

Fitness Unit

Name: _____

Testing Dates:

Fitness Heart Rates

Resting Heart Rate (RHR) is the number of times the heart beats per minute during a resting state. The heart is most at rest when we are asleep; the best time to determine our heart rate is when we first awake. Record your resting heart rate for three days and then add these together and divide by three. This will give you an accurate average resting heart rate.

Detecting your pulse and therefore your heart rate is most easily done at your radial artery (which is located at the distal end of your radius) or at your carotid artery (which is located on the lateral sides of your hyoid bone in your neck).

Target Heart Rate (THR) is the number of beats per minute (bpm) at which your heart should be beating during aerobic exercise in order to facilitate cardiorespiratory improvement. For healthy individuals, this range is from 60-90 percent of maximal heart rate (MHR).

Maximum Heart Rate (MHR) is an estimate obtained by subtracting your age from 220. For example, an eighteen-year-old may have a MHR of $220 - 18 = 202$ bpm. To determine THR, this individual would take a percentage of his or her MHR, and target aerobic work between 60 percent on the lower end to 90 percent on the upper end. This calculation would be expressed as follows:

$$\text{THR of 60\%} = 121 \text{ bpm}$$

$$\text{THR of 90\%} = 181 \text{ bpm}$$

The Karvonen or **heart rate reserve** method (HRR) takes into account resting heart rate and is defined as the difference between MHR and RHR ($\text{MHR} - \text{RHR}$). The American College of Sports Medicine (ACSM) recommends the use of this method over the percentage of maximal heart rate because it correlates well with laboratory values of VO_2 Reserve, which is the difference between VO_2max and VO_2 at rest.

Using this method, RHR is initially subtracted from MHR. Once the exercise intensity has been determined, RHR is simply added back on.

Using our example of the eighteen-year-old who has a RHR of 72 bpm and a MHR of 202, the application of the HRR formula would be as follows:

$$\text{HRR} = 202 - 72 = 130 \text{ bpm}$$

Therefore, using the heart rate reserve method, a THR set at 50 percent of HRR would be

$$(130 \times .50) + 72 = 65 + 72 = 137 \text{ bpm}$$

Whereas, a THR set at 85 percent of HRR would be

$$(130 \times .85) + 72 = 110 + 72 = 182 \text{ bpm}$$

Current research tells us that individuals who are in poor aerobic condition will benefit more from working on the lower end of the percentage of their HRR and vice versa. Also, keep in mind that, whatever method you use to determine intensity, it is only an estimation of appropriate intensity levels – if you feel as if you are exercising too hard or too little, you probably are. The best advice is to reduce or increase your intensity and find a heart rate range that works best for you.

Fitness F.I.T.T. Principle • Body Mass Index • Fitness Components

The **F.I.T.T. Principle** captures the four basic building blocks of any exercise plan:

- Frequency
- Intensity
- Type
- Time

These four dimensions apply to and need to be addressed when devising any fitness or training program. The acronym (F.I.T.T.), coined by David M. Chisholm, M.D., makes it easy to remember.

Body Mass Index (BMI)

One measure widely used by medical practitioners to assess the extent to which individuals are balancing the energy equation (i.e., are underweight or overweight relative to their height) is **Body Mass Index (BMI)**. BMI is the ratio of a person's weight in kilograms to the square of his or her height in metres:

$$\text{BMI} = \text{weight}/\text{height}^2$$

In most cases, BMI correlates well with increased risks of disease, particularly cardiovascular, pancreatic, and kidney disease. Generally, those with a BMI of 27 or more are considered to be overweight; those with a BMI of 30 or more are considered obese. Those with a BMI of 18.5 or lower are considered to be underweight.

While BMI is well established, the index has limitations. The most important is that it does not distinguish between fat and excess muscle. For this reason, athletes such as wrestlers, weightlifters, and football players would record high BMIs, but this may have no relation to their overall risk for mortality.

