

# System 4

## PRO & MVP

*"The Clinical Advantage"™*

# SUPERIOR TESTING, TRAINING & TREATMENT POSSIBILITIES

*Biodex... the leader in neuromuscular evaluation & therapeutic exercise*

<p><b>KNEE</b> EXTENSION/FLEXION</p> <p>Compromise axis is a line drawn through the lateral femoral condyle in the sagittal plane.</p> <p>Away: Extension Toward: Flexion Ready Position: Full Flexion</p> <p>ATTACHMENT: KNEE ATTACHMENT DYNAMOMETER ORIENTATION: 90° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 90°</p>	<p><b>ANKLE</b> EVERSION/INVERSION</p> <p>Axis of rotation passes through the fibular malleolus and the body of the talus at an angle of 35°.</p> <p>Away: Eversion Toward: Inversion Ready Position: Full Inversion (30 - 45° Knee Flexion)</p> <p>ATTACHMENT: ANKLE ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 50 to 70° (Shaft up) SEAT ORIENTATION: 90°</p>	<p><b>ANKLE</b> PLANTAR/DORSIFLEXION</p> <p>In neutral position, axis of rotation passes through the body of talus, fibular malleolus, and through or just below the tibial malleolus.</p> <p>Away: Plantarflexion Toward: Dorsiflexion Ready Position: Full Dorsiflexion (20 - 30° Knee Flexion)</p> <p>ATTACHMENT: ANKLE ATTACHMENT DYNAMOMETER ORIENTATION: 90° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 90°</p>	<p><b>CLOSED CHAIN</b> KNEE, ANKLE, HIP EXTENSION/FLEXION</p> <p>Motion is towards and away from body. Ankle, knee and hip flexion is varied by changing dynamometer height, moving patient closer or further from the dynamometer, or changing seat back angle.</p> <p>Away: Extension Toward: Flexion Ready Position: Full Flexion</p> <p>ATTACHMENT: CLOSED CHAIN ATTACHMENT WITH FOOTPLATE AND HEEL SUPPORT DYNAMOMETER ORIENTATION: 90° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 90°</p>
<p><b>SHOULDER</b> EXTERNAL/INTERNAL ROTATION (MODIFIED NEUTRAL POSITION)</p> <p>Axis alignment is longitudinal through the head of the shaft of the humerus in a horizontal plane.</p> <p>Away: External Rotation Toward: Internal Rotation Ready Position: Full Internal Rotation</p> <p>ATTACHMENT: ELBOW/SHOULDER ATTACHMENT WITH CUFF DYNAMOMETER ORIENTATION: 20° DYNAMOMETER TILT: 50° SEAT ORIENTATION: 15°</p>	<p><b>SHOULDER</b> FLEXION/EXTENSION</p> <p>Compromise axis is acromion process in the sagittal plane.</p> <p>Away: Flexion Toward: Extension Ready Position: Full Extension</p> <p>ATTACHMENT: SHOULDER/ELBOW ADAPTER (REMOVE CUFF) WITH SHOULDER ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 15°</p>	<p><b>SHOULDER</b> ABDUCTION/ADDUCTION</p> <p>Axis of rotation approximates the axis of the acromioclavicular joint, which connects the distal end of the clavicle to the anterior medial portion of the acromion process.</p> <p>Away: Abduction Toward: Adduction Ready Position: Full Adduction</p> <p>ATTACHMENT: SHOULDER/ELBOW ADAPTER (REMOVE CUFF) WITH SHOULDER ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 10° SEAT ORIENTATION: 75°</p>	<p><b>SHOULDER</b> DIAGONAL (SEATED)</p> <p>Compromise axis is off axis through the glenohumeral joint.</p> <p>Away: Flexion Toward: Extension Ready Position: Full Extension</p> <p>ATTACHMENT: SHOULDER/ELBOW ADAPTER (REMOVE CUFF) WITH SHOULDER ATTACHMENT DYNAMOMETER ORIENTATION: 30° DYNAMOMETER TILT: 10 - 35° SEAT ORIENTATION: 90°</p>
<p><b>ELBOW</b> EXTENSION/FLEXION</p> <p>Axis of rotation passes through the center of the trochlea and the capitulum, bisecting the longitudinal axis of the shaft of the humerus.</p> <p>Away: Extension Toward: Flexion Ready Position: Full Flexion</p> <p>ATTACHMENT: ELBOW/SHOULDER ATTACHMENT (REMOVE CUFF) DYNAMOMETER ORIENTATION: 30° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 0°</p>	<p><b>WRIST</b> EXTENSION/FLEXION</p> <p>Axis of rotation lies between the proximal row of the carpal, at the capitate bone, and the radius at the radiocarpal joint.</p> <p>Away: Extension Toward: Flexion Ready Position: Full Flexion</p> <p>ATTACHMENT: WRIST ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 0°</p>	<p><b>WRIST</b> RADIAL/ULNAR DEVIATION</p> <p>Axis of rotation is the approximate center of the capitate bone if viewed from the palmar surface of the hand.</p> <p>Away: Radial Deviation Toward: Ulnar Deviation Ready Position: Full Ulnar Deviation</p> <p>ATTACHMENT: WRIST ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 0°</p>	<p><b>FOREARM</b> SUPINATION/PRONATION</p> <p>Axis of rotation is the longitudinal line through the center of the head of the radius proximally, and through the center of the head of the ulna distally.</p> <p>Away: Supination Toward: Pronation Ready Position: Full Pronation</p> <p>ATTACHMENT: WRIST ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 5° SEAT ORIENTATION: 90°</p>
<p><b>HIP</b> FLEXION/EXTENSION (SIDELYING POSITION)</p> <p>Axis of rotation is superior and anterior to the greater trochanter when the limb is in neutral position.</p> <p>Away: Flexion Toward: Extension Ready Position: Extension</p> <p>ATTACHMENT: HIP ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 0°</p>	<p><b>HIP</b> ABDUCTION/ADDUCTION (SUPINE POSITION)</p> <p>Axis of rotation is the anterior superior iliac spine.</p> <p>Away: Abduction Toward: Adduction Ready Position: Full Adduction</p> <p>ATTACHMENT: HIP ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 0°</p>	<p><b>UE HEMIPARETIC ATTACHMENTS</b></p> <p>SHOULDER EXTENSION/FLEXION    SHOULDER ABDUCTION/ADDUCTION    SHOULDER INTERNAL/EXTERNAL ROTATION    ELBOW EXTENSION/FLEXION    WRIST EXTENSION/FLEXION</p>	

