WORLD PT DAY 2026

PAEDIATRIC PHYSIOTHERAPY EVIDENCE SERIES

Paediatric Stroke & Cerebrovascular Conditions

A World PT Day 2026 companion resource for children — the impact and risk factors for paediatric stroke, and how paediatric physiotherapists can help

World PT Day 2026 theme: cardiovascular disease & stroke · 8 September · For clinicians, families, children & adolescents

Stroke & Related Cerebrovascular Conditions in Children & Adolescents

Stroke is not just an adult condition—it occurs in approximately 2 to 13 children and adolescents per 100,000 each year. [1] When blood flow to a child's brain is suddenly blocked, or a blood vessel bleeds, the effects can last a lifetime. The pattern of recovery is different from stroke in adults as it occurs in a child's brain that is still developing. The table below covers stroke in children and adolescents, including around the time of birth, and its close relationship with cerebral palsy.

Condition / risk factor	What it is	Why it matters
Perinatal stroke	A stroke occurring from 28 weeks' gestation to 28 postnatal days of life. [2]	A leading identifiable cause of cerebral palsy,[1,2] with one study showing that up to 68% of children affected by perinatal arterial ischemic stroke went on to develop cerebral palsy.[3]
Childhood stroke	A stroke occurring after 28 days to 18 years of age. [2]	Its symptoms are frequently misdiagnosed or delayed in recognition. The rising rates of ischemic stroke in older adolescents—increasing 0.35% annually to 11.23 per 100,000—pose a growing threat to paediatric health, schooling, social development and long-term independence.[1]
Cerebral palsy (CP)	An early-onset lifelong condition that limits movement and posture due to a non-progressive brain injury or malformation during early development. It can follow a perinatal stroke.[4,5]	A major cause of childhood physical disability;[6] prevalence for pre-/perinatal CP was 3.4 per 1,000 live births in low- and middle-income countries, 1.5 per 1,000 live births in high-income countries and 1.6 per 1000 live births when post-neonatal CP was included.[4]
Congenital heart disease	A structural heart problem present from birth (see the companion cardiovascular sheet).	Cardiac disease is a recognised cause/risk factor for childhood stroke.[7]
Sickle cell disease	An inherited condition affecting red blood cells.	Raises stroke risk by more than 200-fold compared with children without the condition. Regular screening and preventive treatment greatly reduce this risk.[8]

Condition / risk factor	What it is	Why it matters
Moyamoya disease	A cerebrovascular condition involving the progressive narrowing of arteries at the base of the brain.	A common cause of stroke in children of East Asian countries; symptoms may include headache, transient ischemic attacks (TIAs), seizures or focal neurological symptoms.[9]

How Physiotherapy Helps

Early recognition, assessment & action

- **Recognising warning signs**—such as sudden weakness on one side, facial drooping, slurred or lost speech, loss of balance or coordination, or a severe sudden headache or a new seizure—and acting quickly enables faster diagnosis and treatment for paediatric stroke.[10]
- After any brain injury, physiotherapists should be part of the multidisciplinary team, **identifying early signs of movement difficulty** and conducting **standardised motor assessment**—such as General Movements Assessment (GMA) and the Hammersmith Infant Neurological Examination (HINE)—for accurate and early diagnosis. Support can start as early as possible.[11]
- **Prompt recognition and early action** after stroke are essential. Children and adolescents have a developing brain with a remarkable capacity to adapt, and starting intervention as early as possible helps maximise recovery and long-term function.[6,11]

B. **Balance loss**: Sudden trouble with walking, coordination, or dizziness

E. **Eyes:** Sudden changes in vision or trouble moving the eyes

F. **Face drooping**: One side of the face droops or feels numb

A. **Arm weakness**: Sudden weakness or numbness in an arm or leg, often on one side

S. **Speech difficulty**: Slurred speech, trouble speaking, or inability to understand others

T. **Time to call emergency**: Act fast and get emergency medical help right away

Management & rehabilitation

- **Active, task-specific, and goal-directed training:** Physiotherapy should focus on active, task-specific practice aimed at meaningful and measurable goals chosen by the child and family, rather than passive therapist handling or isolated impairment training. Whole-task practice in an enjoyable, motivating, and challenging environment drives neuroplasticity and skill transfer. Programmes should be tailored to the child's age, cognition, and motor ability.[6,12]
- **Unilateral and bilateral upper-limb interventions:** Constraint-Induced Movement Therapy (CIMT) and bimanual therapy are recommended for children with hemiparesis. For children with severe manual limitations (MACS level IV), the focus should shift to task adaptations, environmental modifications, and assistive technology to maximise daily independence and reduce caregiver burden.[6,11-13]

