

ADDENDUM

BALANCE SYSTEM SD AND BIOSWAY

Version 3.0X

SOFTWARE MANUAL – User’s Guide

950-430
950-440
950-441
950-444
950-460
950-461



BIODEX
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This manual contains operating procedures for the following Biomed products:

950-430	VibroTactile System, 115 VAC
940-440	Balance System SD, 12.1" Display, 115 VAC
940-441	Balance System SD, 12.1" Display, 230 VAC
940-444	Balance System SD, 12.1" Display, 100 VAC
950-460	BioSway 12.1" LCD with Tabletop Stand and Case, 115V/230V 50/60V
950-461	BioSway 12.1" LCD with Tabletop Stand, 115V/230V 50/60V



Need Help?

Contact Biomed Software Support
1-800-224-6339 ext 2120, or
softwaresupport@biomed.com

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1. Overview of Updates

Sensory Integration

The new version of the Balance Software for Balance SD and BioSway Win CE now include a <Sensory Integration> button. When touched, the Sensory Integration button will give users the option of conducting an m-CTSIB test, which was included in the last version, as well as a new option to conduct a modified version of a BESS (Balance Error Scoring System) test. Custom protocols can be created for the BESS tests. The BESS test is a popular test used for concussion assessment.

Custom Sensory Integration

The software now includes additional functionality allowing more versatility for custom sensory integration protocols. The new functionality includes the ability to modify the test format, principally by making the test more sensitive for specific populations. New ways to customize protocols include adding a head shake (vestibular ocular reflex), and also specifying foot placement for a particular condition (single leg, tandem, etc.).

Normative Data

In order to support the custom protocols, the ability to associate normative data to a specific custom protocol has been added. Additional normative data for the traditional CTSIB test is also available. Normative data is protocol and population specific; as such it is beneficial to have representative data for various populations and test protocols. Normative data is particularly popular when baseline data is not available. Because the sensory integration reports compare results to a “standardized” value from normative data, associated normative data should be included when a custom protocol is created.

NOTE: Patient Data Utility Software version 2.0 provides an easy way to export patient data as a .csv file for use in a statistical package or Excel to create your own normative data. This process is described in more detail on page 26.

There is also an option to have existing m-CTSIB test results undergo a statistical adjustment called a log file transformation. This means that the test results (past and future) will conform more closely to a bell-curve distribution. For more information, see page 31.

G-Codes

G-Codes are a method of recording and tracking a patient’s functional limitation at the outset of therapy, during the course of therapy, and at the time of discharge. The codes are now required by Medicare for outpatient therapy services billed under Medicare Part B in order to collect data on beneficiaries’ functional outcomes from therapy services provided. Functional tests are used to report a functional limitation category (G-Code) and a percentage of impairment (Severity Code Modifier).

VibroTactile System Functionality

This version of the software includes an added functionality for the Biodex VibroTactile System. The VibroTactile System is sold separately from the Balance System SD and BioSway, and the functionality for this product must be activated within your device’s System Utilities.

2. Sensory Integration

From the Main Screen of the interface, choose the <Testing> button.



Figure 2.1 The main menu of the Balance SD interface.

Touch the <Sensory Integration> button on the Testing menu. This button now replaces the <m-CTSIB> button on the Testing menu.

NOTE: The <Custom Sensory Integration> button will not appear on the Testing menu until a Custom Sensory Integration test has been created.

