

## Report to Participants: SCIPA Full-On

Thank you for participating in the SCIPA Full-On study. Herewith a summary of the results of this study.

Regular physical activity through upper body training is effective in improving fitness and psychological well-being in people with spinal cord injury. There are reports that regular and intensive exercise of the paralysed limbs may improve an individuals' ability to move and perform functional activities. However, there is little evidence that intensive exercise can lead to neurological recovery. The purpose of this study was to investigate the effectiveness of a full body exercise program exercising the paralysed limbs and trunk muscles on improving neurological recovery compared with an upper body strength and fitness training program.

To address this issue, we conducted a study in which participants with complete and incomplete spinal cord injury who had already completed their primary rehabilitation were allocated by chance to one of two groups. One group received exercises for the paralysed limbs, which included partial body-weight-supported treadmill training, functional electrical stimulation-assisted cycling, and exercises to improve control of trunk and upper and lower limb muscles. Body weight supported treadmill training used an overhead harness to provide support to stand on a treadmill. Therapists assisted the movement of the legs while the treadmill was moving. Functional electrical stimulation-assisted cycling involved placing electrodes on the thigh and calf muscles on both legs; stimulation of the muscles through the electrodes enabled participants to drive a cycle. The other group undertook a circuit program in a gym that focused on improving upper body strength and fitness, incorporating resistance and aerobic training (e.g. chest press, boxing, resisted exercises, biceps/ triceps curls, arm cranking). They received no exercise for the legs. The treatment was provided for 2-3 hours, 3 days per week for 12 weeks. All participants had a number of tests before and after the treatment period and at 6 months. These included a measure of neurological function (the ASIA motor score for the arms and the legs), as well as measures of functional independence, pain, spasticity and psychological measures.

One hundred and sixteen people with spinal cord injury participated in this study; they were from 6 spinal units in Australia and New Zealand. We carefully recorded adverse events related to the two exercise programs. The most common adverse events reported by participants in both groups that were definitely related to the exercise program were skin abrasion or bruising, pain and autonomic dysreflexia. There was only one serious adverse event definitely related to the full body exercise program; one participant suffered fractures around both knees. We found that there was very little change in the ASIA motor scores over time, and no difference between the two groups. We did not find any difference between the two groups on any of the other measures.

It is possible that a longer period of exercise might be needed or that exercise on its own might not be sufficient to lead to neurological recovery. Therefore more research is needed to address these issues. The SCIPA Full-On study was the largest study of its kind in Australia and New Zealand, and has provided important information to guide the rehabilitation of people with spinal cord injury.

Thank you again for giving up your time to participate in this study and to contribute to research in spinal cord injury.