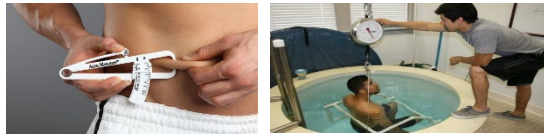


Sport Science – Technology in sport

TERM 3 – Technology used for to enhance performance - FITNESS TESTING



Body fat monitoring

Most top athletes monitor body fat.

Body fat can be measured using skin fold callipers but the best way is hydrostatic underwater weighing.

Heart rate monitors

Heart rate monitors are used in many sports to monitor the heart rate of athletes. The results can have many benefits to enhance performance

Different sports have different training thresholds. A 100m sprinter will have a higher training threshold than a marathon runner. Monitoring heart rate will ensure they are training at the right intensity. It is also a good way of monitoring fitness levels, this can help when planning training sessions.



Fitness Tracker

Fitness trackers are often worn by athletes to help them record their heart rate, number of steps taken and distance covered. Fitness trackers include Fitbits or Apple watches.

Blood pressure reader

Blood pressure is taken to compare against normative data. High blood pressure can lead to strokes and heart attacks.



Sport Science – Technology in sport

TERM 3 Technology used to enhance performance - TRAINING AIDS

Training aids

Training aids are used in sport to help improve performance. Training aids include:

- Foam pits in Gymnastics
- Somersault belts in trampolining
- Bowling machines in cricket
- Simulators in golf

A useful training aid is motion tracking software. This is where the movement of a performer is recorded in detail. This gives the coach important information on the performer as it can highlight any areas for improvement that could be targeted to enhance performance. Motion tracking software is used in many sports such as cricket, tennis, football and sprinting.

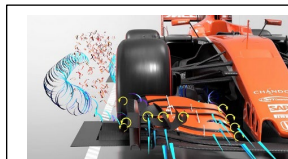
It is useful in sports that have complex movements like a golf swing. For example, when you swing the golf club, the software will slow down the movement so you can analyse every aspect of the swing. This will give valuable feedback to hit the ball accurately.



Equipment

Technology has improved equipment which has enhanced performance in sport. Examples include:

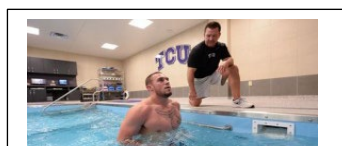
- Athletes are able to throw aerodynamic Javelins further
- Technology has made formula 1 cars more aerodynamic which makes them quicker
- Golf clubs are designed to hit the ball further and be more accurate
- Table tennis bats are designed to grip the ball to allow more spin



Injury prevention and recovery

Using specialist equipment has enhanced athlete's recovery time and prevents injury.

- **Cryosauna** is a very cold sauna that reaches very low temperatures (-200°C) this allows the muscles to recover quicker and avoid inflammation. This allows the athlete to train harder and recover from games more quickly preventing overuse injuries.
- **Hydrotherapy** is incorporated into post-exercise recovery routines. The human body responds to water immersion with changes in the heart, blood flow, as well as core and muscle temperature. The changes in blood flow and temperature may have an effect on inflammation, immune function, muscle soreness and perception of fatigue.



Clothing and footwear

Technology has enhanced clothing and footwear for athletes. Sporting examples include:

- **Football boots:** If we compare a football boot from today to that 20 years ago there is a massive difference. Modern boots are lighter, comfortable and are specifically designed for different surfaces, some boots are made to specifically to get more power and curl when kicking the ball
- **Hi tech swim suits:** Swimmers often High technology swimsuits when competing to reduce drag when swimming in the water. Due to the enhances in technology there are strict guidelines on their use in competition
- **Rugby pads:** Shoulder and chest pads used in rugby provide protection and reduce the chance of injury. Due to technology pads are much lighter and tighter fitting to allow the players to move more freely.



Using the information above complete a **CHALLENGE of your choice** for homework and **upload to your PE group** on MS TEAMS – [click here to access CHALLENGES](#)