

FES successfully facilitates gait re-education post hip replacement

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FES is becoming increasingly well-known and used within the field of neurology to assist, maintain or restore movement, but it is less well known or used in the field of orthopaedics. Below is an account of two patients who each underwent hip replacement surgery and how FES dramatically improved their walking ability.

Evidence shows that there will be substantial dysfunction following hip arthroplasty in 15-20 % of patients, despite physiotherapy intervention. In a recent study by Anil Bhawe 47% of 76 patients continued with abductor weakness following surgery.

Detailed below is a brief account of two patients who were referred to the department for electrical stimulation following hip replacement surgery. Both ladies act as their own control as their surgery had taken place in 2003, and 2004. Both had similar characteristics in that they required a stick for outdoor walking, walked with a trendelenberg gait, and on examination presented with weakness of the hip abductors.

Rather than introducing an exercise regime it was decided to set up both patients with a Single Channel foot drop stimulator. The electrodes were placed in a standard position for hip abduction stimulation and the stimulator was set up to trigger on stance. Each patient was instructed to increase the use of the FES over a few days after which the FES could be used all day.

It was decided to follow both ladies up 2 weeks post set up, to check on skin, and to check electrode placement and stimulation usage. We did not anticipate any significant functional gains to occur within this two week period. However both patients reported the following:

- Decreased use of walking stick.
- One lady reported that she had been able to walk into town without her stick.
- The other lady reported that she no longer required the use of her stick when in the garden.
- Both ladies reported an increase in confidence as their walking was faster and felt freer.
- On visual gait analysis there was an observable improvement, with an increase of hip extension during the stance phase and a reduction in the lateral trunk sway.

The first patient, who was 78 found peeling off the electrodes painful, did not like the wires showing. The second patient was extremely delighted with the initial gains and could not describe any negative aspects.

The original intention was both patients would have a 3month followed up. However due to the rapid improvement one patient will now be followed up after one month. It is also intended to stop the stimulation at this stage. To assess whether any improvements achieved are maintained each patient will have a final review six weeks after stopping the stimulation.

The initial results are extremely positive and highlight a group of patients who would possibly to benefit from a period of electrical stimulation post-surgery.