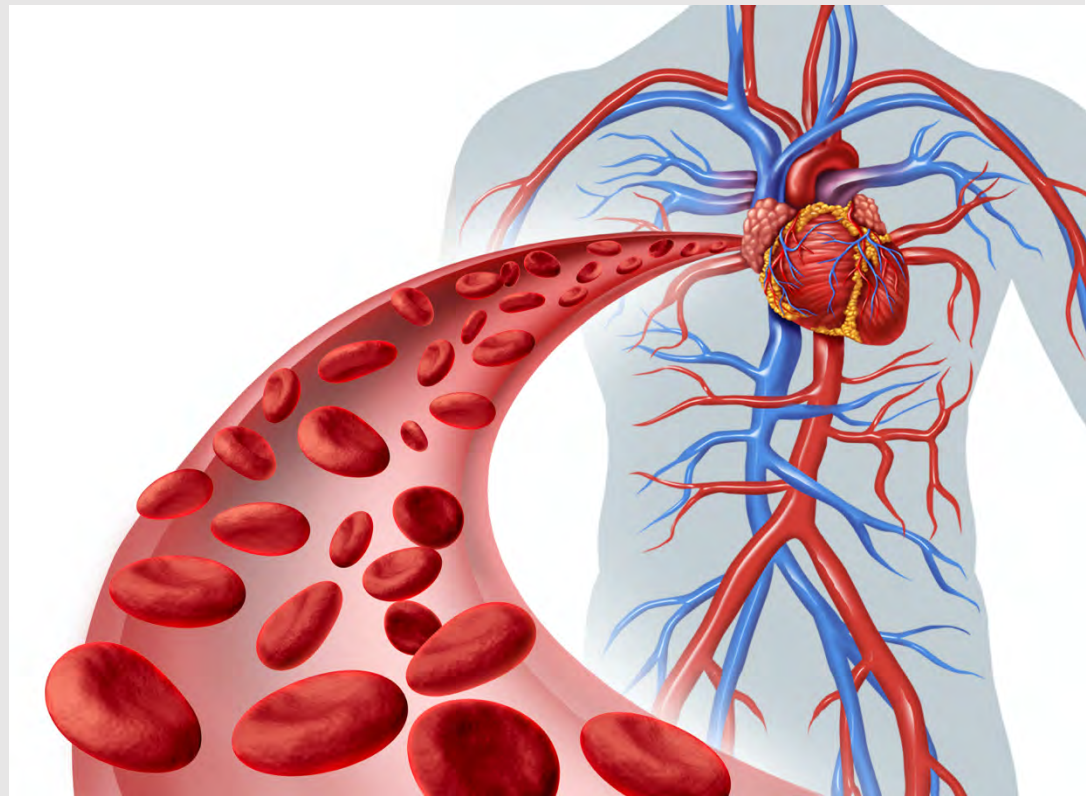


The Scientific Osteopathic Approach To Vascularization And Oxygen Supply In Patients



Luc Peeters, MSc.Ost.

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The Scientific Osteopathic Approach to Vascularization and Oxygen Supply in Patients

One of the important goals in osteopathic treatment is to improve vascularization and oxygenation in the complaint area.

Beside local vascularization in the complaint area, the general vascularization and oxygenation is extremely important for the patients' recovery from complaints, tissue damage, inflammation and disease.

Without a proper general oxygenation, the body's inherent capacity to heal is compromised.

The World Health Organization (WHO) has written down the 5 osteopathic models in the Benchmarks:

5 models:

- 1. The biomechanical structure/function relationship model:** here osteopathy strives for good mechanical function and posture, particularly addressing the musculoskeletal system.
- 2. The respiratory/circulatory structure/function relationship model:** addresses dysfunctions in the mechanics and the circulation and flow of body fluids to provide the body with oxygen and nutrients.
- 3. The neurological structure/function relationship model:** addresses dysfunctions of the neurological system. Spinal facilitation, the autonomic nervous system, proprioceptive functions, the activity of the nociceptors and the functioning of the neuroendocrine immune network is addressed.
- 4. The biosocial structure/function relationship model:** this model recognizes that environmental, socioeconomic, cultural, physiological and psychological factors can affect patient health.
- 5. The bioenergetic structure/function relationship model:** maintaining a balance between energy production, distribution and expenditure is essential to good health.

It must be clear that this book concerns the respiratory/circulatory structure/function relationship model.

Oxygen has been present in the atmosphere for 5 billion years. It is believed that its concentration in atmosphere was infinitesimal until 2.5 billion years ago when the first photosynthetic organisms made their appearance.

