An Ostrich's View of the Pelvic Floor

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Learning outcomes

- Overview of anatomy
- Up to date assessment techniques
- Thoughts around treatment options
- Documentation
- Ability to challenge your own practice

Anatomy

Superficial layer

- External anal sphincter
- Superficial transverse perineal muscle
- Ischiocavernosus
- Bulbocavernosus (bulbospongeosus)

Pelvic diaphragm (deep layer)

- Pubovisceral muscle
  - Pubococcygeus
  - Pubovaginalis
  - Puborectalis
- Iliococcygeus
- Levator plate
- Ischiococcygeus

Ligaments

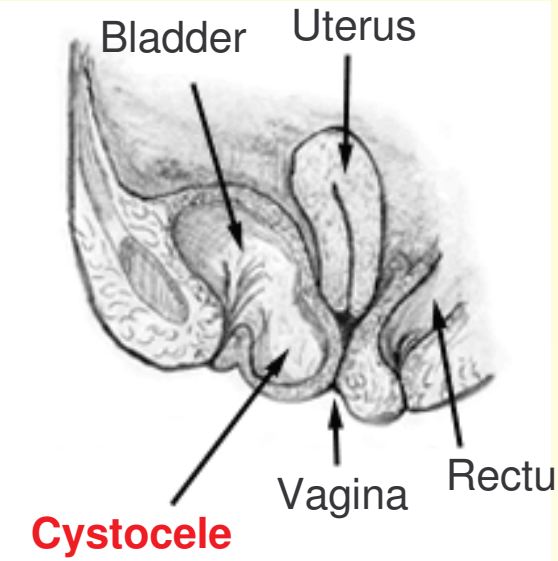
- Anterior longitudinal ligament
- Iliolumbar ligament
- Sacroiliac ligament
- Sacrotuberous ligament
- Sacrospinous ligament
- Anterior sacrococcygeal ligaments
- Inferior (arcuate) pubic ligament
- Pubovesical ligament
- Sacrouterine ligament
- Cardinal ligament
- Etc.

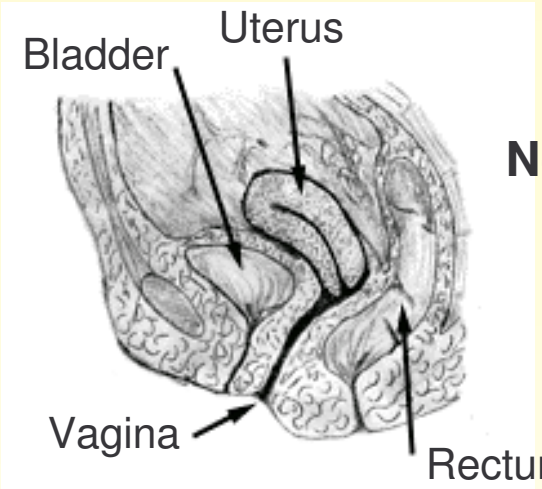
Fascia

- Arcus tendineus fascia pelvis
  - Important in continence mechanism
- Endopelvic fascia
  - Surrounds vagina
  - Attaches laterally to ATFP
  - Thought to act as connection between bladder neck and urethra to ATFP
- Umbilical prevesical fascia
- Transversalis fascia
- Vesicocervical fascia
- Superior fascia of pelvic diaphragm
- Iliac fascia

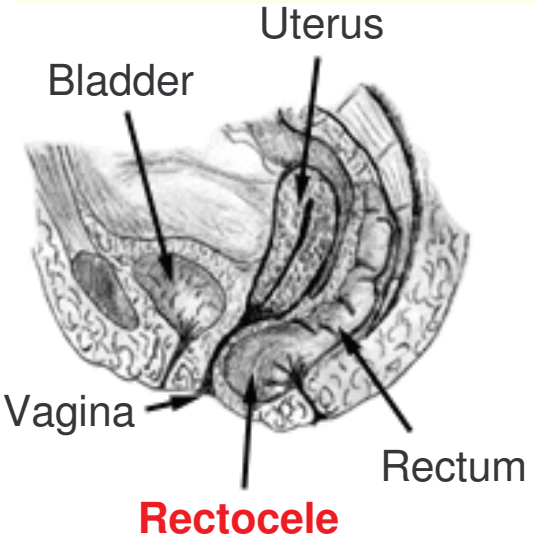
Fascia

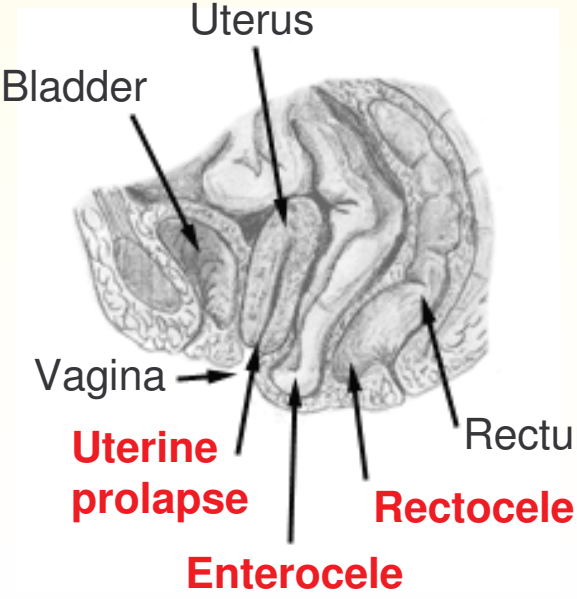
- Uterine fascia
- Rectal fascia
- Vaginorectal fascia
- Obturator internus fascia
- Presacral fascia
- Pubocervical fascia
- Piriformis fascia
- Thoracolumbar fascia





