



How to support children with Spastic Diplegic Cerebral Palsy

What kind of treatment can help children with spastic diplegia?

Base on the severity and functional status of individual child, treatment modalities can include:

1. Rehabilitative therapies to maintain and improve children's mobility, muscle strength and function.
2. Rehabilitative equipments, such as orthosis and splints, to maintain children's muscle length and to prevent contracture.

What are the medical interventions that can reduce muscle tone?

If tone reduction is considered clinically necessary, the following treatments can be considered:

1. Intramuscular injection of Botulinum toxin may be helpful to temporarily reduce muscle tone by preventing nerve-muscle transmission. The effective period is generally 3 to 6 months. Rehabilitation is important during this period to help children in improving their muscle length and in learning new skills, e.g. to train the upper limbs for a more mature hand grasp or to train the lower limbs for a better walking pattern.
2. Some selected children may benefit from Selective Dorsal Rhizotomy Surgery. It is a neurosurgical procedure which involves sectioning selected sensory nerve roots to limit the over-reactive reflexes, so as to restore a more normal muscle tone. Intensive post-operative training is required for these children.



Can orthopaedic intervention help the children?

1. Orthopaedic intervention such as soft tissue and bone surgery might be helpful for children with soft tissue contractures or joint deformities. It is usually considered in older children with more mature skeletal development.
2. Children's hips should be monitored regularly for risk of subluxation and dislocation so that orthopaedic intervention could be done timely.

Can children with spastic diplegia walk?

Majority of children with spastic diplegia have increased muscle tone and decreased muscle control over their lower limbs which affect their walking ability. Owing to the different levels of involvement, they have variable walking abilities: Some children can walk by themselves while others need assistive mobility devices, and some may need to use wheelchairs for ambulation. It is recommended to consult physiotherapist for the selection of walking aids or the use of wheelchairs.

Apart from the increased muscle tone, how to help children with other related physical problems?

1. The increase in muscle tone together with decrease in muscle control will lead to tightness of muscle and muscle imbalance in the legs. It is important to maintain flexibility and muscle length for better joint alignment. This can be attained through different methods of stretching:
 - ✧ Caretakers can apply manual stretching for young children.
 - ✧ Older children can learn self-stretching or stand-stretch by using own weight.
 - ✧ Children may need different splints and orthosis during different time and activities of the day. For instance, wearing ankle splints when sleeping at night or use orthosis during walking in day time.



2. Children with diplegia have muscle weakness, and strengthening exercise is essential for specific muscle groups. They are encouraged to participate more in daily activities, such as crawling or walking to get food or toys.
3. Abnormal walking patterns and decreased walking endurance are common in children with diplegia, thus, walking exercise is essential for their motor training. Choice of suitable walking aids, types of wheelchair or electrical wheelchair and the proper use of these aids in different indoor or outdoor environments are also important.

What are the benefits of wearing orthosis? What should caretakers be aware of?

1. Some children may need to wear orthosis to improve the walking pattern and stability, while others may need to wear night splints to prevent contractures.
2. Explain to children the benefits of the orthosis and the need to wear them for a longer time gradually. This can help to increase children's acceptance and compliance to them.
3. Pay attention to any discomfort when children wear the orthosis, check if there is any pressure point especially after prolonged use so as to avoid damage to the skin.

Anything else we need to be aware of?

1. A good posture is important to maintain the skeletal alignment:
 - ✧ Some children may need to have special seating to attain good sitting posture which provides a stable base for upper limb function
 - ✧ Encourage children to stand with knees straight, feet pointing forward and heels down
2. Try to incorporate exercises into daily life, such as carrying their own bags, walking, climbing stairs under the supervision of caretakers, etc.



3. Encourage children to participate in physical activities organized in the community or by relevant associations.
4. If children have received botox injection, neurosurgery or orthopedic surgery, intensive physical rehabilitation is essential.

Children with physical impairment need to have therapy training everyday, should caretakers decrease their play time?

Children learn about themselves and the world through play. During play, they experience a sense of joy, pleasure and freedom. Therefore, caretakers should play with children everyday at different time. It is a good opportunity for children to learn, and caretakers can enjoy their interaction with children at the same time.

Children have weak fine motor skills, what should their caretakers do?

- Try different postures when playing, e.g. half-kneeling, side-sitting, so as to improve their body and limbs control.
- Provide suitable furniture for keeping children's feet on the floor and elbows on the table, so as to facilitate advance hand function development.
- Promote finger dexterity, e.g. imitate finger postures and screw bottle cap.

Should caretakers help young children with physical impairment to finish all the self-care tasks?

Self-care skill is one of the most important developmental domains in children. Training of self-care skills can enhance their fine motor skills, promote their independence and self-esteem. Caretakers can consult Occupational Therapist to set realistic goals according to their children's motor and cognitive abilities. They should provide safe environment for their children to participate in self-care activities.



How to promote children's self-care skills?

- Extra-time is needed in performing self-care activities because of their weakness in fine motor skills. Caretakers should be more patience and praise children's effort.
- Let children perform self-care tasks according to their ability and in optimal position, e.g. taking off shoes and socks by sitting on the floor with the back leaned against the wall.
- Encourage children to participate in daily living activities, e.g. holding cups, folding towels, cleaning table and tidying up, etc.
- Some children may need to use special utensils, e.g. enlarged handle spoon, angled spoon, scooping plate, non-slippery mat, etc. Consult Occupational Therapist when necessary.



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