DynX®

Electronic Dynamometer & Programmable Exerciser

User's Guide

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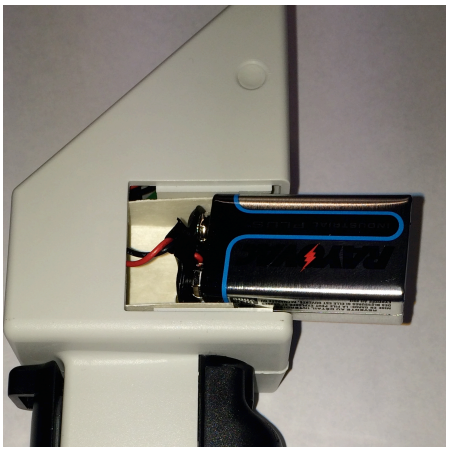
Installing the Battery

Remove the battery cover by sliding it towards the right. Snap in the 9V battery to the clip leads. With the wires facing toward you, slide the battery all the way into the compartment. Re-install the battery cover by sliding it to the left, until it snaps into place.



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Introduction

DynX® is designed for test and exercise of muscle groups.

Tests are provided under a variety of modes, including formats most commonly used to measure ***Max Tests*** of Strength in either Kilograms or Pounds during sequential measurements in, for example, the same hand or in ***Rapid Exchanges*** between the two hands. Each set of measurements automatically provides calculated values for Average, Standard Deviation and Coefficient of Variation to aid attendants in evaluating results. An ***Endurance Test*** allows evaluation of muscle group stamina over time.

Exerciser modes use a series of isometric contractions, which can be specified by the attendant in magnitude of the effort, duration of the effort, length of rest periods between efforts, and repetitions of the efforts. Exercise modes are designed to increase or restore muscle strength. Exercise can be selected between ***Fixed*** or ***Stepped Exercise*** regimens.

Fixed Exercise involves a series of timed efforts spaced by rest periods, all of the efforts being at a fixed level compared to a maximum strength measurement**.** ***Stepped Exercise*** sequences the timed efforts at various levels compared to a maximum strength measurement and then steps the amount of effort to lower levels while expanding the duration of each effort. All efforts are isometric with no change in dimensions between the handles during the efforts, thereby minimizing aggravation of joints and tendons used during these efforts.

Each DynX® device is designed to allow extension of the handle width from 1-7/8 inches to 2-7/8" in ½" increments, allowing Grip Test or Grip Exercise sessions appropriate to users with small, medium or large grip dimensions to utilize the device with comfort. In diagnostic applications, these grip widths may be used to measure grip strength across these standard ranges. Exercise, likewise, may be modified for these three dimensions, as appropriate, to perform exercise across the normal range of grip dimensions.

Two Handle Extenders are provided with the DynX®. They may be attached to either the Front or Back Handle.

Also included with the DynX® is a PC interface cable. This cable allows the DynX software to run on a PC. The PC then shows real-time feedback, as well as allowing the download of archived data from the DynX®. One end of the cable snaps into the COM port of the DynX, and the other end plugs into an available USB port on the PC.

DynX® Device Features

LIQUID CRYSTAL DISPLAY
An easy to read Reflective Liquid Crystal display guides users through the exercise instructions, combined with audio cues. Operational temperature is -20C to +50C.

MENU BUTTON
Allows the user to access a list of functions provided in each DynX.

ON and SELECT BUTTON
Activates the various modes of operation and can be used to turn the device OFF in advance of its automatic turn-off sequence.

FRONT HANDLE
Designed to comfortably fit the palm or fingers of the hand and covers the electronic load cells that measure the force being applied. Attaching a Handle Extender expands the handle width by 1/2 inch.

BATTERY COVER
For easy access to the 9VDC Alkaline high capacity battery offering a battery life of over 6 months when the device is used by one user.

COM PORT
Provided to interface DynX to computer and similar compatible devices for data access and remote monitoring,

REAR HANDLE
Designed round and smooth to maximize the user's comfort and capability to expand the handle width by attaching a Handle Extender.