Oxygen is essential for life and without oxygen we cannot survive. There should be a balance between oxygen demand and delivery in order to maintain homeostasis within the body.

A human breathes something like 9.5 tons of air in one year. Oxygen makes about 21% of the air and we extract only 1/3 of the oxygen from each breath. This means that we need some 750 kg of oxygen per year. This amount is produced by some 8 trees. This means that every human needs 8 trees to survive.

High concentrations of oxygen are however toxic.

Already the oxygen levels found in human cells cause the formation of toxic reactive intermediates of the oxygen metabolism. Reactive oxygen species are constantly formed, also in the human body and removed by antioxidant defenses (see further).

Osteopathy

This is interesting for osteopaths because they have to consider as well:

- The oxygenation of the body and the complaint area.
- The antioxidants presence in the patients' body.

Both elements have to be considered at the same time.

When we improve oxygenation, we increase the oxidative stress and the patient must be able to counter this with sufficient antioxidants.

This means that when we only improve vascularization and oxygenation the complaint region in patients with lots of oxidative stress (such as in chronic inflammatory disease) the reaction will be counterproductive. It could even induce more complaints, more hypoxia and reactions in other body parts such as chills, headaches, tiredness, even fever.

Also, when we treat athletes that consume lots of oxygen, antioxidants through nutrition are very important to prevent injuries.

All our body tissues must be supplied with oxygen and the oxygen delivery is done by blood vessels.

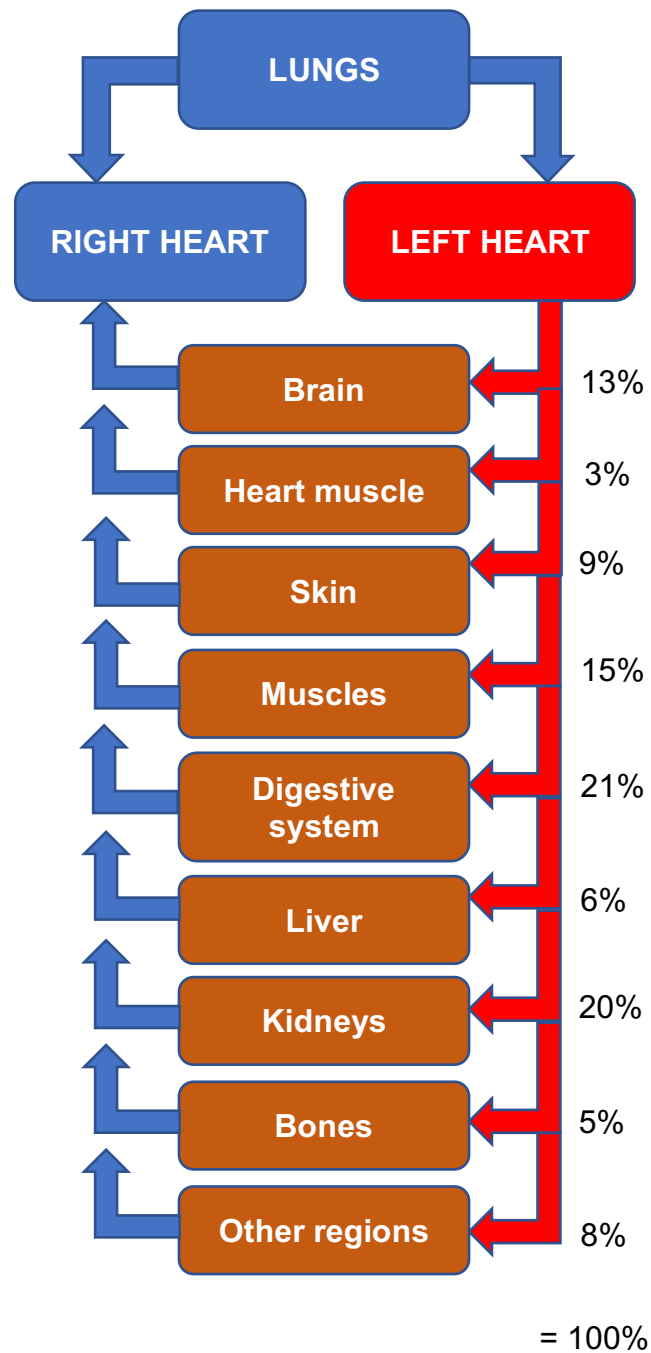


Figure 3 - Division of blood supply

Blood vessels also take care of the elimination of waste products coming from burning oxygen.

In general, there are two organ systems that are responsible for oxygen delivery to the body and its tissues to maintain homeostasis:

- The respiratory system.
- The cardiovascular system.

