wearables (trackers, heart-rate monitors, CGMs) can increase awareness and support behavior change, but are tools, not goals.[73–75]





Small steps

- **Safety check:** If you have cardiovascular, metabolic or significant orthopedic issues, discuss your plan with a clinician before starting vigorous training.[68–71]
- **Rate your effort:** Use a simple 1–10 effort scale and stay mostly in the 4–7 range, unless specifically cleared/programmed otherwise.
- **Simple data:** Start with one metric (steps/day or total active minutes/week) rather than tracking everything at once.

References

1. Dasso NA. How is exercise different from physical activity? A concept analysis. *Nurs Forum*. Jan 2019;54(1):45-52. doi:10.1111/nuf.12296
2. Sallis R. Exercise is medicine: a call to action for physicians to assess and prescribe exercise. *The Physician and Sportsmedicine*. 2015/01/02 2015;43(1):22-26. doi:10.1080/00913847.2015.1001938
3. Anderson E, Durstine JL. Physical activity, exercise, and chronic diseases: A brief review. *Sports Med Health Sci*. Dec 2019;1(1):3-10. doi:10.1016/j.smhs.2019.08.006
4. Mikkelsen K, Stojanovska L, Polenakovic M, Bosevski M, Apostolopoulos V. Exercise and mental health. *Maturitas*. Dec 2017;106:48-56. doi:10.1016/j.maturitas.2017.09.003
5. Peterson T. Healthspan is more important than lifespan, so why don't more people know about it. *Institute for Public Health, Washington University in St Louis*. 2017;
6. Warburton DER, Bredin SSD. Health benefits of physical activity: a systematic review of current systematic reviews. *Curr Opin Cardiol*. Sep 2017;32(5):541-556. doi:10.1097/HCO.0000000000000437
7. Townsend Z. Impact of resistance training on sports performance and muscular adaptations. *Int J Sports Exerc Med*. 2022;8:218.
8. Li YN, Cheng BH, Yu B, Zhu JN. Let's get physical! A time-lagged examination of the motivation for daily physical activity and implications for next-day performance and health. *Personnel Psychology*. 2024;77(2):917-955.
9. Alizadeh Pahlavani H. Possible role of exercise therapy on depression: Effector neurotransmitters as key players. *Behav Brain Res*. Feb 29 2024;459:114791. doi:10.1016/j.bbr.2023.114791
10. Hartescu I, Morgan K, Stevinson CD. Increased physical activity improves sleep and mood outcomes in inactive people with insomnia: a randomized controlled trial. *J Sleep Res*. Oct 2015;24(5):526-34. doi:10.1111/jsr.12297
11. Pedersen BK, Saltin B. Exercise as medicine - evidence for prescribing exercise as therapy in 26 different chronic diseases. *Scand J Med Sci Sports*. Dec 2015;25 Suppl 3:1-72. doi:10.1111/sms.12581
12. Ayari S, Abellard A, Carayol M, Guedj E, Gavarry O. A systematic review of exercise modalities that reduce pro-inflammatory cytokines in humans and animals' models with mild cognitive impairment or dementia. *Exp Gerontol*. May 2023;175:112141. doi:10.1016/j.exger.2023.112141





13. Pinckard K, Baskin KK, Stanford KI. Effects of Exercise to Improve Cardiovascular Health. *Front Cardiovasc Med.* 2019;6:69. doi:10.3389/fcvm.2019.00069
14. Hargreaves M, Spriet LL. Skeletal muscle energy metabolism during exercise. *Nat Metab.* Sep 2020;2(9):817-828. doi:10.1038/s42255-020-0251-4
15. Nystoriak MA, Bhatnagar A. Cardiovascular Effects and Benefits of Exercise. *Front Cardiovasc Med.* 2018;5:135. doi:10.3389/fcvm.2018.00135
16. MacInnis MJ, Gibala MJ. Physiological adaptations to interval training and the role of exercise intensity. *J Physiol.* May 1 2017;595(9):2915-2930. doi:10.1113/JP273196
17. Ivan C. Fartlek–A Training Method with Multiple Valences. *European Proceedings of Social and Behavioural Sciences.* 2017;
18. Astorino TA, Schubert MM. Individual responses to completion of short-term and chronic interval training: a retrospective study. *Plos One.* 2014;9(5):e97638. doi:10.1371/journal.pone.0097638
19. Winding KM, Munch GW, Iepsen UW, Van Hall G, Pedersen BK, Mortensen SP. The effect on glycaemic control of low-volume high-intensity interval training versus endurance training in individuals with type 2 diabetes. *Diabetes Obes Metab.* May 2018;20(5):1131-1139. doi:10.1111/dom.13198
20. Davies G, Riemann BL, Manske R. Current Concepts of Plyometric Exercise. *Int J Sports Phys Ther.* Nov 2015;10(6):760-86.
