3D/4D ultrasonography

What is 3D ultrasound?

A more advanced type of ultrasound can offer crystal clear realistic 3D images of the baby, sometimes with photo-quality details, using special imaging software. Our Antenatal Diagnostic Centre is equipped with a state-of-the-art 3D/4D ultrasound machine. 4D ultrasound can show a real time moving picture of a baby in realistic details like a video.

Can I have a 3D ultrasound?

There are 2 main reasons for having a 3D/4D ultrasound:

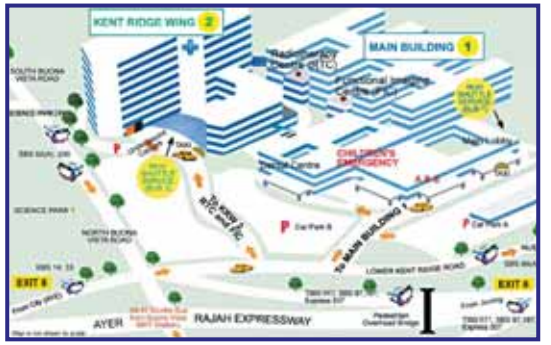
1. If a certain abnormality of the baby is seen on the conventional 2D ultrasound, a 3D and 4D ultrasound may be performed to further evaluate the abnormality.
2. If the mother-to-be or parents-to-be wish to have an earlier glimpse of their unborn baby during pregnancy, a 3D/4D ultrasound can be requested. The best images are obtained during 24-28 weeks of pregnancy. 4D scan helps to promote maternal and parental bonding.

There are some limitations to adequate visualisation of fetal anatomy with 3D/4D technology. If there is inadequate amniotic fluid surrounding the fetus, or if the fetus has its face in the posterior position in the uterus (looking backwards), there may be difficulty in visualising structures and the face.

Are there any side-effects of 3D ultrasound?

The examination is done in the same ways as the standard 2D ultrasound. No x-ray or radiation is involved and it is not known to have any side-effect on the mother and the baby.

Location



Free Shuttle Bus Service

Free shuttle bus service between Buona Vista MRT Station and NUH is provided every 12 minutes.

Operation hours : 8.00 am - 8.30 pm (Mon - Fri) and
8.00 am - 2.00 pm (Sat)
Not available on Sundays and Public Holidays

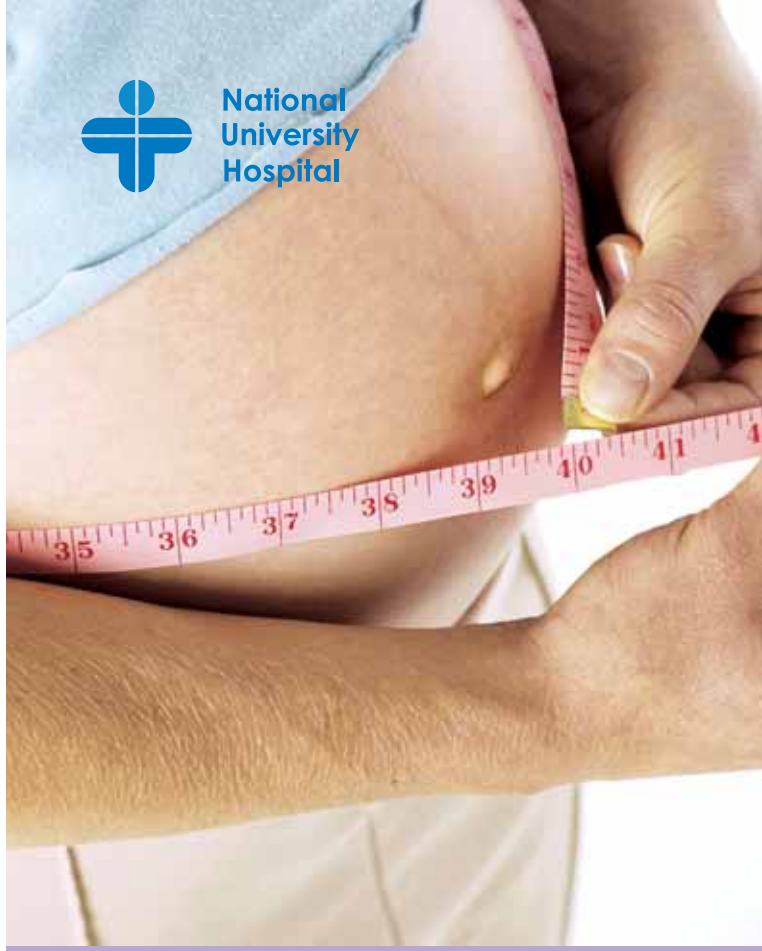
Pick-up points :
Main Building 1, Level 1, Lobby Entrance (Bus 1)
Kent Ridge Wing 2, Level 3, South Entrance (Bus 2)

Contact Us

Clinic Name : Antenatal Diagnostic Centre (ADC)
Location : Main Building 1, Level 1
Tel / Appointment : (65) 6772 5180
Fax : (65) 6772 4547

Opening Hours : 8.30 am - 6.00 pm (Mon - Thurs)
8.30 am - 5.30 pm (Fri)

National University Hospital
5 Lower Kent Ridge Road, Singapore 119074
Tel: 6779 5555 Fax: 6779 5678
Email: ADC@nuh.com.sg Website: www.nuh.com.sg



National University Hospital

Ultrasonography During Pregnancy

(2D, 3D and 4D Scans)

What is ultrasonography?

