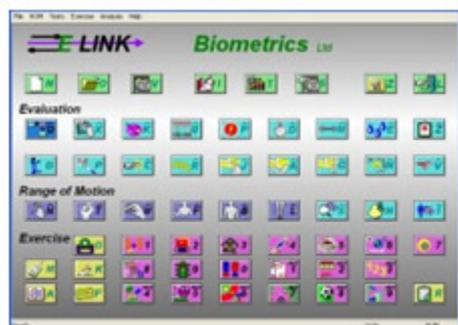


E-LINK

E-LINK Overview



E-Link is an interactive rehabilitation tool developed by Biometrics Ltd. It is a computer based standardized evaluation of the Upper and Lower Extremities. It offers progress reporting over time using scientifically collected data which may also be exported for statistical analysis.

The above screenshot shows the opening interface of the programme. The top row of icons deals with creating patient files, opening previous sessions, printing options and displaying reports.

The evaluation section allows recordings to be carried out for hand and pinch strength. This section also allows the opportunity to record other tests carried out elsewhere, and then saved to the patients file. This includes: sensation tests, manual muscle tests, pain threshold, dexterity tests.

The range of motion offers a user-friendly guide of measuring and recording goniometer readings for both the upper and lower extremities.

The yellow tabs in the exercise section are the tool options used for undertaking the exercises (see summary below). The pink tabs are the actual exercise simulation activities .

Summary of the E-Link exercise and evaluation tools:

1.Upper Limb Exerciser: active resistive upper extremity exercise



The upper limb kit includes a series of tools that individually attach to the purple and green resistance control unit (RCU). These include: spade, cylinder, disc and key tools. Depending on the chosen tool, evaluation of the following can be undertaken: wrist flexion/extension, radial/ulnar deviation; forearm pronation/supination; elbow flexion/extension; shoulder flexion/extension, abduction/adduction, internal/external rotation.

When setting up for exercise evaluation, resistance levels can be adjusted at the rear of the RCU. The chosen activity module (pink blocks on the user interface) can be graded for speed and difficulty. A working range of motion is set before the exercise is run. This is to determine the individuals working parameter ability for undertaking the activity. Statistical data and graphs are displayed upon completion of the exercise. These are then saved to the patient's file for ongoing progress monitoring.

2. Pinch and grip evaluation



The hand kit comprises a dynamometer and pinchmeter. Both can be measured in either kgs or lbs, each with 0.1 increment levels.

Dynamometer tests comprise the following: standard peak force; sustained endurance grip test; rapid exchange test (hand to hand switch). All tests can be repeated and statistical data is presented upon completion of each test.

Pinchmeter tests comprise the following: key, three jaw and tip to tip grip positioning; sustained pinch test. All tests can be repeated and statistical data is presented upon completion of each test.

3. EMG testing (MyoEX) / Anti Gravity Testing (AngleX)



The MyoEX kit uses surface EMG for computerised exercise, biofeedback, muscle re-education. Can be applied to the upper and lower extremities. Uses the electrical activity generated by a muscle contraction to control the set activity in the exercise section. The supplied 'grounding' strap is attached during the testing to combat environmental interference.

The AngleX comprises a cube that, when attached to the upper or lower extremity, reacts to movement against gravity. The sensor reacts against gravity in 1 degree increments. Can be used for isolated joint movements as well as for composite movements. The chosen exercise activity will determine the desired movements.

4. Range of motion kit



Allows the use of electronic goniometer readings for upper and lower extremity ROM. The kit has a small goniometer for measurement of finger and toes, and a larger goniometer for wrist, elbow, shoulder, hip, knee, and ankle measurements. The interface provides 'live feedback' of measurements taken for each joint, and recordings are taken quickly by the press of a button on the goniometer. The data is then saved to the individual patient file.

5. Forceplate



The forceplate system provides an accurate measure of symmetrical weight distribution, stability and sway in two axes simultaneously. Measurements of anterior-posterior and mediolateral sway can be taken over a period of 5, 10, 15, 30 or 60 seconds. These are overlaid and comparisons are made from one session to the next. Up to 10 sessions may be compared simultaneously and analysed in a progress report. Both single axis and multi-axis activities are available. The limits of the patient's stability are measured and these are then used to set the parameters for exercise. The loading/unloading of the ForcePlates controls the Activity. The parameters may be adjusted to grade the exercise to achieve the patient goals. This allows the therapist to determine the degree to which a patient is motivated to move from centre to perform the activity successfully – the higher the percentage, the further the patient must move from centre.

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