

The components of fitness



UNTAMED
EDUCATION

3.1.3 Physical training

Health-related Fitness Components

Flexibility

Strength

Power

Cardio-vascular endurance

Speed

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Skill-related Fitness Components

Agility

Co-ordination

Reaction Time

Balance

Timing



1. Fitness components

"Fitness is the ability to meet the demands of the environment."

1. Health-Related Fitness Components

▶ _____ **Endurance**

▶ _____

▶ _____

▶ _____

▶ _____

2. Skill-Related Fitness Components

▶ _____

▶ _____

▶ _____

▶ _____

▶ _____



2. Cardiovascular endurance

"The ability to perform for a long period of time"

Explanation

- ▶ Cardiovascular refers to the _____ and the **circulatory system** (blood vessels)
- ▶ This is determined by the body's ability to **take in** _____ and deliver it to the working muscles efficiently.
- ▶ Good cardiovascular endurance is needed for: Marathon running, swimming (long distance), cycling (long distance).



**The components of fitness****Measurement**

- ▶ - a distance of 20m is measured out and participants must run shuttles over this distance. A track is played and the athletes must reach the end of the shuttle by the time it beeps. As the levels increase the time between the beep decreases and participants must increase their speed. This test is a good predictor of VO2 Max.
- ▶ - A track of a known distance is created. The subject then runs around the track for 12 minutes at a pace they can sustain for the amount of time. The amount of laps they complete is recorded and the distance covered calculated.

3. Strength

“The ability to bear weight.”

Explanation**Dynamic Strength**

- ▶ This is the strength an athlete can apply over a period of time.
- ▶ Footballers and long distance runners need this kind of strength to complete **contractions** over a long period of time.

Static Movement

- ▶ This is the greatest amount of strength that can be applied to an object.
- ▶ Rugby players need to apply this strength in a rugby scrum.

Explosive Strength

- ▶ This is the maximum amount of strength that can be generated in **fast burst** of movement.
- ▶ Athletic throwing and jumping athletes need to have this kind of strength to record a large distance.

Maximal strength

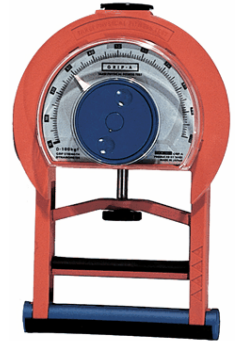
- ▶ The possible in a single contraction.



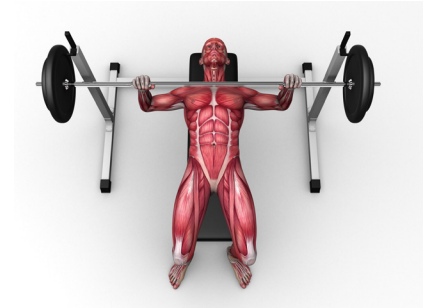
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Measurement

- ▶ Adjust the hand grip dynamometer to suit your hand.
- ▶ Hang the dynamometer in line with your arm with your dominant hand.
- ▶ The maximum strength is applied to the meter without the arm moving.
- ▶ Take the best score of two attempts.



- ▶ Choose a realistic achievable weight.
- ▶ Using the correct technique lift the bar once.
- ▶ Rest.
- ▶ If you feel you can, increase the weight and lift again.
- ▶ Repeat until you reach one rep max.
- ▶ Record the kilogram weight.



4. Flexibility

“The range of movement at a joint”

Explanation

- ▶ **Reduces the risk** of muscle and tendon _____.
- ▶ Good flexibility is needed for:
 - ▶ Gymnastics - Splits
 - ▶ Dance - Split leap
 - ▶ Football - Slide tackle



Measurement

- ▶ _____ - Participants sit with their feet flat against a bench or sit and reach block. They lean as far forward as they can without bending their knees. A measurement is taken from the fingertips with the soles of the feet being 0cm.

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5. Power

“The maximum force that can be developed by muscles in a single contraction”

Explanation

- ▶ This is the body's ability to do strength performances _____.
- ▶ **Power** = _____ **x** _____.
- ▶ Strength and power are needed for: high jumping, shot putting, weight lifting.



Measurement

- ▶ _____ - Stand still with both feet together with toes just behind a marked line. Bend your knees and swing your hands back. Jump as far as you can horizontally. Take a measurement from the back of the foot that is closest to the line.
- ▶ _____ - Standing sideways to the wall, with your feet flat on the floor, stretch up as high as you can and make a mark on the wall (you can do this by dipping your hand in chalk). Then jump as high as you can, touching the wall again. Measure the distance between the two marks on the wall to see the height of your jump.



