

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



# UE Hemiparetic Attachments

Upper extremity strengthening for physical limitations  
using the Biodex Multi-Joint System



## Expand the use of your Dynamometer

New specialized hemiparetic upper  
extremity attachments promote neuro  
recovery and improve strength.

[www.biodex.com/s4/ue](http://www.biodex.com/s4/ue)



**Multi-Joint System** Upper Extremity  
Strength Training for Hemiparesis

# BIODEX

[www.biodex.com](http://www.biodex.com)  
**1-800-224-6339**

Int'l 631-924-9000

# UE Hemiparetic Attachments

Specifically designed for patients with physical limitations of the upper extremity

## FEATURES:

- **Shoulder patterns** – promotes desired musculoskeletal joint kinetics, reducing risk of shoulder impingement-type symptoms
- **Wrist and elbow patterns** – are executed in a non-gravity dependent plane to accommodate the low strength typical of hemiparetic patients
- **Integrated ROM stop and lock knob** – allows the same attachments to be used for right and left side, without having to remove from dynamometer head
- **Gripless designs** – accommodate weakness
- **Soft and gentle straps and pads** – for sensitive skin
- **Lightweight and durable** – constructed of carbon fiber



UE Hemiparetic Attachments accommodate the impaired grasp associated with hemiplegia.

## Physical impairments cause functional deficits

Upper extremity hemiparesis is a persistent physical impairment that affects the motor control system, often limiting independence. Prominent manifestations of compromised motor control include:

- Impaired intersegmental coordination
- Hyperreflexia or spasticity
- Weakness

## Current methods of rehabilitation overlook upper extremity weakness

Weakness results primarily from disorganized neuro-motor output and is one of the most significant post-stroke impairments. In fact, weakness plays more of a role than traditionally believed and contributes directly to compromised, post-stroke motor function.

## Lack of proper strength training underserves the patient

Typical strengthening approaches use resistance bands such as TheraBand™. Unfortunately, because this method does not ensure sufficient intensity or progression of the strengthening activities required to achieve necessary overload, hemiparetic patients seldom show improved function. In addition, trunk stabilization is often not properly addressed, which promotes compensatory movement patterns.



It's important to note that neither high exertion nor resistance training exacerbates spasticity. Therapeutic outcomes are improved when the motor capacity is enhanced prior to engaging in repetitive task practice.

*Therapeutic intervention using neuromechanical capacity (strength) in the repetitive practice of close-to-normal movements can directly address weakness and effectively restore motor control.*

## Exploring post-stroke upper extremity strength

Lower extremity resistance exercise, more commonly prescribed post stroke, has demonstrated improvement in functional tasks for rising from a chair, walking and stair climbing. Increasing strength for the upper extremity in hemiparetic patients has only recently been studied.

## Strengthening Hemiparetic Patients with Biodex Multi-Joint System

The **NEW** Upper Extremity Hemiparetic Attachments combine traditional functional task activities with dynamic-resistance training (power training) of isolated joint, and eccentric and concentric training on the Biodex Multi-Joint System. These specialized attachments accommodate the impaired grasp associated with hemiplegia.

The Biodex dynamometer affords control over many relevant training parameters. The end result:

- Positive functional outcomes
- Increased strength and joint power
- Improved reflex modulation
- Better retention of treatment effects
- No risk of exacerbating spasticity, joint pain or injury

Specific joint patterns for elbow, wrist and shoulder, along with a six-week rehabilitation program, are outlined on the Biodex website. For details, [www.biodex.com/s4/ue](http://www.biodex.com/s4/ue).



*Shoulder Extension/Flexion*



*Shoulder Abduction/Adduction*



*Shoulder Internal/External Rotation*



*Elbow Extension/Flexion*



*Wrist Extension/Flexion*

### Advantages of carbon-fiber composite:

- Approximately five times lighter than stainless steel.
- Proven biocompatibility suppresses the risk of allergic reactions caused by the release of metal ions.
- Pleasant to the touch.

### Combined Functional Task Practice and Dynamic High Intensity Resistance Training Promotes Recovery of Upper-Extremity Motor Function in Post-Stroke Hemiparesis: A Case Study

Carolynn Patten, PT, PhD;  
Jody Dozono, MPT;  
Stephen G. Schmidt, PT, OCS;  
Mary E. Jue, MSPT;  
Peter S. Lum, PhD



Read the full study

[www.biodex.com/research/ue135/16364](http://www.biodex.com/research/ue135/16364)

#### SPECIFICATIONS:

- Warranty: One year parts and labor, excluding pads and straps which are 60 days.

**830-540** UE Hemiparetic Attachments  
Set includes the following:

Attachment for Patterns:

- Extension/Flexion (Shoulder)
- Abduction/Adduction (Shoulder)

Attachment for Patterns:

- Internal/External Rotation (Shoulder)
- Extension/Flexion (Elbow)

Attachment for Patterns:

- Extension/Flexion (Wrist)

*Biodex Upper Extremity Hemiparetic Attachments are compatible with Biodex System 3 and System 4, Pro, MVP and Quick-Set models.*



*Identify, treat and document the physical impairments  
that cause functional limitations.*

[www.biodex.com/s4/ue](http://www.biodex.com/s4/ue)

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