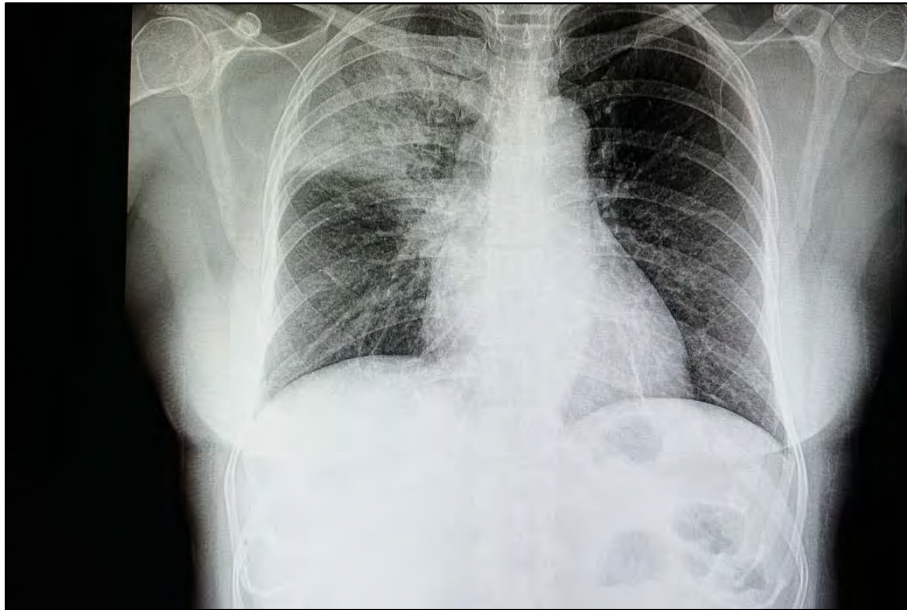


Figure 27 - Pneumonia

When the patient is cured from for example pneumonia, we can see on the nailbed that there has been a lung infection/disease.

Therefore, it is important for osteopaths to inspect the nail bed of our patients.

After the period of oxygen depravity, there is recovery visible.

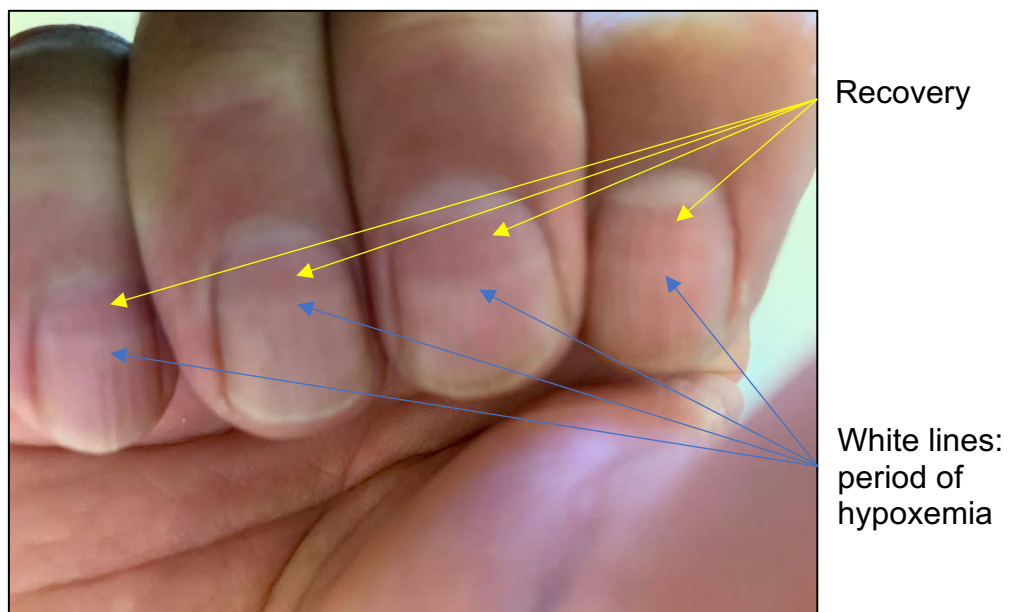


Figure 28 - White line in nail bed is sign of oxygen deficiency

3.3.6. Anemia

Anemia is a decrease in the total amount of red blood cells.

Possible causes concerning red blood cell production:

- Insufficient stimulation of red blood cell production by the hormone erythropoietin (production is done by the kidneys).
- Insufficient intake of iron (most common).
- Insufficient intake of vitamin B12.
- Insufficient intake of folate.
- Hypothyroidism.
- Medication such as blood thinners.

