

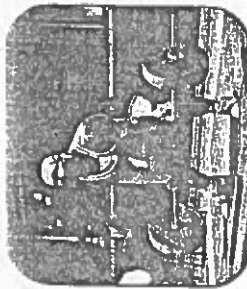
Fitness Testing - Strength and Power

In order to assess if an athlete's training has improved their strength or power they will need to complete one of the following fitness tests. Many sports require either strength or power while many others require both. Sports that require both strength and power include rugby, sprinting and American football.

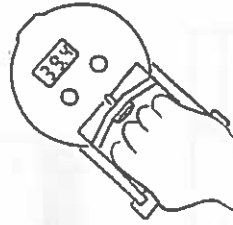
Strength

Grip dynamometer test

1. Firstly an athlete adjusts the handgrip size accordingly and then stands, arms parallel to their body.
2. They then squeeze the grip dynamometer as hard as possible for a period of five seconds.
3. It is usually recommended that three tests are performed on each hand, with breaks of at least one minute in between each test.
4. The best score from each hand is then recorded.
5. The results of this test are usually measured in kilogram watts (kgW).



Olympic weightlifting requires strength



Grip Dynamometer Test

This test specifically measures hand grip strength; however, it is often considered a test used for general strength as hand strength usually also indicates strength throughout the body.

Average Grip Dynamometer Test Results (kgW)

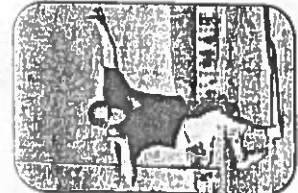
Rating	Males	Females
Excellent	>56	>36
Good	51-56	31-36
Average	45-50	25-30
Fair	39-44	19-24
Poor	<39	<19

Advantages ✓

- It is a common way to measure strength
- The test can be taken anywhere
- It doesn't require much equipment
- It is quick and easy to do

Disadvantages ✗

- It requires a grip dynamometer
- It only tests the strength of an athlete's hand grip which may not be specific to their sport
- Adjusting the equipment for hand size can mean it can produce inaccurate results

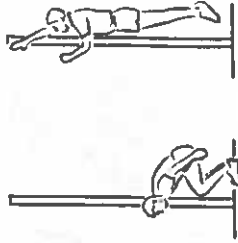


Sports such as the shot-put require strength

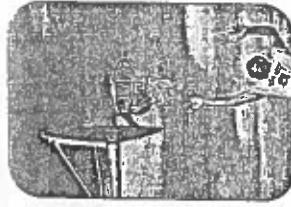
Anaerobic Power

Vertical jump test

1. It is important that a sufficient warm-up is performed before this test because generating anaerobic power requires fast, strong muscle contractions which may cause injury if unprepared.
2. The test requires an athlete to jump from a standing position, and touch the vertical jump board at the highest point of their jump.
3. The height of the jump is then recorded by measuring the difference between the height an athlete can reach while standing and the height reached when jumping.
4. Three jumps are usually performed, with the highest jump used to determine an athlete's result.
5. The results of this test are usually originally measured in centimetres but converted, using a nomogram, into kilogram metres per second (kgm/s).



Vertical Jump Test



The vertical jump test measures the anaerobic power of the quadriceps muscles in the legs. The power of these muscles is especially important in sports that require jumping such as basketball and netball.

Average Vertical Jump Test Results (centimetres)

Gender	Excellent	Above average	Average	Below Average	Poor
Males	>65	50-65	40-49	30-39	<30
Females	>58	47-58	36-46	26-35	<26

Advantages ✓

- It is a reliable and valid way to assess anaerobic power
- It is simple to set up and perform
- It takes height of participants into consideration

Disadvantages ✗

- There is a relatively high risk of injury if a proper warm-up is not completed
- It requires assistance to measure test scores