

CURRICULUM / CONTENT

The Scientific Osteopathic Approach to Vascularization and Oxygen Supply in Patients

1. General Oxygenation

- 1.1. *Some Terminology*
- 1.2. *Abnormal Gas Exchange*

2. General Hypoxemia

- 2.1. *There are Two Causes of V/Q Mismatch*
- 2.2. *Symptoms of Hypoxemia Often Include*
- 2.3. *Normal Functioning*
- 2.4. *Air in the Lungs and Oxygen Consumption*
- 2.5. *The Influence of Body Temperature*
- 2.6. *The Lung Microbiota*
- 2.7. *Lung Volume*
- 2.8. *The Influence of Gravity*
- 2.9. *Diffusion Through the Blood – Gas Barrier Depends Upon the Following Factors*
- 2.10. *Inflammation and Hypoxia*

3. Chemoreceptors

- 3.1. *Central Chemoreceptors*
- 3.2. *Respirational Control*
- 3.3. *Examples in Disease*
 - 3.3.1. *Emphysema (COPD)*
 - 3.3.2. *Altitude*
 - 3.3.3. *Diving*
 - 3.3.4. *Sleep Apnea*
 - 3.3.5. *Pneumonia*
 - 3.3.6. *Anemia*
 - 3.3.7. *Hypoxia Induced Inflammation*
 - 3.3.8. *Hypoxia and Obesity*
 - 3.3.9. *Acute Inflammation and Oxygenation*
- 3.4. *Peripheral Chemoreceptors*
- 3.5. *Muscle and Lung Receptors*
- 3.6. *Blood Vessel Wall*
 - 3.6.1. *Arterial*
 - 3.6.2. *Venous*

4. Oxygen Transport in the Blood

5. Oxygen Supply and Consumption

- 5.1. Oxygen Supply and Consumption of the Brain*
- 5.2. Oxygen Supply and Consumption of Muscles*
- 5.3. Oxygen Supply and Consumption of the Fascia*
- 5.4. Oxygen Supply and Consumption of the Heart*
- 5.5. Oxygen Supply and Consumption of the Digestive Tract*
- 5.6. Oxygen Supply and Consumption of the Kidneys*
- 5.7. Oxygen Supply and Consumption of the Uterus*
- 5.8. Oxygen Supply and Consumption of the Skin*
- 5.9. Oxygen Supply and Consumption During Sleep*
- 5.10. Oxygen Supply and Consumption of Nerves (Vasa Nervosum)*
- 5.11. Oxygen Supply and Consumption of Bone*
- 5.12. Oxygen Supply and Consumption of the Spleen*

6. Oxidative Stress

- 6.1. Redox Homeostasis*
- 6.2. The Result is a Permanent Alteration of Homeostasis and This Can Lead To:*
- 6.3. Examples of Antioxidants*
- 6.4. Chronic Oxidative Stress is Linked to Several Diseases*
- 6.5. Nutritional Sources of Antioxidants*

7. Venous Return (VR)

- 7.1. Classification of Veins*
- 7.2. Five Basic Mechanisms that Bring Back the Venous Blood to the Heart*
- 7.3. Increase of the Venous Return is Caused By:*
- 7.4. Changes in Venous Return Can Be Caused By:*
- 7.5. Possible Pathologies*

8. The Autonomic Nervous System

- 8.1. Blood Vessels*
 - 8.1.1. General*
 - 8.1.2. Sympathetic Regulation*
 - 8.1.2. Parasympathetic Regulation*
 - 8.1.3. Interactions with Blood Vessels*
 - 8.1.4. Vascular Tone*
- 8.2. The Lungs*

8.3. *The Heart*

9. Osteopathy

9.1. *General*

9.2. *Assessment*

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)*

9.3.2. *Frontal Plane (Bring the Mediastinum in a Central Position in the Thorax)*

9.3.3. *Horizontal Plane*

9.3.4. *Craniocaudal Direction*

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

9.5. *Mobilize the Cervical Spine Towards Flexion to Reduce the Stretch in the Anterior Neck Structures (Especially the Fascia)*

9.6. *Mobilize the Upper Cervicals, Especially Towards Cranial to Reduce the Compression Lesion*

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

10. Bibliography

Acknowledgment