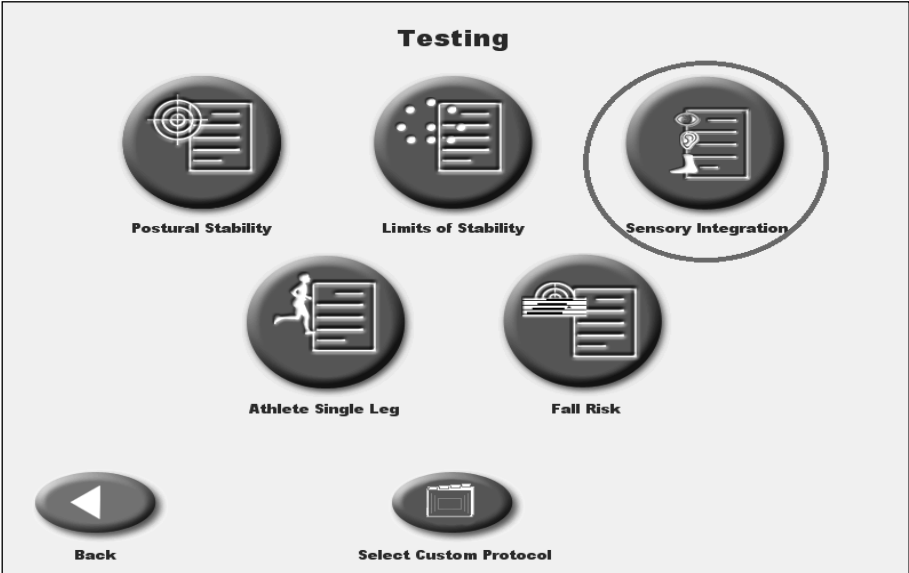


Figure 2.2 The testing menu now features a <Sensory Integration> button.

Touching the <Sensory Integration> button allows the user to choose between an m-CTSIB test and a BESS test.

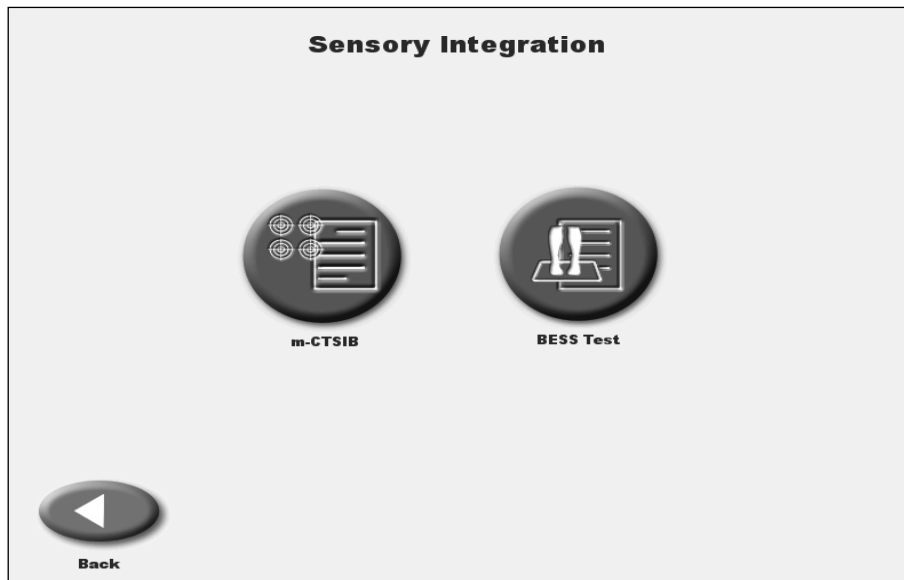


Figure 2.3 The Sensory Integration menu.

The m-CTSIB test remains unchanged in this version of the software, with the exception of the <G-Code> and <Diagnosis> buttons. These features will be discussed in more detail in Section 5 of this manual.

The Balance Error Scoring System (BESS) test is a feature new to this software update. The BESS test provides a portable, cost-effective, and objective method of assessing static postural stability. In the absence of sophisticated postural stability assessment tools, the BESS can be used to assess the effects of mild head injury on static postural stability. Information gathered from this tool can be used to assist clinicians in making return-to-play decisions following mild head injury. During a BESS test, balance tasks are performed on both a level surface and a foam pad.

The BESS test used here is a modified version of the BESS test. In a traditional BESS test, scoring is time and error based. With the force platform technology, time and error counting is replaced with objective quantification of sway. Errors can be noted but do not count in scoring.

NOTE: Typically, the conditions of the BESS test are conducted with eyes closed. Practitioners should never leave the patient unattended during testing.

Custom protocols can be created for either an m-CTSIB or a BESS test. The steps for creating a custom protocol for the m-CTSIB test have not changed, but the software update now also allows for the creation of a custom protocol for a BESS test. This process of creating a custom protocol will be covered in Section 3 of this manual.

From the User Setup Information screen, users can touch the <More Options> button to access the BESS Test Options screen.