Possible causes for red blood cells destruction:

- Hemorrhaging because of:
 - Endometriosis.
 - Menstruation.
 - Gastrointestinal bleedings.
 - Fibrosis in the bone marrow.
 - Liver and spleen diseases such as cirrhosis and scar tissue.
 - Surgery.
 - Trauma.
 - Hemolysis (ruptures in red blood cells caused by some medication).
 - Some genetic disorders such as sickle cell anemia.

Most common is iron deficiency.

Normal need for iron nutrition/day:

Men	8 mg
Women	18 mg
Pregnant women	27 mg
Breastfeeding women	29 mg
Elderly	8 mg

Food containing iron:

- Liver.
- Red meat.
- Seafood.
- Lentils.

- Heart murmur.
- Increased heart rate, palpitations.
- Restless leg syndrome.
- Hair loss.
- Change in sense of taste.
- Tinnitus.
- Headache.
- Eating things that are not food.
- In pregnancy: premature birth, low birth weight.
- Cold hands and feet.

If not treated, anemia can lead to arrhythmia, enlarged heart, even heart failure.



Figure 29 - Inspection red or pale vascularization of eyelid

Osteopathy: osteopaths can check the coloration (red or pale) of the eyelid to get an idea of the patients' eventual anemia.

There are also specific forms of anemia:

- **Pernicious anemia:** lack of intrinsic factor. Absorption of vitamin B12 or folic acid is not possible.
- **Hemolytic anemia:** the body makes deformed red blood cells.
- **Sickle cell anemia:** caused by diseases; wrong shape of the red blood cells. Therefore, the hemoglobin doesn't work correctly.
- **Diamond-Blackfan anemia:** rare blood disorder. The bone marrow doesn't make the proper red blood cells.
- **Aplastic anemia:** caused by damaged bone marrow.
- **Fanconi anemia:** rare and genetic.

9. Osteopathy

9.1. General

As already mentioned:

Treating hypoxemia dominates the treatment of hypoxia at the complaint area

I therefore will focus in this book on that most important treatment goal: improving general vascularization and especially general oxygenation.

The treatment of the local vascularization (after treatment of the hypoxemia) is done by:

- Stretching the nonphysiological axis of the concerned joint(s) because at the level of the nonphysiological axis, there is stasis and hypoxia.

