

Thesis Title	Study of the Relationships Between Physiological Changes and Postural Distortion of the Cervical Spine
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Abstract

The present study was aimed to investigate the relationships between postural distortion of the cervical spine and the possible factors in inducing cervical spine disorder as well as the signs and symptoms of cervical spine syndrome (neck pain, headache, dizziness, vertigo, tinnitus, paresthesia, blurred vision and sympathetic signs of increase sweating, cold and pale skin and trophedema).

Thirty study subjects with signs and symptoms related to cervical spine syndrome, were compared with thirty age- and sex-matched healthy subjects (control group). All subjects had conventional radiography including anteroposterior, lateral, right and left oblique views. After the medical history of each subject was taken, physical examination, recording of electromyographic activity (EMG), extracranial vertebral blood flow (EVBF), respiratory rate and heart rate were performed by using Grass Polygraph Model 7P.

Structural asymmetry (head tilting, shoulder height, pelvic tilt, scapular level) was observed in the study subjects significantly more frequent than the control subjects. Statistically, the amplitude of EMG, the respiratory rate, the heart rate, the degree of muscle spasm and

tenderness in the study group were significantly higher than the control group ($P < 0.05$). The amplitude of left and right EVBF, range of motion of cervical spine were significantly lower in the study group than the control group ($P < 0.05$). In addition, the frequency of right-left EVBF difference (by more than 50%) was significantly higher in the study group than the control group and there was a significant correlation between right-left EVBF difference and the right-left EMG difference ($P < 0.05$). Radiographic study revealed that the frequency of mild cervical spondylosis, narrowing of disc space and intervertebral foramen in the study subjects were found significantly higher than the control subjects. Hence, the present results revealed that a variety of signs and symptoms of the cervical spine syndrome could be partly caused by irritation or compression of cervical nerve roots (motor, sensory and/or autonomic nerves) and partly by low vertebral blood flow resulting from compression of vertebral arteries.