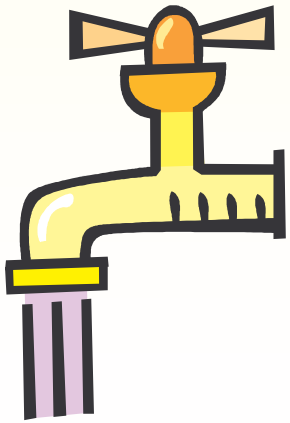
Normal view

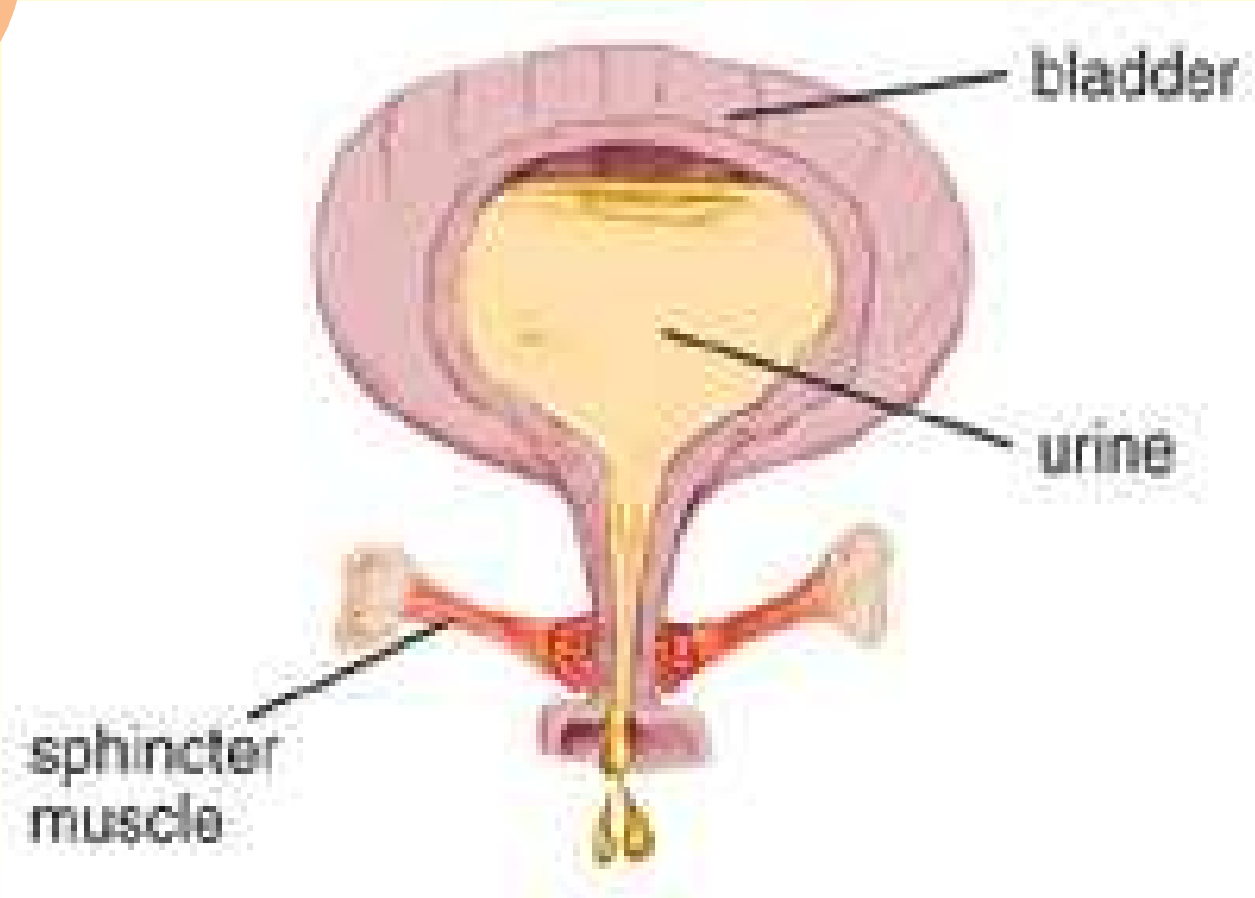


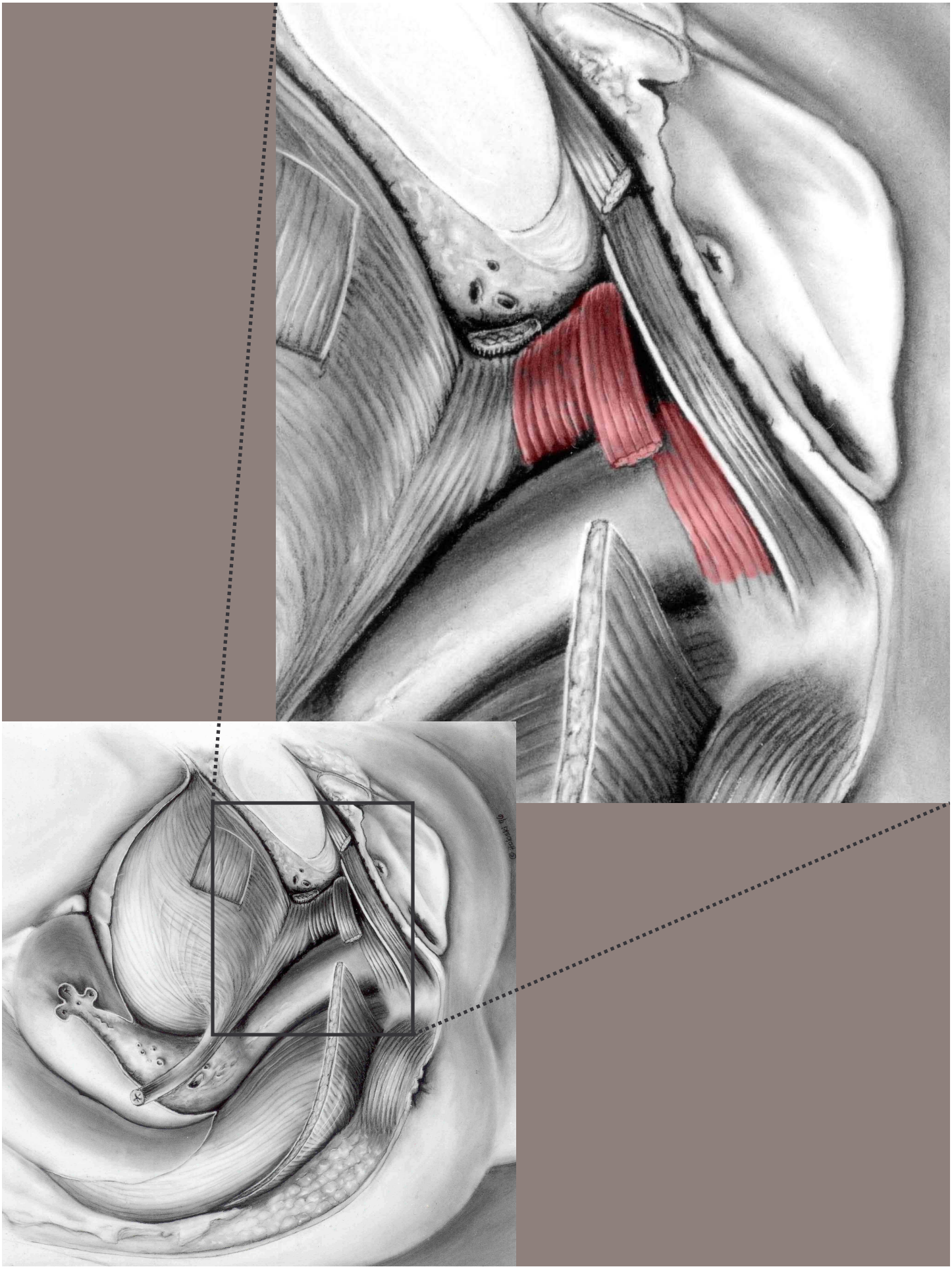


Lateral aspect of female pelvis

Continence and the continence mechanism

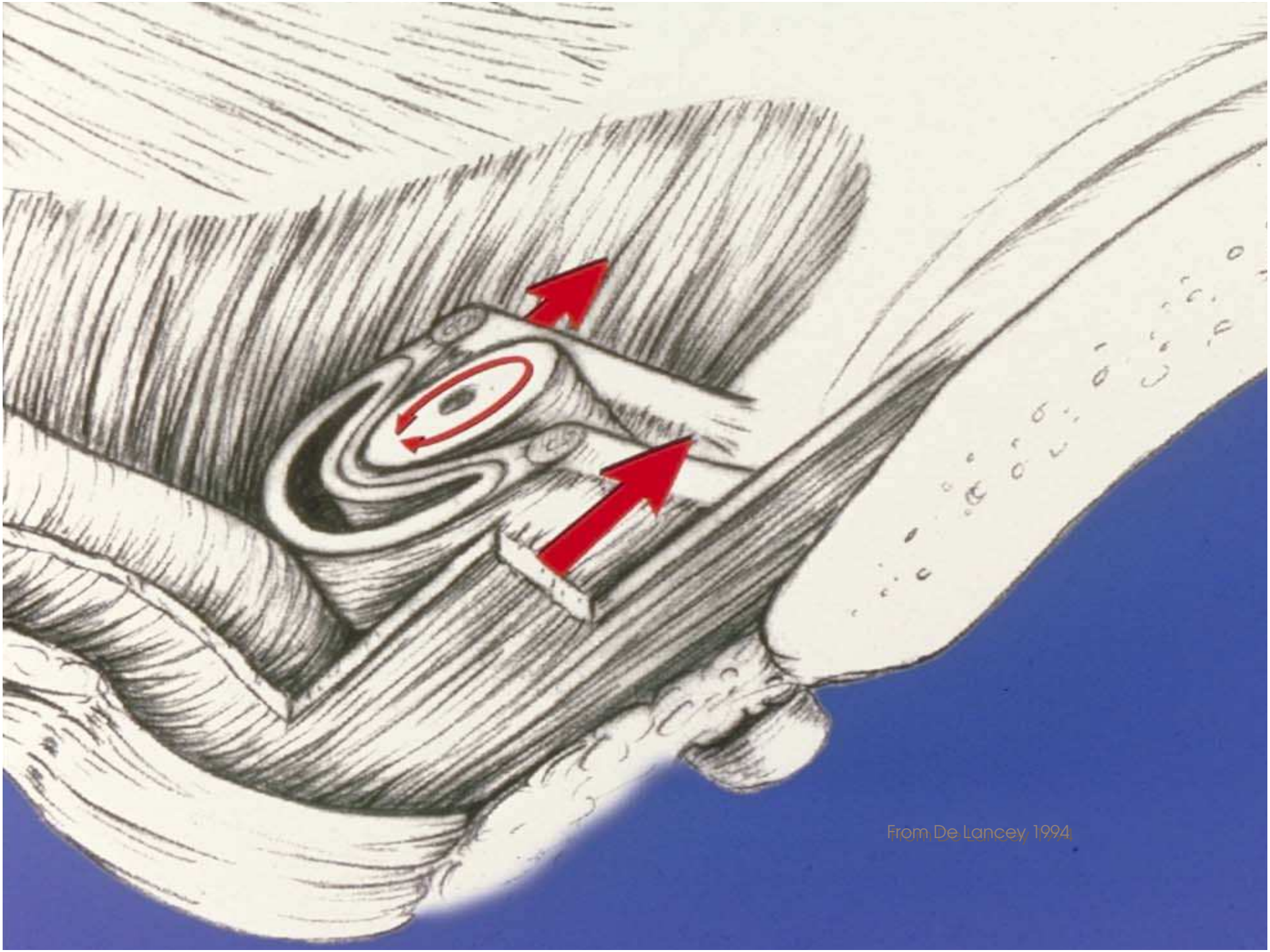



bladder
urine
sphincter
muscle



Continence mechanism

- Proximal urethra moves downwards and backwards
- Stretch resistance (stiffness) of pelvic floor muscles counteracts force
- Proximal urethra compressed against endopelvic fascia, vagina and levator ani


From De Lancey, 1994

Tools of the trade .....

