



Feldenkrais Skolan

Life is a process. Improve the quality of the process and improve life itself.
- Moshe Feldenkrais

A background reading to lesson 8, The seventh cervical, in the book The Master Moves by Moshe Feldenkrais

Biomechanical Function of vertebrae C6–Th2

Introduction

This text offers a contextual background to Lesson 8 in The Master Moves by Moshe Feldenkrais. I approach the entire somatic reality — the living human — through this skeletal point. In Sweden, it is where the yoke rests when we carry life.

In Feldenkrais parlance, the seventh cervical vertebra (C7) is described as a keystone — *clé de voûte* — as in the apex of an arch.

C7 is treated here not as an isolated structure, but as a functional node within the organization of the whole person — in relation to biological posture, understood as readiness to act and the ability to respond in all directions, encompassing the instinct for self-preservation, homeostasis, and reproduction.

At the end of a Functional Integration (FI) lesson, a slight and well-placed support or pressure can sometimes enhance the function of a newly emerging element by changing the relative orientation of the body parts — occasionally serving as a central block that holds a new pattern together (cf. Y. Rywerant, p. 112). This often concerns the cervicothoracic region — with C7 as a functional keystone — and produces a summing-up effect.

In this particular group lesson — even when explored in solitude — that same integrating function is present, though concealed in the name. It invites a reorganization of upright posture in the same manner that may be achieved through a well-communicated FI lesson. This reorganizing impulse is not about posture in any traditional sense, but about functional readiness. In a Feldenkrais context, upright standing posture is not an ideal but a dynamic minimum — the least common denominator for all action-oriented configurations. For this, Moshe Feldenkrais used the term *acture*.

Lesson 8, in its basic configuration — kneeling on elbows with the head resting in the palms or on the floor — sets up what Feldenkrais and Rywerant referred to as a *relative conjugate movement*. This means a reversal in reference and orientation: the head, normally active and mobile, becomes the fixed reference, while the cervical spine, the shoulder girdle, the sternum — and through them the entire spine, pelvis, and legs — reorganize in relation to it. This reversal challenges habitual orientation patterns and suspends expected sensory outcomes and opens the possibility for non-habitual organization.

The Feldenkrais system is built upon a simultaneous interaction between environment, skeleton, muscles, and the central nervous system — all four at the same time. This text is an odyssey in the skeleton's different connections, the human supporting structure. The reader is invited to bring the other three elements into awareness: the environment, the musculature, and the central nervous system. The human skeleton has evolved over seven million years, beginning with our bipedal ancestors. Every bone has been shaped through this lineage for energy-efficient function and relational precision.

This text grows out of my interpretation of Lesson 8, taught in Swedish and in English during a week of close attention. Every taught lesson is necessarily an interpretation — shaped in relation to those present and to the conditions of that particular time. This one is no exception. The lesson was recorded and is available via SoundCloud for those who wish to experience it directly.

Lesson in Swedish; <https://bit.ly/MastermovesSwe8>

Lesson in English; <https://bit.ly/MasterMovesEng8>

C7 - Anatomically

- is the final cervical vertebra, serving as a bridge between the mobility of the head and the stability of the thoracic spine
- receives the vertical load from the head — transmitted from the cranium through C1–C6 — and transmits it to T1 via the disc, facet joints, and ligaments
- is a point of origin for many proprioceptive signals, through musculature such as the trapezius, rhomboideus minor, and scalenus medius
- has a prominent spinous process, which often serves as a **reference point in teaching** (including through palpation)

C7- A functional keystone

- in the biomechanical structure of the upright human, C7 may be considered a *functional keystone* — not in the architectural sense of passive support, but as a dynamic node where vertical load, sensory orientation, and movement coordination converge
- in the Feldenkrais perspective, C7 is not just a vertebra, but a point of transition, differentiation, and perceptual anchoring
-

