



# Scientific exercise guidelines for adults with spinal cord injury

## About the guidelines

These exercise guidelines provide minimum thresholds for achieving the following benefits:

- improved cardiorespiratory fitness and muscle strength
- improved cardiometabolic health

The guidelines should be achieved above and beyond the incidental physical activity one might accumulate in the course of daily living. Adults are encouraged to participate routinely in exercise modalities and contexts that are sustainable, enjoyable, safe and reasonably achievable.

These guidelines are appropriate for adults (aged 18-64) with chronic spinal cord injury (at least one year post-onset, neurological level of injury C3 and below), from traumatic or non-traumatic causes, including tetraplegia and paraplegia, irrespective of sex, race, ethnicity or socio-economic status.

Before starting an exercise programme, adults with SCI should consult with a health professional who is knowledgeable in the types and amounts of exercise appropriate for people with SCI. Individuals with a cervical or high thoracic injury should be aware of the signs and symptoms of autonomic dysreflexia during exercise.

For adults who are not already exercising, it is appropriate to start with smaller amounts of exercise and gradually increase duration, frequency, and intensity, as a progression toward meeting the guidelines. Doing exercise below the recommended levels may or may not bring small changes in fitness or cardiometabolic health.

The risks associated with these guidelines are minimal when managed in consultation with a health care professional who is knowledgeable in spinal cord injury.

The guidelines may be appropriate for individuals with a SCI less than 12 months post-onset, aged 65 years or older, or living with comorbid conditions. There is currently insufficient scientific evidence to draw firm conclusions about the risks and benefits of the guidelines for these individuals. These individuals should consult a health care provider prior to beginning an exercise programme.

Exceeding these exercise guidelines would be expected to yield additional cardiorespiratory fitness and muscle strength and cardiometabolic health benefits. However, there are insufficient data to comment on the risks associated with a person with SCI exceeding these guidelines.

## The guidelines

### Fitness

For cardiorespiratory fitness and muscle strength benefits, adults with SCI should engage in at least:

**20** minutes of moderate to vigorous intensity aerobic exercise **2** times a week

+

**3** sets of strength-training exercises for each major functioning muscle group, at a moderate to vigorous intensity **2** times a week

### Cardiometabolic health

For cardiometabolic health benefits, adults with SCI are suggested to engage in at least:

**30** minutes of moderate to vigorous intensity aerobic exercise **3** times a week

These guidelines were developed by an international group led by Prof Kathleen Martin Ginis (University of British Columbia, Canada) and Prof Victoria Goosey-Tolfrey (Loughborough University, UK).

Processes to make the guidelines relevant to particular environments or settings must not alter the scientific integrity of the guidelines, as described in the research paper about the guidelines (available open access in Spinal Cord via [www.nature.com/articles/s41393-017-0017-3](http://www.nature.com/articles/s41393-017-0017-3)).