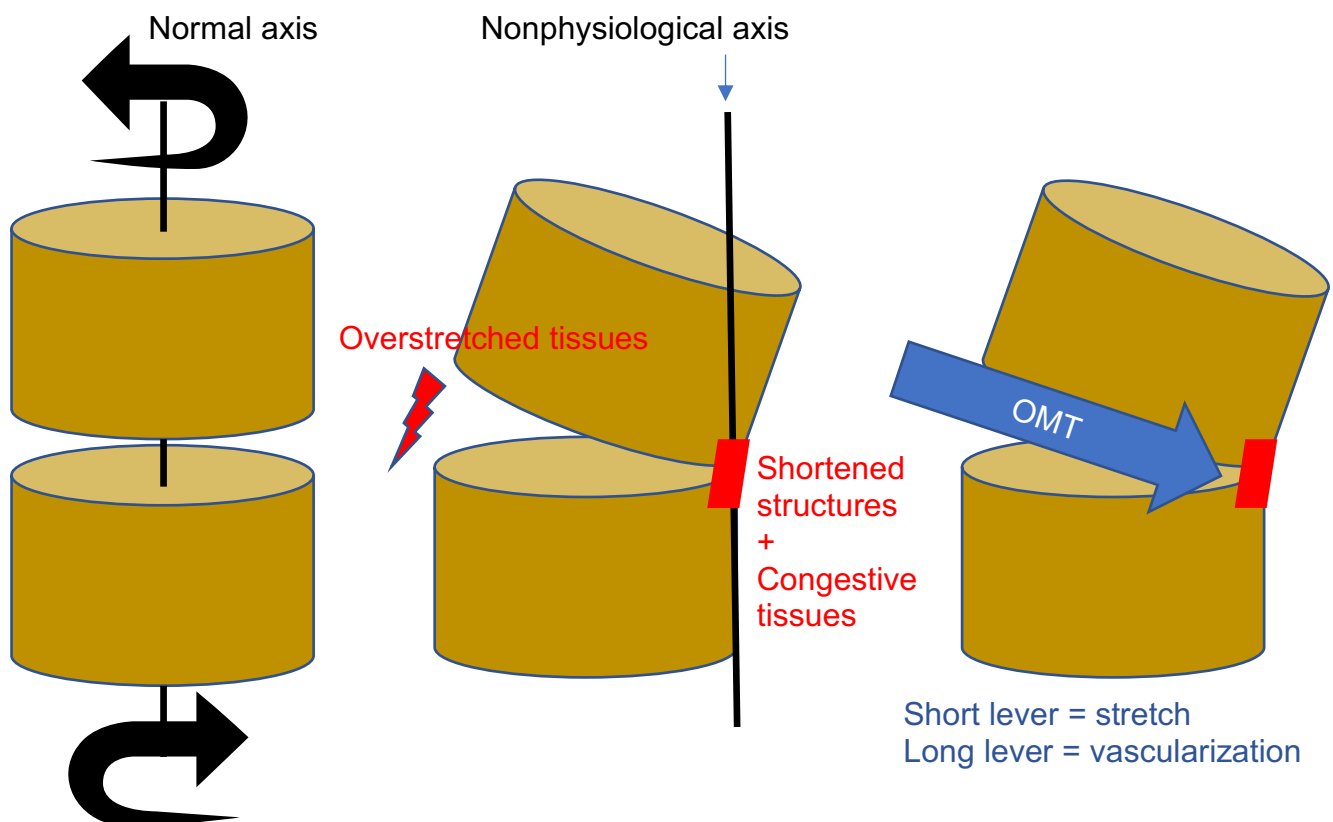


Figure 59 - Nonphysiological axis

9.2. Assessment

Before the treatment of the general vascularization and oxygenation, it is important to make the correct assessment:

- Structural assessment (by physician) for disease. Here osteopaths lack the possibility to ask for certain examinations such as scan, X-ray, blood analysis. Osteopaths however do have some limited possibilities such as:
 - Oximeter.
 - Blood pressure measuring.
 - Spirometer.
 - Auscultation.
- Functional osteopathic assessment.
- It must be clear to keep good record of these data and check them again during following treatments to evaluate the progress objectively.

The functional manual assessment consists out of:

- The general osteopathic assessment:
 - Observation of the patient (color, weight/length, posture...). More details can be found in other books from the same author.
 - Mobility testing:
 - Of the complaint area.
 - Of related body-areas.
 - Especially of the upper thoracics, ribs, diaphragm, thoracic and cervical spine, thoracic outlet, intrathoracic fascia.
 - All these tests are described in other books of the same author, so we limit this part to the long/heart area treatment.

Often, patients with oxygenation problems have a specific tendency:

- Thoracic spine and ribs:
 - Upper thoracic (T₁₋₅) in a flexion tendency.
 - Upper 6 ribs fixed in exhalation with compression in the chondrosternal joints.
 - Flexion tendency of the lower 6 thoracic vertebra with the lower 6 ribs in exhalation. Be aware that we also find the 6 lower ribs in inhalation in COPD patients. This means mobilizing the thoracic spine towards extension is ok but don't mobilize the lower ribs more towards inhalation.
- Muscles and ligaments shortened on the ventral side of the thorax.
- Diaphragm in a high position.
- Intrathoracic fascia shortened.

9.3. Stabilize the Suspension System of the Lungs in 3 Planes and in Craniocaudal Direction and Increase the Exchange Surface

9.3.1. Sagittal Plane (Increase the Anteroposterior Diameter of the Thorax)

When the thoracic spine is fixed in flexion with postero-inferior position of the sternum and ribs, fixed in exhalation, the lungs loose expansion possibilities in an anteroposterior direction.

