



KNEE: EXTENSION/FLEXION - SEATED

Axis of Rotation:
The most accurate fixed axis for rehab or testing of the knee is a line passing transversely through the femoral condyles.

Parts Needed:
Contralateral Limb Stabilizer
Knee/Hip Adapter
Knee/Hip Pad
Lumbar Cushion



KNEE: EXTENSION/FLEXION - PRONE

Axis of Rotation:
The most accurate fixed axis for rehab or testing of the knee is a line passing transversely through the femoral condyles.

Parts Needed:
Knee/Hip Adapter
Knee/Hip Pad



KNEE: TIBIAL INTERNAL / EXTERNAL ROTATION

Axis of Rotation:
The axis of rotation is slightly medial to the longitudinal axis of the tibia. This can be visualized, approximated and then fine adjusted during warm up/familiarization repetitions.

Parts Needed:
Ankle Adapter
Footplate
Thigh Stabilizer Pad
Thigh/Forearm Stabilizer Tube
Footrest



ANKLE: PLANTAR / DORSIFLEXION - PRONE

Axis of Rotation:
The axis of rotation passes obliquely (approximately 16° anteromedially) through the tip of the fibula (lateral malleolus) and the trochlea of the talus, exiting just distal to the tip of the tibia (medial malleolus).

Parts Needed:
Ankle Adapter
Footplate



ANKLE: PLANTAR / DORSIFLEXION - SUPINE

Axis of Rotation:
The axis of rotation passes obliquely (approximately 16° anteromedially) through the tip of the fibula (lateral malleolus) and the trochlea of the talus, exiting just distal to the tip of the tibia (medial malleolus).

Parts Needed:
Ankle Adapter
Footplate
Footrest
Thigh Stabilizer Pad
Thigh/Forearm Stabilizer
Counterbalance Weight



ANKLE: INVERSION / EVERSION

Axis of Rotation:
The axis is compound and changes throughout range of motion of the talocrural joint, talocalcaneal joint, and talonavicular/calcaneonavicular or transverse tarsal joint.

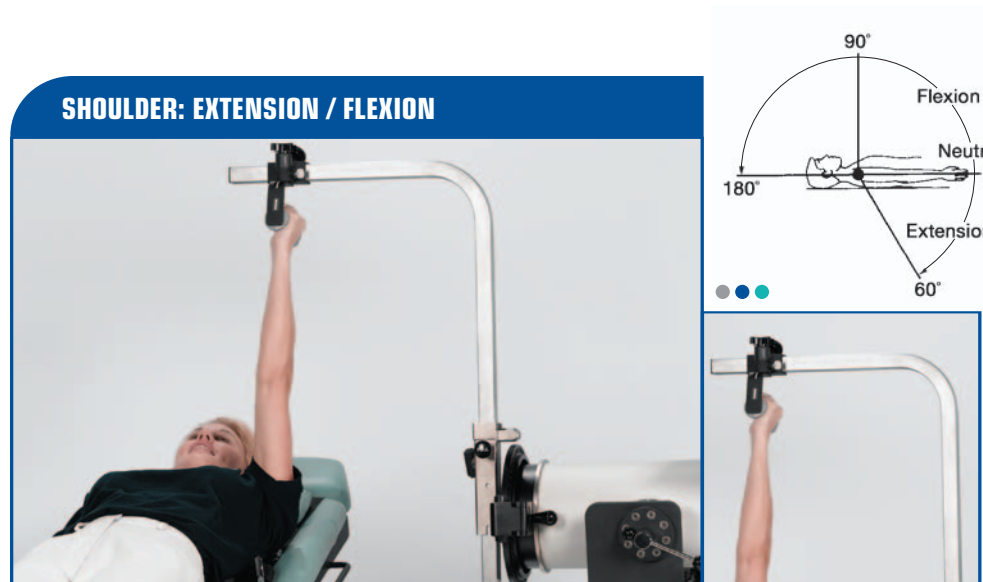
Parts Needed:
Ankle Adapter
Footplate
Thigh Stabilizer Pad
Thigh/Forearm Stabilizer Tube
Footrest



SHOULDER: ABDUCTION / ADDUCTION

Axis of Rotation:
The instantaneous axis of rotation changes throughout the movement. The compromise axis is medial to the acromion process when the limb is in the neutral position.

Parts Needed:
Elbow/Shoulder Adapter
Footrest
Lumbar Cushion



SHOULDER: EXTENSION / FLEXION

Axis of Rotation:
The instantaneous axis of rotation changes throughout the movement. The compromise axis is medial to the acromion process when the limb is in the neutral position.