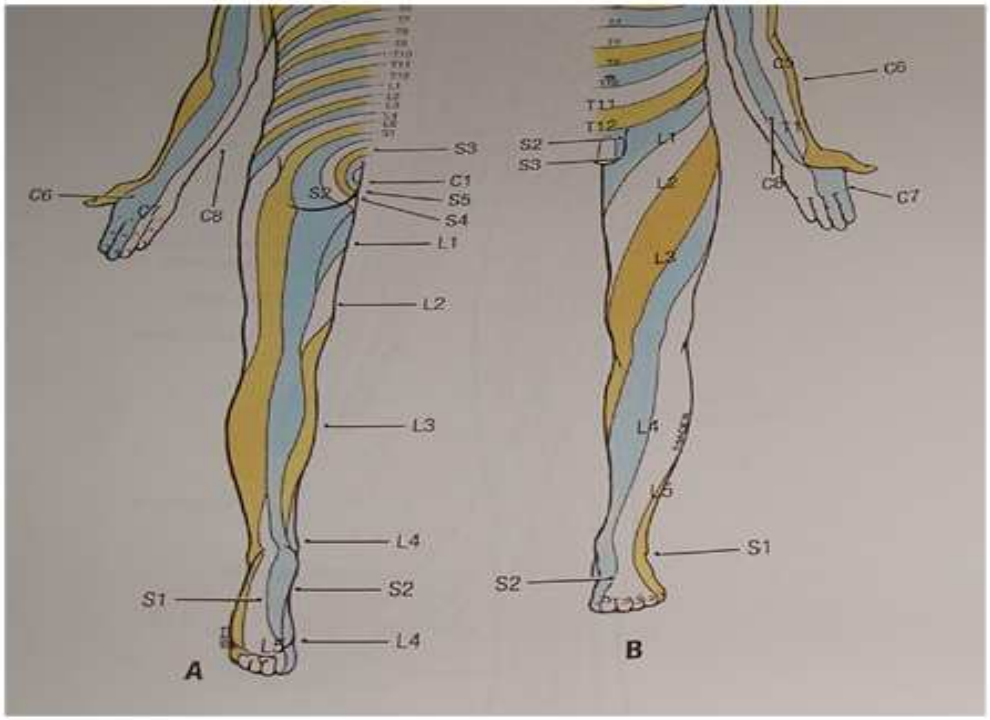

ELPHA 4
COMBI

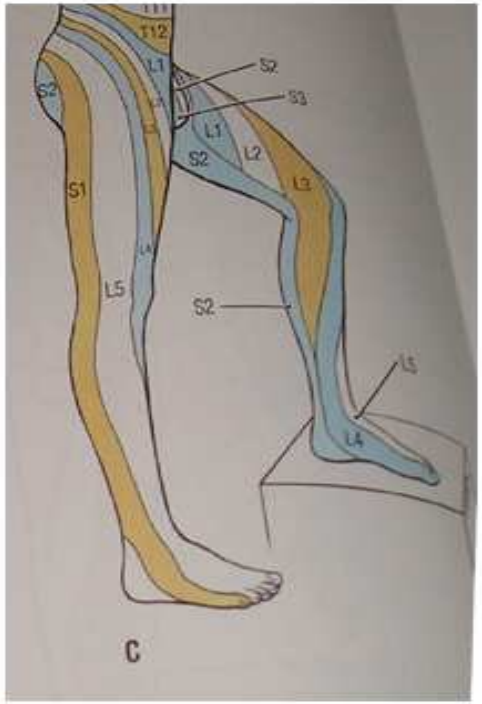
Improved assessment techniques

- What do I test?
- How do I palpate?
- What do I feel?
- Am I right in my assumptions?
- What else can I do to support my findings?
- How do I record my findings?

What do I test?

Dermatomes





Grant's Atlas of Anatomy 1999

Myotomes

- Quadriceps - L3
- Tibialis anterior - L4
- Extensor hallucis longus - L5
- Toe extensors - L5 & S1
- Calf - S1 & 2
- Toe flexors - S2
- Puborectalis - S2, 3, & 4
- EAS - S2, 3 & 4

Reflexes

- Knee jerk - L3
- Ankle jerk - S1 & S2
- Plantarflexor - S2
- EAS - S4

How do I palpate?

Palpation

- Horizontal plane of palpation
- Vertical plane of palpation
- But the pelvis is a 'bowl'
  - Which muscles are being palpated?

Palpation

- Horizontal plane
  - Coccyx
  - Posterior vaginal wall
  - Rectum and contents
  - Puboviscerallis
    - Pubococcygeus
    - Puborectalis portion
  - Levator ani
    - iliococcygeus

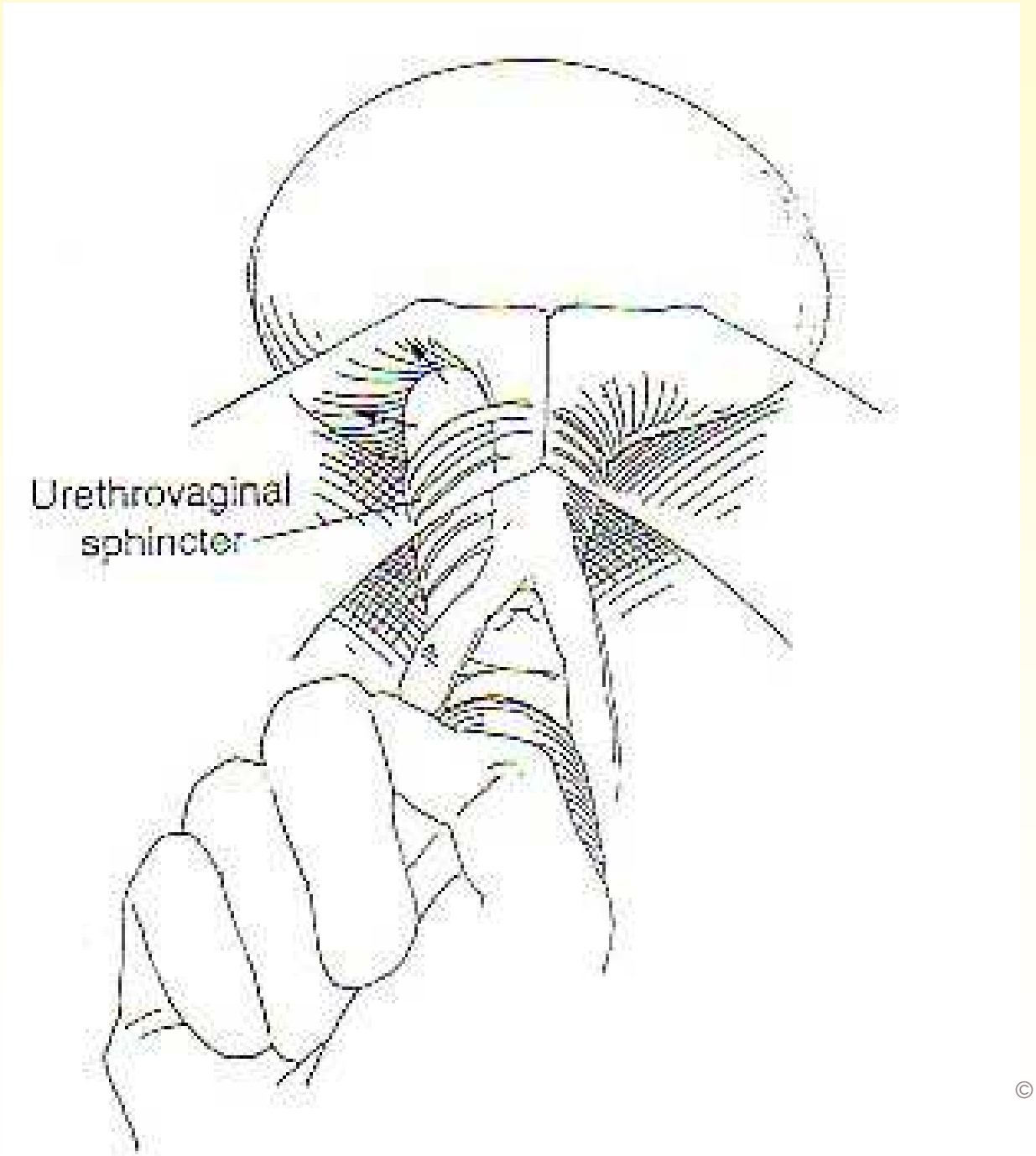
Palpation

- Vertical plane
  - Pubic bone
  - Urethra
  - Anterior vaginal wall
  - Pubovisceralis
    - Pubovaginalis portion
  - Pubococcygeus, anterior fibres

What do I feel?