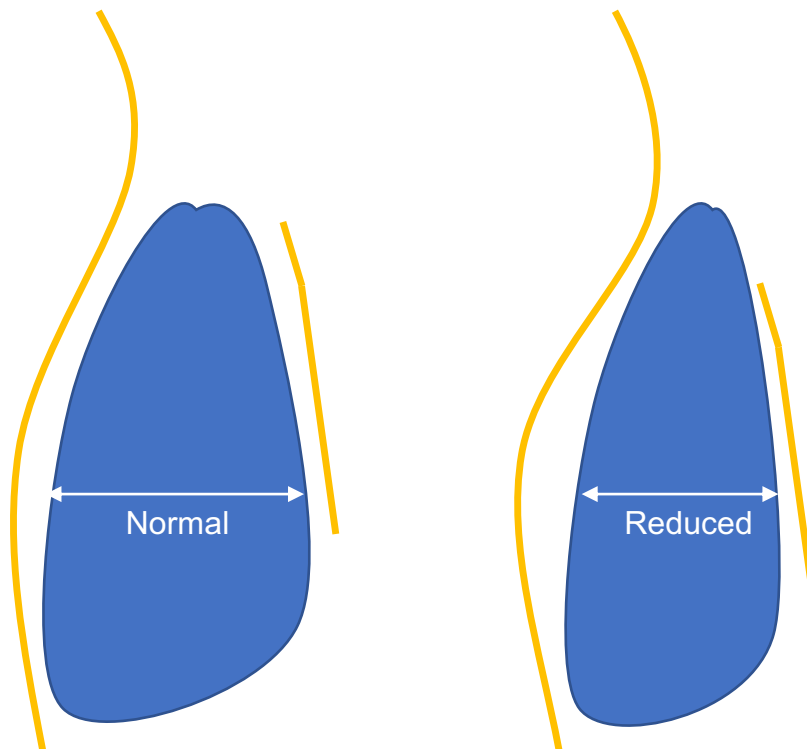


Figure 60 - Reduced anteroposterior distance of the thorax

Mobilization of the chondrosternal joints (rib 2 till 6) towards decoaptation (opening)

This is done when the upper thoracics are fixed in flexion.



Video 1 - Mobilizing the chondrosternal joints towards decoaptation

Mobilization of the chondrosternal joints (rib 2 till 6) towards decoaptation (opening)



Video 2 - Decoaptation of the chondrosternal joints



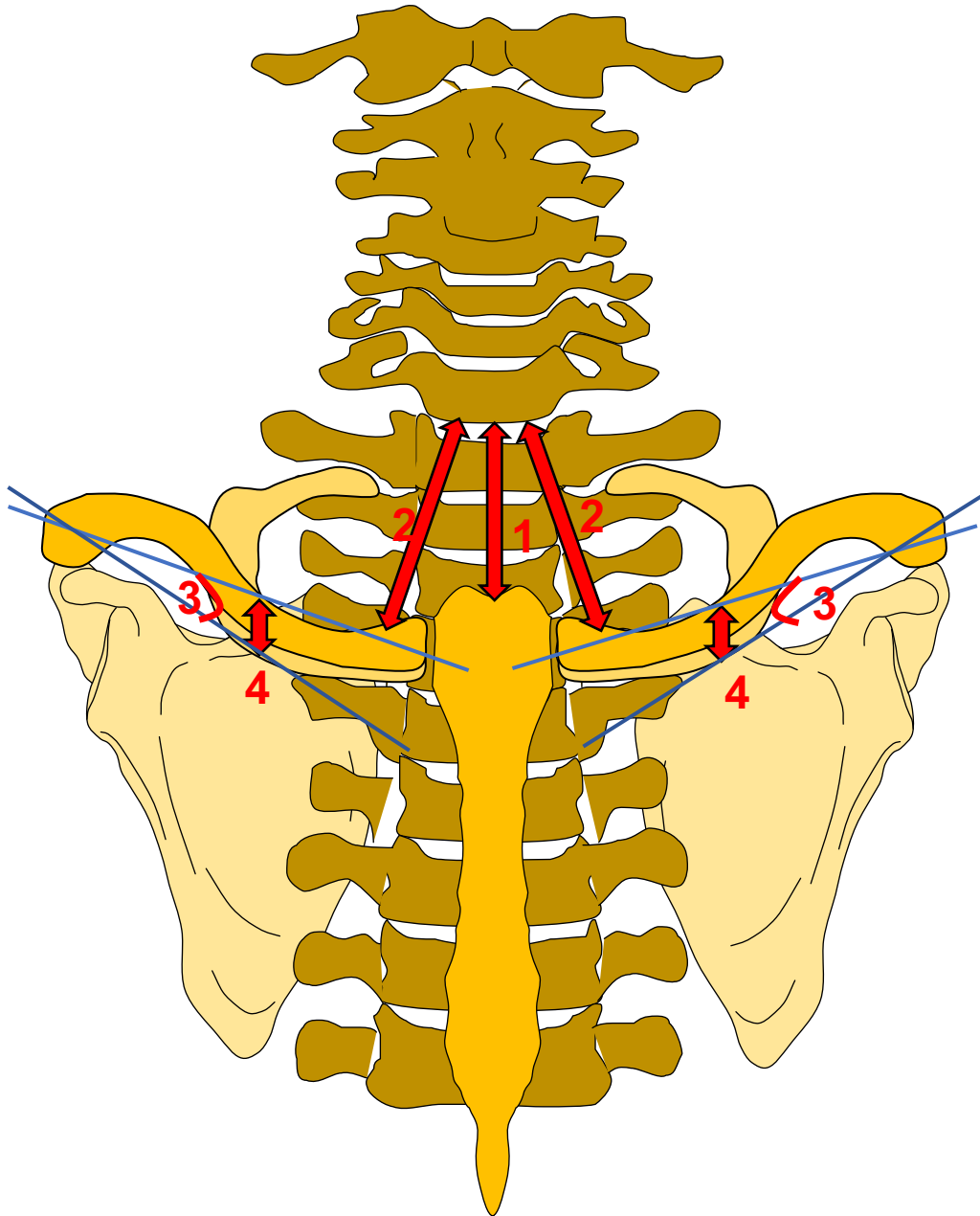
Video 26 - Doming of the diaphragm - technique 2

