ISUOG Basic Training
Gynecological Ultrasound: The Basics
Learning objectives

At the end of the lecture you will be able to:

• Understand a systematic approach to performing abdominal and vaginal gynecological ultrasound scans
Key questions

1. How do you perform a thorough and systematic gynecological ultrasound examination?

2. When should you perform a transvaginal versus a transabdominal ultrasound?

3. What is the correct scanning technique to image the vagina, cervix, uterus and ovaries effectively?
Key points

• Understand when to perform a transvaginal versus a transabdominal ultrasound exam

• Understand the importance of probe orientation

• Understand the steps to performing a systematic gynecological to accurately assess the pelvis during ultrasound examination
Normal female pelvic anatomy
Gynecological ultrasound examination technique

Systematic examination technique

ALWAYS THE SAME PROCEDURE
Vaginal or abdominal scan?

**Abdominal scan**
- Low frequency
- Poor resolution
- Good overview
- Scan the abdomen
- Full bladder

**Vaginal (rectal) scan**
- High frequency
- Superb resolution
- Poor overview
- Abdomen not seen
- Empty bladder
Abdominal scan

Full bladder?

YES, if primary scan
(NO), if supplementary scan
Abdominal gynecological ultrasound examination - orientation

On a longitudinal scan cranial is shown to the left on the screen.

Cranial (patient’s head)  Caudal (patient’s feet)
Abdominal ultrasound
Sagittal scan of the uterus
Abdominal gynecological ultrasound examination - orientation

On a transverse scan patient’s right side is shown to the left on screen.

Patient’s right side

Patient’s left side
Abdominal scan
Transverse scan through the uterus
Vaginal scan
Vaginal gynecological ultrasound examination - orientation

Patients’ right

Patients’ right
Probe movement

Usually in the *sagittal* plane

Usually in the *transverse* plane

In *both* planes

Anterior

Posterior
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- Bladder
- Rectum
- Vagina
The uterus – follow the cervix
The uterus – follow the cervix
The uterus – follow the cervix
Bladder

Rectum
Measuring the uterus

Total length of the uterus  Antero-posterior measurement  Transverse measurement

Van Den Bosch et al. UOG, 2015, 46: 284–298
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Anteverted uterus
Retroverted uterus
Anteflexed uterus
Retroflexed uterus
Measuring the ovaries

- Total length of the ovary
- Antero-posterior measurement
- Transverse measurement
Scanning technique for the ovaries
Normal tubes may be seen if there is fluid in the pouch of Douglas.
Vaginal ultrasound is a dynamic and interactive examination

- Check the mobility of organs
  - Fixed organs = adhesions

- Check for site specific tenderness
  - Which organs are involved in a painful process?
Normal ultrasound findings

- Differ between women before and after menopause
- Change throughout the menstrual cycle
Key points

THE BASIS for gynecological ultrasound

• Orientate yourself in the image
• Optimise your image
• Always use a systematic scanning technique

From here you move on by practising, reading books and articles, and attending more advanced ultrasound courses
How to describe ultrasound findings using standardised terminology


Terms, definitions and measurements to describe the sonographic features of adnexal tumors: a consensus opinion from the International Ovarian Tumor Analysis (IOTA) group

D. TIMMERMAN, L. VALENTIN*, T. H. BOURNE†, W. P. COLLINS‡, H. VERRELST§ and I. VERGOTE

Systematic approach to sonographic evaluation of the pelvis in women with suspected endometriosis, including terms, definitions and measurements: a consensus opinion from the International Deep Endometriosis Analysis (IDEA) group


Ultrasound Obstet Gynecol. 2010 Jan;35: 103

Terms, definitions and measurements to describe the sonographic features of the endometrium and intrauterine lesions: a consensus opinion from the International Endometrial Tumor Analysis (IETA) group


Consensus statements on how to:
- Measure
- Describe ultrasound images
  - Terms
  - Definitions
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