DURABLE PLASTIC SHELL
Provides high-impact protection for long life, durability, and ease of maintaining instrument cleanliness. The device weighs 0.7 pounds, or 0.3 kilograms.

HANDLE EXTENDER
May be attached to either or both handles to provide adjustable widths from 1-7/8 inches to 2-3/8 inches to 2-7/8 inches, which are the commonly used widths (positions 2, 3, and 4) on hydraulic hand dynamometers.

PC INTERFACE CABLE
The cable plugs into the COM port, and then plugs into a USB port on a PC. Real-time data can be viewed on the PC, as well as the archived data saved in the device.

FEATURES & SPECIFICATIONS

DynX® device provides attendants a means of performing a series of very accurate strength measurements and exercise efforts. Sequences of measurements such as ***Max Test*** and ***Rapid Exchange Test*** yield automatic calculation of Average, Deviation, and Coefficients of Variation related to the series of measurements. ***Endurance Test*** measures time during which a specified Target Force can be applied to the device, and then measures strength decay as a function of time after the Target Force can no longer be maintained and until a point of fatigue is reached. All measurements are stored in memory.

DynX® Exercise regimens may utilize automatically established protocols or customized protocols yielding scored performance. The product's digital display provides menu driven instructions for selecting product configurations, types of measurements, exercise options and user guidance.

DynX® devices measure the user's maximum strength and store this strength into memory as a means of establishing target forces during exercise sessions. A high-speed clock in the DynX® device identifies how well each user complies with the exercise program efforts and rest periods. At the conclusion of an exercise session, the DynX® device evaluates the quality of the exercise and scores the effort on a scale of 0% to 100% so that the user or their attendant can evaluate how well the exercise was accomplished. All set-up parameters and scores are stored at the conclusion of an exercise session, so that results may be later analyzed.

The built-in clock informs users when to begin or end efforts and rest periods using visual instructions on the face of the instrument and with an audible tone. During exercise sessions, effort targets are indicated by a bar graph on the left side of the digital display. The right side of the digital display shows the current score and time remaining for the effort. Time counts are shown in seconds remaining for each effort or rest period. The DynX® is turned off if unused for 5 minutes.

PRODUCT SPECIFICATIONS

Weight	0.5 pounds, 0.2 kg
Size	3.50 x 1.75 x 7.75 inches
Display Type	Reflective Liquid Crystal
Power	9 Volt battery
Load Cell Accuracy	Typically 0.5 pound RMS. Calibration certificate is included with each device
Maximum Load Capacity	200 lbs. center handle, 100 lb. at ends of handle
Handle Width Options	Nominally: 1-7/8, 2-3/8 and 2-7/8 inches
Data communications port	RS232
Operational Temperature Range	+5 deg. C to + 50 deg. C
FCC Compliance	Part 15 FCC Rules
Condition 1	Device may not cause harmful interference
Condition 2	Device must accept interference received

U.S. Patent Nos. 5,398,696; 5,904,639; D403,385 & new applications apply.

CONSIDERATIONS, LIMITATIONS & PRECAUTIONS

DynX® is a device designed for use by professionals in measurement and training of strength conditions using Test and Exercise functions built into the product. As with any such device, these functions and the device itself should be thoroughly studied and understood before use.

Dynamometer Considerations

DynX® functions are structured to enable a series of strength measurements in one muscle group, or by measuring strengths comparatively in two muscle groups during Rapid Exchanges. There are minimal considerations for Limitations and Precautions in these applications.

Handle widths available for test and exercise range from 1-7/8 inches to 2-7/8 inches in ½ inch increments. Handle width considerations include comfort and range of motion for each user. Attendants should decide which widths are appropriate for each user and adjust the width accordingly.

Exercise Considerations

DynX® training protocols offer a Fixed Exercise or a Stepped Exercise, both of which require selection of a number of exercise parameters. For convenience in setting these parameters, DynX® nominates certain parameters after Maximum strength is measured prior to initiating exercise. The attendant should review all settings to insure they are appropriate for the user, prior to starting exercise, and adjust any parameters to those that are appropriate for each user.

