

## 09: PHYSICAL ACTIVITY AND NEUROLOGICAL DISORDERS

### Multiple Sclerosis (MS)

There is a large variation of symptoms from person to person with MS, with the majority developing increasing disability over time. It is also common for patients with MS to avoid physical activity, so as to limit tiredness and avoid elevated body temperature.

Physical activity does not prevent MS. However, physical activity is recommended as it can improve muscle function, aerobic fitness, mobility and quality of life.<sup>1,2</sup>

Patients with MS often suffer from severe fatigue and can also have heat intolerance. Thus it is common for patients with MS to avoid physical activity, so as to limit their symptoms.

To cope with the fatigue, graded exercise is recommended and with time the fatigue experienced can reduce.<sup>3</sup> For heat intolerance, a tepid shower post exercise or a cooling suit, have been shown to help whilst air conditioning and a sun protective hat can also help.<sup>4</sup>

**NICE guidelines CG 186**<sup>5</sup> on Multiple Sclerosis in adults - management recommend:

Modifiable risk factors for relapse or progression of MS - Exercise

- Encourage people with MS to exercise. Advise them that regular exercise may have beneficial effects on their MS and does not have any harmful effects on their MS

MS symptom management and rehabilitation:

- Consider supervised exercise programmes involving moderate progressive resistance training and aerobic exercise to treat people with MS who have mobility problems and/or fatigue
- Advise people that aerobic, balance and stretching exercises including yoga may be helpful in treating MS – related fatigue
- Help the person with MS continue to exercise for example by referring them to exercise referral schemes

### Parkinson's Disease

Physical activity does not prevent or affect the progress of Parkinson's disease. The disease is characterized by a usually slow progression of rigidity, hypokinesia and tremor.<sup>6</sup> As a result, patients tend towards inactivity, a fear of falling and reduced daily activities.

There is now an increasing number of studies that show that a variety of forms of exercise or physiotherapy in later stages, can maintain and improve mobility, with improved daily functions and a reduced risk of falls and associated injuries.<sup>6</sup> Early interventions after diagnosis to promote physical activity should focus on strength and balance to prevent future falls.

**NICE guidelines NG71**<sup>7</sup> on Parkinson's disease in adults recommend:

- Physiotherapy and physical activity
- Consider referring people who are in early stages of Parkinson's disease to a physiotherapist with experience of Parkinson's disease for assessment, education and advice, including information about physical activity. (2017)
- Offer Parkinson's disease-specific physiotherapy for people who are experiencing balance or motor function problems. (2017)
- Consider the Alexander Technique for people with Parkinson's disease who are experiencing balance or motor function problems. (2017)

**Falls:**

- For all people with Parkinson's at risk of falling please refer to [NICE guideline CG161 Falls in older people](#)

### Spinal cord injury

A spinal cord injury destroys the connections between the brain and the area distal to the injury.<sup>8</sup> This, depending on the level, will proportionately affect the individual's ability to be physically active.

A high cord injury with a complete tetraplegia may render the patient wholly dependent on carers and limited to passive movements and stretching to lessen complications.

However, for lower and or incomplete spinal injury, there may be areas of intact skeletal muscle function that can be actively exercised. This is essential in any rehabilitation plan and an individual exercise programme is required addressing how aerobic fitness, muscle strength, coordination and balance can be improved.<sup>8</sup>

Specialized physiotherapists are needed to plan, guide and manage this process and should encourage the patient and carers to continue the physical training programme long term.

### Pain

Physical activity is commonly used in the treatment and rehabilitation of many painful conditions.

The effect of physical activity on pain is:

- Partly direct through release of endorphins, distraction and in theory, increased activity in non pain transmitting sensory fibres.
- Partly non-direct, with improved mood, sleep and reduced stress levels also contributing to less pain.
- Coupled with an individual improving their functional capacity through exercise.<sup>9</sup>



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For example, with exercise programmes for back pain or osteoarthritis, the patient will often improve their pain and functional activity levels considerably.