High frequency sound waves are used to obtain images of the unborn baby and the different structures of the baby. These sound waves pass through a device known as the transducer, which then pass through the amniotic fluid surrounding the baby and bounce off the baby harmlessly, creating 'echoes'. These 'echoes' are converted into images by the computer and screened on the monitor so that the outline of the baby and the internal structures can be seen. Currently used equipment are known as real-time scanners, whereby a continuous image of the moving fetus can be seen on the monitor screen. It has become a very useful diagnostic tool during pregnancy.

Why is an ultrasound done during pregnancy?

1. **Confirm pregnancy**
   At as early as five weeks of gestation, the gestational sac can be seen on an ultrasound. At six weeks, the embryo can be measured and observed. The scan also helps to confirm the number of babies.

2. **Determine age and size of fetus**
   Measurements of different part of the body reflect the age and size of the fetus. This is particularly important in early gestation. In patients with uncertain last menstrual periods, such measurements must be made as early as possible in pregnancy to arrive at a correct dating for the patient (Dating Scan). During later part of pregnancy, these measurements help in assessing growth of the fetus (Growth Scan).

3. **Screen for chromosomal abnormality of the baby** (refer to brochure on 'Screening For Chromosomal Abnormalities').

4. **Diagnosis of fetal malformation**
   Ultrasound scanning allows comprehensive surveys of the fetal anatomy to detect the presence of structural anomalies of the brain, heart, kidneys, limbs, and other organs. Physical abnormalities in the fetus and fetal organs can often be detected via ultrasound within 22 weeks of pregnancy (Fetal Anomaly Scan).

5. **Placental localisation**
   An ultrasound scan is very useful in identifying the site of the placenta. This assists the physician in excluding a placenta praevia (placenta lying close to the neck of the womb) and other placental abnormalities.

6. **Doppler blood flow studies**
   This is a special type of scan which allows the physician to study in great details the blood flow to various fetal organs and the placenta. These studies are often very useful in assessing fetal health.

7. **Other diagnoses**
   Ultrasound scans can be used to confirm fetal presentation, evaluate fetal movements, tone and breathing, determine the fetal gender and diagnose uterine and pelvic abnormalities during pregnancy such as fibroids and ovarian cyst.

How is an ultrasound performed?

The patient is requested to lie down and a thick gel is applied over the area to be examined. A probe is moved over the area to be examined and images are seen on the screen. The gel is not oily and it will not stain your clothing.

Types of ultrasound scan

There are two types of scan performed during pregnancy:

1. **Transvaginal** – scan is done through the vagina. This is usually done in the early part of the pregnancy for better images. It is slightly uncomfortable but it does not harm the pregnancy in any manner.

2. **Transabdominal** – scan is done through the mother's abdomen.

When is an ultrasound done?

The timing of the ultrasound scan depends on the reason for scanning. All pregnant women are advised to have the following scans:

1. **Dating Scan** – it can be done at any time but it is most accurate in the first 12 weeks of pregnancy.
2. **Nuchal Translucency Screening Scan** – it is done between 11 weeks + 3 days and 13 weeks + 6 days of pregnancy.
3. **Fetal Anomaly Scan** – it is done around 20-22 weeks of pregnancy.
4. **Growth Scan** – it is usually done around 32 weeks of pregnancy although it can be done anytime after 26 weeks of pregnancy.

What does an ultrasound picture looks like?

Depending on the stage of the pregnancy, the picture varies. In the early stages, the whole baby can be seen on the screen. In the later part of the pregnancy, only a portion of the baby may be seen at any time, e.g. only the head, arms or legs. The doctor or ultrasonographer will look at all the parts of the baby during the procedure.

Is there any risk involved?

No, so far there has been no evidence to suggest that ultrasound can cause any harm to the baby or mother.

Preparations for ultrasound scan

For transabdominal scan during the first 12 weeks of pregnancy, a full bladder allows better images to be seen. You are required to drink one glass of water one hour before the scan, followed by two glasses of water at 15 minutes interval after the first glass. Do not empty your bladder before the scan. Women beyond 3 months of pregnancy have adequate amniotic fluid to enable ultrasound examination without a full bladder.

For transvaginal scans, which gives better images before the first 10 weeks of pregnancy, the bladder should be empty. Please empty your bladder before a transvaginal scan.

What are some of the abnormalities that are commonly detected? What are the consequences?

Abnormalities may be detected in any part of the body. The more common abnormalities include structural abnormalities of the brain, heart, spine and kidneys. Additional tests may be required if any abnormality is detected. However, it is important to note that not all the abnormalities of the baby can be detected by the ultrasound scans performed during pregnancy.