After a Fixed or Stepped Exercise protocol has been programmed into the DynX® device, and a user is properly instructed in how to utilize the product to implement exercise, the user may proceed with the exercise session with minimal monitoring. As with any exercise program, those who are physically unsuited to the exercise or who are incapable of following the instructions, for any reason, should not use the device, except under the careful guidance of a professional.

Individuals who utilize the DynX® for hand training must be physically capable of grasping the device and applying a sustained squeezing force, using one hand, for a few minutes at a time**.** The DynX® device is designed for operation by squeezing the device's handle with one hand to apply an isometric force to the handle. Individuals who are unable to apply such a hand squeeze cannot use it effectively.

Effective use of the DynX® for hand conditioning can be realized only if the user is motivated to establish a valid Maximum Voluntary Contraction (Maximum Squeeze Force). The target training levels are generated by properly performing the MAX. <u>Once the user has exerted a maximum squeeze force to the handle for 2 seconds or less, during MAX measurement, there is no need to continue squeezing.</u>

IMPORTANT NOTE

Individuals suffering from acute arthritis or with those afflicted with carpal tunnel limitations should consult their physician for recommendations on suitability of this product before use. Individuals with injuries, impairments or disabilities to the fingers, hand, wrist or arm should not operate the instrument hand efforts or do so only after complete examination and appropriate testing by a physician and/or physical therapist. User limitations, anatomically or physiologically, which prevent them from performing a true MAX, should be reason to stop using this device.

IMPORTANT NOTE

It is very important that the DynX® user squeeze the device with the absolute maximum possible force to set the MAX's so that the desired conditioning is achieved. If lower MAX's are used, the exercise may not produce optimal results.

CAUTION

Unless the DynX® device is used under the close supervision of a physician, anyone who has experienced a known cerebral aneurysm or a severe diabetic retinopathy or exhibits symptoms of these conditions **or is limited from exercise by a cardiologist should NOT perform any exercise, including use of the DynX® training.**

CAUTION

Only a user's own MAX should be used to set target force levels. Each user must establish his or her own Maximum Voluntary Contraction (MAX) to implement the proper training target force. Using someone else's MAX will make the training ineffective or could cause unnecessary stress and fatigue of the user during the exercise sequences.

The exercise program should be used as directed by an attendant. As with any training, extreme muscle fatigue can be detrimental to good muscle tone. Individuals using the DynX® device are cautioned not to exceed prescribed use of the exercise protocols each day. Squeezing on the handle of the device even when the instrument is not turned On, or continuing to exercise with squeezes on the handle after the DynX® instructions reach a rest period, or after the instruction set is completed are not proper uses of this product.

USING THE DynX® DEVICE

Turning DynX® ON, and Power On Calibration Self-Test

Press and release the "Select" push-button. At turn-on the display will identify the model as DynX®.

Starting Up
DynX

If the "Power On, Calibration Self-Test" detects force being applied to the handles, a warning screen will be shown that reads "Power on test: Load detected !" The device will then turn off after 10 seconds. If this occurs, remove any force application to the front handle, and power on again. If the warning is repeated, then contact the factory for assistance.

Power on test:
Load detected !

Selecting Tests, Exercises or Configuration Mode

DynX® Menu selections include:

- Tests (dynamometer mode)
- Exercise (strength training mode)
- Configuration (Configuration mode)

These alternatives are available by pressing the 'Menu' key sequentially.
Press the 'Select' key to activate the desired item.

Tests
Press Select

Exercises
Press Select

Configuration
Press Select

Tests

Tests provides three DynX® modes: Maximum Test, Endurance Test or Rapid Exchange Test, which are available by pressing the Menu key.

Max Test
Press Select

Endurance Test
Press Select

Rapid Exchange
Press Select

Exercises

DynX® provides two different but similar protocols to perform isometric exercise for people who can benefit from this form of Exercise. Pressing the 'Select' key when in the Exercise display, provides two 'Menu' key options called Fixed Exercise or Stepped Exercise. Both isometric exercise are based on a user's maximum strength (Max) as measured in the muscle group being used to activate the handles.

Fixed Exercise
Press Select

Stepped Exercise
Press Select

Configuration

DynX® may be configured for operation in English (Pounds) or Metric (Kilogram) measurements. Another choice is to enable or disable the audible tone generator. A third choice is to erase the data already stored in its memory archive.

