M600 Exercise Kit

The **M600** is designed for:

- Orthopedic and Neurological Rehabilitation
- Lower Extremity Exercise
- Hand and Upper Extremity Exercise
- Head, Face, Neck & Back Exercise

Innovative Technology for exercise of individual fingers, the hand, upper extremity, lower extremity, head, neck and back. The M600 Exercise Kit consists of the Myo-EX and AngleX sensors.

Myo-EX uses a novel application of surface EMG for exercise and biofeedback. **AngleX** provides unique active exercise against gravity.

The **M600** has a wide spectrum of applications throughout the rehabilitation process - starting as soon as a patient recovers any voluntary muscle control through to strengthening of professional athletes.

Myo-EX

Myo-EX uses surface EMG for unique computerized exercise, biofeedback, muscle re-education and motor control.

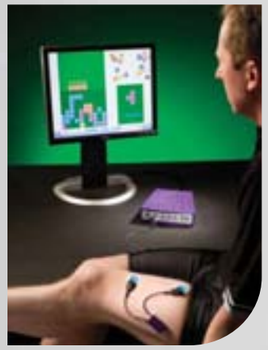
- Upper & Lower Extremities, head, face, neck and back
- May be used as soon as the patient has any voluntary muscle control
- Used throughout the rehabilitation process
- Easy & quick to set up
- Uses the electrical activity generated by a muscle contraction to control the activities
- Responds to muscle activity with or without joint movement
- Variety of activities to encompass the range of muscle function – from gross activity (contract and relax) to fine control
- Precision sensor is designed to give superb quality of signal with little or no skin preparation needed
- Full scale 0-3000 microvolts
- Two styles of pre-amplifiers – GX3 with integral electrodes, GX4 for use with disposable electrodes

When a muscle contracts electrical activity is generated within the muscle that may be measured using electrodes placed on the surface of the skin. This electrical signal is usually in the order of up to 3000 microvolts and is referred to as electromyography or EMG.

The electrical activity produced by the muscle is used to control the Activity Modules in the **E-LINK** software – providing a truly novel application for biofeedback and muscle re-education. Easily adjusted parameters enable use with a wide range of patients – from those extremely debilitated through to professional athletes.

While the full scale is 0 to 3000 microvolts, neuro patients have successfully used the **Myo-EX** with as little as 4 micro volts of muscle activity. For example:

***Jane X,** a 63 year old stroke patient with a left sided hemiplegia, 3 weeks post stroke. Jane had no joint movement and no visible muscle contraction in the forearm. The **Myo-EX** GX3 sensor was placed over the Extensor carpi ulnaris muscle and 4 microvolts of EMG was registered as the maximum in the **Myo-EX** set up screen. Using the Monkeys Activity Module with the range set as minimum 0 microvolts and maximum 4 microvolts, Jane was able to begin working on muscle control. The patient was greatly encouraged by the visible response of the **E-LINK** activity software to any small amount of muscle contraction, even if she was not always able to reach the maximum setting of 4 microvolts. In these instances the monkey would climb part way up the tree, but not reach the top.*



Within Orthopedic settings, the **Myo-EX** has been used very effectively for large muscle strengthening. For example:

***Tom S,** a 33 year old construction worker and weekend athlete, sustained a knee injury requiring surgery. Due to immobilization of the joint after surgery, Tom had decreased knee joint range of motion and some atrophy of the thigh muscles. The **Myo-EX** GX4 sensor was placed over the Quadriceps femoris muscle and 1853 microvolts of EMG was registered as the maximum in the **Myo-EX** set up screen. The Skateboard Activity Module was set up with the a range of minimum 200 microvolts and maximum 1500 microvolts, the hold time was set as 5 seconds for relaxation and 10 seconds for contraction. This required Tom to extend his knee as far as possible and hold the knee extension for 10 seconds at a time. This was followed by using the Soccer Activity Module, a variable activity, which required Tom to randomly flex and extend his knee to various points, a controlled motor activity. Tom found the Activity Modules very entertaining instead of the repetitive exercises he had done previously.*

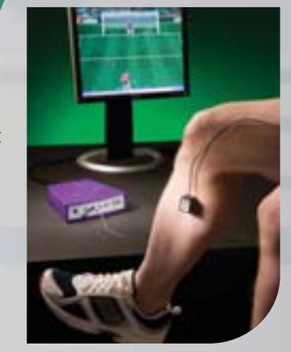
The **Myo-EX** EMG pre amplifier designed and manufactured by Biometrics has been developed with ease of use and superb quality of signal in mind. What this means in practice is that little or no skin preparation and no gels or creams are required, yet the quality of the signal is absolutely superb.

The **Myo-EX** comes with two styles of EMG Pre-amplifiers. The GX3 has integral electrodes and is applied over the body of small or large muscles using the die cut medical grade double sided adhesive tape. The GX4 is designed for use with disposable electrodes having a standard snap connector.

AngleX

AngleX uses unique sensors that respond to active movement against gravity for computerized interactive exercise in orthopedic and neurological rehabilitation.

- Active exercise against gravity
- Upper & Lower Extremities, Neck & Back
- The **AngleX** sensors react to any joint movement against gravity in 1 degree increments
- May be used for isolated joint movements as well as for functional composite movements
- Easy and quick to set up and use



The innovative **AngleX** sensors respond to active movement against gravity, from very small amounts of movement such as lifting a finger off the table through to full range of joint movements. The movements control the objects in the **E-LINK** Activity Modules providing unique interactive exercise and biofeedback.

The **AngleX** sensors are designed to be attached close to the joint to be exercised using double sided tape. The small size and light weight ensure the instrument does not interfere with normal joint movement. **AngleX** sensors come in two sizes. The small NC3 is designed for finger and hand exercises. The larger NC4 is designed for all other movement patterns.

The **M600** Exercise Kit requires the **InterX** Unit as the interface to the computer.

The following movements for exercise are possible:

Hand
- Fingers
  - MCP, PIP, DIP
    - → extension and flexion
    - → individual joints (blocked)
    - → full finger extension/flexion (composite fist)
  - abduction and adduction
- Thumb
  - MCP, IP
    - → extension and flexion
  - CMC
    - → radial abduction
    - → palmer abduction
    - → adduction
  - opposition

Wrist
- extension and flexion
- radial and ulnar deviation

Forearm
- pronation and supination

Elbow
- flexion and extension

Shoulder
- flexion and extension
- abduction and adduction
- internal and external rotation

Hip
- extension and flexion
- abduction and adduction
- internal and external rotation

Knee
- extension and flexion

Ankle
- dorsiflexion and plantarflexion
- inversion and eversion

Neck and Back
- extension and flexion
- lateral flexion – left and right