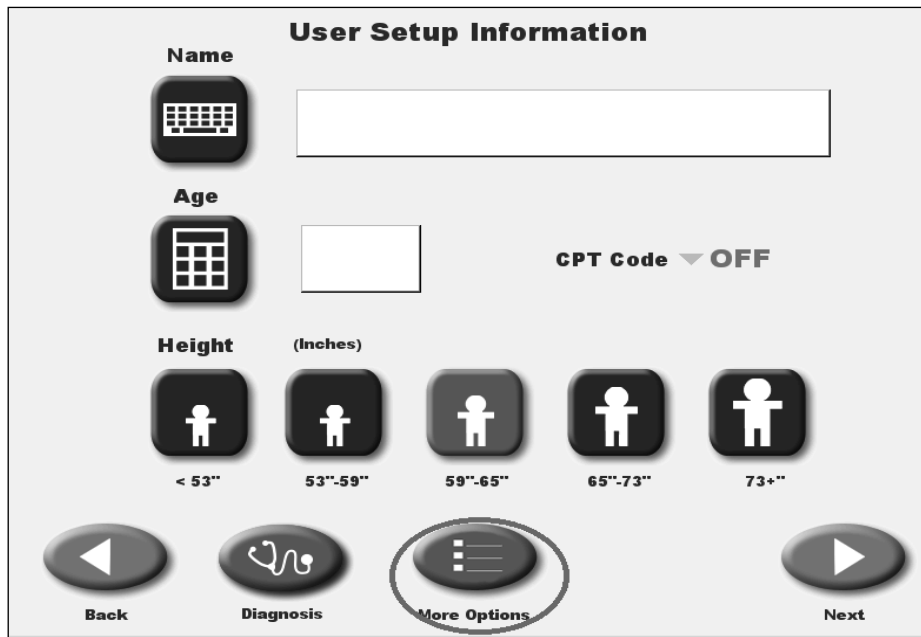


Figure 2.4 The <More Options> button on the User Setup Information screen.

The BESS Test Options screen allows users to choose the conditions for the test. When a condition has been chosen, it is highlighted in green.

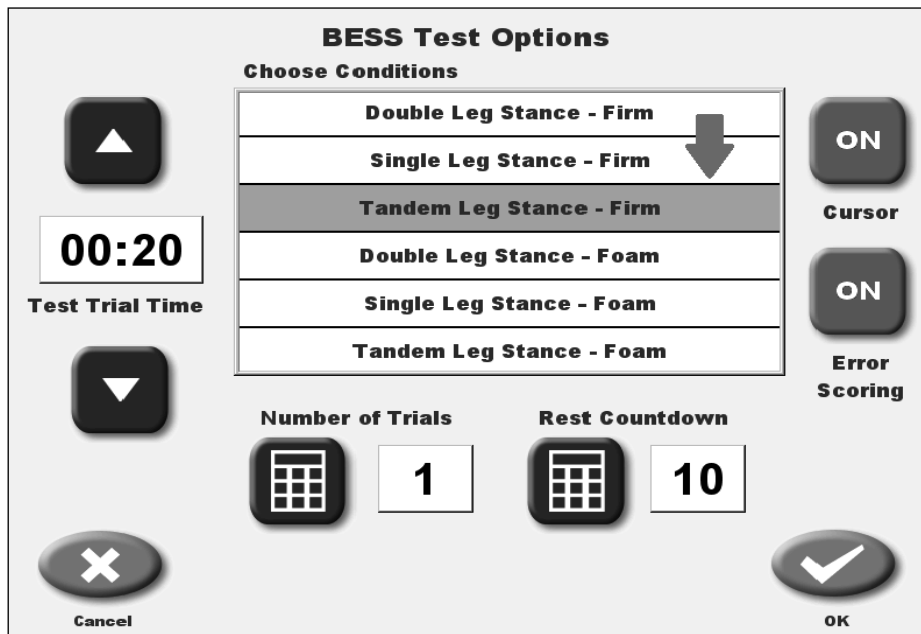


Figure 2.5 The BESS Test Options screen after 'Tandem Leg Stance – Firm' has been chosen.

Touch <OK> on the BESS Test Options screen to return to the User Setup Information screen. Then touch <Next> on the User Setup Information screen to access the Position Patient screen. Touch <Confirm> to accept the foot placement. The user also has the option to choose a different foot placement.

