

Muscle Cramps and Dystonia

People with Parkinson's disease (PD) often find that they are prone to a variety of aches and pains. For example, muscular rigidity and a reduction in, or absence of, movement (akinesia) can lead to cramps, which are often quite distressing and which may not be relieved by ordinary painkillers. Occasionally, people with PD may experience severe muscle spasms or dystonias that are different from ordinary muscle cramps and have different causes and treatments. This information sheet aims to describe the different types of muscle cramps and dystonias that may occur in PD and what treatments may be available for them.

What is Dystonia?

Dystonia is a movement disorder characterised by a sustained involuntary contraction of the muscles causing the affected part of the body to go into spasm. While it can occur as a separate condition in itself, referred to as 'primary' dystonia, it can also be associated with a number of other conditions, including Parkinson's. In such cases, it is often referred to as 'secondary' or 'symptomatic' dystonia.

Although more common in young-onset PD, dystonia can affect anyone and can be prolonged and very painful. The contractions and spasms that are the primary symptoms may lead a person to mistake dystonia for muscle cramps caused by the rigidity found in PD. However, dystonia and cramping are very different; both make the muscles hard, but in cramping, muscles become 'less elastic' while in dystonia the hardness comes from the muscles contracting without relaxing.

What Can Be Done to Help Muscle Cramps?

Some cramps may respond to vigorous massage and the application of a heat pad or hot water bottle. Simply moving around may also help, or a physiotherapist can advise you on a number of stretching exercises that may help relieve the stiffness and soreness (see the Parkinson's Association's Information Sheet on Exercise in Parkinson's Disease for more information). If these treatments are not effective, the cramping may respond to drugs such as quinine or muscle relaxants (see the section on treatment of dystonia later in this information sheet for more details). You should discuss this option with your

doctor. For further information, see the Parkinson's Association's Information Sheet on Pain in Parkinson's Disease.

Why Does Dystonia Occur in Parkinson's Disease?

Dystonia in PD is commonly associated with the 'Wearing Off' of the effects of levodopa containing medications (i.e. Sinemet, Madopar or Stalevo), in which the drug treatment becomes less effective before the next dose of the Sinemet, Madopar or Stalevo is due. This effect is known as 'Off' dystonia and can often occur in the morning on waking up. A person can experience painful muscular spasms and may be unable to get out of bed until the morning's dose of medication begins to take effect. 'Off' dystonia can sometimes be managed by taking a controlled-release levodopa preparation which releases the drug over a four to six-hour period at night, but you should discuss this possibility with your GP or specialist.

Dystonia in PD can also be associated with the action of levodopa itself as the medication reaches its peak effectiveness. This is known as 'On' dystonia and is caused by too much dopamine in the brain over-stimulating the muscles.

Finally, dystonia in PD may be unrelated to the dose of levodopa and can occur as a feature of the condition itself. This can happen at any time of the day, but is usually briefer than dystonias related to levodopa.

What Parts of the Body are affected by Dystonia?

Dystonia is usually worse on the side of the body where the PD symptoms are more pronounced. It can be localised to a single muscle or to a group of muscles, but in people with PD it is most commonly seen in the feet. Spasms in the calf muscles can cause the toes to curl into a claw-like position. The foot may also turn in at the ankle and sometimes the big toe can stick up (hyperextend). This can be very uncomfortable, especially for people who try to fit their feet into tight-fitting shoes. Although most common in the feet, dystonia can occur in other parts of the body.

Other less frequent dystonic effects found in PD include the following:

- A spasm of the hand, often provoked by tasks requiring fine motor control such as handwriting. For this reason it is known as 'writer's cramp' and can often begin as a tremor of the hand;
- 'Cervical dystonia' or 'spasmodic torticollis', which is a sustained turning of the head to one side, bending forward or, more rarely, backward;
- 'Blepharospasm', meaning intermittent or sustained eyelid closure caused by the contraction of the eyelid muscles. This can begin in one eye, but will usually continue on to the other eye. Symptoms of this condition include excessive blinking, irritation, a burning sensation in the eyes and photophobia, an abnormal intolerance to light. These symptoms can be aggravated by stress, looking up or down, reading, driving or bright lights;
- 'Spasmodic dysphonia' or a spasm of the vocal cords;
- Hemimasticatory or hemifacial spasm, a spasm affecting one side of the jaw area or one side of the face.

