

[J Manipulative Physiol Ther.](#) 1994 Jun;17(5):314-20.

Absence of symmetry in superior articular facets on the first cervical vertebra in humans: implications for diagnosis and treatment.

[Gottlieb MS.](#)

Logan College of Chiropractic, Basic Science Research Department, Chesterfield, MO 63006-1065.

Comment in:

- [J Manipulative Physiol Ther.](#) 1994 Nov-Dec;17(9):624-6.

Abstract

OBJECTIVE: Little attention has been given to the craniovertebral articulations. Specifically, gross observations of variations of the superior articular facets on the atlas have not been described with respect to static and motion palpation findings. This study describes the anatomical variations of these facets and the clinical implications associated with asymmetrical structure. **DESIGN:** The superior articular facets of thirty human first cervical vertebrae were chosen for this study because the atlas constitutes the middle of the upper cervical complex and the atlanto-occipital joint contributes greatly to head movements. **SETTING:** The basic science research department of Logan College of Chiropractic, St. Louis, Missouri. **SPECIMEN POPULATION:** All available previously dissected anatomy laboratory and library specimens (30) were used in this study. All of the specimens were dry with intact facet surfaces and no regard was given to age, gender, or race. **INTERVENTIONS:** The atlases were studied out of situ and all soft tissue was removed so that the bony articular surfaces could be clearly viewed and photographed. **MAIN OUTCOME MEASURES:** Palpation and unaided visual examination were performed on 30 atlases. The shape, size, angle, texture, border, and number of superior articular facets on each atlas were recorded to determine symmetry. **RESULTS:** The classically described kidney-shaped facet was in fact an infrequent finding. Upon comparison of right and left sides, none (0%) of the facets were mirror images of symmetry, while 19 of the atlases (63%) had grossly asymmetrical facets, and 11 of 30 atlases (37%) had facets which were only slightly asymmetrical in regard to shape, border, depth and angle. Furthermore, 7 of the 19 grossly asymmetrical atlases (37%) had three or four separate superior articular facets. Three atlases had two facets on the left and one on the right, while two atlases had two facets on the right with a single facet on the left, and two atlases had four superior facets (two on each side). **CONCLUSION:** The validity of vertebral joint assessment based on the assumption of facet symmetry is challenged, impugning certain chiropractic theories and/or techniques which rely on symmetry as being "normal." To achieve symmetrical function, the anatomical structure must be symmetrical. Since true structural symmetry does not exist, true symmetry of segmental movement may not be possible.