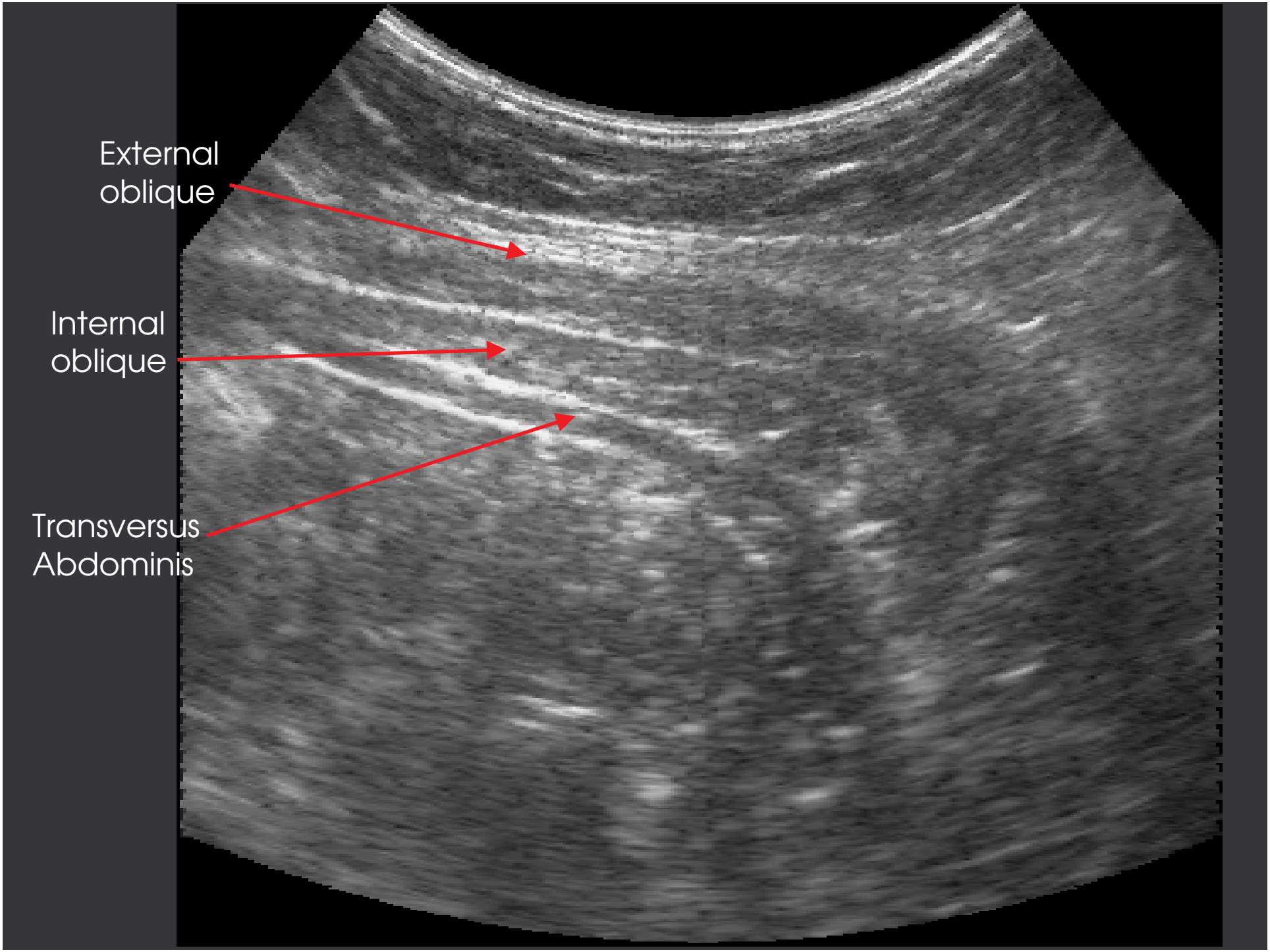
What do I feel?

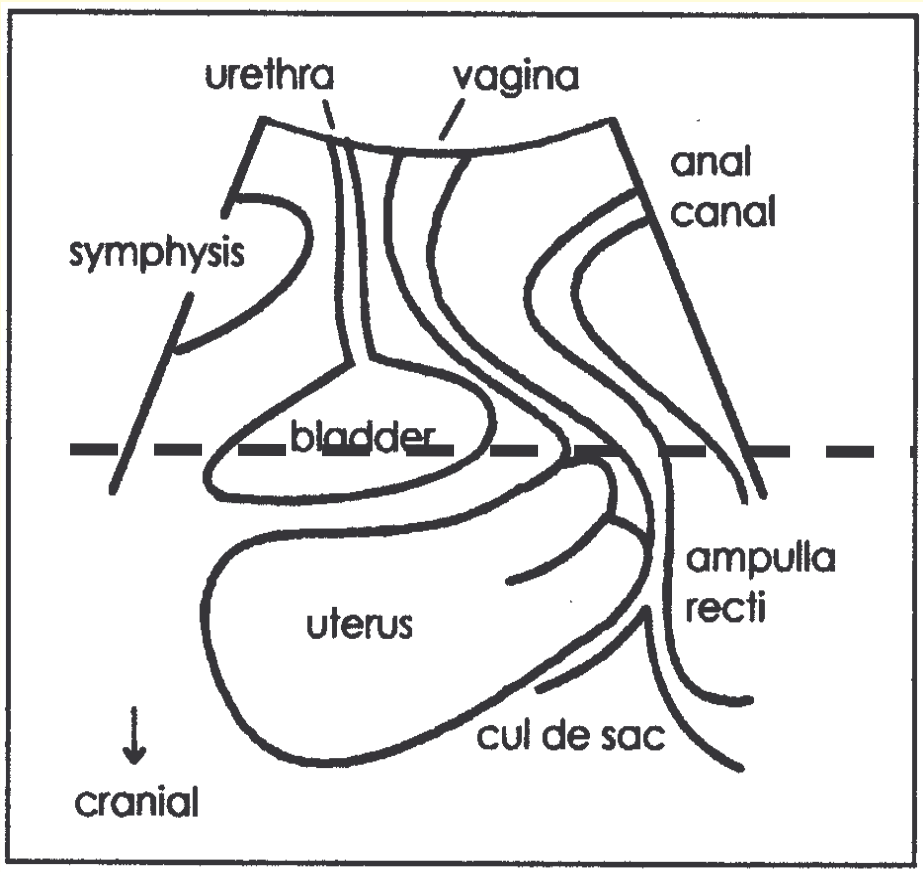
- Resting tone
- Muscle bulk
- Scarring
- Elasticity of vaginal walls
- Painful points
- Quality of activation / relaxation
- Timing on command
- Asymmetry
- Sensory pick up
- Loaded bowel
- Etc

