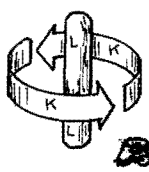
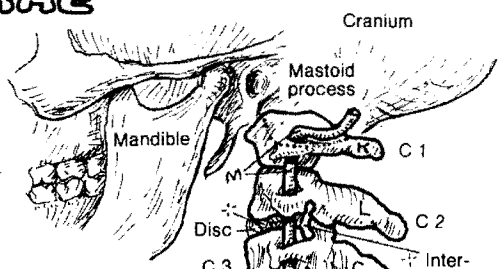
See 21, 23

CERVICAL AND THORACIC VERTEBRAE

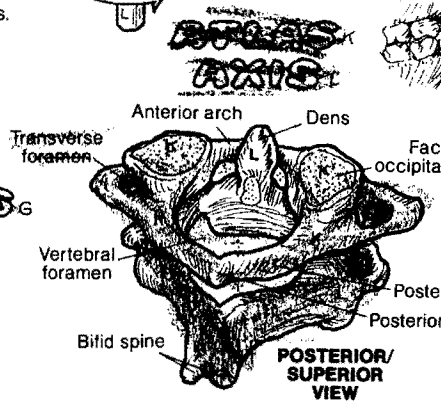
CN: Use red for M and use the same colors as were used on Plate 21 for C and T. Use dark colors for N, O, and P. (1) Begin with the parts of a cervical vertebra. Color the atlas and axis and note they have been given separate colors to distinguish them from other cervical vertebrae. (2) Color the parts of a thoracic vertebra and then the thoracic portion of the vertebral column. Note the three different facet/demifacet colors.

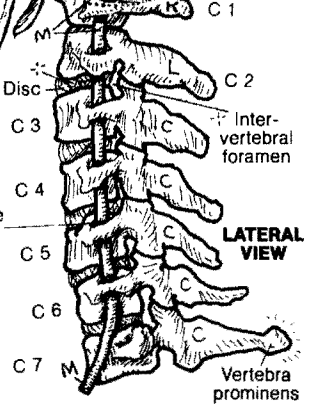


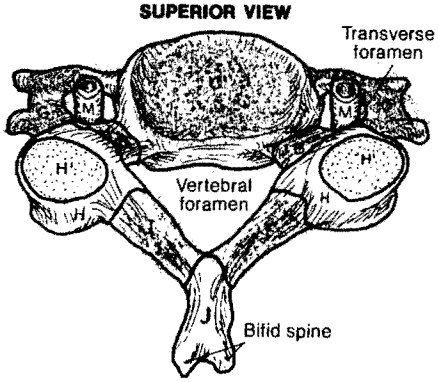


CERVICAL VERTEBRA C

BODY C'
PEDICLE B
TRANSVERSE PROCESS G
ARTICULAR PROCESS H
FACET H'
LAMINA T
SPINOUS PROCESS J



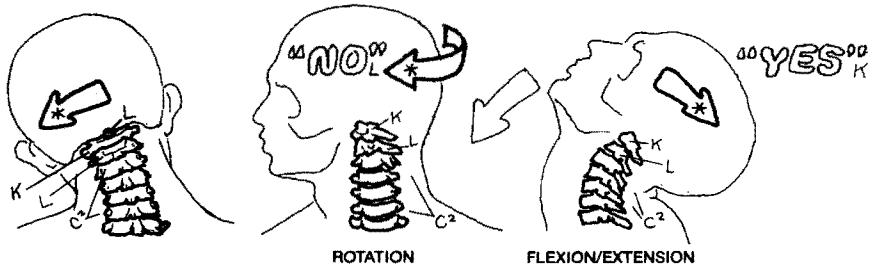




TYPICAL CERVICAL (C4) VERTEBRA

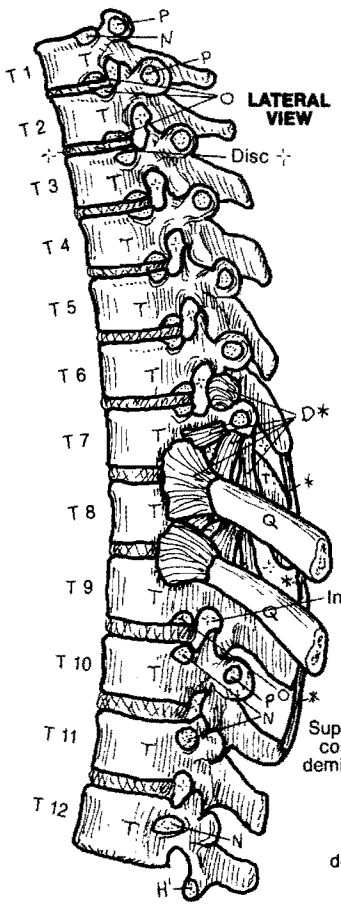
VERTEBRAL ARTERY M

MOVEMENT *

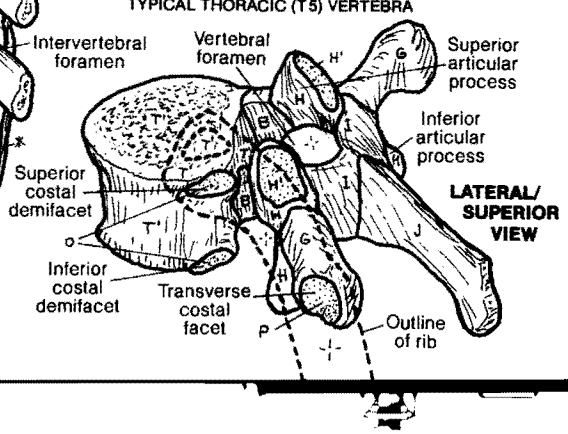


The small seven *cervical vertebrae* support and move the head and neck, supported by ligaments and strap-like paracervical (paraspinal) muscles. The ring-shaped *atlas* (C1) has no body; thus there are no weight-bearing discs between the occiput and C1, and between C1 and C2 (the *axis*). Head weight is transferred to C3 by the large *articular processes* and *facets* of C1 and C2. The atlantooccipital joints, in conjunction with the C3-C7 facet joints, permit a remarkable degree of flexion/extension ("yes" movements). The dens of C2 projects into the anterior part of the C1 ring, forming a pivot joint, enabling the head and C1 to rotate almost 90° ("no" movements). Such rotational capacity is permitted by the relatively horizontal orientation of the cervical facets. The C3-C6 vertebrae are similar; C7 is remarkable for its prominent *spinous process*, easily palpated. The anteriorly directed cervical curve and the extensive paracervical musculature preclude palpation of the other cervical spinous processes. The *vertebral arteries*, enroute to the brain stem, pass through foramina of the *transverse processes* of the upper six cervical vertebrae. These vessels are subject to stretching injuries with extreme cervical rotation of the hyperextended neck. The cervical vertebral canal conducts the cervical spinal cord and its coverings (not shown). The C4-5 and C5-6 motion segments are the most mobile of the cervical region and are particularly prone to disc/facet degeneration.

The twelve *thoracic vertebrae*—characterized by long, slender spinous processes, heart-shaped *bodies*, and nearly vertically oriented *facets*—articulate with *ribs* bilaterally. In general, each rib forms a synovial joint with two *demifacets* on the bodies of adjacent vertebrae and a single *facet* on the transverse process of the lower vertebra. Variations of these costovertebral joints are seen with T1, T11, and T12.



TYPICAL THORACIC (T5) VERTEBRA



THORACIC VERTEBRA T

BODY T'
FACET N
DEMIFACET O
TRANSVERSE FACET P
RIB Q
LIGAMENT D*