21. Bloch-Ibenfeldt M, Theil Gates A, Karlog K, Demnitz N, Kjaer M, Boraxbekk CJ. Heavy resistance training at retirement age induces 4-year lasting beneficial effects in muscle strength: a long-term follow-up of an RCT. *BMJ Open Sport Exerc Med.* 2024;10(2):e001899. doi:10.1136/bmjsem-2024-001899
22. O'Bryan SJ, Giuliano C, Woessner MN, et al. Progressive Resistance Training for Concomitant Increases in Muscle Strength and Bone Mineral Density in Older Adults: A Systematic Review and Meta-Analysis. *Sports Medicine Auckl N Z.* Aug 2022;52(8):1939-1960. doi:10.1007/s40279-022-01675-2
23. Behm D. *The science and physiology of flexibility and stretching: implications and applications in sport performance and health.* Taylor & Francis; 2024.
24. Emilio EJ, Hita-Contreras F, Jimenez-Lara PM, Latorre-Roman P, Martinez-Amat A. The association of flexibility, balance, and lumbar strength with balance ability: risk of falls in older adults. *J Sports Sci Med.* May 2014;13(2):349-57.
25. Behm DG, Kay AD, Trajano GS, Alizadeh S, Blazeovich AJ. Effects of Stretching on Injury Risk Reduction and Balance. *Journal of Clinical Exercise Physiology.* 2021;10(3):106-116. doi:10.31189/2165-6193-10.3.106
26. Skovgaard C, Almquist NW, Bangsbo J. Effect of increased and maintained frequency of speed endurance training on performance and muscle adaptations in runners. *J Appl Physiology Bethesda Md* 1985. Jan 1 2017;122(1):48-59. doi:10.1152/jappphysiol.00537.2016
27. Leyva WD, Wong MA, Brown LE. Resisted and assisted training for sprint speed: A brief review. *Journal Physical Fitness, Medicine and Treatment in Sports.* 2017;1(1):555554.
28. Jamieson AR, Wijesundara HD. A review of adaptive equipment and technology for exercise and sports activities for people with disabilities. *Disabil Rehabil Assist Technol.* Jul 4 2024:1-13. doi:10.1080/17483107.2024.2372323
29. Manojlovic M, Roklicer R, Trivic T, et al. Effects of school-based physical activity interventions on physical fitness and cardiometabolic health in children and adolescents with disabilities: a systematic review. *Front Physiol.* 2023;14:1180639. doi:10.3389/fphys.2023.1180639
30. Adamson B, Woo M, Liechty T, et al. Development and Pilot Testing of the Disability Awareness Training and Education Program Among Community-Based Group Fitness Instructors. *Adapt Phys Activ Q.* Apr 1 2023;40(2):323-346. doi:10.1123/apaq.2022-0012





31. Kjertakov M, Petersen A. Hot water immersion could be an effective alternative to physical exercise in improving cardiovascular fitness during the COVID-19 pandemic. *Front Physiol.* 2022;13:1035183. doi:10.3389/fphys.2022.1035183
32. Kemmler W, Shojaa M, Kohl M, von Stengel S. Effects of Different Types of Exercise on Bone Mineral Density in Postmenopausal Women: A Systematic Review and Meta-analysis. *Calcif Tissue Int.* Nov 2020;107(5):409-439. doi:10.1007/s00223-020-00744-w
33. Rezende LFM, Sa TH, Markozannes G, et al. Physical activity and cancer: an umbrella review of the literature including 22 major anatomical sites and 770 000 cancer cases. *Brit J Sport Med.* Jul 2018;52(13):826-833. doi:10.1136/bjsports-2017-098391
34. McTiernan A. Mechanisms linking physical activity with cancer. *Nat Rev Cancer.* Mar 2008;8(3):205-11. doi:10.1038/nrc2325
35. Mandolesi L, Polverino A, Montuori S, et al. Effects of Physical Exercise on Cognitive Functioning and Wellbeing: Biological and Psychological Benefits. *Front Psychol.* 2018;9:509. doi:10.3389/fpsyg.2018.00509
36. Zahalka SJ, Abushamat LA, Scalzo RL, Reusch JEB. *The Role of Exercise in Diabetes.* MDText.com, Inc., South Dartmouth (MA); 2000.