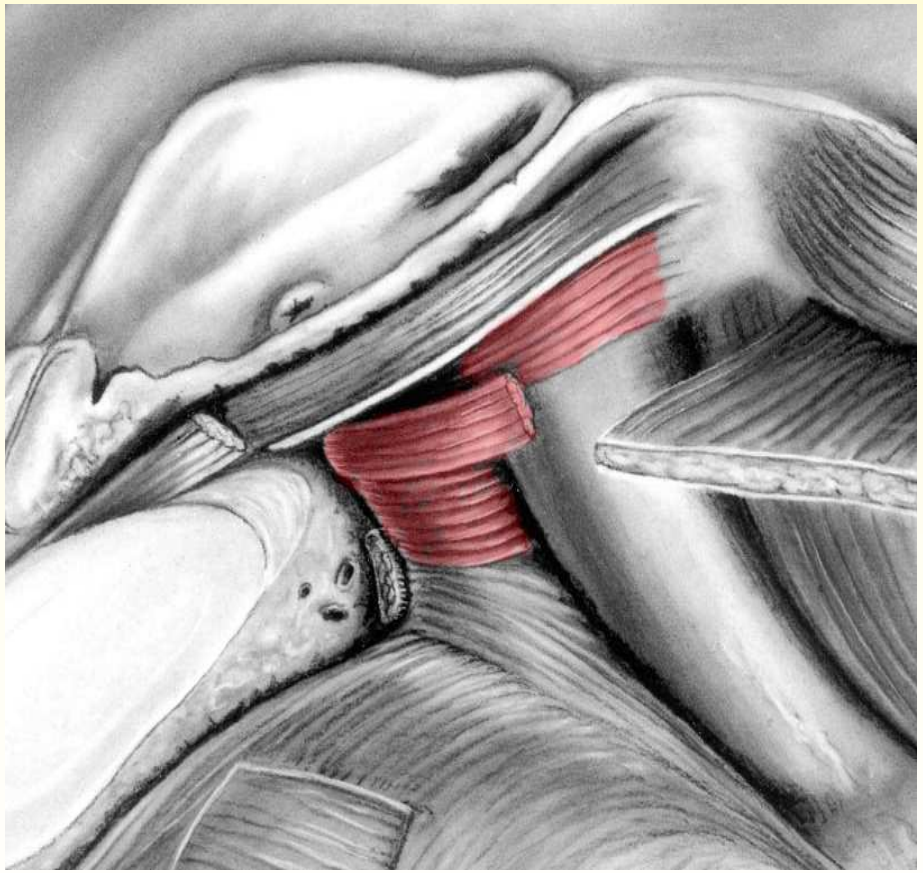


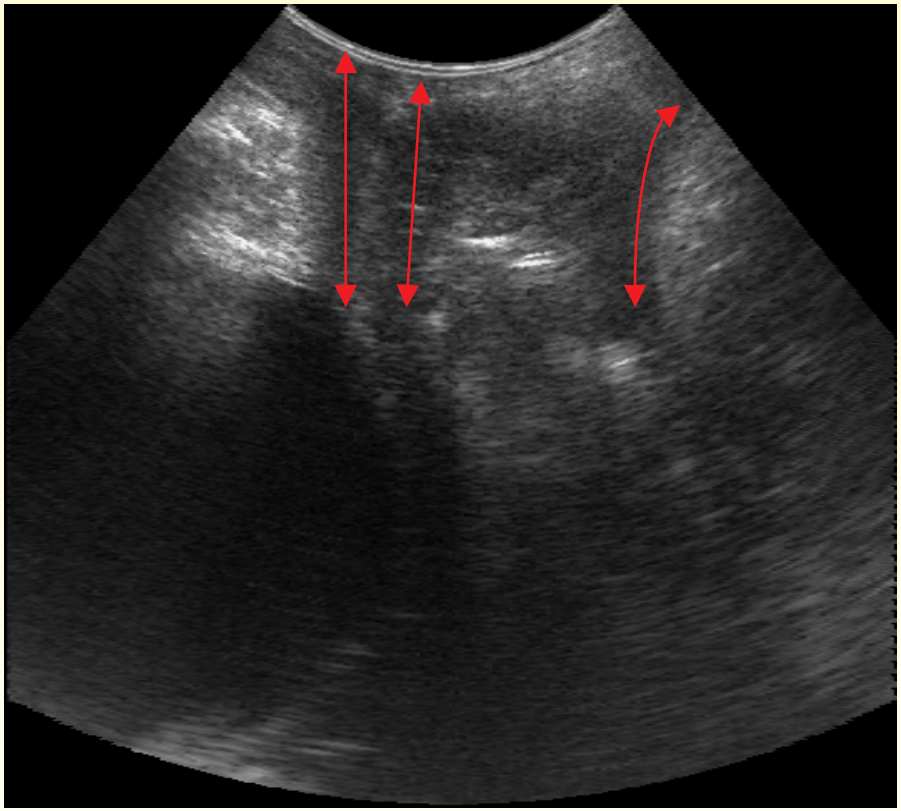
© Weiss 2001

Am I right in my assumptions?