Set Tone
Tone: Y

Press the Menu key to toggle between each alternative. Press the Select key to acknowledge a preference.

- Pounds (Lb) or Kilogram (Kg)
- Audible Tone, Yes (Y) or No (N)
- Archive Erase, Yes (Y) or No (N)

Set Units
Units: Lb

After setting the desired configuration items, the display will be restored to "Configuration, Press Select". Return to Tests by pressing the Menu key.

Archive
Erase: N

Tests

Max Test

Max 1 0.0Lb
Squeeze Hard!!!

Max Test is activated by pressing the 'Select' key. A Max Test is typically accomplished in one muscle group, although it can be used for comparisons between groups.

Max 1 79.7Lb
Press Select…

Each measurement is accepted by the attendant as a valid measurement by pressing the 'Select' key to store the data as part of a series of measurements. Each Max Test may include **up to** 10 measurements in a sequence. Statistics are generated for the measurement sequence.

Max 1 0.0Lb
or Squeeze Again

These calculated statistics include Average, Standard Deviation and Coefficient of Variation between measurements after the 'Select' key is pressed following each stored Max measurement. The Select key mayo be pressed to review each Max measured in the sequence.

Avg 2 60.6Lb
SD=2.6 CV=5.2

At the end of any number of sequential measurements the Select key may be used to toggle through each of the measurements for review of the data collected, or the 'Menu' key may be pressed to:

"Restart Max Test"
"Review Last Data", or
Select the "Previous Menu"

Review Last Data
Press Select

Review Last Data is also available from the non-volatile data archive when this Max Test mode is again selected following turn-off. When Max Test mode is selected press the Menu key to Review Last Data.

If "Previous Menu" is selected, the display reverts to the start of the "Max Strength" test, which can be again selected, or the Menu key can be pressed to cycle to the "Endurance Test".

Endurance Test

Endurance Test
Press Select

The Endurance Test evaluates the time during which a specified Target Force can be applied to the device by a user, and to measure strength decay as a function of time after the Target Force can no longer be maintained, until a point of fatigue is reached, concluding the test when force on the handle is released.

Measurements

Set Target Force
Press Select

The Endurance Test measures time (in seconds) during which muscle strength can be sustained at or above the Target Force level, then collects time markers each time the strength measurement decays by 10% of the Target Force until the user releases pressure on the DynX® handle at 0% of the Target Force. Target Force is defined as a percent of Maximum Force (Max) of the muscle group measured before the test is conducted.

Test Set-Up

Do Max 0.0Lb
Squeeze Hard!!!

The user is asked to perform a maximum strength effort for the muscle group to be evaluated. This is called a Max effort. The attendant presses the Select key after a true Max measurement is completed.

Set Max 79.7Lb
Squeeze Again…

Max 1 79.7Lb
…or Press Select

Endurance Test (continued)

The attendant then sets the Target Force by selecting a % Max target prior to initiating the test.

Press the Menu key to reset the % of Max to a preferred target force for the test. Each hit on the Menu key adjusts this target by 10% increments. Press the Select key to lock in the Target Force desired.

The display shows %Max and the target force amount (in Lb. or Kg) when the Target Force is selected.

```
Target   80Lb
Max = 80Lb  100%
```

```
Target   64Lb
Max = 80Lb  80%
```

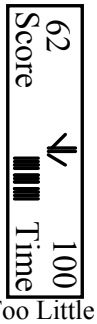
```
Target =   64Lb
Press Select
```

Performing the Endurance Test

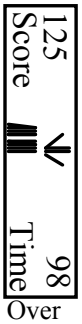
The Endurance Test, after setting the Target Force, is initiated by applying pressure on the DynX® handle, elevating this pressure quickly until the bar-graph on the display disappears in the center of the display and a Target Force 'arrow' appears. The instruction on the display is "Hold on Target, Squeeze".

```
Hold on Target
   Squeeze
```

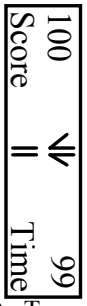
Reaching this Target level of applied pressure on the handle starts a countdown clock. A "Score" at the top of the display shows 100 when the Target Force is achieved and continues to display, instantaneously, the % of Target Force being applied to the handle. Time count, at bottom of the display, indicates the number of seconds elapsed since the Target Force was reached.



