A Short Story: Part 1 (The Evolutionary History behind “Facial Muscle Exercises”)

Evolutionary Developmental Biology (Evo-Devo) of the Human Being

The “new science” introduced in the last IN SYNC step, setting forth the fascia network as being the system which “holds together” the outer and inner physical body, is part of a re-interpretation of other science research of the past two hundred years. I will present a short summary of this new theory of Evo-Devo. This will assist you as we integrate various sensory systems with brain functions. Knowledge understanding/comprehension will be easier with this Evolutionary Developmental Biology approach.

Evo-Devo theorizes that evolutionary alterations can be observed in the growth of the embryo. The concept of “natural selection” (Darwin theory of evolution) can be observed in embryonic development as well as in adult life stage changes. Evo-Devo postulates that genes (DNA genotype) provide the “road maps” but that the “structures” (phenotype body, organs, brain, etc.) come about through interactions between various forces, including mechanical stimulation, environmental temperature, chemical interactions with human and other species (i.e, the gut bacteria). During this evolutionary interaction, new properties emerge, with genes being regulated differently in cells and sent to different tissues and organs. Nothing is “rigid” about the development of an organism as it redefines itself in the needs of the current environment (including social and ecological).

The Evo-Devo model fits with the current neuroscience evidence, especially that of neuronal plasticity and the entire psychological approach that you are capable of changing your behavior and health. The role of human consciousness is expanded, including the changeable ability of the human to learn behaviors, interact with different environments, yet maintain its survival in unknown factors. New evolutionary mechanisms emerge as development proceeds, with functions such as genetic, cellular, developmental, physiological, hormonal, or any combinations of these. These mechanisms impact from the levels of the gene, the cell, the tissues and organs, the entire organism, and the organism’s responses to the environment. The hope of this new model is that we may be able to unify all the various sciences, even create new ways of understanding how the human phenotypic plasticity operates to make humans the most adaptable of life organisms. (1)

It is through this Evolutionary Developmental Biology lens that I will be presenting the next IN SYNC Steps; showing how the various senses have evolved to become the entry point into the mystery of how we, as humans, can alter our own behaviors through the process of learning and applying techniques which have direct impact on the functioning of our brain perceptual processes. In the short “evolutionary story” below, I pave the way for understanding how the facial muscles are the beginning point for human communication. In totality, the human social communication system is the unique “ability” which has enabled humans to become the dominating life form on earth. In each of the following IN SYNC treatment steps, you will be expanding your knowledge and skills for the human social communication system. Dysfunction in this system is one of the primary factors which creates your psychological distress over interpersonal and social relationships. After you have resolved these dysfunctions, you will then receive psychotherapy to create new ways for using your human social communication skills.

From Paleocene Primate to Homo Sapiens

About 65 million years ago, mammals appeared on earth. By following the Evo-Devo model, we accept that all mammals had evolved with some form of “fascia network” (based upon current knowledge that all mammals do possess this organ). We assume that all mammals have “life energy” as electrical impulses flow through the fascia network and it is thought that the energy of life or life force, known as “chi” in Chinese medicine, flows through it as well. (2) We also assume that all mammals had a vagal nerve system and could produce the facial expressions which are generated by vagus nerve responses. In most mammals, these are vocalizations and gestures, but not cognitive communications as in humans. (3)

About 58 million years ago, small mammals made a complex adaptation from living an earth-surface bound 4-legged life to living in trees. This above-ground life came about because their eyes and eye orbits had moved to a forward position in the head, permitting binocular vision. This created an advantage for navigating in the tree spaces. Eyes being faced forward on an upright head would also provide an opportunity for this primate to “scan the eyes/face” of the other members. Over time, this would lead to the development of social facial movements which meant a “communication message” to the sender as well as the receiver.

***(The tension in your eyes was addressed in the last IN SYNC Step. The tension in your facial muscle is the focus of the next IN SYNC Step.)***

About 24 million years ago, these primates developed from a one-arm brachiation (swinging from one arm) to a two-arm brachiation. Imagine a modern human doing swinging bar gymnastics—that is the use of two arms. This adaptation lead to a complex change in use of hands, which use stretched from neck and throat. Eventually, the two-arm brachiation created the foot and bipedalism of the human-like primate. Brain changes included visual-motor and tactile-motor functions, as well as growing brain neurons for the increasing hand movements. (4)

When “Lucy” (Australopithecus anamemsis) came out of the trees about 3.9 million years ago, her hands were ready for tools, her walk was ready for exploring more than the forest tops, and her throat was ready for making speaking sounds. We will begin exploring the throat and speech evolution development in the next IN SYNC Step.

1. <https://evolution-outreach.biomedcentral.com/articles/10.1007/s12052-012-0418-x> (Evolutionary Developmental Biology (Evo-Devo): Past, Present, and Future)
2. <https://www.animal-mrt.com/blog/post/8302/Fascia/> (Animal Muscle Release Therapy)
3. <https://www.researchgate.net/publication/234064560_Facial_Expression_in_Nonhuman_Animals>
4. <https://arxiv.org/ftp/arxiv/papers/1411/1411.0295.pdf> (Human Bipedalism, Evolved from Arboreal Locomotion of Two-arm Brachiation)