



Speech Sound (Articulation) Disorders

What are speech sound (articulation) disorders?

Speech sound disorders are conditions where a child's articulation or pronunciation is delayed or deviates from normal speech sound development. There are five types of speech sound disorders:

1. Organic speech sound disorder

Articulation problems that are associated with structural abnormalities or known impairments such as cleft lip and palate, hearing impairment or brain injury.

2. Functional speech disorders

Difficulties in learning to make specific speech sounds.

3. Developmental phonological disorders

Difficulties using appropriate speech patterns. E.g. "t_{ar}" for "c_{ar}" or "d_{ock}" for "s_{ock}"

4. Developmental apraxia of speech

Difficulties planning and coordinating lips, tongue, and jaw to produce speech sounds.

5. Developmental dysarthria

Motor speech disorder involving problems with strength and control of the speech musculature. Dysarthria is typically seen in children with cerebral palsy, traumatic brain injury, etc.



What are the causes of speech sound (articulation) disorders?

The precise causes for functional speech disorders, developmental phonological disorders and developmental apraxia of speech are unknown.

Developmental dysarthria is caused by impaired nerve and muscle function.

Some conditions such as cleft palate, hearing impairment, certain syndromes, tongue-tie, and paediatric stroke can affect a child's clarity of speech.

What are the symptoms of speech sound (articulation) disorders?

A child with a speech disorder may have one or more of these signs and symptoms:

- **Omissions or deletions**
Definition: Certain sounds are not produced but omitted or deleted.
Examples: “boo” for “book” and “soon” for “spoon”
- **Distortions**
Definition: Sounds are altered or changed.
Examples: An interdental “s” whereby the “s” sound is being produced with the tongue sticking out in between teeth
- **Substitutions**
Definition: One or more sounds are replaced with a different sound.
Examples: “bat” for “pat”, “dood” for “good” and “wabbit” for “rabbit”
- **Additions**
Definition: One or more sounds are added or inserted into a word.
Examples: “buhlack” for “black” or “doguh” for “dog”
- **Syllable-level errors**
Definition: A syllable is repeated or deleted.
Examples: “dada” for “dad” or “te_phone” for “telephone”
- **Prosody errors**
Definition: Inappropriate use of stress, intensity, rhythm, and intonation during speech.



What are the treatment options for speech sound (articulation) disorders?

An assessment by a speech therapist is necessary to determine the type of speech disorder(s) a child with unclear speech has. Other medical or allied health professionals may also need to be involved in the assessment and management.



Each speech disorder requires a different type of treatment, and each treatment programme is individually tailored to the needs of the particular child.

Parents play an important role in their child’s therapy which continues outside of the clinical setting. This includes practising the recommended speech strategies and activities with the child at home and following up on therapy visits regularly.

Tips

Children typically learn to produce different speech sounds gradually. Below is a general guide of speech sound development (consonant sounds):

- By 2 years old: p, m, h, n, b, w, y, d
- By 3 years old: t, k, g, f, ng
- By 4 to 5 years old: sh, s, j, ch, l, r, z
- By 6 years old and above: v, th, st, sp, sl, and other groups of consonant blends.

All children make predictable pronunciation errors when they learn to speak like adults. A child will generally have speech that is understood by listeners:

- 50% of the time by 2 years old
- 75% of the time by 3 years old
- 90-95% of the time by 4 years old

Seek help if your child's speech is not clear by the age of 4 years old.

Additional resources on speech sound (articulation) disorders

- Speech (Sound) Disorders
www.familiesforlife.sg/parenting

NUH Child Development Unit

NUH Child Development Unit is part of the Khoo Teck Puat – National University Children's Medical Institute at National University Hospital. The clinic provides multidisciplinary assessments, therapy and holistic management of children with developmental & behavioural disorders from birth to 7 years old. Please make an appointment if you would like to see our paediatricians.



For health information and resources relating to child development, visit:

<https://www.nuh.com.sg/cdu-resources>

<https://www.nuh.com.sg/cdu>

About the National University Centre for Women and Children

National University Centre for Women and Children (NUWoC) is a national university specialist centre that aims to empower women, children and their families to lead healthier lives. We provide comprehensive medical and surgical services ranging from pre-conception to child and maternal health.

NUWoC comprises the Department of Obstetrics & Gynaecology (O&G) and Khoo Teck Puat – National University Children's Medical Institute (KTP-NUCMI) of National University Hospital. It focuses on the right-siting of appropriate services in the community and builds complementary services in National University Health System's (NUHS) centres of excellence – Ng Teng Fong General Hospital and Alexandra Hospital.

Through a generous gift from the Estate of Khoo Teck Puat, KTP-NUCMI established an integrated outpatient facility with medical, diagnostic and rehabilitation services for children. We are also the only public specialist centre in Singapore that offers paediatric kidney and liver transplant programmes.

For more information about us, visit www.nuh.com.sg/NUWoC

Children's Emergency (24-hr)

Location NUH Main Building, Zone F, Level 1
Contact +65 6772 5000

KTP-NUCMI

Location NUH Main Building, Zone E, Level 2
(Accessible via Kent Ridge Wing, Zone C, Level 2, Lift Lobby C)
Operating Hours 8.30am – 5.30pm (Mon to Fri), 8.30am – 12.30pm (Sat)
General Enquiry +65 6772 5736
Appointment Line +65 6908 2222
Email ktpnucmi_appt@nuhs.edu.sg

9a Viva-University Children's Cancer Centre

Location NUH Medical Centre, Zone B, Level 9
Operating Hours 8am – 5.30pm (Mon to Fri)
Appointment Line +65 6772 5030
Email cbccappt@nuhs.edu.sg

NUH Children's Urgent Care Clinic @ Bukit Panjang

Location Junction 10, #01-22
Operating Hours 9am – 11pm daily (including public holidays)
General Enquiry +65 6219 1538
Email childreनुcc@nuhs.edu.sg

NUH Child Development Unit @ JMC

Location Jurong Medical Centre, Level 2
Operating Hours 8.30am – 5.30pm (Mon to Fri)
Appointment Line +65 6665 2530 / 2531
Email cdu@nuhs.edu.sg

NUH Child Development Unit @ Keat Hong

Location Keat Hong Community Club, #03-01
Operating Hours 8.30am – 5.30pm (Mon to Fri)
Appointment Line +65 6769 4537/4637
Email cdu@nuhs.edu.sg

Clinic A22 NUWoC Children's Clinic @ NTFGH

Location Ng Teng Fong General Hospital
Tower A – NTFGH Clinics, Level 2
Operating Hours 8.30am – 5.30pm (Mon to Fri)
Appointment Line +65 6908 2222
Email appointment@nuhs.edu.sg

Our Patient Care Institutions

National University Hospital

Ng Teng Fong General Hospital &
Jurong Community Hospital

Alexandra Hospital

National University Polyclinics

Jurong Medical Centre

National University Cancer Institute, Singapore

National University Heart Centre, Singapore

National University Centre for Oral Health, Singapore

NUHS Diagnostics

NUHS Pharmacy



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