**ATTACHMENTS**

- SHOULDER ATTACHMENT FOR INSERTION INTO SHOULDER/ELBOW ADAPTER
- SHOULDER/ELBOW ATTACHMENT FOR INSERTION INTO SHOULDER/ELBOW ADAPTER
- WRIST ATTACHMENT
- KNEE ATTACHMENTS
- COMBINATION ANKLE ATTACHMENT
- HIP ATTACHMENT OPTIONAL FOR MVP
- CLOSED CHAIN ATTACHMENT WITH HANDGRIP (OPTIONAL)
- CLOSED CHAIN ATTACHMENT WITH FOOTPLATE AND HEEL SUPPORT (OPTIONAL)

**WORK SIMULATION TOOLS (OPTIONAL)**

- THREE POINT PREHENSION WITH ROTATION
- SPHERICAL GRASP
- LATERAL PINCH WITH ROTATION
- SCREWDRIVER SIMULATOR
- PRECISION PINCH WITH ROTATION
- SPEEDER WRENCH SIMULATOR
- UPPER EXTREMITY WHEEL
- PREHENSION WITH PARALLEL GRIP
- UPPER EXTREMITY WRENCH

Watch setup and positioning videos



[www.biodex.com/videos/mjs-setup](http://www.biodex.com/videos/mjs-setup)

The chart above shows just some of the more common patterns and applications possible with the Biodex System 4. For additional information visit our YouTube channel, refer to your manual or visit [www.biodex.com/system4](http://www.biodex.com/system4). Questions? Contact our Clinical Education Department at 800-224-6339 (Int'l 631-924-9000) or Email: [clined@biodex.com](mailto:clined@biodex.com).



