



ENDURANCE

EXERCISING TO BUILD ENDURANCE

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WHAT IS ENDURANCE?

There are two types of endurance – cardiovascular endurance (CVE) and muscular endurance (ME). You have probably heard of these before, but may not know the differences, or why they are so important to health and sports performance.

There are three types of CVE – aerobic, anaerobic and speed - and each of these has a different purpose. We are going to focus on aerobic CVE which is the ability to maintain physical activity at low to medium intensity for long periods of time with steady oxygen intake

Muscular endurance is the ability to continue contracting a muscle, or group of muscles, against resistance over time. This resistance might take the form of weight training, or your own bodyweight, and your ME will improve the more you participate in these exercises. Our aerobic CV and ME systems work together as continuous exercise of any kind requires repeated muscle contraction and relaxation.



WHY IS ENDURANCE IMPORTANT?

Preventing weight gain, lowering blood pressure, reducing anxiety and depression are just a few of the health benefits, according to the American College of Sports Medicine (ACSM) (2022).

High levels of aerobic endurance improve performance in most sports. In some, like long distance running or triathlons, it is the most important component of fitness. In skill-based sports it is equally important as it allows athletes to perform at a high skill level for longer when they have good general fitness levels.

Muscular endurance allows us to maintain good posture, back health, bone, and joint health. ME can boost sports performance by improving the muscles' ability to use oxygen (allowing them to work harder for longer), decrease the chances of injury and increasing overall strength.

To reap the above benefits of aerobic CV and ME the recommendation is for healthy individuals between the ages of 18 and 65 to exercise for at least 30 minutes, five days a week, at a moderate level of intensity, or for at least 20 minutes, three days a week, at a vigorous level. Adults should also participate in ME exercise at least two (preferably three) days a week.

HOW TO MEASURE AEROBIC CV

There are many different fitness tests for aerobic CV, some are minimal effort tests (3-minute step test), some maximum effort (bleep test, and yes, you might be bleeping during it!) and others can be sport specific (12-minute cooper test). If this is something of interest to you, please get in touch and we would be happy to discuss how best to do this with you.

HOW TO IMPROVE AEROBIC CV

Similarly to your testing measures, your training needs to be sport / goal specific. If you're a cyclist, build aerobic CV by cycling, a runner - run, and so on. If you don't play a specific sport, you can train to improve your endurance through any cardiovascular based activity.



TRAINING PRINCIPLES TO CONSIDER:

- **Intensity** – For aerobic CV training, intensity should be moderate. This can be defined as 60-70% of your maximum heart rate (endurance training zone). The most common type of training to achieve this, is long slow distance (LSD) training.
- **Volume** - LSD training allows for a high volume of training without an increased risk of injury, adequate volume is necessary for improving endurance. Your training volume should be specific to your goal and ability level (beginner, intermediate, advanced).
- **Time & Distance** – This should also be goal / ability specific however, a general rule for aerobic CV is longer and slower. For example, if you are a runner, you'll be running longer distances at a slower pace, gradually building up to race distance and some cases surpassing it. This type of training also helps to improve your recovery time in-between training sessions.

HOW TO MEASURE ME

Tests for ME can be categorised by body part (upper, lower, core or fully body), type of test (maximum effort or timed), and whether they're sport specific.

Factors to consider:

- **Timed test** - as many reps with good technique as possible within the time limit (usually 1-2 minutes).
- **Maximum effort test** – no time limit, instead the participant performs reps until muscular fatigue occurs which is when proper form ceases.
- **Assistance** - Many tests you can carry out yourself although it does help to have someone to help with timing, counting and form checks.
- **Test selection** should take into consideration your goals and target areas (parts of the body) and the same test(s) should be carried out 4-6 weeks later to measure improvement.

HOW TO IMPROVE ME

To improve muscular endurance, participate in resistance training, preferably a programme tailored to your goals or sport. The ME training programme can be modified to best meet your needs by adjusting variables like:



ADJUSTING VARIABLES

- Exercise selection and intensity
- Type of resistance
- Training volume
- Training frequency

According to the National Strength and Conditioning Association (NSCA) (2017), accompanying an aerobic CV plan with a ME resistance training programme can help improve performance by increasing stamina of the muscles and decreasing the chances of injury.

If you would like to improve your Cardiovascular or Muscular endurance email pt@healthoutfit.co.uk to get your personal training plan.

REFERENCES



ACSM. (2022). Physical Activity Guidelines. [Online]. American College of Sports Medicine. Available at: <https://www.acsm.org/education-resources/trending-topics-resources/physical-activity-guidelines> [Accessed 24 September 2022]



NSCA. (2017). Aerobic Endurance Training Strategies. [Online]. National Strength and Conditioning Association. Last Updated: May. Available at: <https://www.nasca.com/education/articles/kinetic-select/aerobic-endurance-training-strategies/> [Accessed 24 September 2022]