



## Movement Disorders in Children



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### Keywords

• Movement disorders • Motor • Hyperkinetic

### Key points

- Hyperkinetic movement disorders of childhood are a common presentation to the general pediatrician and pediatric neurologist.
- Pediatric movement disorders encompass both benign and self-limited conditions as well as progressive disorders.
- Classifying the phenomenology of the movement disorder is key to guiding work-up and treatment.
- Counseling the family and patient on the pathophysiology and indications for treatment is imperative.

### APPROACH TO THE CHILD WITH A MOVEMENT DISORDER

Pediatric movement disorders encompass a wide range of phenomenology and include benign or self-limited conditions as well as progressive disorders associated with significant morbidity and mortality. Movement disorders are generally classified as hyperkinetic (excessive movement) and hypokinetic (paucity of movement [ie, parkinsonism]). This review focuses on the clinical evaluation of hyperkinetic movement disorders in children, providing common examples and practical approaches to diagnosis and treatment.

In the evaluation of children with abnormal movements, the first step is to obtain a detailed clinical history, paying particular attention to the onset and time course of symptoms and any precipitating factors (infections, medications, and toxic exposures) or alleviating factors; perinatal and developmental

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history; and family history, including any concern for genetic risk factors. The next step is to classify the phenomenology of the movement disorder. At times, viewing home video footage may be helpful. Table 1 lists the current consensus definitions of hyperkinetic movement disorders in children. A combination of movement disorders may be present; for example, children with dyskinetic cerebral palsy often have a combination of dystonia, chorea, and athetosis. The next step is to identify if the movement disorder is the primary symptom or if it is occurring in the context of other neurologic, psychiatric, or systemic symptoms. This guides further imaging and/or laboratory evaluation and treatment.

## DYSTONIA

Dystonia is characterized by involuntary sustained or intermittent muscle contractions causing repetitive movements and/or abnormal postures [1]. The most common cause of dystonia in children is dyskinetic cerebral palsy. Other secondary causes include encephalitis, vascular disease, autoimmune disease, metabolic derangements, and neurodegenerative diseases. Primary or idiopathic dystonia in children is typically genetic in etiology, with a growing list of genetic mutations identified [2]. Table 2 lists the more common primary genetic dystonias and their clinical features.

DYT-TOR1A dystonia, also known as DYT1 or Oppenheim dystonia, is an autosomal-dominant condition with reduced penetrance and variable expression. It is the most common cause of hereditary generalized dystonia in children, with typical onset in the first or second decade of life characterized by

**Table 1**

National Institutes of Health Taskforce on Childhood Movement Disorders: consensus definitions of hyperkinetic movement disorders

Term	Definition
Dystonia	Involuntary sustained or intermittent muscle contractions causing twisting and repetitive movements, abnormal postures, or both
Chorea	Ongoing, random-appearing sequence of 1 or more discrete involuntary movements or movement fragments
Athetosis	Slow, continuous, involuntary writhing movement that prevents maintenance of a stable posture
Myoclonus	Repeated, often nonrhythmic, brief shock-like jerks due to sudden involuntary contraction or relaxation of 1 or more muscles
Tremor	Rhythmic, back-and-forth or oscillating involuntary movement about a joint axis
Tics	Repeated, individually recognizable, intermittent movements or movement fragments that are almost always briefly suppressible and are usually associated with awareness of an urge to perform the movement
Stereotypies	Repetitive, simple movements that can be voluntarily suppressed

Data from Sanger TD, Chen D, Fehlings DL, et al. Definition and classification OF hyperkinetic movements in childhood. doi:10.1002/mds.23088.

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