

Data collection guide - emed

There are a number of factors to consider when collecting data from an emed platform. The following guidelines should help you to obtain meaningful data from your system. These guidelines refer to collecting data while walking; however they can of course be adapted for other activities as well.

Flooring and Walkway

The platform should be sunk into a walkway so that both the floor and the platform are at the same level. The whole walkway should then be covered (by one sheet of thin artificial leather, for example) so that (in theory!) the subject does not know where the platform is. This helps to eliminate the problem of the subject targeting the platform. We recommend that the walkway is about 7m long, with the platform placed after the first 4m. This allows measurements to be recorded during free walking, and ensures that affects due to acceleration or deceleration, when the subject starts or stops walking, are minimized. Of course, with such a walkway it is also possible to record measurements following the one or two step method as well.

Initial Setup Prior to Data Collection

All measurements should be carried out barefoot, in order to carry out a diagnosis or assess foot function. Initially the subject should be allowed to walk freely up and down the walkway until a natural walking rhythm and speed is established. The subject should always, however, start from the same location when approaching the platform. This can be marked with a moveable object: A real size cut-out of a colour pressure footprint works well! Even though measurements can be taken when the subject crosses the platform in both directions, it is recommended, for ease of data collection alone, that data is only collected when the subject is walking in one direction. During this 'practice' period the exact location of the starting position, in order for one foot to strike the platform, can be established and marked with the color footprint. The distance from this starting position to the platform should be measured and recorded, together with the number of steps before the platform is hit with one or other foot.

Walking Speed

The walking speed should be the normal speed at which the subject would walk purposefully. This is of course subjective, but should however be measured and recorded for each subject using light barriers, for example. A few minutes during the practice session is often required for the subject to feel relaxed and happy enough to walk naturally. It is therefore important to observe the subject to ascertain whether this is the case or not. It often happens that during the whole measurement process the walking speed of the subject will increase. This must be controlled by ensuring that the subject is comfortable before any measurements are taken, but then by checking the walking speed to ensure that all trials recorded are within a certain speed, plus or minus 5%.

Posture

The subject should be relaxed with normal arm swing. They should also be looking straight ahead and not down at the floor, at the platform or at the monitor. All these things will alter the dynamic pressure distribution measured and must therefore be controlled. The emed platform is a very sensitive measuring device and will detect such changes. It is useful to stick two coloured strips to the wall for the subject to look at as they walk; one for aligning the left and one for aligning the right foot with the platform.

Data Collection

As described previously the subject should be relaxed with normal arm swing, walking purposefully, and looking straight ahead. The walking speed, starting distance from the platform and the number of steps before striking the platform should be recorded as well as the weight of the subject. (This enables the data to be normalised to body weight within the analysis). The subject should always be observed to ensure that their normal walking pattern is maintained. Data should only be recorded if the whole of the foot struck the platform. It is recommended that, at the very minimum, three trials are recorded for each foot, and preferably at least six. (An averaging program can be used to obtain an average dynamic footprint for each subject.)

Callus

Callus has been shown to increase peak plantar pressures and we therefore recommend that for clinical studies each foot is debrided of callus should a noticeable amount be present.