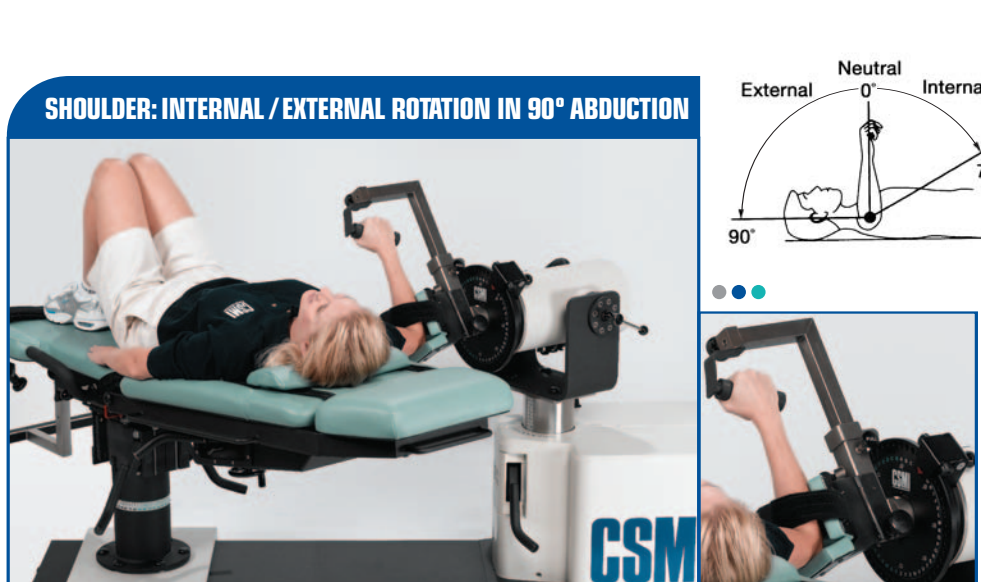
Parts Needed:
Elbow/Shoulder Adapter
Footrest



SHOULDER: HORIZONTAL ABDUCTION / ADDUCTION

Axis of Rotation:
The instantaneous axis of rotation changes throughout the movement. The compromise axis is medial to the acromion process when the limb is in 90° horizontal abduction.

Parts Needed:
Elbow/Shoulder Adapter
Footrest
Torso Belt



SHOULDER: INTERNAL / EXTERNAL ROTATION IN 90° ABDUCTION

Axis of Rotation:
The axis of rotation is the longitudinal axis of the humerus.

Parts Needed:
Wrist/Shoulder Adapter
Elbow Stabilizer Pad
Torso Belt
Footrest



SHOULDER: INTERNAL / EXTERNAL ROTATION, MOD-STANDING

Axis of Rotation:
The axis of rotation is the longitudinal axis of the humerus.

Parts Needed:
Wrist/Shoulder Adapter
Elbow Stabilizer Pad



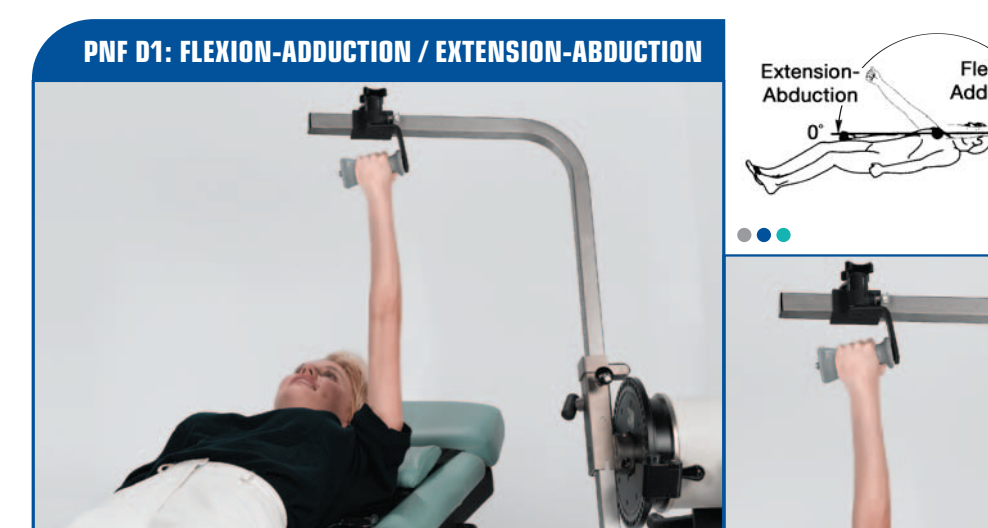
SHOULDER: INTERNAL / EXTERNAL ROTATION, MOD-SEATED

Axis of Rotation:
The axis of rotation is the longitudinal axis of the humerus.