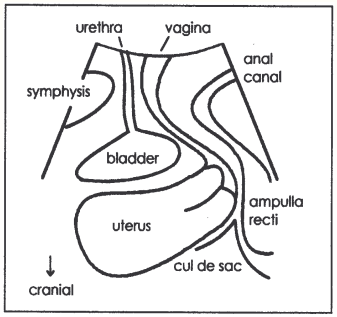

External oblique
Internal oblique
Transversus Abdominis

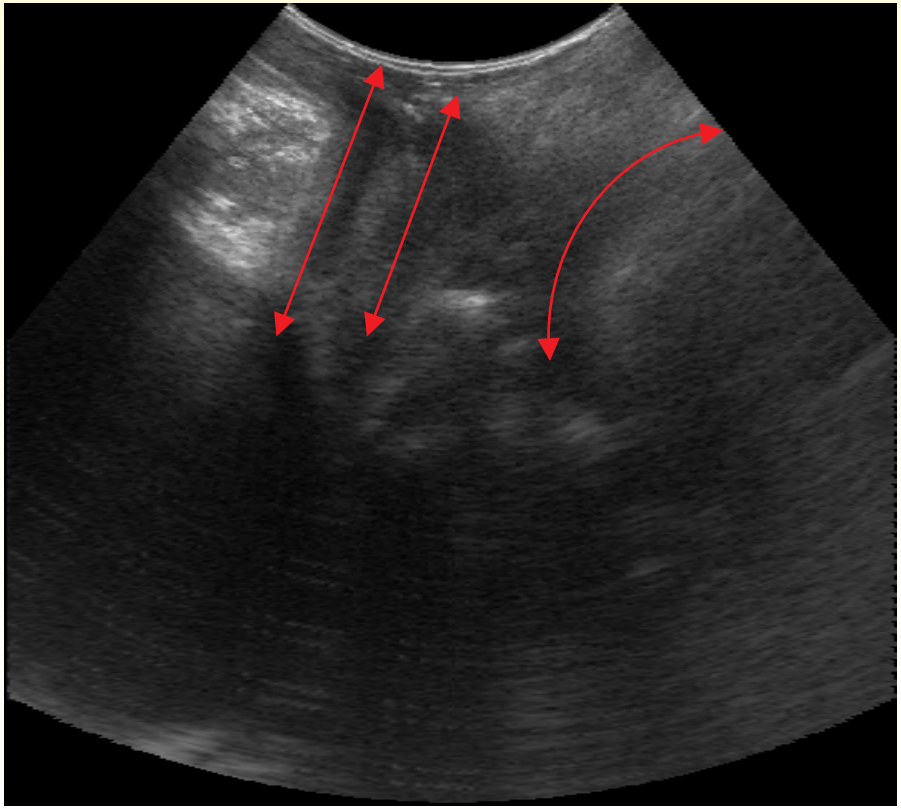

urethra
vagina
anal
canal
symphysis
bladder
ampulla
recti
uterus
cul de sac
cranial





Before squeeze





After squeeze

How do we record our findings?

Grading

- Modified Oxford Scale (Laycock 2002)
- 0 - no discernible contraction
- 1 - flicker of movement or pulsation under examining finger
- 2 - weak contraction without lift or squeeze
- 3 - moderate contraction, lift of posterior wall and squeeze on finger
- 4 - good contraction, elevation of posterior wall against resistance
- 5 - strong contraction against strong resistance

If we test muscle action against gravity is our recording mechanism the same?

Oxford classification

- 0 = No contraction
- 1 = Flicker of contraction
- 2 = Weak. Small movement with gravity counterbalanced
- 3 = Fair. Movement against gravity
- 4 = Good. Movement against gravity and some resistance
- 5 = Normal

ICS classification

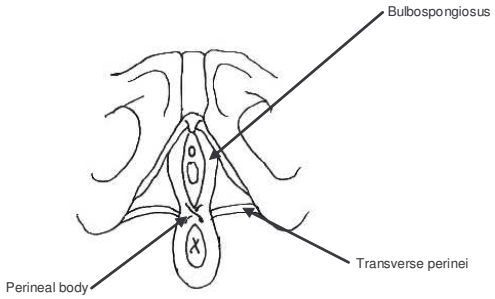
- 0 = No contraction
- 1 = Weak
- 2 = Good
- 3 = Strong

Documentation

- How do you record your findings when palpating in two planes?
- Should we use the simplified ICS scoring?
- Should we be thinking gravity eliminated and resisted?
- How do you record specificity of muscle action?
  - It's just not that easy after all!

New assessment forms

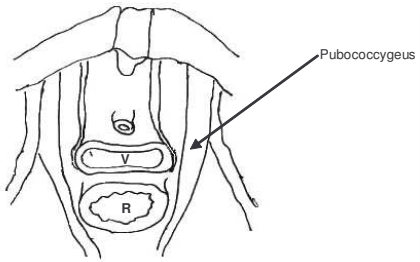
Palpation / Action Findings



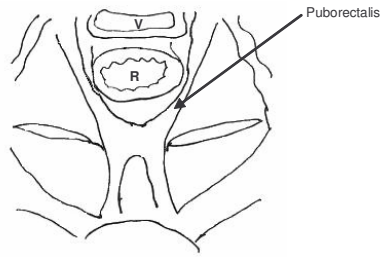
Inferior Aspect

Key

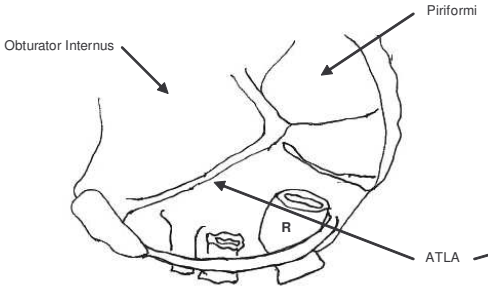
⊗	Trigger points
≡	Decreased muscle bulk
0 / ✓ / ✓✓	Action of bulbospongiosus and transverse perinei / tension of perineal body
∿	Scarring



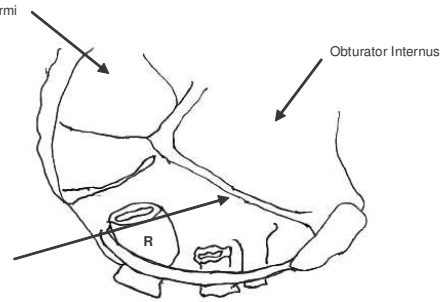
Superior Aspect – Anterior Component



Superior Aspect – Posterior Component



Lateral Aspect – Right



Lateral Aspect – Left

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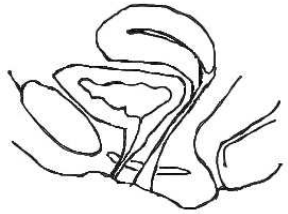
Movement Analysis



Key

Accurate closure	Posterior compartment only
Bilateral bulbospongiosus	(R) Right bulbospongiosus only
	(L) Left bulbospongiosus only
Anterior compartment only	
Movement beginning posteriorly but with vector force along vaginal length	
Valsalva	