# BIODEX

## System 4 PRO & MVP



# System 4

## QUICK-SET

*"The Clinical Advantage"*<sup>TM</sup>

# SUPERIOR TESTING, TRAINING & TREATMENT POSSIBILITIES

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<p><b>KNEE</b> EXTENSION/FLEXION</p> <p>Compromise axis is a line drawn through the lateral femoral condyle in the sagittal plane.</p> <p><b>Away:</b> Extension <b>Toward:</b> Flexion <b>Ready Position:</b> Full Flexion</p> <p>ATTACHMENT: KNEE ATTACHMENT DYNAMOMETER ORIENTATION: 45° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 45°</p>	<p><b>ANKLE</b> EVERSION/INVERSION</p> <p>Axis of rotation passes through the fibular malleolus and the body of the talus at an angle of 35°.</p> <p><b>Away:</b> Eversion <b>Toward:</b> Inversion <b>Ready Position:</b> Full Inversion (30 - 45° Knee Flexion)</p> <p>ATTACHMENT: ANKLE ATTACHMENT DYNAMOMETER ORIENTATION: 0° DYNAMOMETER TILT: 50 to 70° (Shaft up) SEAT ORIENTATION: 90°</p>	<p><b>ANKLE</b> PLANTAR/DORSIFLEXION</p> <p>In neutral position, axis of rotation passes through the body of talus, fibular malleolus, and through or just below the tibial malleolus.</p> <p><b>Away:</b> Plantarflexion <b>Toward:</b> Dorsiflexion <b>Ready Position:</b> Full Dorsiflexion (20 - 30° Knee Flexion)</p> <p>ATTACHMENT: ANKLE ATTACHMENT DYNAMOMETER ORIENTATION: 65° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 60°</p>	<p><b>CLOSED CHAIN</b> KNEE, ANKLE, HIP EXTENSION/FLEXION</p> <p>Motion is towards and away from body. Ankle, knee and hip flexion is varied by changing dynamometer height, moving patient closer or further from the dynamometer, or changing seat back angle.</p> <p><b>Away:</b> Extension <b>Toward:</b> Flexion <b>Ready Position:</b> Full Flexion</p> <p>ATTACHMENT: CLOSED CHAIN ATTACHMENT WITH FOOTPLATE AND HEEL SUPPORT DYNAMOMETER ORIENTATION: 45° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 45°</p>
<p><b>SHOULDER</b> EXTERNAL/INTERNAL ROTATION (MODIFIED NEUTRAL POSITION)</p> <p>Axis alignment is longitudinal through the head of the shaft of the humerus in a horizontal plane.</p> <p><b>Away:</b> External Rotation <b>Toward:</b> Internal Rotation <b>Ready Position:</b> Full Internal Rotation</p> <p>ATTACHMENT: ELBOW/SHOULDER ATTACHMENT WITH CUFF DYNAMOMETER ORIENTATION: 20° DYNAMOMETER TILT: 30° - 50° SEAT ORIENTATION: 15°</p>	<p><b>SHOULDER</b> FLEXION/EXTENSION</p> <p>Compromise axis is acromion process in the sagittal plane.</p> <p><b>Away:</b> Flexion <b>Toward:</b> Extension <b>Ready Position:</b> Full Extension</p> <p>ATTACHMENT: SHOULDER/ELBOW ADAPTER (REMOVE CUFF) WITH SHOULDER ATTACHMENT DYNAMOMETER ORIENTATION: 25° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 15°</p>	<p><b>SHOULDER</b> ABDUCTION/ADDUCTION</p> <p>Axis of rotation approximates the axis of the acromioclavicular joint, which connects the distal end of the clavicle to the anterior medial portion of the acromion process.</p> <p><b>Away:</b> Abduction <b>Toward:</b> Adduction <b>Ready Position:</b> Full Adduction</p> <p>ATTACHMENT: SHOULDER/ELBOW ADAPTER (REMOVE CUFF) WITH SHOULDER ATTACHMENT DYNAMOMETER ORIENTATION: 10° DYNAMOMETER TILT: 10° SEAT ORIENTATION: 75°</p>	<p><b>SHOULDER</b> DIAGONAL (SEATED)</p> <p>Compromise axis is off axis through the glenohumeral joint.</p> <p><b>Away:</b> Flexion <b>Toward:</b> Extension <b>Ready Position:</b> Full Extension</p> <p>ATTACHMENT: SHOULDER/ELBOW ADAPTER (REMOVE CUFF) WITH SHOULDER ATTACHMENT DYNAMOMETER ORIENTATION: 30° DYNAMOMETER TILT: 10 - 35° SEAT ORIENTATION: 60°</p>
<p><b>ELBOW</b> EXTENSION/FLEXION</p> <p>Axis of rotation passes through the center of the trochlea and the capitulum, bisecting the longitudinal axis of the shaft of the humerus.</p> <p><b>Away:</b> Extension <b>Toward:</b> Flexion <b>Ready Position:</b> Full Flexion</p> <p>ATTACHMENT: ELBOW/SHOULDER ATTACHMENT (REMOVE CUFF) DYNAMOMETER ORIENTATION: 15° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 15°</p>	<p><b>WRIST</b> EXTENSION/FLEXION</p> <p>Axis of rotation lies between the proximal row of the carpal, at the capitate bone, and the radius at the radiocarpal joint.</p> <p><b>Away:</b> Extension <b>Toward:</b> Flexion <b>Ready Position:</b> Full Flexion</p> <p>ATTACHMENT: WRIST ATTACHMENT DYNAMOMETER ORIENTATION: 25° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 15°</p>	<p><b>WRIST</b> RADIAL/ULNAR DEVIATION</p> <p>Axis of rotation is the approximate center of the capitate bone if viewed from the palmar surface of the hand.</p> <p><b>Away:</b> Radial Deviation <b>Toward:</b> Ulnar Deviation <b>Ready Position:</b> Full Ulnar Deviation</p> <p>ATTACHMENT: WRIST ATTACHMENT DYNAMOMETER ORIENTATION: 25° DYNAMOMETER TILT: 0° SEAT ORIENTATION: 15°</p>	<p><b>FOREARM</b> SUPINATION/PRONATION</p> <p>Axis of rotation is the longitudinal line through the center of the head of the radius proximally, and through the center of the head of the ulna distally.</p> <p><b>Away:</b> Supination <b>Toward:</b> Pronation <b>Ready Position:</b> Full Pronation</p> <p>ATTACHMENT: WRIST ATTACHMENT DYNAMOMETER ORIENTATION: 30° DYNAMOMETER TILT: 5° SEAT ORIENTATION: 60°</p>

