Workshop Pelvic Floor Muscle Training

After this Workshop you will

- ✓ know about basic use of rehabilitative Ultrasound RUSI in the pelvic region
- ✓ understand the advantages of RUSI in teaching Pelvic Floor Muscle exercises as a conscious and unconscious activity.
- ✓ have discussed treatment regimes for rehabilitation of the deep core and pelvic floor

Introduction to Real-time ultrasound imaging and feedback

Sonographic methods are used for two main purposes: as a diagnostic and as rehabilitative tool (Teyhen 2006; Whittaker 2007; Whittaker et al. 2007; Santoro et al. 2011).

Research suggests that FB is the single most important variable for motor learning (Shumway-Cook and Woollacott 2012). FB works because it can help the patient to learn how to do, or how to modulate a motor task, that usually is not consciously controlled. Herderschee et al. (2011) assume that FB can be used in the purpose of teaching, modulating and encouraging PFME. These authors claim that FB would inspire confidence about training performance and improve training adherence because of increased motivation (Herderschee et al. 2011), but data presented in their Cochrane review could not fully support these assumptions. Herderschee et al. 2011 also recommend that in further research rather than measuring adherence it should be considered to measure other constructs such as self-efficacy for exercise.

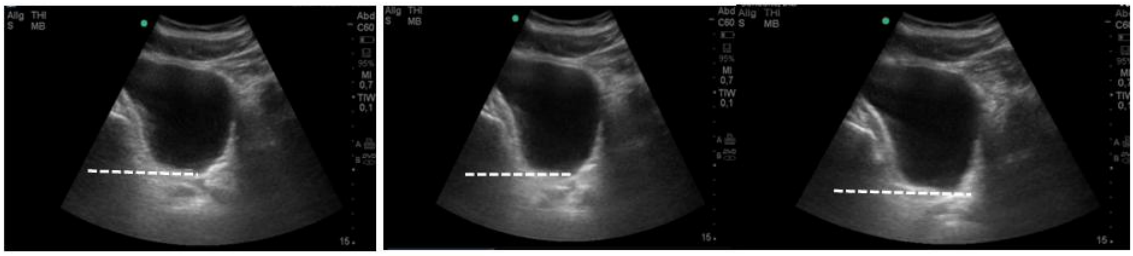
As a rehabilitative method for the treatment of pelvic disorders RTUS renders shape and movement of the bladder and urethra visible and thus allows a therapist to provide direct proof of the motor action to the patient (Whitthaker 2007). The patient receives immediate feedback during and at the end of the exercise and therefore this process provides a high level of awareness and self-control to patients (Whitthaker 2007). Thus during voluntary contraction of pelvic floor muscles “objective” observation and subjective perception feedback of the effect on closure mechanisms of the urethral system are obtained simultaneously (Dietz et al. 2001; Hodges et al. 2003; Whittaker et al. 2007).

The use of RTUS as a feedback method in rehabilitative physiotherapy has been implemented only in the last decade (Teyhen 2006; Whittaker 2007). Whittaker (2007) was the first to provide standards to assessment and exercise procedures in the treatment of lumbo-pelvic dysfunctions and also for pelvic floor muscle rehabilitation. To date, the effectiveness of RTUS for treatment of motor-control-deficits in the lumbo-pelvic region has been increasingly supported by evidence (Henry and Westervelt 2005; Teyhen 2006; Van et al. 2006).

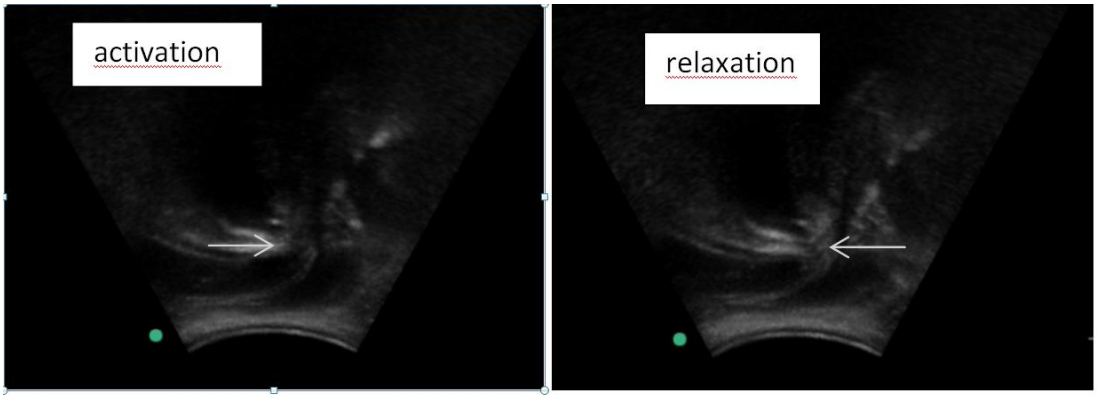
RTUS for PFM disorders is a non-invasive method and can be performed with a transabdominal (TA) or transperineal (TP) position of the probe. Neither approach offers direct visualization of the PFM but as a surrogate marker for PFM activity displacement of the bladder base, the bladder neck, ano-rectal angle and urethra can be observed and measured (Dietz at el. 2001; Kirschner-Hermanns et al. 2011; Santoro et al. 2011; Stafford et al. 2013). Intra- and inter-rater reliability has shown to be good for both methods during PFM contraction (ICC 0.81 – 0.93). There is moderate correlation between observed movement of the bladder neck and digitally tested PFM strength (r=0.58) and vaginal pressure (r= 0.43) (Sherburn et al. 2005).and also showed sensitivity of the lifting action of the PFM.

For assessment and treatment of pelvic dysfunction RTUS has been predominantly applied in female patients (Constantinou 2009). For the male population the method lacks clear application standards (Nahon et al. 2011)

Active contraction normal position valsalva



Pelvic Floor suprapubic RUSI

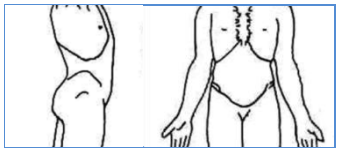


Male Pelvic Floor peroneal RUSI

Physiotherapy RTUS – PFM Protocol:

Positioning of the patient:…….

Position of probe: (draw in the chart: set markers – measure distances to significant bony marks)



Procedure	correct	partly correct	incorrect	Special remarks
Sagittal or Transverse position of probe				
Static view				
Patient able to detect bladder, bladder, base, urethra-vesical angle,				
Dynamic view sagittal /transverse				
Normal breathing:				
Patient able to observe "swinging" of bladder base				
Conscious activity PFM:				
Patient able to distinguish between correct and incorrect				
Patient able to repeat and vary self-controlled contractions				
Transperineal position of probe				
Static view				
Patient able to detect bulbus, urethra, symphysis, (prostate gland)urethro-vesical angle				
Dynamic view transperineal				
Patient able to distinguish between bladder neck lifting and distal urethral "compression"in dorsal direction.				
Conscious activity Pelvic floor muscles				
Patient able to distinguish between correct and incorrect				
Patient able to repeat and vary self-controlled contractions				
Comments				

Instructions for activities:

"contract PFM as if you are attempting to stop the flow of urine mid-stream"