6. Speed

“The ability to move a body part quickly”

Explanation

- ▶ This is how quickly a person can **cover a** _____ or how quickly they can perform a single movement.
- ▶ Speed is needed for:
 - ▶ A fast bowl in Cricket or Baseball
 - ▶ Throwing a javelin





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Measurement

- ▶ _____ - Measure a distance of 30m. Run at maximum speed between the markings and time with a stopwatch.

7. Agility

“The ability to change direction quickly.”

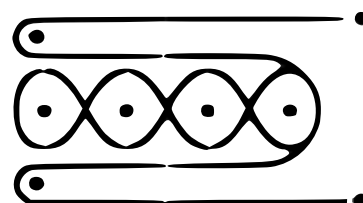
Explanation

- ▶ Being able to **change the position** of the **body** _____ without losing control is important in many sports and skills such as:
- ▶ Dribbling in Football - to take it around a player.
 - ▶ Faking a run in Basketball



Measurement

- ▶ _____ - Set out the course above. The person then sprints to the first cone, weaves in and out of the middle cones and sprints from the last cone to the end.



8. Balance

“The ability to hold a position without falling.”

Explanation

- ▶ The bigger your _____ the more **balanced** you are.
- ▶ Holding your **centre of** _____ directly over the base of support increases balance.
- ▶ Handstand in Gymnastics.
 - ▶ Marks position in 100m sprint.



Measurement

- ▶ _____ - The subject must first be blindfolded and then told to place their hands on their hips. They lift one leg and place one foot against the knee of the other leg. The amount of time the subject can stay stable is timed.



9. Co-ordination

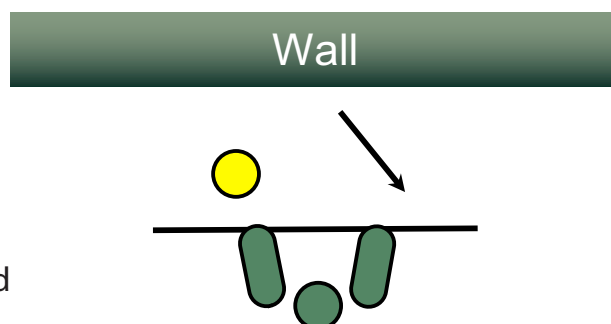
“The ability to move the body parts smoothly and accurately in response to your senses”

Explanation

- ▶ Being able to intentionally move **more than one** body part **at the** _____
_____ accurately.
- ▶ Co-ordination is needed for most sports but in particular:
 - ▶ Dance movements
 - ▶ Tennis serve

Measurement

- ▶ _____ - Standing 2 metres from the wall the subject throws the ball underarm and catches it with their other hand. This is repeated for 30s and the number recorded.



10. Speed of Reaction

“The speed of reaction to a stimulus”

Explanation

- ▶ This is how fast you can _____ a **movement** after you are **presented** with a _____.
- ▶ **Sprinting from the blocks** when you hear the gun.
- ▶ A goalkeeper reacting to a **deflected shot**.

Measurement

- ▶ _____ - Place the hand on the edge of the table with the hand overhanging the end. A metre ruler is placed between the space of the finger and thumb at the 50cm mark. The ruler is dropped and the result is recorded minus 50cm.





11. Timing

“The ability to act at just the right time.”

Explanation

- ▶ Being able to **move at the correct** _____ in time during skill performance can determine the outcome of a performance.
- ▶ **Striking the ball** at the right moment when performing a volley in Football.
- ▶ Timing when to **initiate a tackle** in Rugby or American football.



Measurement

- ▶ There is _____ **formal test** that is used to measure timing as this is skill specific and should be tested when performing the skill.

12. Reasons to test

- ▶ identify _____ or _____ in a performance or training programme.
- ▶ monitors _____.
- ▶ gives a **base line** level of fitness.
- ▶ allows individual scores to be compared to group norms or **national** _____.
- ▶ allows _____ to be set and _____.
- ▶ provides _____ to a training programme.

13. Limitations of testing

- ▶ tests are often **not sport** _____ or too general.
- ▶ they **do not replicate** the _____ in activity.
- ▶ they **do not replicate** _____ conditions.
- ▶ some may **not be** _____ to perform at their maximum.
- ▶ **correct** _____ must be used to increase validity.

