**PhysiYoga Assessment Protocol: Thoracic Spine**

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## Subjective:

**Symptomatic**

Clients may present with or without symptoms in the thoracic region of the spine. If present, pain may follow the line of the rib (all the way around the ribcage, or just in regions) and may be associated with breathing (deep breaths) or twisting actions. It may radiate up and down the spine, depending on the specific muscle attachments.

**Non-Symptomatic**

Due to widespread and shared muscular attachments, a dysfunctional Thorax can be underlying other conditions. Consider the thorax a possible cause or contributor to the following cases:

* Shoulder impingement (esp observations of poor scap-thoracic rhythm)
* Low back pain
* Pelvic girdle pain
* Neck pain
* Headaches

Due to the thorax’s impact on pressure gradients within body cavities, consider the thorax may be contributing in cases of:

* Continence issues
* Migraine

Through the mechanical stimulation of the sympathetic chain ganglion located anterior to the head of the rib, a dysfunctional thorax may be contributing to other more “systemic” symptoms. Note: It is pertinent to clear these symptoms (i.e. refer for medical advice if not yet sought) for red-flags before treating them as solely related to thoracic dysfunction:

* Tachycardia (Rings 4,5,6)
* Feeling light headed or feint, postural hypotension (Rings 5,6,7)
* Digestive upsets – look for signs of a ‘pressure belly’ (Rings 6,7,8)

Due to the innervations of the abdominal wall (T6-L1), dysfunction in the thorax can contribute to:

* “Failure” to switch on the core effectively
* “Failure” to progress through traditional strength programs
* Problems that start at higher loads and may be indicative of effective and functional load transfer at higher demands (intensities, resistance or endurance) i.e. running above a certain speed or past a certain distance

**Story**

The story (history, habits, jobs, sports, training etc) may contain features of:

* Repetitive rotation or side-bending
* An episode of extra load in a rotated position
* Trauma (MVA, falls onto the mid-back region)
* Symptoms in the areas listed above that haven’t responded to local treatment

### Baseline Function

1. Assess for local symptoms and problematic functional tasks.

* PSFS
* VAS
* Other Validated OM

1. Also assess for thoracic function with the initial tests
   * Meaningful Screening Tasks

## Initial Tests

## Objective:

Observation

* Tx Kyphosis, Lordosis, Scoliosis
* Head over thorax
* Thorax over pelvis
* Abdominal wall profile
* Waist angles

AROM

* Seated trunk rotation
* Standing Forward & Backward bends (look for hinging in Lx that a stiff thorax could be impacting)

Palpation

* Standing: Palpate Rings 2 – 10
  + Consider amount of intercostal space, tenderness, sub-cutaneous tissue fluid and sensitivity. The most dysfunctional rings will usually have the least space between.
  + Alignment: Often alignment L/R relative to the adjacent rings is worst
* Prone
  + Find hypertonic ES fascicles and the levels they attach to
  + Can you palpate their symptoms?
* Corrections may be used to determine impact of Thoracic ring NOLT of a functional unit (2 adjacent rings)on:
  + Symptoms
  + Ease and symmetry of screening tasks
  + Baseline tests
  + Other regions of NOLT (i.e. does correcting the rings improve Pelvis NOLT, which may be contributing to symptoms?)

Neurodynamic tests – if indicated by body chart and symptoms (or can be done later)

* ULTT (median N bias)
* LLTT

### Bio-Mechanical Screen

### Posture – static and dymanic

* Left column Screen (inter-regional): Observe in standing. Particular focus:
  + Thorax – Pelvis/Lx Relationship
    - Lower thorax over pelvis & waist angles
    - Pelvis over BOS (lateral & AP)
  + The Function of the Thorax
    - Kyphosis/lordosis
    - Upper thorax over middle
    - Middle thorax over lower
  + Thorax – head/neck/headack relationship
    - Thorax over upper rings (T2-4)
  + COM over BOS
  + Muscle tone of erectors
* Observe posture in walking
  + Symmetrical, easeful arm swing (assymetrical can indicate non-optimal trunk control)
  + Observe the spine for sidebending, rotation and equal tone in Erectors
  + Where is the thorax as a “big box” located over the pelvis?

## Post Subjective & Objective: Assessment & Diagnosis

### Diagnosis

1. Provisional diagnosis for symptoms causing symptoms

* Structure at fault
* Pain mechanism at play (i.e. overload, inflammation, central)
* Uncontrolled movement pattern that is contributing

### Treatment Hypothesis

If this is the case and you treat it effectively, you should see these symptoms resolve.

1. The role the thorax may be playing in the presentation (i.e.)

* How the poor control (i.e. excessive neuromuscular activation 🡪 stiffness of the thorax) is creating overload or poor control in other regions
* How the dysfunctional thorax may be related to other symptoms

### Differential Diagnoses

1. Systemic issues & red flags 🡪 refer
2. Local symptoms WITH NO thoracic component
3. Local symptoms WITH a thoracic component

# Initial Treatment

1. Usually requires manual therapy techniques and exercises to improve mobility of the thorax (see Treatment Protocol) and improve the clients ability to find a better posture
2. Address the contributing factors
3. Determine plan for first 4-6 sessions
   * When and how you will monitor the response of the thorax to your treatment?
   * When will you assess the thorax in more detail (i.e. map the rings and use corrections and DDC?)
4. Re-assessment visit

# Connect Phase Tests

Early tests (that you may not have time for in session 1), should be performed by sessions 2-3 to capture the full picture and understand how the thorax is changing in response to your treatment.

* Plus Ring map Rings 2-9
* Head over upper thorax (R2-4)
* Lower thorax over pelvis
* Corrections to determine
  + Impact on symptoms (does a correction change symptoms?)
  + Impact on tasks (perform screening tasks with/without corrections)
  + Impact on other regions (DDC)

# Reach Phase Tests

* DDC
* Abdominal wall assessment
* PY MVS or other functional screening
  + Pelvis and hip muscle length/strength
  + Shoulder girdle muscle length/strength
* Changes in COM over BOS – if no change by now, consider testing
  + Foot function (knee to wall, forceplate, NOLT Ax)
  + Shoulder function and correction of rings while AROM through ROM – do muscles pull on the correction at different shoulder ranges?

# Extend Phase Tests

* DDC
* Full body functional tests (if not done previously)
* Sports Screening

Updated 4th February 2022