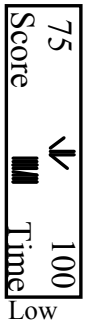
Too High



Over



On Target



Low

Too Little

It is very important to encourage the user to not allow the applied force to drop below the 100% level until it is no longer possible to maintain that level of force to the handle, and then to continue applying a maximal effort for the remainder of the test, to a point of fatigue. An audible tone (Beep) occurs each time the applied force on the handle drops by 10% increments, making it important to keep the applied force at 100% or higher until it is no longer possible to sustain that level of force.

The test is completed when the user releases all pressure on the handle.

Data Review

Following conclusion of the test, attendants can review data collected. The initial display shows time in seconds (s) held at the Target Force level (100% of "T", Max is "M"). Review new data by pressing the Select key sequentially to review the time markers which note elapsed time upon reaching 90%TF, 80%TF, 70%TF, etc. until 0%TF is reached. This review shows the time in seconds at which each particular % Target is crossed.

```
M= 79.7Lb  100%
T= 63.7 Lb  10.2s
```

```
M= 79.7Lb    90%
T= 63.7Lb    14.0s
```

This Test Data is available for review in nonvolatile memory archive even though the DynX® device is turned off or the mode of operation is changed by using the Menu key after Endurance Test is selected.

Menu Options

At conclusion of the Endurance Test, pressing the Menu key provides options to "Restart the Endurance Test", "Previous Menu", or "Review Last Data" collected during the test.

```
Review Last Data
Press Select
```

Rapid Exchange Test

A series of strength measurements can be implemented by pressing the Select key.

Exchange rates of 1.5 or 0.8 seconds may be selected by pressing the Menu key to toggle between these two options and then pressing the Select key to make the choice. Set Exchanges at 10 or 20 using the Menu and Select keys.

The display indicates the sequence of R-E measurements will begin with a Right Hand Squeeze. The R-E sequence begins when pressure is first applied. At conclusion of the Right Hand Squeeze, Max#1, a 1.5 second or 0.8 second time-out will be concluded with an audible tone, signaling the next Left Hand squeeze should be done for Max#2. This sequence of Squeeze and Tone will continue until the end of the 10 or 20 efforts. The Rapid Exchange Test may be restarted by pressing the Menu key at any time during the test. During the RE Test, the audible tones will continue until the test is completed or the RE test is restarted.

At conclusion of the Rapid Exchange sequence, the display shows statistics of the series for Average of 10 efforts, actual Cycle Time in seconds between exchanges, and the Coefficient of Variation between all measurements. Pressing 'Select' provides a detailed review of each effort and the strengths measured compared to Average for the10 or 20 measurements.

This data is stored in non-volatile memory archive for retrieval after the mode of operation is changed or the device is turned off. Access to the data is achieved by pressing the Menu key when the Rapid Exchange Mode is selected. At conclusion of a R-E test the Menu key also allows "Restart R-E Test", review of the collected data, or Previous Menu.

```
Rapid Exchange
Press Select
```

```
Set Cycle Time Cycle
Time = 1.5s
```

```
Set Exchanges
Exchanges  =  10
```

```
Right Hand R-E
Squeeze to Start
```

```
A10 = 74.0 Lb/1.4s
SD=2.4    CV = 3.2
```

```
Max 1      75.8Lb
Avg 10  74.0 Lb
```

```
Restart RE Test
Press Select
```

```
Review Last Data
Press Select
```

```
Previous Menu
Press Select
```

Exercise

DynX® provides two different but similar protocols to perform isometric exercise for people who can benefit from this form of Exercise. Pressing the 'Select' key when in the Exercise display provides two 'Menu' key options called Fixed Exercise and Stepped Exercise. Both isometric exercises are based on a user's maximum strength (Max) as measured in the muscle group being used to activate the handles.

```
Fixed Exercise
 Press Select
```

```
Stepped Exercise
Press Select
```