Parts Needed:
Wrist/Shoulder Adapter
Elbow Stabilizer Pad
Lumbar Cushion

HUMAC NORM[®]

TESTING & REHABILITATION SYSTEM



PNF D1: FLEXION-ADDUCTION / EXTENSION-ABDUCTION

Axis of Rotation:
The instantaneous axis of rotation changes throughout the movement. The compromise axis is medial to the acromion process when the limb is in the neutral position. The motion for this pattern begins in full Extension-Abduction and moves to full Flexion-Adduction, the limb should be supinated and externally rotated.

Parts Needed:
Elbow/Shoulder Adapter
Footrest



PNF D2: FLEXION-ABDUCTION / EXTENSION-ADDUCTION

Axis of Rotation:
The instantaneous axis of rotation changes throughout the movement. The compromise axis is medial to the acromion process when the limb is in the neutral position. The motion for this pattern begins in full Extension-Adduction and moves to full Flexion-Abduction. In order to attain full Extension-Adduction, the limb should be pronated and internally rotated.

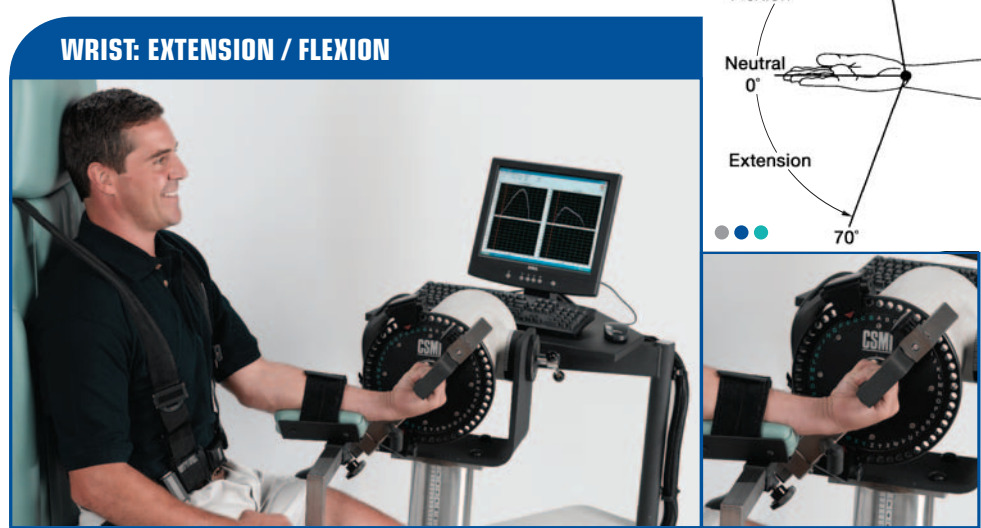
Parts Needed:
Elbow/Shoulder Adapter
Footrest
Torso Belt



FOREARM: PRONATION / SUPINATION

Axis of Rotation:
The axis of rotation bisects the head of the ulna distally and the head of the radius proximally. It is established by placing the forearm directly in line with the dot on the dynamometer input tube at approximately the level of the ring finger.

Parts Needed:
Thigh/Forearm Stabilizer Tube
Forearm Stabilizer V-Pad
Wrist/Shoulder Adapter
Lumbar Cushion
Counterbalance Weight



WRIST: EXTENSION / FLEXION

Axis of Rotation:
This axis alignment is critical and somewhat difficult in the pattern. The axis of rotation is slightly oblique passing through the wrist just distal to the tubercle of the radius and the head of the ulna (approximately where the hand meets the wrist).

Parts Needed:
Thigh/Forearm Stabilizer Tube
Forearm Stabilizer V-Pad
Wrist/Shoulder Adapter
Lumbar Cushion



WRIST: RADIAL / ULNAR DEVIATION

Axis of Rotation:
The axis of rotation is located approximately at the center of the capitate bone. This is found at the middle of the wrist just distal to the axis for extension/flexion.

Parts Needed:
Thigh/Forearm Stabilizer Tube
Forearm Stabilizer V-Pad
Wrist/Shoulder Adapter
Lumbar Cushion



ELBOW: EXTENSION / FLEXION

Axis of Rotation:
The axis of rotation is immediately distal to the lateral epicondyle and moves only slightly anteriorly as flexion increases.