- **Evidence-based mobility and gross motor training:** Active mobility training prevents functional and musculoskeletal decline caused by inactivity. Ambulatory children should prioritize overground walking—supplemented by treadmill training to increase practice dose—to improve walking speed and endurance. For children with severe limitations, pair functional goals with adaptive equipment, assistive technology, and environmental modifications to increase independence and reduce energy consumption.[12]
- **Family-centred approach:** Physiotherapists should act as coaches, empowering families to build specific, achievable practice into everyday routines, such as reaching for toys, dressing, transfers, walking, stairs, play, or other meaningful activities. Engage the child in playful yet targeted training to ensure a sufficient dose of practice.[6,11-13]
- **Lifelong management & support:** Long-term follow-up is essential because physical, cognitive and functional difficulties may persist or become more apparent as children grow and their demands change.[2,13] Physiotherapy supports functional skill development and participation in everyday, school and community activities, with shared and collaborative goals tailored to the child's individual needs and changing priorities over time.[13] The F-words framework—Function, Family, Fitness, Fun, Friends and Future—can help guide participation-focused goals and shared decision-making.[14]

Note: This evidence-based document was prepared with the assistance of generative AI tools and fully reviewed, verified, and revised manually by a panel of paediatric physiotherapists with content expertise.

References

[1] Li JJ, et al. Global, regional, and national burden of stroke on children and adolescents aged under 20 years from 1990 to 2021, with projections of disability-adjusted life year to 2050: a comprehensive demographic analysis for the Global Burden of Disease Study 2021. Eur J Neurol. 2025;32(5):e70180.

[2] Ferriero DM, et al; American Heart Association Stroke Council and Council on Cardiovascular and Stroke Nursing. Management of stroke in neonates and children: A scientific statement from the American Heart Association/American Stroke Association. Stroke. 2019;50(3):e51-e96

[3] Golomb MR, et al. Cerebral palsy after perinatal arterial ischemic stroke. J Child Neurol. 2008;23(3):279–286.

[4] McIntyre S, et al; Global CP Prevalence Group. Global prevalence of cerebral palsy: A systematic analysis. Dev Med Child Neurol. 2022;64(12):1494–1506.

[5] Dan B, et al. Updated description of cerebral palsy. Dev Med Child Neurol. 2026;68(4):465–476.

[6] Morgan C, et al. Early intervention for children aged 0 to 2 years with or at high risk of cerebral palsy: International clinical practice guideline based on systematic reviews. JAMA Pediatr. 2021 Aug 1;175(8):846-858.

[7] Lee YY, et al. Risk factors and outcomes of childhood ischemic stroke in Taiwan. Brain Dev. 2008;30(9):604–609.

[8] American Stroke Association. Sickle cell disease and pediatric stroke risk. Available at: https://www.stroke.org/en/about-stroke/stroke-in-children/sickle-cell-disease.

[9] Sun LR, et al. Moyamoya across the lifespan: current neurologic care and future directions. Neurology. 2025;104(7):e213484.

[10] American Stroke Association. Stroke in children. Available at: https://www.stroke.org/en/about-stroke/stroke-in-children.

[11] Novak I, et al. Early, accurate diagnosis and early intervention in cerebral palsy: advances in diagnosis and treatment. JAMA Pediatr. 2017;171(9):897–907.

[12] Jackman M, et al. Interventions to improve physical function for children and young people with cerebral palsy: international clinical practice guideline. Dev Med Child Neurol. 2022;64(5):536–549.

[13] Greenham M, et al. Australian clinical consensus guideline for the subacute rehabilitation of childhood stroke. *Int J Stroke*. 2021;16(3):311-320.

[14] Rosenbaum P, Gorter JW. The 'F-words' in childhood disability: I swear this is how we should think! Child Care Health Dev. 2012;38(4):457-463.

[15] World Physiotherapy. World PT Day 2026: Cardiovascular disease and stroke. Available at: https://world.physio/wptday/toolkit/.