**NICE guideline (NG59)** <sup>10</sup> on low back pain and sciatica in over 16's: assessment and management recommends:

### Self-management

- Information on the nature of low back pain and sciatica
- Encouragement to continue with normal activities

### Exercise

- Consider a group exercise programme (biomechanical, aerobic, mind-body or a combination of approaches) within the National Health Service (NHS) for people with a specific episode or flare up of low back pain with or without sciatica. Take people's specific needs, preferences and capabilities into account when choosing the type of exercise.

### Take home messages:

Exercise programs in patients with Parkinson's should ideally be encouraged to undergo fitness and strength training as well as balance and co-ordination training. Exercise in MS is safe but ideally needs individualised programs from an exercise professional.

### Consider:

Early referral to exercise referral schemes for the conditions of MS and Parkinson's and physiotherapy in spinal injury and pain. For many musculoskeletal problems related to the spine early referral will reduce both the length of time of suffering but also a risk of permanent damage.

### Benefits to health professionals:

Reduced costs of analgesia, reduced falls in patients and the associated visits and referrals.

**Signpost patients to:** Chartered Society for Physiotherapists (CSP) website for the conditions of MS, Falls and Parkinson's [here](#)

**Signpost patients to:** The MS Society web site page on exercise [here](#)

### Understanding and managing pain: information for patients

The British Pain Society leaflet has a good description about pain and exercise p17-19 including a pain cycle diagram and very sensible explanations to help understand pain, download [here](#)

*Extracted from the Wales HEIW CPD module on physical activity [Motivate2Move](#). Now part of the RCGP Clinical Priority on physical activity and lifestyle. Review Dec 21.*

## REFERENCES

- Rietberg MB, Brooks D, Uitdehaag BM, Kwakkel G. Exercise therapy for multiple sclerosis. *Cochrane Database of Systematic Reviews* 2005, Issue 1. Art. No.: CD003980. DOI: 10.1002/14651858. CD003980.pub2.
- Motl RW, Gosney JL. Effect of exercise training on quality of life in multiple sclerosis: a meta-analysis. *Multiple Sclerosis Journal*. 2008 Jan;14(1):129-35.
- Krupp LB. Fatigue in multiple sclerosis: a guide to diagnosis and management. *Demos Medical Publishing*. 2004 Mar 1.
- Einarsson U, Hillert J. Multiple sclerosis. Ch 35. Swedish National Institute of Public Health. Physical Activity in the prevention and treatment of disease. 2010. (cited 2019 Jul 05) Available from: <http://www.fyss.se/wp-content/uploads/2018/01/35.-Multiple-sclerosis.pdf>
- National Institute for Health and Care Excellence. London. Multiple sclerosis in adults: management: Clinical guidance 186. 2014. (cited 2019 Jul 05) Available from: <https://www.nice.org.uk/guidance/cg186>
- Borg K, Bekkelund SI, Henriksson M. Parkinson's disease. Ch 40. Swedish National Institute of Public Health. Physical Activity in the prevention and treatment of disease. 2010. (cited 2019 Jul 05) Presently only available from the full FYSS translation. Available from: <http://www.fyss.se/wp-content/uploads/2018/01/40.-Parkinson's-disease.pdf>
- National Institute for Health and Care Excellence. London. Parkinson's disease in adults. National Guideline 71. 2017. (cited 2019 Jul 05) . Available from: <https://www.nice.org.uk/guidance/ng71>
- Hjeltnes N. Spinal cord injury. Ch 45. Swedish National Institute of Public Health. Physical Activity in the prevention and treatment of disease. 2010. (cited 2019 Jul 05) Available from: <http://www.fyss.se/wp-content/uploads/2018/01/45.-Spinal-cord-injury.pdf>
- Borjesson M, Mannerkorpi K, Knardahl, et al. Ch 39. Swedish National Institute of Public Health. Physical Activity in the prevention and treatment of disease. 2010. (cited 2019 Jul 05) Available at: <http://www.fyss.se/wp-content/uploads/2018/01/39.-Pain.pdf>
- National Institute for Health and Care Excellence. London. Low back pain and sciatica in over 16's: assessment and management. 2016: National guideline 59. (cited 2019 Jul 05) Available from: <https://www.nice.org.uk/guidance/ng59>