C6–Th2 and Sternum: Functional Biomechanical Unit & Flows

- when considering C6, C7, Th1, and Th2 as a single functional unit—particularly in relation to the sternum—we are dealing with a **biomechanical transition zone**
- this region integrates the cervical spine, thoracic spine, rib cage, and shoulder girdle to support vital functions: breathing, head support, arm movement, and postural control
- they enable head support, breathing, phonation, shoulder movement, and postural control
- **biomechanically, this junction integrates vertical load transfer, respiratory mobility, and neural coordination in a structurally and functionally inseparable manner**

Load Transmission and Segmental Transition

- C6–T2 forms the vertical load path from the skull and cervical spine into the thorax and shoulder girdle.
- C6–C7 is highly mobile, allowing neck flexion/extension and rotation.
- C7–T1 is a transitional segment absorbing shear forces between cervical mobility and thoracic rigidity.
- T1–T2 transfers this load into the rib cage, which is less mobile but connected to respiration and shoulder motion.

Structural and Functional Overview Biomechanical Dynamics

1. Vertical Load Transfer

- the weight of the head (approximately 5–6 kg) is transmitted from C1–C6 through C7 and further into T1–T2
- from there, the force is distributed via ribs 1 and 2 and their costosternal joints into the manubrium sterni
- simultaneously, the load spreads laterally through the clavicles and further into the scapulae and humeri

2. Respiratory Motion Mechanics

- during inhalation, ribs 1 and 2 lift upward and forward in a motion reminiscent of raising the handle of a water bucket — a movement known as the pump-handle motion — drawing the sternum forward and opening the upper chest
- as rib 1 rises, the sternum follows — and so does the clavicle, which forms a functional bridge between the axial skeleton and the shoulder girdle
- through the sternoclavicular and acromioclavicular joints, this movement continues laterally to the scapula and humerus, subtly affecting arm positioning and upper limb readiness
- this elevation also influences thoracic volume and affects the muscle attachments that stabilize C6–C7
- stiffness in T1, T2, or the sternum can restrict thoracic expansion and increase compensatory strain at the cervical base (C6–C7)

3. Rotation and Lateral Flexion

- the cervicothoracic junction (C7–Th1) has limited rotational mobility
- movement here often occurs through micromovements in the costotransverse joints and translation in the cervical facet joints
- rigidity or asymmetry in this region affects both neck mobility and thoracic breathing capacity

Summary

- **C6 to Th2, together with the sternum, form a functional unit that cannot be understood as isolated segments**
- they interact biomechanically to support the head, enable respiration, coordinate speech, position the upper limbs, and integrate postural information from the eyes, ears, balance system, and gravity

4. Cervicothoracic Mobility and Muscle Chain Coordination

- motion at C6–C7 supports precise head positioning.
- stability at C7–T1–T2 provides a base for movements of the shoulder girdle and neck
- this region is central in the myofascial continuity of the anterior and posterior chains:
- anterior: sternocleidomastoid → scalene → 1st rib → clavicle → pectoralis minor –
- posterior: levator scapulae → rhomboids → thoracic spine

5. Clavicular Suspension and Compression Vectors

- the clavicle functions as a dynamic strut, suspending the upper limb from the axial skeleton — linking the arm to C7–T1 via the sternum and the first rib
- mechanical forces from the upper limb are transmitted through the acromioclavicular (AC) joint, along the clavicle, and into the sternoclavicular joint, ultimately dispersing through the first rib and T1
- this configuration must accommodate both mobility and stability, balancing suspension with compression to ensure effective load transfer during movement, breathing, and postural adjustments
- the scapula, gliding over the thoracic wall, acts as a mobile platform for the humerus; its position and motion are influenced by clavicular dynamics and thoracic posture
- together, they form a responsive kinetic chain that integrates limb action with spinal alignment and postural equilibrium

Unified Summary Table Systemic Integration

1. Phonation (Voice Production)

- C6–C7 stabilize the larynx and coordinate breath pressure from the thorax
- C7–T1 transmits thoracic pressure upward
- T1–T2 and ribs 1–2 are part of the respiratory pump, influencing phonation support
- if this region is compromised:
 - breath support is reduced
 - voice may become strained or breathy
 - resonance and volume are affected

2. Equilibrium (Postural Balance)

- C7–T1 integrates head-on-trunk proprioception.
- C6–T2 facet joints provide feedback for posture.
- deep cervical and thoracic musculature anchor balance reactions.