Fitness Components	
Agility Measures change of direction.	Endurance Measures how well the body uses oxygen.
Flexibility Measures range of motion of joints.	Power Measures explosiveness.
Speed (vs. Quickness) Measures all out linear speed.	Strength Measures explosiveness.
Body Composition Measures body fat and tissue distribution.	Precision Measures exactness and accuracy.
Proprioception Measures awareness of movement and position of body.	Balance Measures ability to remain upright and steady.

Fitness Individual Testing Sheet • Name: _____

Students will be doing fitness testing four times throughout the semester. This will comprise 10% of the overall mark. This sheet is for the convenience of the student to track their progress by recording their results, and may be required for submission at the end of the semester.

Testing Exercise	Testing Session 1	Testing Session 2	Testing Session 3	Testing Session 4
	Score/Time/Result	Score/Time/Result	Score/Time/Result	Score/Time/Result
Illinois Agility Run				
40 Yard (33m) Dash				
Standing Broad Jump				
400m Run				
Beep Test				
Push-Ups (2 min.)				
Crunches (2 min.)				
Speed Skipping (? min.)				
Vertical Jump				
Dot Drill				
Chin-Ups				
Dips				
Sit and Reach				
1500m Run				

PPL4O

Competitive
Fitness Unit

A large, light green watermark of the Pickering High School logo is centered behind the text. The logo is circular and contains a crest with a book, a banner that says "ENTER TO LEARN", and another banner that says "GO WORTH TO SERVE". The words "PICKERING" and "HIGH SCHOOL" are written around the perimeter of the circle.

CrossFit & Spartan Race

Quick Sheet

CrossFit
— 0 1 2 3 4 5 6 7 8 9 10 11 12 —



Type: Competitive Fitness

Locale: Indoor/Outdoor

Equipment: various

Participants: any number of participants

International Governance: CrossFit, Inc.
Spartan Race

www.crossfit.com

www.spartanrace.com

Local Recreational Leagues:

CrossFit Pickering and Pilates Pickering

www.crossfitpickering.com

Pickering

CrossFit Oshawa

www.crossfitoshawa.com

Oshawa

CrossFit Markham

www.crossfitmarkham.com

Markham

CrossFit Toronto

www.crossfitto.com

Toronto

CrossFit Colosseum

www.crossfitcolosseum.com

Toronto

CrossFit Quantum

www.crossfitquantum.com

Toronto

CrossFit 416

www.crossfit416.ca

Toronto

Tidal CrossFit Danforth

www.tidalcrossfit.com

Toronto

Auxiliary CrossFit

www.auxiliarycrossfit.com

Toronto

Reebok CrossFit Liberty Village

www.reebokcrossfitlibertyvillage.com

Toronto

Academy of Lions

www.academyoflions.com

Toronto

CrossFit

History

CrossFit, Inc. is a fitness program developed by Greg Glassman in 2000. The first affiliated gym was CrossFit North in Seattle, Washington; there were 13 by 2005 and more than 4,300 today. Coaches associated with CrossFit include Louie Simmons, Bob Harper and Mike Burgener. Another CrossFit subject matter expert is Dr. Nicholas Romanov, inventor of the Pose method of running.

CrossFit describes its strength and conditioning program as "constantly varied, high intensity, functional movement," with the stated goal of improving fitness (and therefore general physical preparedness), which it defines as "work capacity across broad time and modal domains." Workouts are typically short—20 minutes or less—and intense, demanding all-out physical exertion. They combine movements such as sprinting, rowing, jumping rope, climbing rope, flipping tires, weightlifting, and carrying odd objects; they use barbells, dumbbells, gymnastics rings, pull-up bars, kettlebells, medicine balls, boxes for box jumps, and many bodyweight exercises. These elements are mixed in numerous combinations to form prescribed "Workouts of the Day" or "WODs". Hour-long classes at affiliated gyms, or "boxes," typically include a warm-up, a skill development segment, the high-intensity WOD, and a period of individual or group stretching. Performance on each WOD is often scored and/or ranked to encourage competition and to track individual progress. Some affiliates offer additional classes, such as Olympic weightlifting, which are not centered around a WOD.