How Can Dystonia Be Treated?

Dystonias may be treated by a variety of physical treatments, by changes to medications or surgery. Further information on these treatments is provided below:

Physical Therapies

As some ordinary muscle cramps can respond well to simple techniques such as massage, moving around or heat, some people find temporary relief from dystonic spasms by using 'sensory tricks'. These usually mean touching the affected body part before or while making a movement known to trigger a dystonic spasm. This appears to inhibit or shorten the spasm by giving the brain a distracting sensation to process or attend to.

Other techniques may be used – spasmodic dysphonia in the vocal cords, for example, can sometimes be helped by yawning or sneezing.

Some people with blepharospasm in the eyes have found relief in talking, lying down, singing, yawning, laughing, chewing or putting pressure on the eyebrows.

Medical Treatment

The first step is to identify the underlying cause. In PD, levodopa-related dystonias should respond to alterations in the type or timing of the regimen. It is

often useful for the person with PD or their carer to keep a 'motor diary' to determine how the dystonia relates to the timing of the doses.

People who experience early-morning 'off' dystonia may benefit from taking a controlled-release dose of their medication at night, or from taking their first dose of the day crushed to speed up the effect.

Your doctor may change your medication regime to try to alleviate the dystonia. There are many options available now, from long acting Dopamine Agonists to Enzyme Inhibitors which can allow the levodopa to work more smoothly and affectively, which would promote continuous delivery of dopamine to the brain.

However, while some people have claimed benefit from these treatment options, not everyone will experience the same effect.

For dystonia that does not respond to alterations in the Parkinson's drug regime, a number of other drug treatments are available. These include muscle relaxants or benzodiazepines such as diazepam (Valium) and clonazepam (Rivotril), Baclofen (Lioresal), and anticholinergics such as biperiden (Akineton).

A doctor may also be able to advise on the addition of other medications, such as muscle relaxants at bedtime, or injections of botulinum toxin (Botox, Dysport or NeuroBloc) into the affected area of the body. Botulinum toxin is a powerful nerve toxin (or poison) that is sometimes used to treat dystonia. Used in small doses in a purified form, botulinum toxin is injected into the affected muscles and blocks the release of the chemical messenger acetylcholine. Blocking this release prevents the nerves from signalling the muscles to contract. As a result, the injected muscles are weakened and the spasms caused by dystonia are lessened. This treatment needs to be repeated every three to four months.

Any change in your drug regime or the addition of extra medications must be discussed thoroughly with your doctor or Parkinson's specialist. Drug regimens in PD are highly individual and some of the treatments listed here may not be appropriate. Your doctor will be able to discuss possible treatments in relation to your own circumstances.

Surgery

Surgery for dystonia is not common, but may be considered in some cases where a person is not responding to drug treatment. Surgical procedures such as thalamotomy, pallidotomy, and deep brain stimulation already used for PD have also been found to be beneficial for dystonia. You should discuss this option with your doctor.

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Further information

Dystonia Ireland offers support to all people with dystonia and has a range of information on the different forms of the condition and the treatments available.

Dystonia Ireland can be contacted at:

Dystonia Ireland, 33 Larkfield Grove, Harold's Cross, Dublin 6W

Telephone: 00353 (0)1 492 2514 • Fax: 00353 (0)1 492 2565

E-mail: info@dystonia.ie

Other Relevant Information Sheets

NM5: Pain in Parkinson's

EX1: Exercise in Parkinson's

G4: Medications and Parkinson's Disease

DISCLAIMER – The information on these pages is not intended to be taken as advice. No changes to your treatment should be made without prior consultation with your doctor or allied health professional.

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