37. Koay YC, Stanton K, Kienzle V, et al. Effect of chronic exercise in healthy young male adults: a metabolomic analysis. *Cardiovasc Res.* Jan 21 2021;117(2):613-622. doi:10.1093/cvr/cvaa051
38. Chiu CH, Ko MC, Wu LS, et al. Benefits of different intensity of aerobic exercise in modulating body composition among obese young adults: a pilot randomized controlled trial. *Health Qual Life Outcomes.* Aug 24 2017;15(1):168. doi:10.1186/s12955-017-0743-4
39. Cox CE. Role of Physical Activity for Weight Loss and Weight Maintenance. *Diabetes Spectr.* Aug 2017;30(3):157-160. doi:10.2337/ds17-0013
40. Bull FC, Al-Ansari SS, Biddle S, et al. World Health Organization 2020 guidelines on physical activity and sedentary behaviour. *Brit J Sport Med.* Dec 2020;54(24):1451-1462. doi:10.1136/bjsports-2020-102955
41. Herazo-Beltran Y, Pinillos Y, Vidarte J, Crissien E, Suarez D, Garcia R. Predictors of perceived barriers to physical activity in the general adult population: a cross-sectional study. *Braz J Phys Ther.* Jan-Feb 2017;21(1):44-50. doi:10.1016/j.bjpt.2016.04.003
42. Bantham A, Taverno Ross SE, Sebastiao E, Hall G. Overcoming barriers to physical activity in underserved populations. *Prog Cardiovasc Dis.* Jan-Feb 2021;64:64-71. doi:10.1016/j.pcad.2020.11.002
43. Broskey NT, Boss A, Fares EJ, et al. Exercise efficiency relates with mitochondrial content and function in older adults. *Physiol Rep.* Jun 2015;3(6)doi:10.14814/phy2.12418
44. Kowalski T, Granda D, Klusiewicz A. Practical Application of Respiratory Muscle Training in Endurance Sports. *Strength & Conditioning Journal.* 2024;10.1519/SSC.0000000000000842. doi:10.1519/ssc.0000000000000842
45. Schumacher LM, Thomas JG, Raynor HA, Rhodes RE, Bond DS. Consistent Morning Exercise May Be Beneficial for Individuals With Obesity. *Exerc Sport Sci Rev.* Oct 2020;48(4):201-208. doi:10.1249/JES.0000000000000226
46. Bonilla DA, Cardozo LA, Velez-Gutierrez JM, et al. Exercise Selection and Common Injuries in Fitness Centers: A Systematic Integrative Review and Practical Recommendations. *Int J Environ Res Public Health.* Oct 5 2022;19(19)doi:10.3390/ijerph191912710
47. Pressman SD, Petrie KJ, Sivertsen B. How Strongly Connected Are Positive Affect and Physical Exercise? Results From a Large General Population Study of Young Adults. *Clin Psychol Eur.* Dec 2020;2(4):e3103. doi:10.32872/cpe.v2i4.3103





48. Judge LW, Bellar DM, Popp JK, et al. Hydration to Maximize Performance and Recovery: Knowledge, Attitudes, and Behaviors Among Collegiate Track and Field Throwers. *J Hum Kinet.* Jul 2021;79:111-122. doi:10.2478/hukin-2021-0065
49. Kim D, Cho M, Park Y, Yang Y. Effect of an exercise program for posture correction on musculoskeletal pain. *J Phys Ther Sci.* Jun 2015;27(6):1791-4. doi:10.1589/jpts.27.1791
50. Doherty R, Madigan SM, Nevill A, Warrington G, Ellis JG. The Sleep and Recovery Practices of Athletes. *Nutrients.* Apr 17 2021;13(4)doi:10.3390/nu13041330
51. Ingledew DK, Markland D. The role of motives in exercise participation. *Psychol Health.* 2008/10/01 2008;23(7):807-28. doi:10.1080/08870440701405704