Fixed Exercise

```
Fixed Exercise
 Press Select
```

This isometric exercise is provided to strengthen muscle groups by establishing a specific level of effort proportionate to a user's existing strength. Each precisely timed effort is spaced by a rest period to minimize fatigue prior to resuming the effort.

```
Do Max      0.0Lb
 Squeeze Hard
```

All Exercise sessions begin with establishing a Maximum strength measurement. The attendant presses the Select key to confirm it is a good measurement.

```
Set Max     79.7Lb
 Press Select
```

This measurement is used to set the Target Force as a percent of the Max to be used in the exercise regimen. The nominated Target Force is 50% of Max. This percentage can be adjusted to higher or lower values in 10% increments by pressing the Menu key..

```
M= 79Lb  T=39Lb
 Set Target      50%
```

Pressing the Select key locks in the preferred Target Force, and then nominates the number of Repetitions, Hold & Rest Times (in seconds). Attendants may reset any of these parameters. The blinking item on the display identifies which value (Rep, Hold or Rest) that can be accepted by pressing the Select key or modified using the Menu key.

```
Target 39Lb 4Reps
 45Hold     120Rest
```

Fixed Exercise is initiated by pressing the 'Select' key, yielding a display to "Hold on Target"

```
Hold on Target
Squeeze
```

Locking & Unlocking Fixed Exercise

```
M=79 T=39Lb 50%
4Rp    45H   120Rst
```

Pressing the Select key at this point allows review of the exercise parameters or pressing the Select key a 2nd time to implement a Lock on this mode and its settings. The Lock causes the DynX® to use the Fixed Exercise parameters and to enter only the Fixed Exercise mode each time it is turned on.

```
Lock Exercise:   N
```

To avoid accidental locking of the DynX® in a exercise mode, a special sequence of keystrokes must be implemented. To Lock the exercise mode and the selected parameters, hold the Menu key while pressing the Select key until the "N" is changed to a "Y". The same sequence of keystrokes is used to reverse this selection to Unlock the mode.

Nominated Values for Fixed Exercise

Pre-programmed set points for Fixed Exercise utilize the following combination of %Max, Reps, Effort and Rest times. As % Max is established, the Reps, Effort and Rest values conform to those in the table, unless they are modified by the attendant. These values are known to be safe for users with hypertension to minimize blood pressure elevation. Issues pertaining to other cardiovascular disease states should be considered for each user before pursuing this isometric exercise regimen or any other form of exercise training.

%Max	10	20	30	40	50	60	70	80	90	100
# Reps	4	4	4	4	4	4	4	4	4	4
Effort(sec)	120	120	90	60	45	15	12	10	5	3
Rest(sec)	60	120	120	120	120	120	120	60	60	30

Stepped Exercise

Stepped Exercise
Press Select

Press the 'Select' key to start the Stepped Exercise set-up. Steps provided in this particular exercise vary between 1-Step and 5-Steps. The following matrix illustrates the % of Max strength used in the protocol.

Steps	1	2	3	4	5
1st Step as % Max	20%	40%	60%	80%	100%
2nd Step as % Max		20%	40%	60%	80%
3rd Step as % Max			20%	40%	60%
4th Step as % Max				20%	40%
5th Step as % Max					20%

This action provides a display, which describes the need to define a user's maximum strength (Max) and establish the number of Steps and Reps in the regimen. Press the 'Select' key to initiate Max measurements.

Do Max 0.0 Lb
Squeeze Hard!!!

One or more measurements may be done to establish the set point for a user's Max. Press the 'Select' key to set the Max.

Set Max 88.6 Lb
Squeeze again

Attendants then define the number of Steps desired and the number of Repetitions to be repeated during each exercise session. Press the 'Menu' key to cycle through each of the Step and Rep options as they blink.
Press the 'Select' key to advance from setting *Steps* to set *Reps*.
Press the 'Select' key to advance from setting *Reps* to starting the exercise.