Dysfunction here may:

- disrupt head orientation
- alter thoracic-lumbar balance
- compensate through visual or vestibular systems

3. Vision

- gaze stability depends on cervical mobility, especially at C6–C7
- the region helps coordinate vestibulo-ocular reflex (VOR)
- asymmetry or fixation disrupts visual tracking and head-eye coordination

4. Hand Function

- the brachial plexus (C5–T1) passes through this region
- hand control depends on scapular stability, clavicle mobility, and postural tone originating from C6–T2

If compromised:

- fine motor control deteriorates
- sensory-motor feedback is reduced
- TOS symptoms (numbness, weakness) may emerge

5. Emotional Regulation

- posture and breath are core to emotional expression
- C6–T2 modulates thoracic openness, voice tone, and diaphragm function
- collapse or hypertonicity in this region reflects or reinforces emotional states such as anxiety, withdrawal, or tension

Related Functional Conditions to the C6–T2 Region

1. Cervicobrachial Syndrome

- a spectrum of symptoms such as pain, numbness, weakness, and paresthesia in the arm, caused by irritation of the C5–T1 nerve roots.
- it may coexist with or mimic TOS and is often related to foraminal stenosis, C6–C7 disc pathology, or muscular tension (e.g., scalenes, levator scapulae).

2. Altered Scapulothoracic Rhythm

- when scapular movement is not synchronized with thorax and humerus, compensation often occurs at C7–T2
- this can affect shoulder joint mechanics and lead to overuse injuries such as impingement or frozen shoulder

3. Vocal Strain and Dysfunctional Phonation

- C6–C7 stabilize the laryngeal attachments and are influenced by upper thoracic and rib mobility
- stiffness or postural dysfunction in C7–T1 or ribs 1–2 can compromise breath support and lead to vocal fatigue or hoarseness

4. Postural Dyspnea or Apical Breathing

- reduced mobility in T1–T2, sternum, or costosternal joints may shift breathing toward upper chest (apical breathing), causing overuse of accessory muscles such as trapezius and creating neck-base tension
- often seen in stress or post-traumatic states

5. Proprioceptive Disruption and Balance Disorders

- C7–T1 integrates head-trunk proprioception and vestibular-visual input
- dysfunction here may impair balance coordination, especially during directional shifts or gait, due to poor integration between head and thoracic movements.

Thoracic Outlet Syndrome (TOS): A Biomechanical Overview

- Thoracic Outlet Syndrome occurs when nerves and blood vessels are compressed as they pass between the neck and the arm — particularly in narrow spaces such as the interscalene triangle, costoclavicular space, and infrapectoral tunnel

1. Disrupted Load Transmission

- when normal force transfer from the spine to the upper limb is altered — due to fixation, hypermobility, or postural collapse — the scapula and clavicle lose their suspension balance
- this increases strain in both the costoclavicular and scalene regions

2. Lack of Segmental Synchrony

- if T1–T2 do not move in coordination with the clavicle and scapula, the thoracic outlet can narrow functionally
- the resulting compression may irritate the brachial plexus or vascular structures, especially during repeated or sustained arm positions

3. Effect of Rib and Muscle Tension

- stiff ribs 1–2 limit thoracic expansion and contribute to shallow breathing, forward head posture, and scapular depression.
- overactive scalenes lift rib 1 excessively, narrowing the interscalene triangle and creating chronic compression.

4. Clavicular Depression

- when the clavicle is persistently pulled downward — due to heavy upper limbs or weak scapular elevators — it can press against the first rib
- this increases the risk of vascular and neural compression in the costoclavicular space

For Further Reference

Eva Laser

Certified Feldenkrais Teacher and Trainer, trained by Yochanan Rywerant
Sollentuna, 20 June 2025

For more information about Eva Laser's theoretical and practical teaching, please visit:

- www.somatik.se
- www.yochananrywerant.com
- www.svenskaatmpodden.se
- www.feldenkraisskolan.org