



Sensation and balance in people with lower leg amputations

Does sensation in your foot affect your balance?

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The glabrous (smooth and hair free) skin of the sole of the foot and how sensitive it is has an influence on stationary balance. Feedback of sensation in the foot can easily be influenced by external and internal factors, including weather or illness.

This study aimed to look at the sensitivity of people with below knee amputation to light touch and vibration and how this related to their ability to maintain balance during standing.

8 skin points were identified in both the participants with amputation as well as the control subjects.

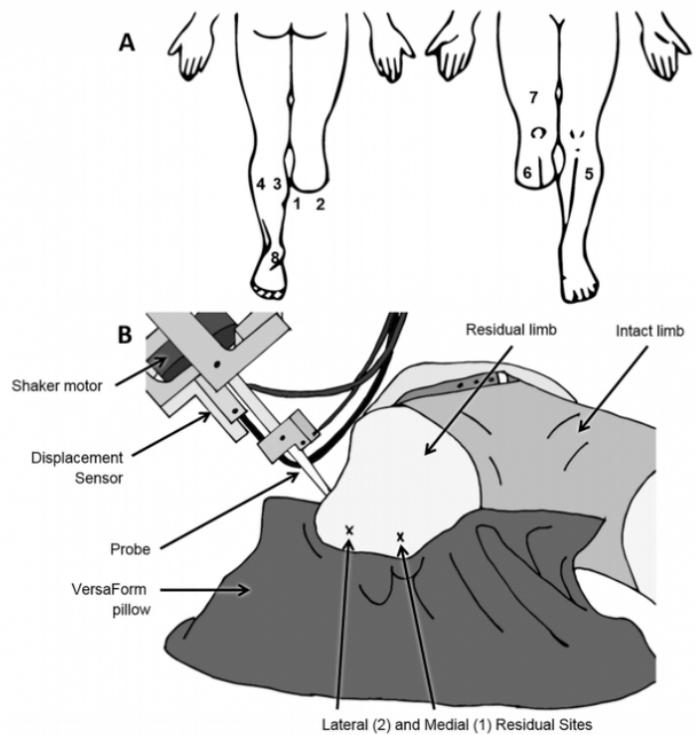
Both legs were assessed: one limb was assessed at foot and calve level, while the other was assessed at knee and thigh. Balance was tested as a standing reach test, with the prosthetic leg on, using a force plate.

Although the devices used have previously been assessed as suprathreshold in young and healthy subjects, some participants and controls found that some areas of the skin were unable to detect the sensation even at maximum.

The key finding was the difference between sensitivity in diabetic and traumatic people with amputation.

Both the participants with diabetes and with amputation showed a much lower sensitivity (which was worse the nearer to the top of the leg the site of testing became), but the participants with traumatic amputation showed a greater sensitivity than their controls and did not reach threshold at any site.

Those with greater sensation where the limb contacts the prostheses showed better balance, but - despite these differences - all amputees had poorer balance than the control group,



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