Appendix B: Normal Range of Motion
(Kapandji 1974, 1982, 1987; Potter 1986)

**Neck**
- Extension 55° ........................................... Try to point up with chin.
- Flexion 40° ........................................... Touch sternum with chin.
- Lateral bending 35° .................................... Bring ear close to shoulder.
- Rotation 70° left and right ......................... Turn head far to the left, then right.

**Lumbar Spine**
- Extension 30° ........................................... Bend backward.
- Flexion 60° ........................................... Bend forward at the waist.
- Lateral bending 20° ................................... Bend to the side.

**Shoulder**
- Abduction 180° ........................................ Bring arm sideways up.
- Adduction 30°-45° .................................... Bring arm toward the midline of the body.
- Horizontal extension 30°-40° ....................... Swing arm horizontally backward.
- Horizontal flexion 130° .............................. Swing arm horizontally forward.
- Vertical extension 45°-50° ........................... Raise arm straight backward.
- Vertical flexion 180° ................................... Raise arm straight forward.
- External rotation 80° .................................. Bend arm and move forearm away from abdomen.
- Internal rotation 110° ................................ Bend arm and bring forearm behind and away from back.

**Elbow**
- Extension 180° ........................................ Straighten out lower arm.
- Flexion 150° ........................................... Bring lower arm to the biceps.
- Pronation 80°-85° .................................... Turn lower arm so palm faces down.
- Supination 90° ........................................... Turn lower arm so palm of the hand faces up.

**Wrist**
- Extension 70° ........................................... Bend wrist so back of hand nears outer surface of lower arm.
- Flexion 80°-90° ........................................ Bend wrist so palm nears inner surface of lower arm.
- Radial deviation 15° ................................... Bend wrist so thumb nears radius.
- Ulnar deviation 30°-50° .............................. Bend wrist so small finger nears ulna.

**Hip**
- Extension 30° ........................................... Move thigh backward without moving pelvis.
- Flexion 110°-130° .................................... Flex knee and bring thigh close to abdomen.
- Abduction 45° ........................................... Swing thigh away from midline.
- Adduction 30° ........................................... Bring thigh toward and across the midline.
- External rotation 45° ................................. Flex knee. Swing lower leg toward midline.
- Internal rotation 40° .................................. Flex knee. Swing lower leg away from midline.

**Knee**
- Extension 5°-10° beyond 180° ..................... Straighten out knee as much as possible.
- Flexion 160° ........................................... Touch calf to hamstring.

**Ankle**
- Extension (Dorsiflexion) 20° ....................... Bend ankle so toes point up.
- Flexion (Plantar flexion) 45° ....................... Bend ankle so toes point down.
- Eversion 20° ........................................... Turn foot so the sole faces out.
- Inversion 30° ........................................... Turn foot so the sole faces in.
Bibliography


