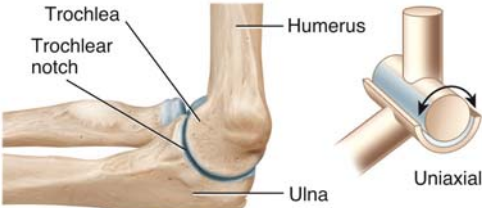
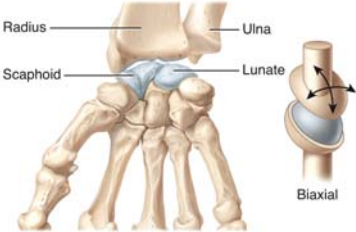
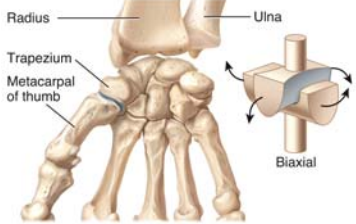
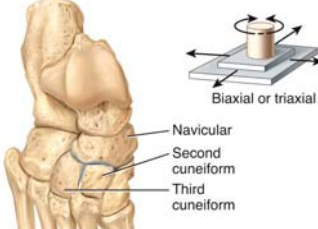
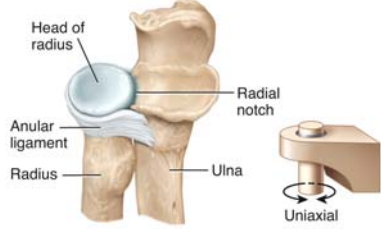
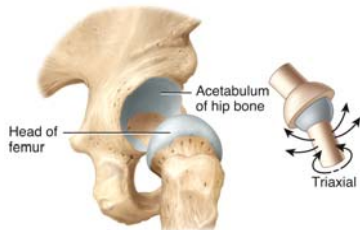


Synovial Joints

<i>Type</i>	<i>Description</i>	<i>Movements Allowed</i>	<i>Examples</i>	
Hinge	Convex surface fits into a concave surface	Flexion, extension	Knee, elbow, interphalangeal joints	 <p>(b) Hinge joint between trochlea of humerus and trochlear notch of ulna at the elbow</p>
Condyloid	Oval shaped projection fits into oval shaped depression	Flexion, extension, abduction, adduction, circumduction	Metacarpophalangeal joints of fingers, radiocarpal joint of wrist	 <p>(d) Condyloid joint between radius and scaphoid and lunate bones of carpus (wrist)</p>
Saddle	Articular surface of one bone is saddle-shaped; articular surface of other bone "sits" in saddle	Flexion, extension, abduction, adduction, circumduction	First carpometacarpal joint of thumb	 <p>(e) Saddle joint between trapezium of carpus (wrist) and metacarpal of thumb</p>

Plane	Articulating surfaces flat or slightly curved	Flexion, extension, inversion, eversion	Superior-inferior articular process articulations between vertebrae	 <p>(a) Plane joint between navicular and second and third cuneiforms of tarsus in foot</p>
Pivot	Round or pointed surface fits into ring formed partly by bone and partly by ligament	Rotation	Atlanto-axial joint and radioulnar joint	 <p>(c) Pivot joint between head of radius and radial notch of ulna</p>
Ball and Socket	Ball like surface fits into cuplike depression	Flexion, extension, abduction, adduction, circumduction, medial and lateral rotation	Shoulder and hip joints	 <p>(f) Ball-and-socket joint between head of femur and acetabulum of hip bone</p>

Movements

TABLE 9.1

Summary of Movements at Synovial Joints

MOVEMENT	DESCRIPTION	MOVEMENT	DESCRIPTION
Gliding	Movement of relatively flat bone surfaces back-and-forth and side-to-side over one another; little change in angle between bones.	Rotation	Movement of bone around longitudinal axis; in limbs, may be medial (toward midline) or lateral (away from midline).
Angular	Increase or decrease in angle between bones.	Special	Occurs at specific joints.
Flexion	Decrease in angle between articulating bones, usually in sagittal plane.	Elevation	Superior movement of body part.
Lateral flexion	Movement of trunk in frontal plane.	Depression	Inferior movement of body part.
Extension	Increase in angle between articulating bones, usually in sagittal plane.	Protraction	Anterior movement of body part in transverse plane.
Hyperextension	Extension beyond anatomical position.	Retraction	Posterior movement of body part in transverse plane.
Abduction	Movement of bone away from midline, usually in frontal plane.	Inversion	Medial movement of sole.
Adduction	Movement of bone toward midline, usually in frontal plane.	Eversion	Lateral movement of sole.
Circumduction	Flexion, abduction, extension, adduction, and rotation in succession (or in the opposite order); distal end of body part moves in circle.	Dorsiflexion	Bending foot in direction of dorsum (superior surface).
		Plantar flexion	Bending foot in direction of plantar surface (sole).
		Supination	Movement of forearm that turns palm anteriorly.
		Pronation	Movement of forearm that turns palm posteriorly.
		Opposition	Movement of thumb across palm to touch fingertips on same hand.