CrossFit programming is used by 4,400 private affiliated gyms and many fire departments, law enforcement agencies, and military organizations including the Canadian Forces and the Royal Danish Life Guards, as well as by some U.S. and Canadian high school physical education teachers, high school and college sports teams, and the Miami Marlins. In addition, there are a number of gyms that use CrossFit-style exercises and workouts but are not officially affiliated with CrossFit, Inc. Many people who do CrossFit workouts on their own often post their results on CrossFit's website.

The "CrossFit Games" have been held every summer since 2007. Participation and sponsorship have grown rapidly; the prize money awarded to each first-place male and female increased from \$500 at the inaugural Games to \$250,000 in 2011 and 2012. Athletes at the Games compete in workouts they learn about only hours beforehand, sometimes including surprise elements that are not part of the typical CrossFit regimen; past examples include a rough-water swim and a softball throw. The Games are styled as a venue for determining the "Fittest on Earth," where competitors should be "ready for anything."

Source: wikipedia.org

Body weight exercises

1. **Air squat:** Athlete moves from the standing position to a squatting position with the hips below the knees, and back to standing. One-legged air squats are referred to as *pistols*.
2. **Back extension:** Using a GHD machine, the athlete moves from an L-shaped position with the head directly below the pelvis to an extended horizontal position.
3. **Box jump:** From a standing position on the floor, the athlete jumps and lands with both feet on top of a box, and fully extends before returning to the floor. Typical box heights in inches are 15", 20", 24", and 30".
4. **Burpee:** Beginning in a standing position, the athlete drops to the floor with the feet extending backward, contacts the floor with the chest, and then pulls the legs forward, landing in a squatting position before standing up, usually ending with a small jump.
5. **Handstand push-up:** Beginning in a handstand, with the arms straight and (usually) the heels gently resting against a wall, the athlete bends the arms until the head touches the ground, and then pushes back up into a handstand position.
6. **Jump rope:** The most common variation in CrossFit is the "double under" in which the jump rope makes two revolutions for each jump.
7. **Knees-to-elbows:** Hanging from a bar, starting in an extended position, the athlete raises the knees until they make contact with the elbows.
8. **L-sit:** With the body supported on gymnastics rings or parallettes, the athlete holds the feet at or above the level of the hips with the legs straight.
9. **Lunge:** Athlete takes a large step forward, bends the forward knee until the back knee makes contact with the ground, and rises.
10. **Muscle-up:** Hanging from gymnastics rings or a bar, the athlete pulls up and over the rings or bar, ending with the arms straight and the hands below the hips.
11. **Ring dip:** Starting with the body supported on the rings with straight vertical arms, the athlete bends the arms, lowering the body until the shoulder drops below the elbow, and then straightens the arms.
12. **Pull-up:** Starting from a hanging position with straight arms, the athlete pulls up until the chin is over the bar. Variations include: strict, in which no swinging is allowed; kipping, in which momentum is used to help complete the movement; weighted, in which extra weight is hung from the athlete; chest-to-bar, in which the ending point of the movement is higher, and the chest makes contact with the bar; jumping, in which the legs are used to help propel the athlete upwards; assisted, in which an elastic band allows the movement to be completed with less than full body weight.
13. **Push-up:** Starting in a plank position with the arms straight, the athlete lowers until the chest makes contact with the ground, keeping the body straight throughout, and pushes back up into the plank position. Variations include weighted push-ups and ring push-ups, in which the hands are supported just above the ground by gymnastics rings.
14. **Rope climb:** Starting from the ground, the athlete climbs a rope and touches a point at a designated height, often 15 feet. Variations include no feet, and L-sit, in which the feet are held above the level of the hips during the climb.
15. **Sit-up:** Athlete moves from a supine position, with the shoulders on the ground, to a sitting position with the shoulders over the hips. The feet are sometimes anchored. An "ab-mat" is sometimes placed under the lower back.
16. **Toes-to-bar:** Hanging from a bar in an extended position, the athlete brings the feet upward until they make contact with the bar.