Set Max 88.6 Lb
or Press Select

Effort and Rest Times are standardized for Stepped Exercise according to the % of Max being exerted as shown in the following chart:

Max= 88Lb
5 Steps 1Rep

20% Max	40% Max	60% Max	80% Max	100% Max
120 sec. Effort	60 sec. Effort	15 sec. Effort	10 sec. Effort	5 sec. Effort
120 sec Rest	120 sec. Rest	120 sec. Rest	60 sec. Rest	30 sec. Rest

The display shows "Hold on Target". If the 'Menu' key is pressed, the display will advance to the beginning of the programming sequence for Stepped Exercise parameters.

Hold on Target
Squeeze

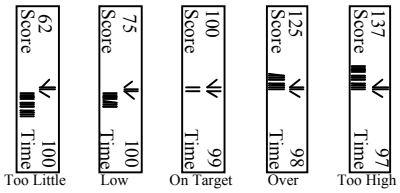
Performing the Exercise (Both Fixed and Stepped)

Hold on Target
Squeeze

Both Fixed and Stepped Exercise are conducted in the same manner and will be discussed in this section. Activating the Exercise begins after the end of each of the set-up sessions.

Guidance is given by the next display, indicating a need to "Squeeze" the handle and to "Hold on Target" such that the bar-graph on the display transitions into a double line opposite an arrow, identifying the "Target" force level.

When the Target force level is achieved, the word "Score" is shown on the top of the display and the word "Time" appears in the bottom of the display. Above each word is a number representing the performance Score on a scale of percentage of effort being exerted, and a countdown Time in seconds remaining for that effort. Shown are examples of how the display would appear under different performance levels.



IMPORTANT NOTE

The Target Force must be reached, within 10%, to start the timer count.
As the exercise effort continues towards 0 time remaining, the user may experience a slight trembling of the muscles as a result of the muscular fatigue in some regimens.

At the end of each effort, the display changes to Rest Time in seconds and shows an accumulative Score as a percentage of the total effort desired. At the end of the first effort, this Score is total for the first effort. At the end of the second effort, it is the sum of Scores for the first and second efforts, etc. During Rest periods, the top line alternates between 'Score' and 'Efforts to go'.

Score is now 92
Rest Time 120

3 Efforts to go
Rest Time 94

Suggestion

After completion of each effort, during the rest period, it is recommended to slowly and gently, rhythmically stretch the muscle that was used for the effort, by opening with full extension, then closing, but not squeezing. These gentle motions, repeated 8 or 10 times about once per second, or even for a longer time during the rest period will help to stretch out muscles that tightened somewhat during the contraction and will aid blood circulation through the muscles.

At the conclusion of each exercise session the display shows how completely the exercise was conducted by use of a "Final Score".

Final Score
92 Out Of 100

Grades & Scores

The DynX® device evaluates how well the user performed their Exercise effort. At the conclusion of the exercise session, prior to Turn-Off, the DynX® display will provide a measure of this performance on a scale of 0 to 100, with 100 being a perfect score. A typical score would appear as: "Final score is 92 out of 100". This score is translated into a statement of performance, offering feedback, based on thresholds of 90 or above, 50 or above, and below 50.

Very well done.

Squeeze harder
for better score

Poor effort !
Read user's guide!

Data Archive

DynX® is designed for attendants to establish a unique and appropriate exercise protocol for each user. This protocol may be locked into the DynX® to allow the user to proceed with the exercise on their own. Under certain conditions, the DynX® may be provided for use in a home environment. In these scenarios it is important to monitor user compliance. A data archive is built into each DynX® to perform this monitoring function, and for purposes of enabling the attendant to maintain a record of exercise regimens and progress.

Accessing the Exercise Data Archive

Following completion of an exercise session, the DynX® may be turned ON and last-user data reviewed. First return to the exercise mode that was used (Fixed or Stepped) and press the Select key. Press the Menu key twice until the display indicates "Review Last Data". Press the Select key to review the exrcise set-up, Max and % Max that was used. Press the Select key again to review the "User Score". Low Scores indicate incomplete sessions. Press the Select key again to review the set-up.