Drain the decongestion of the upper digestive system



Video 27 - Subdiaphragmatic drainage

9.4. Mobilize the Thoracic Outlet Region to Increase the Diameter of the Outlet in the 3 Planes



- 1 = distance C₆ ventral body / posterior side manubrium.
- 2 = distance C₆ ventral body / posterior side medial clavicle.
- 3 = angle between axis clavicle / spina scapula.
- 4 = distance acromion / humerus.

Figure 67 - Thoracic outlet

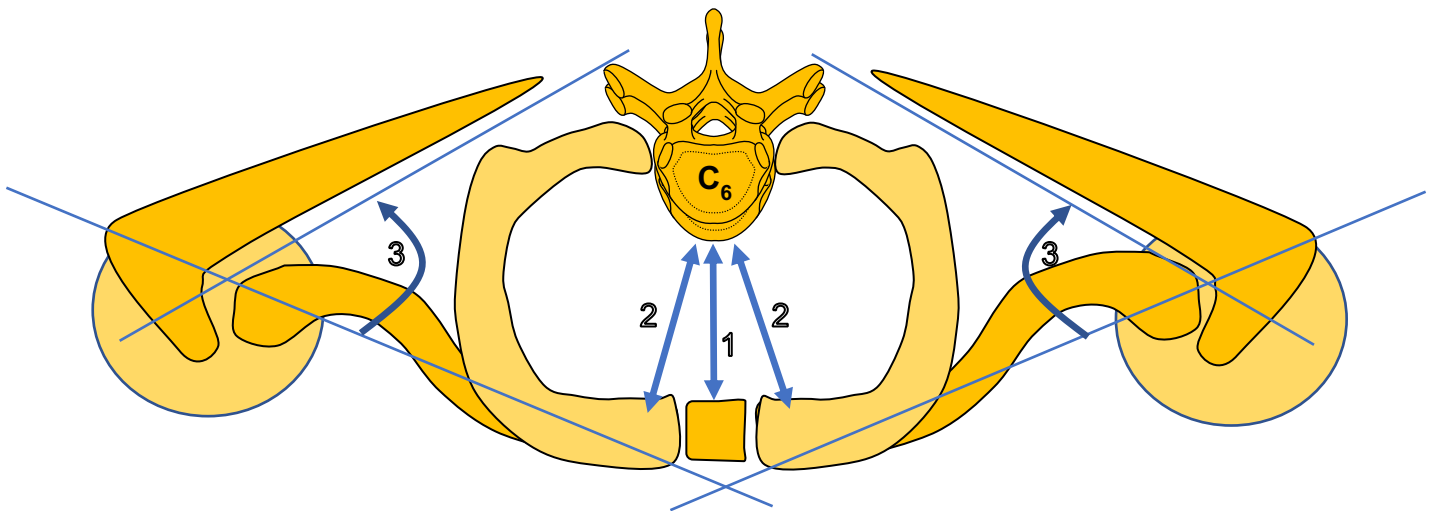


Figure 68 - Thoracic outlet

- 1 = distance C₆ ventral body / posterior side manubrium.
- 2 = distance C₆ ventral body / posterior side medial clavicle.
- 3 = angle between axis clavicle / spina scapula.
- 4 = distance acromion / humerus.

Thoracic outlet syndrome:

- C₆ translates anteriorly.
- Distance C₆ ventral body / posterior side manubrium diminishes
- Distance C₆ ventral body / posterior side medial clavicle diminishes.
- Angle between axis clavicle / spina scapula reduces.
- Distance acromion / humerus reduces.