<p><b>ATTACHMENTS</b></p> <p>SHOULDER ATTACHMENT FOR INSERTION INTO SHOULDER/ELBOW ADAPTER</p>	<p><b>WORK SIMULATION TOOLS (OPTIONAL)</b></p> <p>THREE POINT PREHENSION WITH ROTATION</p>
<p>SHOULDER/ELBOW ATTACHMENT FOR INSERTION INTO SHOULDER/ELBOW ADAPTER</p>	<p>SPHERICAL GRASP</p>
<p>WRIST ATTACHMENT</p>	<p>LATERAL PINCH WITH ROTATION</p>
<p>KNEE ATTACHMENTS</p>	<p>SCREWDRIVER SIMULATOR</p>
<p>COMBINATION ANKLE ATTACHMENT</p>	<p>PRECISION PINCH WITH ROTATION</p>
<p>HIP ATTACHMENT FOR INSERTION INTO KNEE ADAPTER (OPTIONAL)</p>	<p>SPEEDER WRENCH SIMULATOR</p>
<p>CLOSED CHAIN ATTACHMENT WITH HANDGRIP (OPTIONAL)</p>	<p>UPPER EXTREMITY WHEEL</p>
<p>CLOSED CHAIN ATTACHMENT WITH FOOTPLATE AND HEEL SUPPORT (OPTIONAL)</p>	<p>PREHENSION WITH PARALLEL GRIP</p>
	<p>UPPER EXTREMITY WRENCH</p>



**UE HEMIPARETIC ATTACHMENTS**

<p>SHOULDER EXTENSION/FLEXION</p>	<p>SHOULDER ABDUCTION/ADDUCTION</p>	<p>SHOULDER INTERNAL/EXTERNAL ROTATION</p>	<p>ELBOW EXTENSION/FLEXION</p>	<p>WRIST EXTENSION/FLEXION</p>
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The chart above shows just some of the more common patterns and applications possible with the Biodex System 4. For additional information visit our YouTube channel, refer to your manual or visit [www.biodex.com/system4](http://www.biodex.com/system4). Questions? Contact our Clinical Education Department at 800-224-6339 (Int'l 631-924-9000) or Email: [clined@biodex.com](mailto:clined@biodex.com).

# BIODEX

## System 4 QUICK-SET

