

CASE STUDY

Healthy Subjects on treadmill and overland

Protocol

Trials were carried out by the University of Salford under controlled clinical trials conditions.

10 healthy subjects were tested on a treadmill and overland at a range of walking speeds. On the treadmill the 3 speeds were chosen as the preferred walking speed, as defined by the subject, ± 1 km/hr. For the overland trial the subject was free to walk, with no speed constraint defined.

For the treadmill trials optical data using the VICON system was also collected.

ETB Sensor system

Each subject wore one sensor unit around the waist and the second unit on the arm, as shown below.

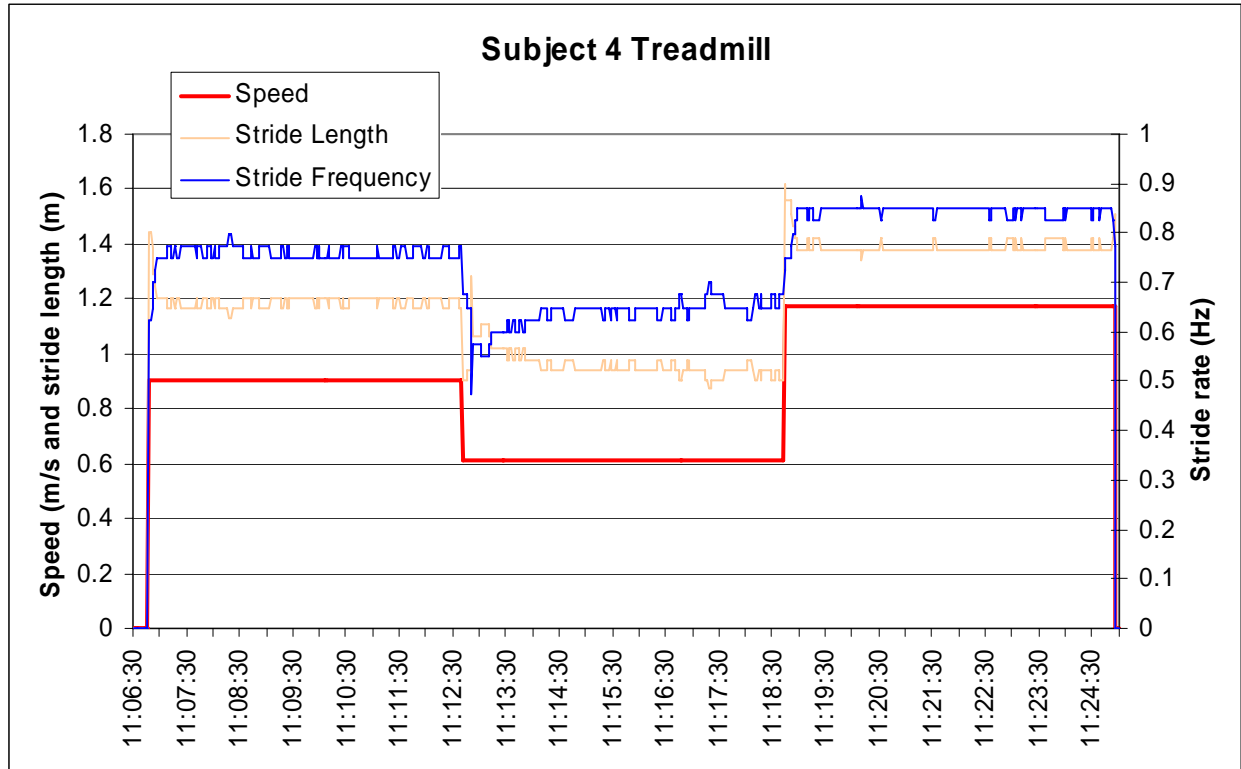


Validation

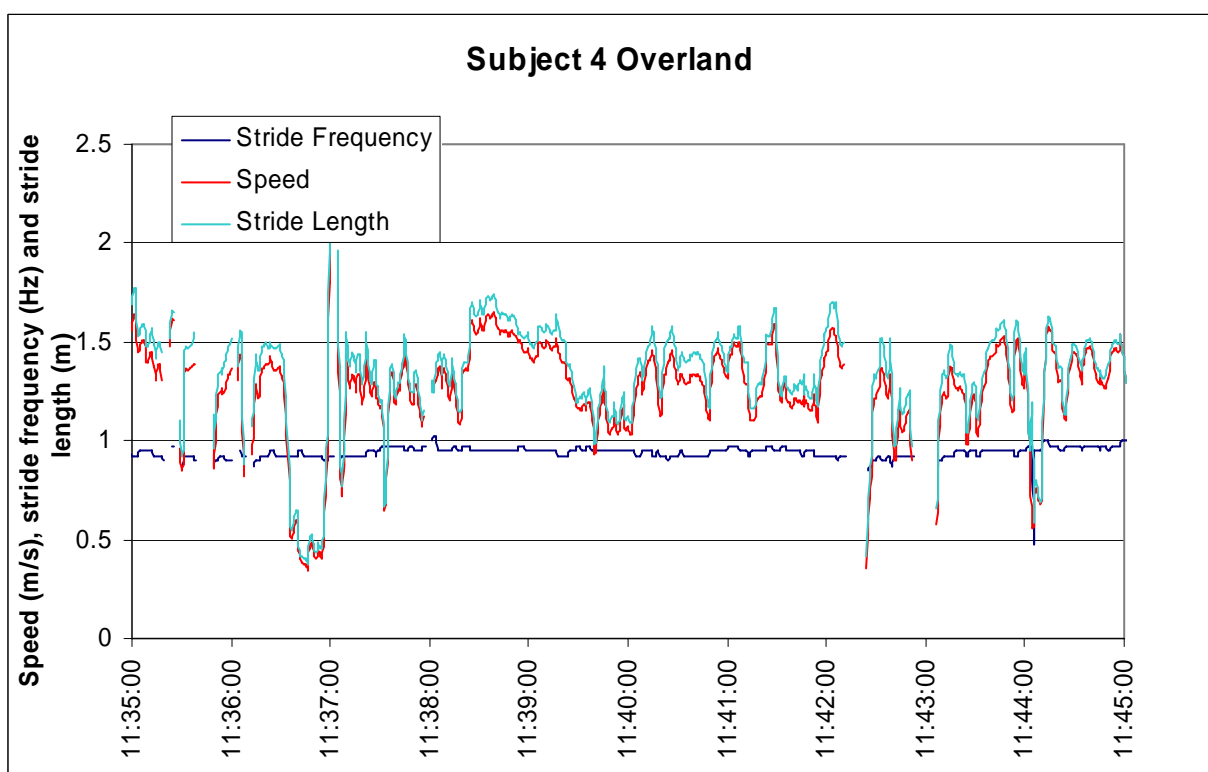
On the treadmill the stride frequency for 5 different subjects was found to be within 1% of that measured using the Gold standard optical system, VICON.

Findings

All subjects on the treadmill altered their stride frequency with a change in speed. The stride frequency was almost constant at any given speed, as shown by way of example by subject 4 on the treadmill.



Subjects walking overland maintain an almost constant stride frequency and alter their stride length when they change speed. Subject 4 walking overland is a typical example of changes during a 10 minute walk.



Graphically, the change in stride length with speed is approximately linear, whereas the stride frequency with speed is approximately constant.