Review last data
Press Select

Erasing Data Archives

The Configuration Mode may be used to clear the Data Archive at any time. While in the Configuration Mode, press the Select key until the "Archive Erase" display appears. Use the Menu key to change the "N" to a "Y", then press the Select key. All previously stored data in the Archive will be erased and restore all settings to defaults.

Archive
Erase: N

Turn-off

To turn the DynX® device off, press and hold the *SELECT* button for 2 seconds.

Power OFF when
button released.

NOTE

The DynX® device is equipped with an automatic turn-off function to save battery life, if the device is unused for a period of 5 minutes.

PC Interface

Download the software from **www.mdsystems.com**, install it on your PC, and then launch the application on the PC.

DynX® is provided with an interconnecting cable, that plugs into the COM port on the DynX®, and then plugs into a USB port on a PC. The PC will automatically scan the available communications ports, detect a powered on DynX, and establish a connection. From there, you can choose to download the archived data from the device, or to show a live copy of the DynX screen.

When the USB cable is first plugged in, there will be an installation of drivers that takes place; this may take a few minutes, and should only occur the first time the cable is used with that PC.

MAINTENANCE INSTRUCTIONS

The DynX® device is mechanically and electronically rugged, built to withstand normal use in clinical, home, office, public or private transportation environments. The electronics are digital and require no regular maintenance except for periodic battery replacement. Unless damaged by unusual stresses, the electronic load cells require no specific attention. The case of the instrument is constructed of durable materials that are designed to withstand ambient heat or cold typical of household environments, and normal cleaning. The only anticipated regular maintenance items are cleaning and battery replacement.

Basic guidelines for the care and maintenance of the DynX® device that may be helpful to the long years of service expected from this high quality instrument include the following:

1. Avoid use of the DynX® device under conditions of extreme heat, extreme cold, dust, moisture, solvents and oils. Avoid storage in direct sunlight for long periods or in areas of extreme heat that may damage the instrument case and handles.

2. Do not immerse your DynX® in any liquid or subject it to steam sterilization. Clean the exterior with a soft damp cloth using mild detergent as a solvent.

3. Replace the 9 Volt battery as necessary. A display will appear if the device detects a low battery condition. During occasional use, a standard 9 Volt battery will power the device for months.

Replace Battery
Soon!!!

4. Do not make any electrical connections to the communications port or plug a telephone jack into the COM port on the back of the DynX®. This COM port is used for interfacing to the supplied cable only.

5. The Liquid Crystal Display glass can be wiped clean with a dry cloth. Do not use liquids on the Display. Avoid the use of abrasive paper product in cleaning.

CAUTION

If the user detects any unusual characteristics in the performance of the product, discontinue use of the DynX® and contact the factory, or call the point of purchase distributor.

PRODUCT GUARANTEE & SERVICE

Limited PRODUCT WARRANTY

Each DynX® device is warranted to be free from manufacturing defects for a period of two years under normal use. This warranty extends only to the original purchaser or owner of the DynX® device and is extended to that customer through the sales distributor. The warranty is valid for products used within the guidelines described in this Owner's Manual. The warranty does not cover products which have been misused, exposed to harsh environments, subject to improper power supply voltages, have been dropped, were subject to improper use of the communications port, or were disassembled or tampered with prior to return.

Should repair be needed during the warranty period, carefully package and ship the device, prepaid, to MD Systems, Inc., or the distributor of original purchase. Using the original packaging. Securing a return authorization is recommended prior to shipment. Be sure to include the name and address for return shipment. Also include the date, place of purchase and description of the reason for product return. Exchange units can also be arranged. Returns are to ship freight prepaid. Repaired or replacement units under warranty will be returned, freight prepaid using normal ground transportation.

At the discretion of MD Systems, Inc., products under warranty will be either repaired or replaced unless, upon inspection, there is evidence of product damage, which was not caused by faulty material or workmanship. In this case, MD Systems, Inc. will notify customers of this finding and will request further instructions on how to proceed. MD Systems, Inc. will not be responsible for the loss of archived data stored in the DynX® products that are returned for service.

Distributor

Factory
MD Systems, Inc.
P.O. Box 1647, Westerville, Ohio 43086, USA, Phone: 614-818-3000