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# Functional Electrical Stimulation Powered Ergometry System (FESPES)

Initiative Type

Technology

Status

Deliver

Added

01 February 2018

Last updated

11 August 2020

URL

<https://clinicalexcellence.qld.gov.au/improvement-exchange/fespes>

## Summary

Functional Electrical Stimulation Powered Ergometry System (FESPES) combines functional electrical stimulation (FES) with motorised exercise (powered ergometry system (PES)). FES is when small electrical pulses are applied to paralysed muscles to restore or improve their function. In the

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Restorative Therapies RT600, RT300 and RT300-supine, the motor assisted exercise is augmented with FES to allow progressive resistance exercise. Continuous repetitions of muscle contractions provides high intensity strength training and muscle biofeedback in children with Cerebral Palsy, Acquired Brain Injury, Spinal Cord Injury and Spina Bifida.

#### Key dates

Feb 2014

Dec 2016

#### Implementation sites

Queensland Paediatric Rehabilitation Service (QPRS), Lady Cilento Children's Hospital

#### Partnerships

Healthcare Improvement Unit

## Key Contacts

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## Aim

Provides an opportunity to pilot and evaluate new technologies within 'real world' clinical settings in the Queensland context.

## Benefits

Allows a patient with neurological impairment to undertake progressive resistance exercise achieved through continuous repetitions of muscle contractions.

## Background

This technology was funded through the New Technology Funding and Evaluation Program (NTFEP). The NTFEP funds the introduction and evaluation of new technologies that:

- Are safe and effective
- Provide better health outcomes
- Provide value for money
- Provide greater access to care.

The evaluation findings will inform recommendations regarding the future use and/or investment of the technology within Queensland.

## Evaluation and Results

- Nearly all children (96 per cent) that used the FESPES equipment tolerated the exercise treatment and there were no significant adverse events.
- FESPES had a good effect on dystonia (a muscle movement condition) by providing muscle level biofeedback for alternating agonist and antagonist contractions.
- FESPES is used mostly for spinal cord injury at other hospitals but at the Lady Cilento Children's Hospital it was used effectively for a wide range of conditions.
- FESPES allows the muscle to contract at a higher repetition rate than alternative strength training options.
- For children with Cerebral Palsy and Acquired Brain Injury, the results from using FESPES have exceeded expectations.
- FESPES is used in both paediatric rehabilitation, sub-acute and intensive care unit as the RT300- supine allows arm or leg exercise when a patient is restricted to bed.

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## Resources

[Technology evaluation summary](#)

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