

# TEACHING WORKING STRATEGIES: EMBRYOLOGY

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## INTRODUCTION

Embryology is the branch of biology concerned with the development of living organisms, starting from the reproductive cells that, through many transformations, finally become a fully functioning organism.

Quite often, the study of embryology is only limited to a list of the embryonic development phases, essentially with narrative features, focusing merely on the temporal aspects and sequences of the different stages of organs and apparatus development.

Limiting the attention on cell modifications, the growth of the embryo in his totality as well as the differentiation of cells and tissues in different areas are neglected.

It is, therefore, necessary that the notions, commonly known in the embryological field, are perceived in a more comprehensive, dynamic and broader perspective in order to provide a functional view of human anatomy, including its ontogenetic training.

In line with this innovative method of study and interpretation of Embryology, over the years, we have developed and improved a teaching method of this subject where Blechschmidt's Biodynamic and Biokinetic model are at the center of the training objective. In this way, the theoretical notion acquires a value of a determinative methodology to be applied to assessments in the diagnostic field and to osteopathic corrective techniques in order to find an application basis of this embryological model.

Our teaching model will not focus on the simple list of stages of development but on the metabolic dynamics that influence form and structure, and how these can be superimposed on the development and position assumed by the organs being formed.

The student's attention is focused on metabolic dynamics or Metabolic Field that lead to the formation of the various organs, paying particular attention to the embryonic germ layers from which they were differentiated; in which area of the somatic axis the genesis started and with which other structures it had particular relationship during fetal life.

By giving great importance to these concepts, it facilitates the learning and the memorization of aspect such as origin of innervation and vascularization of organs or other structures as they depend on the embryological origin. Knowing that, no more mnemonic effort are needed, moreover, visualising the dynamics that led to the formation of an organ simplifies the memorization of the various stages of development of the organ itself.

These aspects lay the basis for what will be the osteopathic approach based on embryological concepts.

## WORKSHOP

The common histological origin of two different organs or structures, the metabolic dynamic that leads to its formation and the possibility that several different or distant structures can share the innervation starting from the same metamere, give to the osteopath the means for carrying out evaluations and manipulative techniques by relating one of these three aspects:

- innervation origins → organs or tissue  
Es. (C3 in relationship with diaphragm)
- metabolic dynamics of growth and formation → Embryological mobility technique  
Es. (visceral technique )
- different structures having the same Histological origin  
Es. (pharyngeal arch, cranial fossa)

A practical workshop is then proposed to give candidates the opportunity to have palpatory experiences regarding embryonic dynamics and aspects. This approach will give them an idea of how metabolic dynamics of growth during embryonic life are still present and palpable in adults and how they can be treated to obtain important clinical results.

After a brief description of the embryological aspects, related to the structures involved in the different techniques, we will teach how to implement an osteopathic evaluation based on embryological parameters for applying a specific corrective technique.