

THE PHYSICS BEHIND SPRINTING

A deep dive into the science behind the 100 meter

Information sourced from Velocity Sports Performance | <https://velocityspusa.com/research-proves-how-faster-sprinters-use-strength-for-speed/>

Sprinting is the ultimate way to determine who is the fastest person alive. While the record holder still remains as Usain Bolt of Jamaica with a time of 9.58 seconds. However, it has been revealed that he could have run even faster, all thanks to the science that makes the sport

great. While sprinting requires strength, nothing could possible happen without an athlete's ability to apply force to the track. Researchers have found that two main components, dubbed "big force" and "small time" are the things that truly set the records.

BIOMECHANICS

FORCE TIME STRENGTH

Bringing your legs into the proper position with the right posture will help develop the force needed to create enough momentum to be fast.

This force must be applied in a short amount of time. This means putting the force of 4-5 times your bodyweight into the ground faster than you can start and stop a stopwatch

Now all of this must be combined in order to to create explosiveness. This is the hard part, and you must also maintain the stiffness that prevents you from collapsing. Your joints cannot absorb any of this force, or it will be wasted.

THE BOUNCING BALL ANALOGY



Rubber Ball

This ball is stiff and made of tough rubber. This is what a regular bouncy ball is made of.



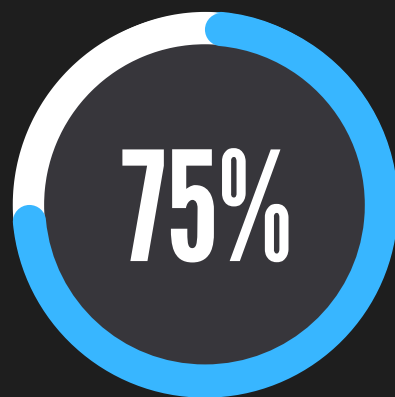
Beach Ball

The rubber this ball is made of is soft and compliant. This is the opposite of the rubber ball.



Which Reaches Higher?

When both are thrown at the ground with as much force as possible, the rubber ball will bounce higher. This is because the stiffness prevents any energy waste, unlike the beach ball.



Did you know?
75% of people in the U.S. say the main reason to continue running as a sport is to keep healthy!