

# PACER TEST

## What is the PACER test?

The 20m PACER test is a cardiovascular fitness test that measures aerobic capacity. Participants' performance is measured according to Healthy Fitness Zone standards based on age and gender, developed by The Cooper Institute.

## What is cardiovascular fitness?

Cardiovascular fitness, also known as aerobic fitness, is a measure of how fit and efficient your heart and respiratory systems are.

## What is aerobic capacity?

According to The Cooper Institute, "Aerobic capacity is a measure of the ability of the heart, lungs, and muscles to perform sustained physical activity." Basically, the more you exercise, the higher your aerobic capacity level will be.

## How is aerobic capacity measured?

Aerobic capacity is measured according to VO<sub>2</sub>max, or the body's maximum oxygen intake. This tells us how fast the body can take in, transport, and use oxygen when exercising. The faster your body can complete this process, the more fit you are.

## Why is it important?

Your risk for many health problems such as **heart disease, obesity, high blood pressure, stroke, and diabetes** can be reduced by having good aerobic capacity. Though it may seem like you are not at risk until you are an adult, these diseases can begin in children and teens so it is important to start living a healthy lifestyle now!

## How can I improve my score?

If you want to see a significant and meaningful improvement in your overall PACER score there is no easy way around it. You need to work hard. Aerobic exercise training in some form is a must. Here are some workout suggestions for you to get started!



## Pre-run preparation

Make sure you are recovered with at least 24 hours rest since your last training session. You should be well hydrated and prepared with a light meal or snack 1-2 hours beforehand. It's advisable to wear comfortable athletic wear (shirt / shorts) as well as a good pair of athletic sneakers.

## Pacing Strategies

Pacing plays a large role in the number of laps completed. You may be able to improve your score simply through pacing yourself so that you don't waste energy from one end to the other. When you're out there running stay relaxed. Run with your shoulders back while breathing deeply and smoothly.

## Training

In order to significantly improve your PACER score you will need to do focused aerobic and anaerobic workouts. It's advisable to gradually progress your exercise time, frequency and intensity. Trying to do too much, too soon is a recipe for injury.

The American College of Sports Medicine recommends for individuals to get at least 150 minutes of moderate-intensity exercise per week. This can be met through;

- 30-60 minutes of moderate intensity exercise (five days per week) or
- 20-60 minutes of vigorous intensity exercise three days per week

The chart below provides examples of light, moderate, and vigorous activities you can engage in.

<b>Light Activity 3 METs</b>	<b>Moderate Activity 3 - 6 METs</b>	<b>Vigorous Activity &gt; 6 METs</b>
< 3.5 kcal/min	3.5 to 7 kcal/min	> 7 kcal/min
<ul style="list-style-type: none"><li>• Walking at 2 mph</li><li>• Shopping</li><li>• Fishing</li><li>• Housework (dusting, washing dishes)</li><li>• Ironing</li><li>• Knitting</li><li>• Mowing the lawn (riding mower)</li></ul>	<ul style="list-style-type: none"><li>• Walking at a moderate or brisk pace of 3 to 4.5 mph on a level surface inside or outside</li><li>• Bicycling 5 to 9 mph, level terrain, few hills</li><li>• Softball</li><li>• Shooting baskets</li><li>• Recreational swimming</li><li>• Yoga</li></ul>	<ul style="list-style-type: none"><li>• Race walking and aerobic walking — 5 mph or faster</li><li>• Jogging or running</li><li>• Bicycling more than 10 mph or bicycling on a steep uphill terrain</li><li>• Football game</li><li>• Basketball game</li><li>• Tennis match</li><li>• Swimming Laps</li></ul>

**Inside and on the treadmill-** The simplest type of treadmill workout for PACER training would be to set the treadmill to 1% incline and 5 mph. Then each minute on the minute increase the speed by 0.3 mph. This simulates the progressive increase in speed for the PACER.

**Outside Exercise-** One of the best exercises that you can complete is a fartlek run.

1. After warming-up head out on some safe roads or track and complete a 5-10 min easy jog / walk.
2. Once through with the warm-up run for 15 mins with 3-6 x 45 second pickups.
3. Simply up the tempo a bit, not anywhere close to an all out sprint. Jog or easily walk for 2-3 minutes between each pickup.
4. Cool down with a 5 minute walk.

You can complete this workout 1-2x per week.

## Cross Training Methods

If running 3-5 days per week isn't your favorite thing to do there are certainly other ways to go about improving your health and cardiovascular fitness. As long as your heart rate is in the target heart rate zone of 60-85% of your maximum heart rate your fitness will be improving. Sample exercises include;

- Erg (Rowing Machine)
- Exercise Bike or Cycling
- StairMaster
- Elliptical
- Rollerblading

A way to keep workouts and exercises fun can be varying the speed and intensity of what you're doing.

- You can attain 20 minutes of vigorous activity by first warming up and then completing intervals of 1 min hard and 1 min easy (recovery) repeated 10x.
- A different and more challenging variation would be 30 seconds of hard work with 30 seconds of recovery done 20x.

These are great workouts on the bike or erg. Since they are non-weight bearing they are a great way to get started with cardiovascular training. These exercises also get your heart rate up without putting added stress to your ligaments, joints, and muscles.

- **What are the benchmarks?**

Healthy Fitness Zone (HFZ) benchmarks are specific to age and gender and are listed in the charts below:

**Benchmarks- FEMALE Middle School ages**

Age (yrs)	Pacer HFZ
11	15
12	23
13	23
14	23

**Benchmarks- MALE Middle School ages**

Age (yrs)	Pacer HFZ
11	23
12	32
13	41
14	41

Resources:

<http://www.fitnessgram.net/program-overview>

<http://www.fitnessgram.net/AcuCustom/Sitename/DAM/100/fgsamplereports.pdf>

[http://www.polar.com/us-en/support/What\\_is\\_aerobic\\_cardiovascular\\_fitness](http://www.polar.com/us-en/support/What_is_aerobic_cardiovascular_fitness)

<http://www.acefitness.org/acefit/fitness-fact/1/cardiovascular-exercise/>