

ARCHITECTURE OF THE CERVICAL MUSCLES

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The upright posture of the human neck and its relative weakness, along with the weight of the head predisposes people to neck injuries. Around one million people suffer injuries to the neck every year as a result of automobile accidents alone. Millions more suffer occupational and athletics-related neck injuries. Computer models of anatomical and muscular architecture help to understand the moment-generating capacity of the cervical muscles. This understanding then can aid in injury prevention and treatment. A computer model of the human necks exists, but it is incomplete. The model accurately depicts the relatively large, superficial, cervical muscles, but it does not include the deep muscle of the neck. Studies show that the small muscles associated closely with the vertebrae are important in stiffening and stabilizing the cervical spine in upright posture. The goal of this research project is to characterize the architecture of these muscles and add them to the existing computer model. The data needed for the modeling software will be gathered from the detailed dissection and careful measurement of the deep cervical muscles of ten cadavers. Photographs of cryosectioned cadavers from the Visible Human Project will also be used to compile data.