Movement disorders

Cerebral palsy is characterised by the presence of one or more movement disorders as follows:

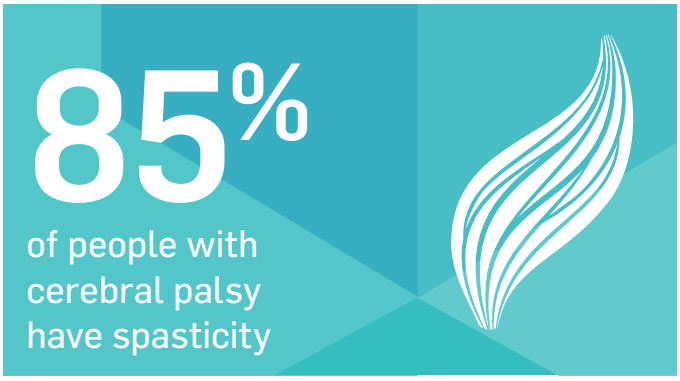
- **Spasticity** is the most common type, found in about 85% of individuals with cerebral palsy. It is a condition in which certain muscles are overactive causing stiffness or tightness of muscles. This may interfere with normal movement, speech and gait. There is often underlying weakness and contractures may result.
- **Dyskinesia** is the term used for a category of movement disorders that are characterized by involuntary muscle movements and variable muscle tone. There are various types:
  - Dystonia is a movement disorder in which sustained or repetitive muscle contractions result in twisting and repetitive movements or abnormal fixed postures. Dystonia may be intensified or exacerbated by intentional activity, excitement, pain, anxiety or stress.
  - Athetosis is a movement disorder characterized by slow, involuntary, convoluted, writhing movements of the fingers, hands, toes, and feet and in some cases, arms, legs, neck and tongue.
  - Chorea is a movement disorder characterised by brief, random, irregular movements that are not repetitive or rhythmic but appear to flow from one muscle to the next, in a 'dance-like' fashion.
- **Ataxia** is the term used for a movement disorder characterised by poor coordination, unsteadiness and tremor. People with ataxia who are ambulant tend to walk with a wide based unsteady gait. Low muscle tone (hypotonia) is usually present.
- **A mixture of more than one type** of motor disorder is common, particularly the combination of spasticity and dystonia.

Distribution

The movement disorder may be present or more prominent:

- on one side of the body (**hemiplegia or unilateral cerebral palsy**);
- in legs more than arms (**diplegia or bilateral cerebral palsy**); or
- in all four limbs (**quadriplegia or bilateral cerebral palsy**).

Identification of the particular type of movement disorder is essential as there are different treatments depending on the diagnosis. This is not always easy and may require assessment and opinion from a physiotherapist, neurologist, paediatrician and/or rehabilitation specialist with skills in the area of movement disorders in cerebral palsy.



Treatment

Spasticity may be treated with:

- Oral medication: muscle relaxants such as Baclofen or benzodiazepines.
- Injectable agents for specific muscle groups: Botulinum toxin.
- Phenolisation of particular nerves supplying a muscle group e.g. obturator nerve/hip adductors.
- Intrathecal baclofen.
- Only the non-neural elements of spasticity will react to these interventions.

Surgical procedures can be used to treat fixed contractures. For example; lengthening of tendons such as Achilles tendon or hamstrings.

Dystonia may be treated with:

- Oral medication: baclofen is the first line treatment and others such as gabapentin or trihexyphenidyl might be trialled.
- Intrathecal baclofen.
- Deep brain stimulation (rarely used in cerebral palsy).

Athetosis is extremely difficult to treat.

Chorea is also difficult to treat. Atypical neuroleptics such as risperidone and quetiapine are occasionally tried. Dopamine-depleting agents such as reserpine and tetrabenazine are another option.

When using medication for any of the movement disorders, it is important to:

- Be clear about the goals of treatment (e.g. improve and maintain comfort and/or function, maintain optimal bone/joint alignment, reduce functional/postural deterioration, enable personal care, reduce pain, reduce spasms).
- Commence at a low dose.
- Increase the dose slowly.
- Monitor closely for side effects.

These resources are designed to support healthcare practitioners in the care of their patients with cerebral palsy in Australia. They were developed in partnership by The Royal Children's Hospital; the Centre for Developmental Disability, Monash Health; and Murdoch Children's Research Institute. They have been amended for use by healthcare workers globally in partnership with IAACD. The initial project was funded by an Avant Quality Improvement Grant 2017.