

Improving mobility with gait analysis

A variety of conditions and injuries can lead to problems with walking and balance. Gait analysis specialists study walking scientifically, using three-dimensional video tracking and other techniques, so that they can assess the problem and plan appropriate treatment.

Walking requires the interaction of many different muscles and bones. Gait analysis enables scientists to study these complex movements in a patient and compare them to normal working patterns.

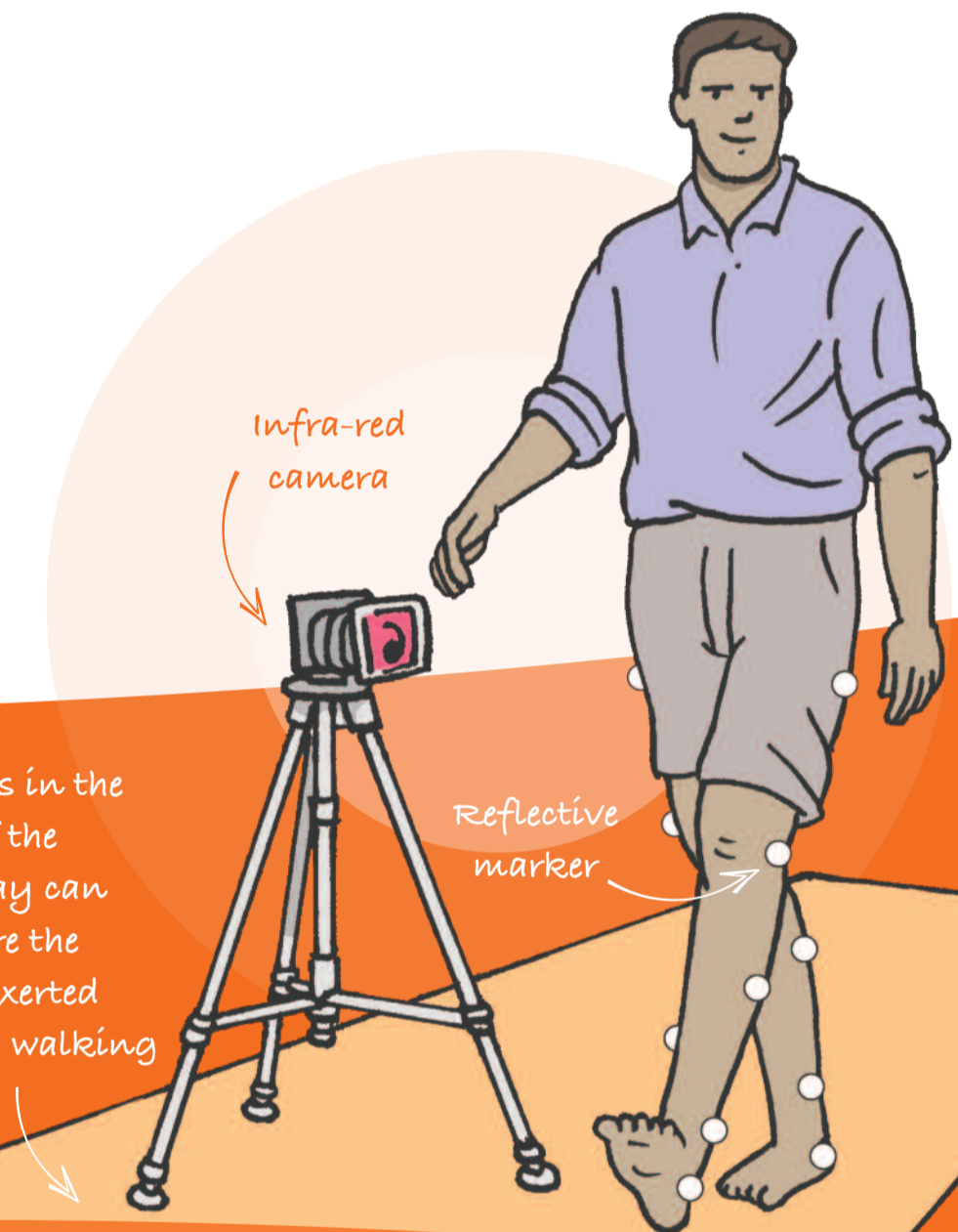
Clinical Scientists in the gait analysis team work closely with physiotherapists, orthopaedic surgeons and artificial limb specialists. First, they measure the patient's range of motion at each leg joint and test their muscle tone and strength.



They then place reflective markers at specific landmark points on the patient's body, such as the ankle bone. As the patient walks along a special walkway, infra-red cameras track the position of the markers in three dimensions.

Sensors in the floor of the walkway can measure the forces exerted during walking.

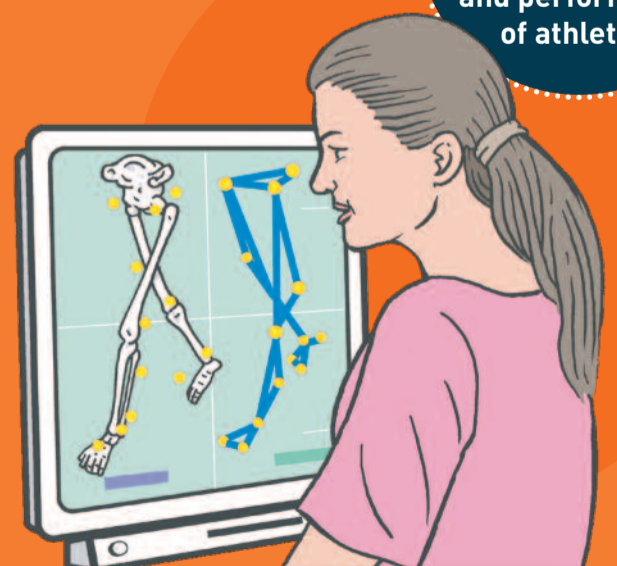
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A computer analyses the information that has been collected. It can display the information in graphs or build computer simulations of the patient walking. The computer can also show how the patient's skeleton moves as it walks or how forces pass through the body.

This information is useful for assessing mobility problems across a wide range of conditions, such as multiple sclerosis, cerebral palsy, osteoarthritis and limb loss. It can help determine the cause and severity of a walking problem.

Gait analysis may be needed to help decide on corrective treatments or therapies. For example, it may be used to help plan surgery for children with cerebral palsy, or with amputees to help improve the comfort or fit of an artificial leg.



Gait analysis can also be used to improve the running technique and performance of athletes.