

Contact Us

For any enquiries regarding precocious puberty, please contact:

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Other Instructions

About the Khoo Teck Puat – National University Children's Medical Institute (KTP-NUCMI)

The KTP-NUCMI is the paediatric arm of the National University Hospital and comprises the Departments of Paediatrics, Paediatric Surgery and Neonatology. We provide comprehensive and specialised medical and surgical services for newborns, children and adolescents. NUH is the only public hospital in Singapore that offers paediatric kidney and liver transplant programmes. Through a generous gift from the Estate of Khoo Teck Puat, we have set up an integrated outpatient facility with medical, diagnostic and rehabilitation services.

For more information about us, visit www.nuh.com.sg/ktp-nucmi.

Contact Us

24-hour Children's Emergency

Location: NUH Main Building, Zone F, Level 1
General Enquiry: +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 Fax: +65 6872 4314
Email: cbccappt@nuhs.edu.sg

NUH Children's Urgent Care Clinic @ Bukit Panjang

Location: Junction 10, 1 Woodlands Road, #01-22, Singapore 677899
Operating Hours: 9am – 11pm daily (including public holidays)
General Enquiry: +65 6219 1538 Email: childrenucc@nuhs.edu.sg
Website: www.nuh.com.sg/ucc

NUH Child Development Unit @ JMC

Location: Jurong Medical Centre,
60 Jurong West Central 3, Level 2, Singapore 648346
Operating Hours: 8.30am – 5.30pm (Mon to Fri)
Appointment Line: +65 6665 2530/2531 Fax: +65 6665 0158
Email: cdu@nuhs.edu.sg Website: www.nuh.com.sg/cdu

NUH Child Development Unit @ Keat Hong

Location: Keat Hong Community Club,
2 Choa Chu Kang Loop, #03-01, Singapore 689687
Operating Hours: 8.30am – 5.30pm (Mon to Fri)
Appointment Line: +65 6769 4537/4637 Fax: +65 6665 0158
Email: cdu@nuhs.edu.sg Website: www.nuh.com.sg/cdu

National University Hospital

Location: 5 Lower Kent Ridge Road, Singapore 119074
Tel: +65 6908 2222 Email: contactus@nuhs.edu.sg
Website: www.nuh.com.sg



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Information is correct at the time of printing (October 2022) and subject to revision without prior notice.

Precocious Puberty



The information provided in this publication is meant purely for educational purposes and may not be used as a substitute for medical diagnosis or treatment. You should seek the advice of your doctor or a qualified healthcare provider before starting any treatment or if you have any questions related to your health, physical fitness or medical condition.

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What is puberty?

Puberty occurs between the ages of 8 and 13 for girls and 9 and 14 years in boys. It occurs when a part of the brain called the hypothalamus releases gonadotropin-releasing hormone (GnRH). This hormone stimulates the pituitary gland (a small gland at the base of the brain) to release two other hormones: Luteinising Hormone (LH) and Follicle-Stimulating Hormone (FSH). These two hormones, LH and FSH, then stimulate the gonads (testes or ovaries) to produce sex steroids (estrogen in females and testosterone in males), which lead to the physical changes of puberty.

The physical changes of puberty include:

- Development of secondary sexual characteristics (growth of underarm and pubic hair in both boys and girls, breast development in girls, and penile and testicular growth in boys)
- Growth spurt leading to a rapid increase in height
- Changes in body shape and size

What is precocious puberty?

Precocious puberty is defined as the appearance of secondary sexual characteristics in boys younger than 9 years old and in girls younger than 8 years old.

Every child goes through puberty at a different rate and stops growing in height towards the end of puberty. Children with precocious puberty mature and stop growing at an earlier age compared to their peers and can be shorter than their genetic potential as adults. Precocious puberty can cause emotional and social problems for children who are ahead of their peers.

Signs of precocious puberty

Girls	Boys
<ul style="list-style-type: none">• Breast development• Vaginal bleeding• Growth of underarm and pubic hair• Growth Spurt	<ul style="list-style-type: none">• Enlargement of the testicles and penis• Facial hair• Deepening voice• Growth of underarm and pubic hair• Growth Spurt

What causes precocious puberty?

Precocious puberty can be subdivided into Central Precocious Puberty (CPP) and Peripheral Precocious Puberty (PPP). In CPP, the hypothalamus releases GnRH which acts on the pituitary to secrete gonadotrophins, which then stimulates the sex organs to produce sex steroids. Conversely, PPP is caused by early production of sex steroids (estrogen and testosterone) from other organs without central activation of the hypothalamic-pituitary-gonadal axis.

How is precocious puberty diagnosed?

There are several diagnostic tests that the doctor may order. These include:

- A special blood test known as the Luteinising Hormone Releasing Hormone, or LHRH stimulation test: To measure pubertal hormone levels
- An X-ray of the left hand: To ascertain if the bones are maturing too fast
- A pelvis ultrasound (for girls only): To check the status of the ovary and uterus
- Magnetic Resonance Imaging (MRI) scan of the pituitary: For suspected hypothalamic and pituitary related disorders

How is the LHRH stimulation test conducted?

The LHRH stimulation test is an outpatient procedure. An intravenous (IV) plug will be inserted and blood is drawn from the plug at 30-minute intervals for a duration of 90 minutes. The table below shows what is being measured at each interval:

	IV LHRH			
	0 mins	30 mins	60 mins	90 mins
Luteinising Hormone	✓	✓	✓	✓
Follicle Stimulating Hormone	✓	✓	✓	✓
Testosterone (boys)	✓			
Estradiol (girls)	✓			

How is precocious puberty treated?

CPP can be treated with a GnRH analogue to prevent further pubertal development. It works by blocking the hormones from the pituitary gland that trigger puberty. It is administered via an intramuscular injection either once every 4 weeks or once every 12 weeks. The strength and frequency will be advised by the paediatrician.

The potential side effects of GnRH analogue include:

- Vaginal bleeding for the first 3 to 6 months (for girls only)
- Headaches
- Hot flushes
- Redness of the injection site
- Pain
- Mood swings

For PPP, treatment depends on the cause and may involve medication or surgery.