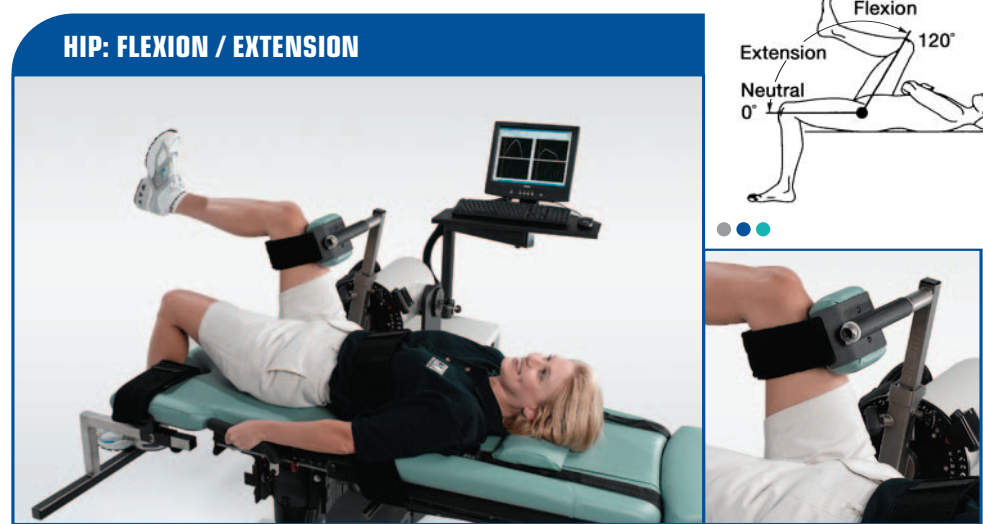
Parts Needed:
Elbow/Shoulder Adapter
Footrest
Lumbar Cushion



HIP: ABDUCTION / ADDUCTION

Axis of Rotation:
The axis of rotation is superior and medial to the greater trochanter.

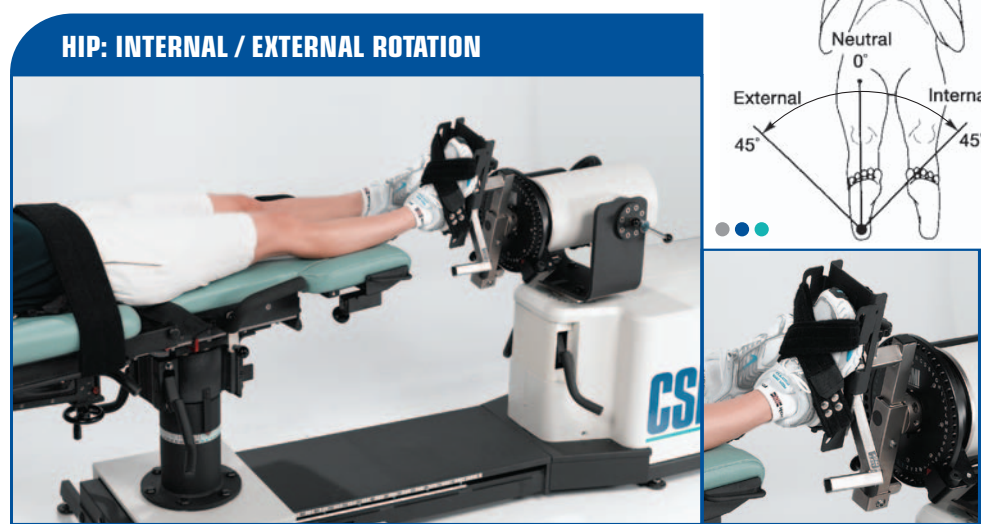
Parts Needed:
Knee/Hip Adapter
Knee/Hip Pad



HIP: FLEXION / EXTENSION

Axis of Rotation:
The axis of rotation is slightly anterior in extreme flexion as the pelvis tilts to increase range of motion. The normal movement synergy does not affect testing accuracy.

Parts Needed:
Knee/Hip Adapter
Knee/Hip Pad
Footrest



HIP: INTERNAL / EXTERNAL ROTATION

Axis of Rotation:
The axis of rotation is a mechanical axis of the femur (line through centers of hip and knee joints). This can be visualized, approximated and then fine adjusted during warm up/familiarization repetitions.

Parts Needed:
Ankle Adapter
Footplate
Footrest



TRUNK: FLEXION / EXTENSION

Axis of Rotation:
The axis of rotation is located at the L5-S1 level. To align the axis: Vertically - adjust the footplates until the axis alignment pointer on the unit is approximately 11" distal to the iliac crest. Horizontally - have the patient lean against the rear pad. Adjust fore/aft position until the axis alignment pointer intersects the mid-sagittal line and L5-S1.

Parts Needed:
TEF Modular Component



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