52. Kaushal N, Rhodes RE. Exercise habit formation in new gym members: a longitudinal study. *J Behav Med.* Aug 2015;38(4):652-63. doi:10.1007/s10865-015-9640-7
53. Lu Y, Yu K, Gan X. Effects of a SMART Goal Setting and 12-Week Core Strength Training Intervention on Physical Fitness and Exercise Attitudes in Adolescents: A Randomized Controlled Trial. *Int J Environ Res Public Health.* Jun 23 2022;19(13):7715. doi:10.3390/ijerph19137715
54. Munroe-Chandler KJ, Hall CR, Fishburne GJ, Strachan L. Where, when, and why young athletes use imagery: an examination of developmental differences. *Res Q Exerc Sport.* Mar 2007;78(2):103-16. doi:10.1080/02701367.2007.10599408
55. Wolff W, Bieleke M, Martarelli CS, Danckert J. A Primer on the Role of Boredom in Self-Controlled Sports and Exercise Behavior. *Perspective. Front Psychol.* 2021-March-01 2021;12:637839. doi:10.3389/fpsyg.2021.637839
56. Teixeira PJ, Carraca EV, Markland D, Silva MN, Ryan RM. Exercise, physical activity, and self-determination theory: a systematic review. *Int J Behav Nutr Phys Act.* Jun 22 2012;9(1):78. doi:10.1186/1479-5868-9-78
57. Smith GSE, Moyle W, Burton NW. The Relationship between Social Support for Physical Activity and Physical Activity across Nine Years in Adults Aged 60-65 Years at Baseline. *Int J Environ Res Public Health.* Mar 3 2023;20(5)doi:10.3390/ijerph20054531
58. Jin D, Halvari H, Maehle N, Olafsen AH. Self-tracking behaviour in physical activity: a systematic review of drivers and outcomes of fitness tracking. *Behaviour & Information Technology.* 2022/01/25 2020;41(2):242-261. doi:10.1080/0144929x.2020.1801840
59. Peterson JA. 10 Common-Sense Safety Tips for Exercise Enthusiasts. *ACSM'S Health & Fitness Journal.* 2009;13(2):46. doi:10.1249/FIT.0b013e3181998c64
60. Lu Y, Leng X, Yuan H, Jin C, Wang Q, Song Z. Comparing the impact of personal trainer guidance to exercising with others: Determining the optimal approach. *Heliyon.* Jan 30 2024;10(2):e24625. doi:10.1016/j.heliyon.2024.e24625
61. Armstrong LE, Bergeron MF, Lee EC, Mershon JE, Armstrong EM. Overtraining Syndrome as a Complex Systems Phenomenon. *Front Netw Physiol.* 2021;1:794392. doi:10.3389/fnetp.2021.794392
62. Bahr R, Krosshaug T. Understanding injury mechanisms: a key component of preventing injuries in sport. *Brit J Sport Med.* Jun 2005;39(6):324-9. doi:10.1136/bjism.2005.018341
63. Verges S, Notter D, Spengler CM. Influence of diaphragm and rib cage muscle fatigue on breathing during endurance exercise. *Respir Physiol Neurobiol.* Dec 2006;154(3):431-42. doi:10.1016/j.resp.2005.12.007
64. Thompson WR. WORLDWIDE SURVEY OF FITNESS TRENDS FOR 2019. *ACSM's Health & Fitness Journal.* 2018;22(6)
65. Thomas E, Battaglia G, Patti A, et al. Physical activity programs for balance and fall prevention in elderly: A systematic review. *Medicine (Baltimore).* Jul 2019;98(27):e16218. doi:10.1097/MD.00000000000016218





66. Acar H, Eler N. The Effect of Balance Exercises on Speed and Agility in Physical Education Lessons. *Universal Journal of Educational Research*. 2019;7(1):74-79.