Video 38 - 4th ventricle compression

9.7. Stretch and Harmonization of the Tension in the Membranous System of the Skull to Provide a Maximal Function of the Venous Drainage

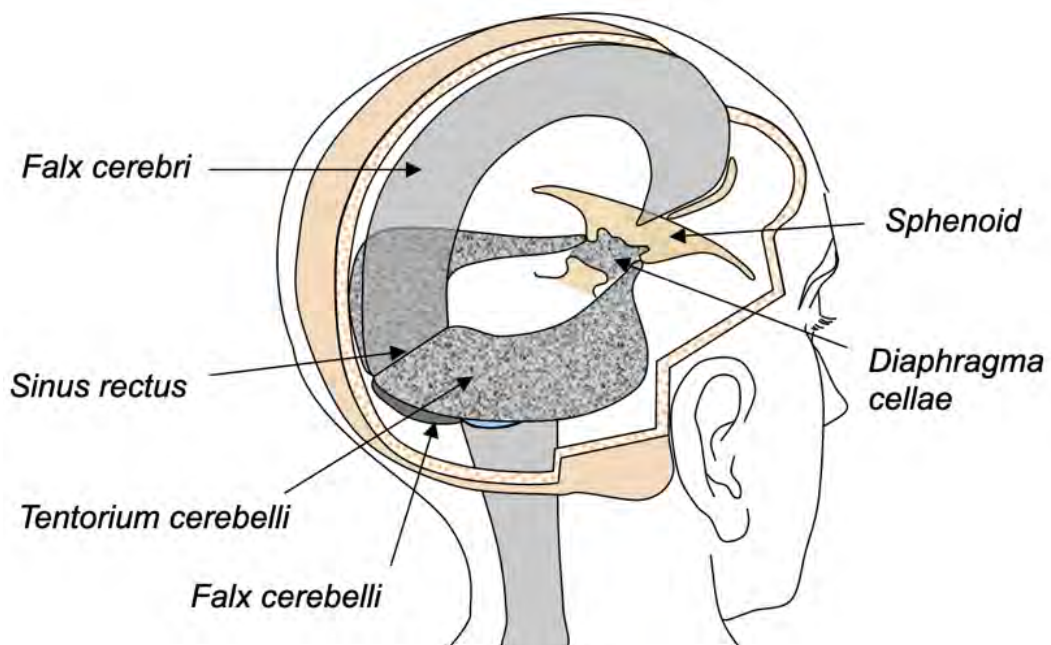


Figure 70 - Membranous system in the skull



Video 41 - Frontal lift

Stretching dura mater

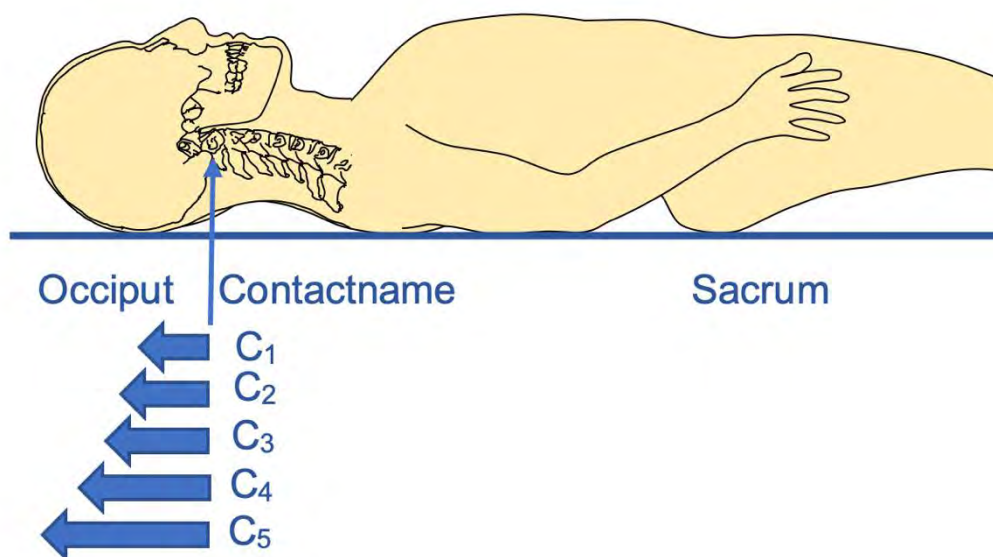


Figure 71 - Stretching the dura mater

Note concerning manipulations: manipulations can but don't have to be used to reach these different goals. In respect of the safety of the patient, osteopaths try to avoid manipulations, especially in the cervical area.



Video 42 - Stretch of the dura

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Luc Peeters is an osteopath since 1985. He was the Joint-Principal of the largest Academy of Osteopathy in Europe from 1987 till 2020. He provided curricula, syllabuses and academic recognition from several universities.

This book gives a practical overview of the human vascularization and tissue oxygenation as well as the practical scientific osteopathic applications to improve oxygenation in patients.

The theory and procedures in this book are checked on their scientific background and esotericism is avoided.

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