Distance movements

17. **Running:** Typical distances range from 100 meters to 1 mile. Shuttle runs back and forth between marks 10 meters apart are also common.
18. **Rowing:** Many workouts include rowing machine distances from 500 meters to 2000 meters, or rowing "for calories".

Movements with weights

19. **Deadlift:** Barbell is lifted from the ground until the athlete reaches an upright standing position.
20. **Clean:** Barbell is (or dumbbells are) lifted from the ground to a "rack position" in front of the athlete's neck. Athlete ends in a standing position. In a squat clean the athlete receives the bar in a squatting position and stands to finish the lift. In a power clean, the athlete receives the bar in a partial squat.
21. **Kettlebell swing:** A kettlebell is swung from between the legs to overhead.
22. **Press:** Barbell is moved from the "rack position" to the overhead position. In a strict press, also called a shoulder press or military press, the lower body remains stationary. In a push press, the bar is "jumped" off the body using a "dip and drive" motion. A push jerk is like a push press, but with a rebound of the knees to allow the athlete to drop under the bar and receive it with straight arms. A split jerk is like a push jerk, but one leg goes forward and the other backward when the athlete drops under the bar.
23. **Snatch:** Barbell is raised from the floor to the overhead position in one motion. In a squat snatch the athlete receives the bar in a squatting position and stands to finish the lift. In a power snatch, the athlete receives the bar in a partial squat.
24. **Squat:** Barbell is supported on upper back (back squat), in the rack position (front squat), or in the overhead position (overhead squat). From a standing position with a wider-than-shoulder-width stance, the athlete bends the knees until the hips are below the knees, and then stands, keeping the heels on the floor.
25. **Sumo deadlift high pull:** With a wide stance, a barbell or kettlebell is lifted from the ground to a position just under the chin.
26. **Thruster:** A combination of a front squat and a push press: starting with the barbell in the rack position, the athlete squats (hips below knees) and then stands, driving the barbell overhead.
27. **Tire flip:** A large tire, lying on its side, is flipped over by lifting one edge.
28. **Wallball:** Holding a medicine ball below the chin while facing a wall at arms length, the athlete squats (hips below knees) and stands, throwing the medicine ball in order to make contact with an overhead target on the wall.

Source: wikipedia.org & crossfit.com

Spartan Race

History

Spartan Race was founded in 2004 by Joe Desena, Mike Morris, Andy Weinberg, Selicia Sevigny, Richard Lee, Brian Duncanson, Shaun Bain, and Noel Hanna. Each has an extensive background in athletics, racing, and service. The Spartan Death race originated in 2005 as a seed for future Spartan Races.

The first Spartan Race event was held in 2010 at the Catamount Outdoor Center in Williston, Vermont and represented the city of Burlington, Vermont. Roughly 500 competitors had to "run, crawl, jump and swim" and overcome a variety of obstacles at the first ever Spartan Race. All finishers received a medal and prizes were awarded to the top athletes- a precedent that lives on today. Currently, Spartan Race attract thousands of athletes to each event.

While Spartan Races vary in distance from 1 mile to marathon distances, the obstacles themselves also vary and are unpredictable. Many obstacles are present at each Spartan Race, though where in the course they will be remains a mystery. Unlike other companies, Spartan Race does not provide a course map or list of obstacle to their participants and the majority of obstacles are a mystery until race day.