67. Marra M, Sammarco R, De Lorenzo A, et al. Assessment of Body Composition in Health and Disease Using Bioelectrical Impedance Analysis (BIA) and Dual Energy X-Ray Absorptiometry (DXA): A Critical Overview. *Contrast Media Mol Imaging*. 2019;2019:3548284. doi:10.1155/2019/3548284
68. Pavy B, Iliou MC, Meurin P, et al. Safety of exercise training for cardiac patients: results of the French registry of complications during cardiac rehabilitation. *Arch Intern Med*. Nov 27 2006;166(21):2329-34. doi:10.1001/archinte.166.21.2329
69. Miller MR, Hankinson J, Brusasco V, et al. Standardisation of spirometry. *Eur Respir J*. Aug 2005;26(2):319-38. doi:10.1183/09031936.05.00034805
70. Vilcant V, Zeltser R. Treadmill Stress Testing. *StatPearls*. StatPearls Publishing; 2024.
71. Fletcher GF, Ades PA, Kligfield P, et al. Exercise standards for testing and training: a scientific statement from the American Heart Association. *Circulation*. Aug 20 2013;128(8):873-934. doi:10.1161/CIR.0b013e31829b5b44
72. Beltz NM, Gibson AL, Janot JM, Kravitz L, Mermier CM, Dalleck LC. Graded Exercise Testing Protocols for the Determination of VO(2)max: Historical Perspectives, Progress, and Future Considerations. *J Sports Med (Hindawi Publ Corp)*. 2016;2016:3968393. doi:10.1155/2016/3968393
73. Riddell M, Perkins BA. Exercise and glucose metabolism in persons with diabetes mellitus: perspectives on the role for continuous glucose monitoring. *J Diabetes Sci Technol*. Jul 1 2009;3(4):914-23. doi:10.1177/193229680900300439
74. Cadmus-Bertram LA, Marcus BH, Patterson RE, Parker BA, Morey BL. Randomized Trial of a Fitbit-Based Physical Activity Intervention for Women. *Am J Prev Med*. Sep 2015;49(3):414-8. doi:10.1016/j.amepre.2015.01.020
75. Abdalazim N, Larraza JAA, Alchieri L, Alecci L, Santini S, Gashi S. Heart Rate During Sleep Measured Using Finger-, Wrist-and Chest-Worn Devices: A Comparison Study. Springer; 2022:18-32.
76. Pasadyn SR, Soudan M, Gillinov M, et al. Accuracy of commercially available heart rate monitors in athletes: a prospective study. *Cardiovasc Diagn Ther*. Aug 2019;9(4):379-385. doi:10.21037/cdt.2019.06.05
77. Taoum A, Chaudru S, PY DEM, et al. Comparison of Activity Monitors Accuracy in Assessing Intermittent Outdoor Walking. *Med Sci Sports Exerc*. Jun 1 2021;53(6):1303-1314. doi:10.1249/MSS.0000000000002587
78. Dahiya ES, Kalra AM, Lowe A, Anand G. Wearable Technology for Monitoring Electrocardiograms (ECGs) in Adults: A Scoping Review. *Sensors (Basel)*. Feb 18 2024;24(4)doi:10.3390/s24041318

