

Assessing Health & Functional Fitness

MODERN TECHNOLOGIES IN
SPORT

SPEED and AGILITY

Learning Objectives

- To describe why modern technology is important in Sport
- To what modern technologies are being utilised in Sport and Fitness today
- To understand whether or not modern technologies have relevance to Sporting populations as well as the general public

Why is technology important?

- Fitness and Performance monitoring
 - Distance covered
 - Heart Rate
 - Speeds
 - Frequency of Runs
 - Analysis of technique
 - Load
 - Intensity
 - Altitude

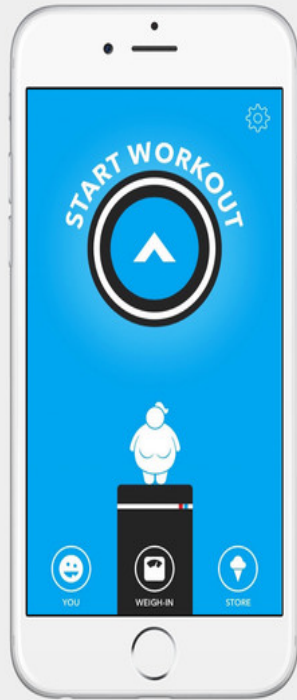
How can the data be used?

- ▣ Fitness programming
- ▣ Training analysis
- ▣ Injury prevention
 - ▣ Load management
 - ▣ Rehabilitation
- ▣ Tactical analysis
- ▣ Correlate to other data - performance

Types of Smart Technology

- ▣ Heart Rate monitoring
 - ▣ Heart Rate variability
 - ▣ Heart Rate
- ▣ Glucose management
- ▣ Vitals
 - ▣ BP
 - ▣ Temperature
 - ▣ Respiratory function
- ▣ Fitness bands/ Watches
- ▣ Sleep Tracker

Where do you think Technology will go?



Components of Fitness

Strength

Balance

Agility

Power

Endurance

What are Speed and Power?

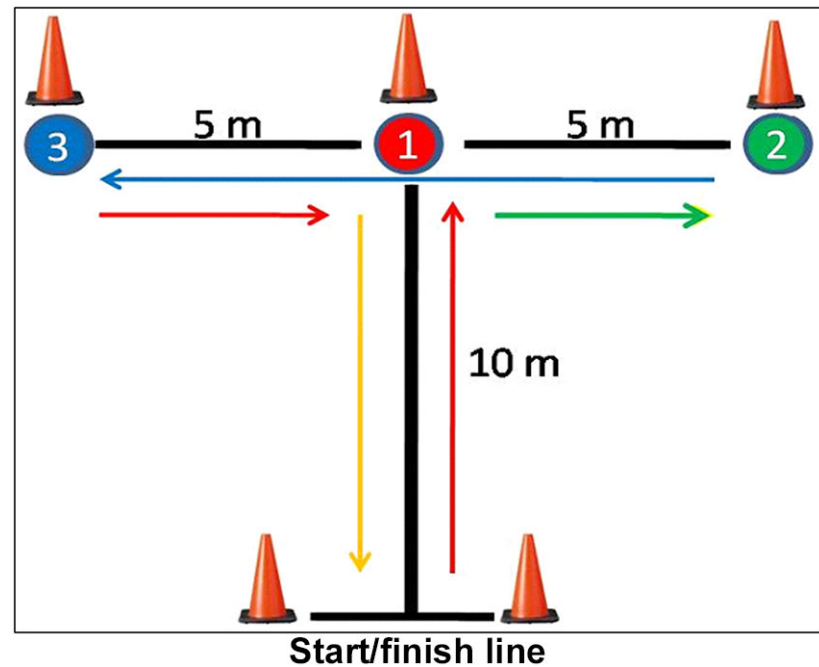
- Change in Distance/ Time
- M/sec
- Power is defined as the rate at which energy is used or created from other forms. Power can be calculated by the following formula
- $\text{Power} = \text{force (strength)} \times \text{velocity (speed)}$
- As you can see from above, power is a function of the force that can be produced and the speed of that force application.

Speed Testing

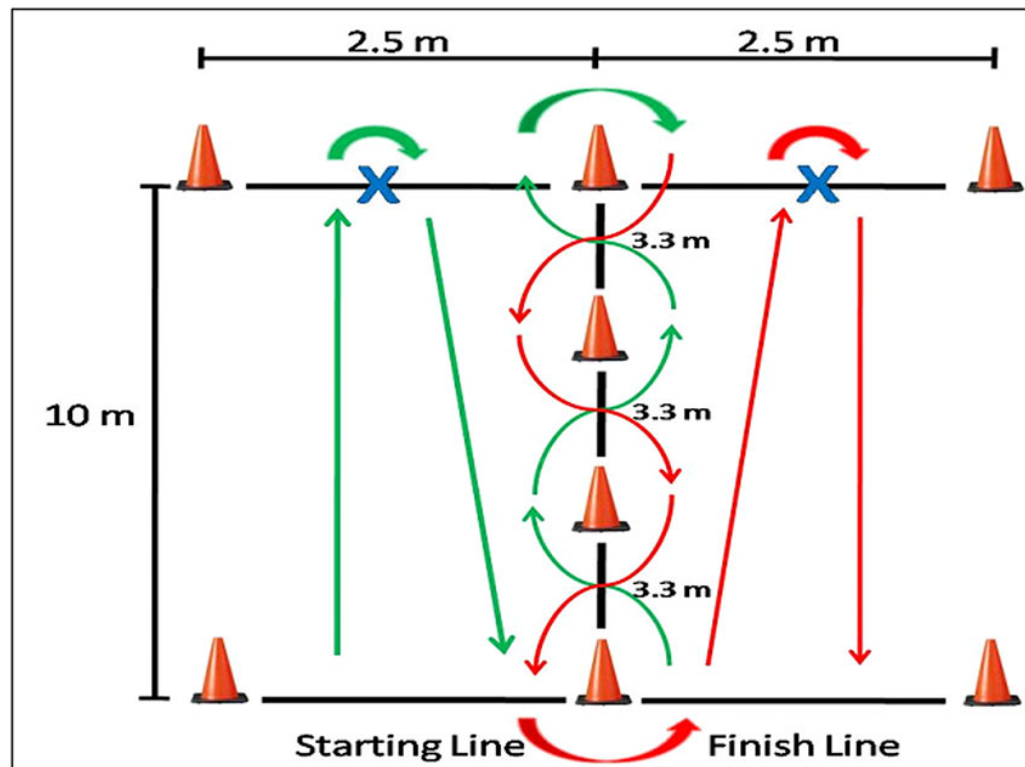
- Common in multiple sports
- Needs to be periodised
- Only test if you are going to intervene
- Equipment
 - Speed Gates
 - Stopwatch
 - Cones

Agility Testing

- Used in skill acquisition
- Individual sports have their own tests
 - 5-0-5
 - T-Test



Agility Test - Illinois



Other common tests

- Triple Hop for Distance
 - Strong predictor of leg power
- Timed 6m Hop Test

Task

- Compare some of the components of fitness and determine whether or not there is a correlation between the components you have chosen