Spartan Mission

Spartan Race tag line, "You'll know at the Finish" promotes training and an active lifestyle. Spartan Races seek to motivate participants to become active, healthy, excited about change, and return habits where running through woods, getting dirty, and facing adversity is part of everyday life. Spartan Races have levels for everyone beginning with the entry level "Spartan Sprint", intermediate level "Super Spartan", the advanced "Spartan Beast", and the '99.9% need not apply' extreme level "Spartan Death Race".

Kids Spartan Races

Each Spartan Race feature Kids Spartan Races for children age 5–13. These races feature cargo nets, balance beam, and mud. The mini obstacle courses typically last 1/2 mile. Children who complete the courses receive finisher medals.

Charity

For the 2011 season Spartan Race announced it partnered with Homes For Our Troops. Homes For Our Troops is a charity dedicated to providing specialty homes for troops that have been severely injured. The goal of Spartan Race Inc. is to raise enough money in the 2011 season to build a "Spartan" home for soldiers who have been injured while on duty.

A Variety of Spartan Races:

Spartan Sprint = 3+ miles/15+ obstacles

Super Spartan = 8+ miles/20+ obstacles

The Spartan Beast = 12+ miles/25+ obstacles

The Death Race = 40 miles/15-20 grueling mental & physically challenges/24-48 hours

Source: wikipedia.org & spartanrace.com

Spartan Race

Common Obstacles

1. **Fire jump:** athletes must leap over flames. This obstacle is typically at the beginning or end of a race. The fire jump has appeared in nearly every Spartan Race, though certain venues do not allow fire.
2. **Barbed wire crawl:** a crawl through mud under barbed wire. Athletes must stay low to the ground as to not get injured by the wire. Crawls range from 20-100+ yards in length. The wire crawl has appeared in every Spartan Race to date.
3. **Over-Under-Through:** a series of obstacles in which runners must first climb over a wall, then under a wall, then through a tire or square hole placed in a wall. This obstacle is often repeated three or more times in a row and appears in almost every Spartan Race.
4. **Spear throw:** from a distance of 10-20 yards, athletes must throw a wooden spear into a target. If the spear does not stick, a punishment of 30 burpees is assigned. The spear throw is present at every Spartan Race with the exception of state parks that do not allow weapons. Typically, the spear throw is near the end of the race.
5. **Wall climb:** as the name suggests, runners must climb over a wooden wall. Walls range from 4-8 feet and are often in sequence. This obstacle may be repeated throughout the course.
6. **Object carry:** A signature obstacle, the object carry is often the most challenging. In a Spartan Sprint, this obstacle typically appears once. In a Super Spartan, twice; in a Beast, three times or more. The object to be carried may be a tire, rock-filled bucket, or sandbag. Both the bucket and sandbag weight between 30 and 70 pounds. Men must carry heavier objects than women.
7. **Herculean Hoist:** athletes must hoist a cement block or heavy bucket off the ground using a pulley system. This obstacle is similar to the "lat-pull" exercise machine, but is more difficult because the rope is often muddy and slippery.
8. **Tyroleean Traverse:** Spartans must traverse a single rope that is hung horizontally between two posts or trees. The rope is hung over a body of water, so if competitors cannot traverse the rope, they will fall into the water and swim.
9. **Traversal Wall:** the traversal wall is similar to a bouldering wall. If one cannot make it across the wall without falling, a 30 burpee penalty is given.
10. **Slippery Wall:** a wall built at an incline (roughly 45 degrees) that is covered in soap or grease. Runners may try to sprint up the wall or use a rope for assistance.
11. **Gladiator Arena:** before the finish line, athletes must pass through the "gladiators" who try to knock down runners using their pugil sticks.
12. **Hobie Hop:** Place a thick band around your ankles and hop through 20+ tires in a row

A variety of other obstacles are also present at a Spartan Race, and obstacles relevant to the venue are typically present as well.

The *New York Times* described the Spartan Death Race as "*Survivor meets Jackass*"; the Death Race is designed to push an athlete to his or her limits, as evidenced by its 10-15% completion rate.

Source: wikipedia.org