Grade of movt: 0 = nil 1 = weak 2 = good 3 = strong

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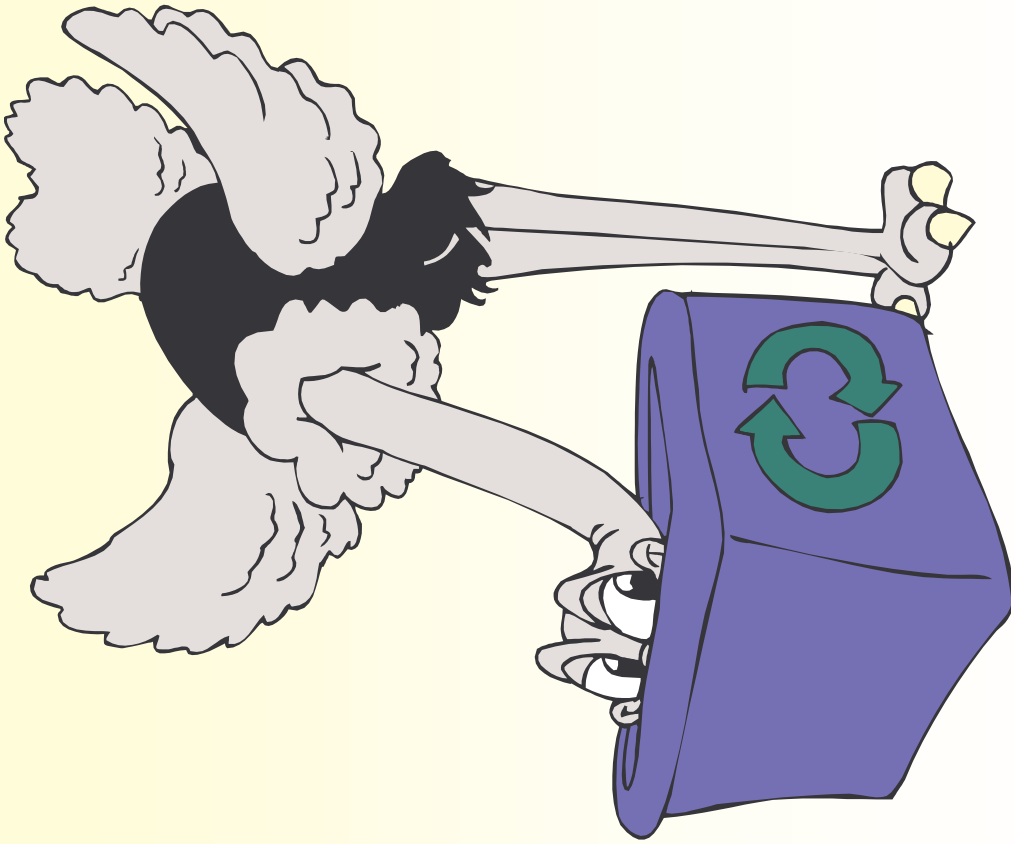
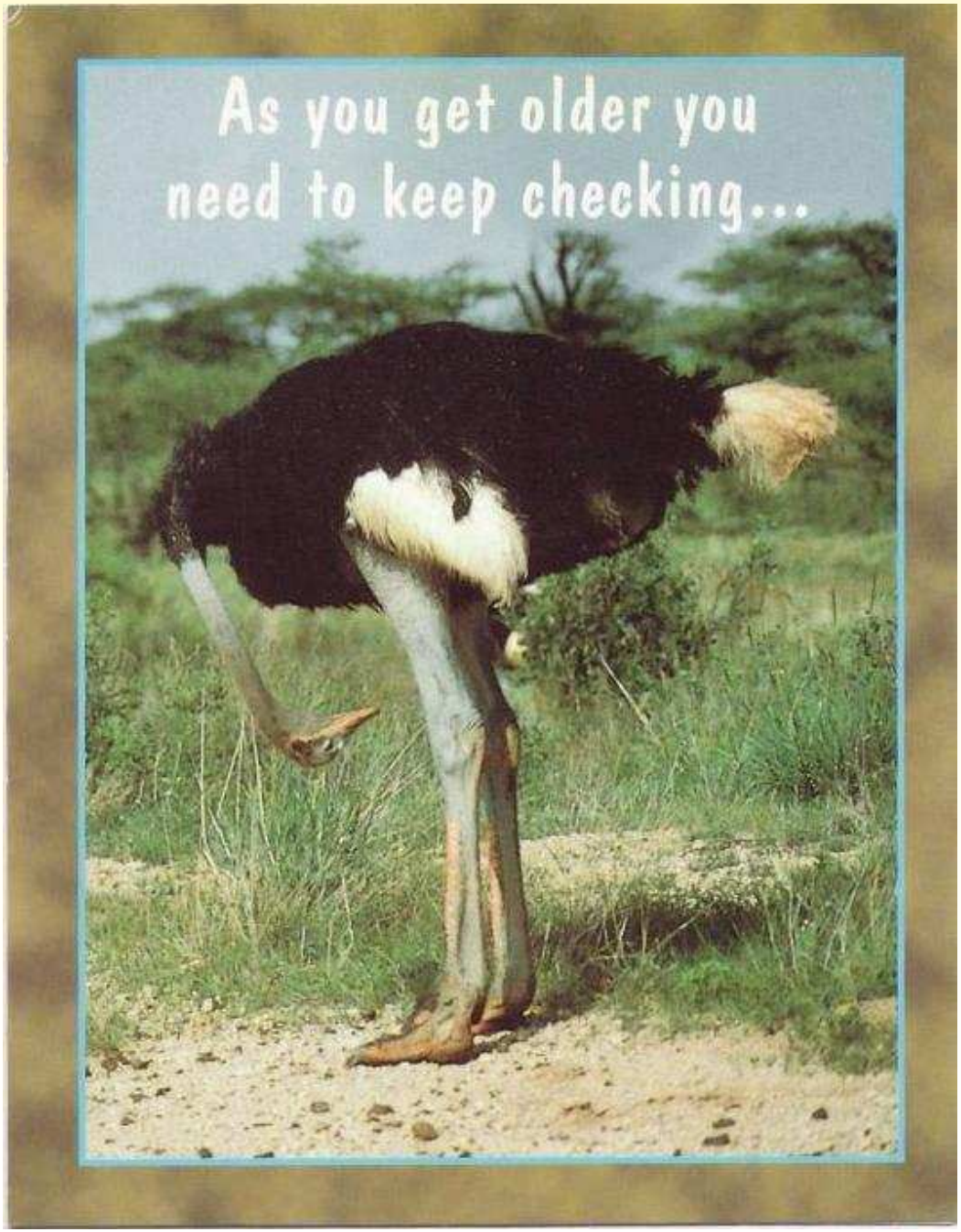
Improved assessments

- P performance
- E endurance
- R repetition
- F fast
- E elevation
- C co-contraction
- T timing

- S strength / stability / speed
- U urethral closure
- B bladder neck mobility
- T tone / timing (accuracy / control)
- L left / right symmetry
- E endurance at sub-max level





...that everything is still in working order!

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