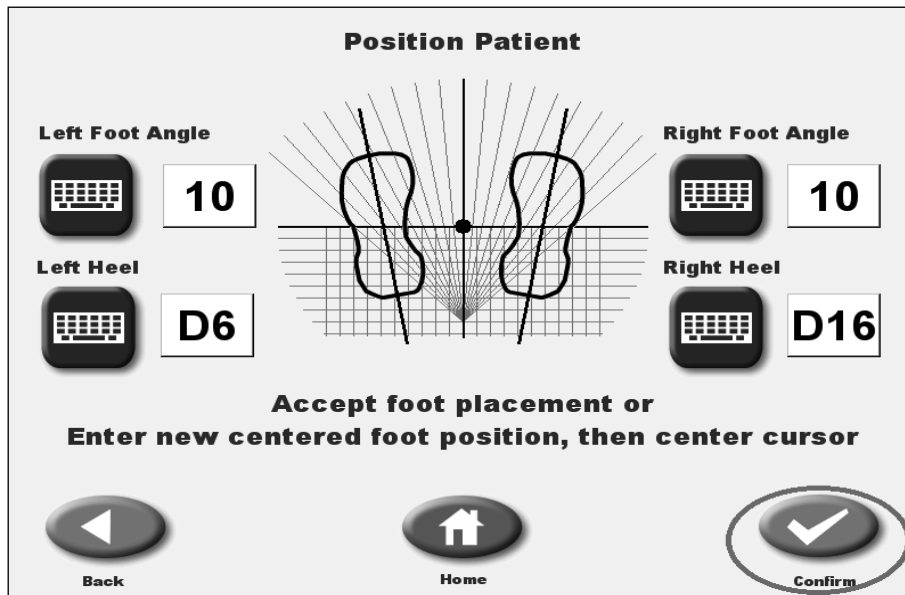


Figure 2.6 The Position Patient screen where foot placement can be confirmed or changed.

Touching <Confirm> brings the user to the BESS Test screen. The clinician can now conduct the test.

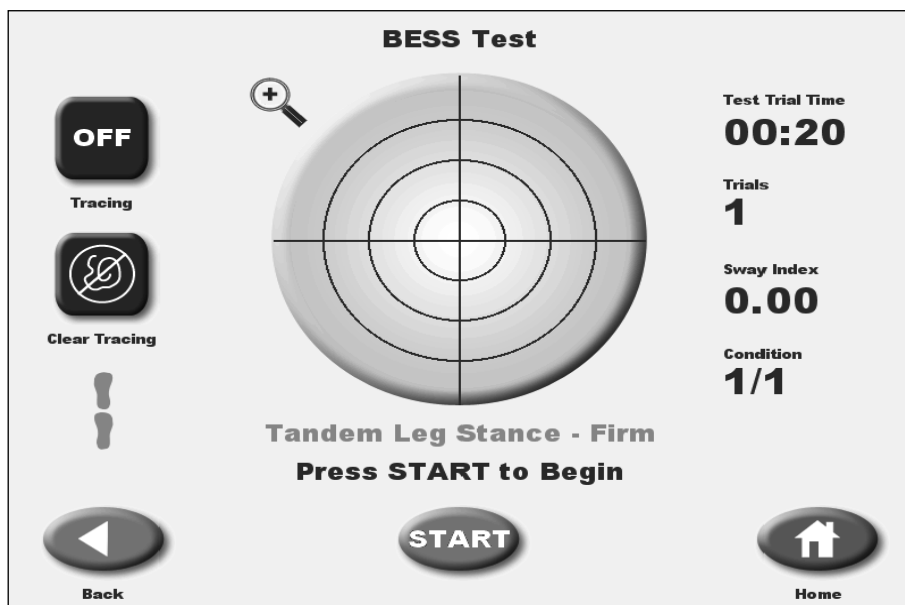


Figure 2.7 The BESS test screen.

3. Custom Sensory Integration

The Custom Sensory Integration test is a specialized CTSIB test protocol that allows practitioners to customize their sensory integration tests with the following features, for up to six named conditions:

- Specified foot placement (normal, narrow, tandem, single)
- Vestibular Ocular Reflex challenges (1, 2, or 3 hertz frequency)
- Error counting (for BESS tests)

A Custom Sensory Integration test can also be configured in the manner that CTSIB tests have been customized in past versions of the software:

Practitioners can set the:

- Number of trials
- Time length of each trial
- Rest countdown time between each trial
- Whether or not the screen tracing (cursor) is visible during the trials

Practitioners can also associate a specific normative data set with the protocol. They can choose from one of the normative data sets that come with the Balance device, or they can add their own.

The ability to create a custom protocol was added in this software update in order to add more versatility for custom sensory integration protocols and the BESS test protocol. Note that the Custom Sensory Integration button will not appear on the Testing menu until a Custom Sensory Integration test has been created.

To create a Custom Sensory Integration test, touch the <Utilities> button on the main menu.



Figure 3.1 The <Utilities> button on the main menu of the Balance SD interface.

Select <Custom Protocol List> to create a custom protocol.

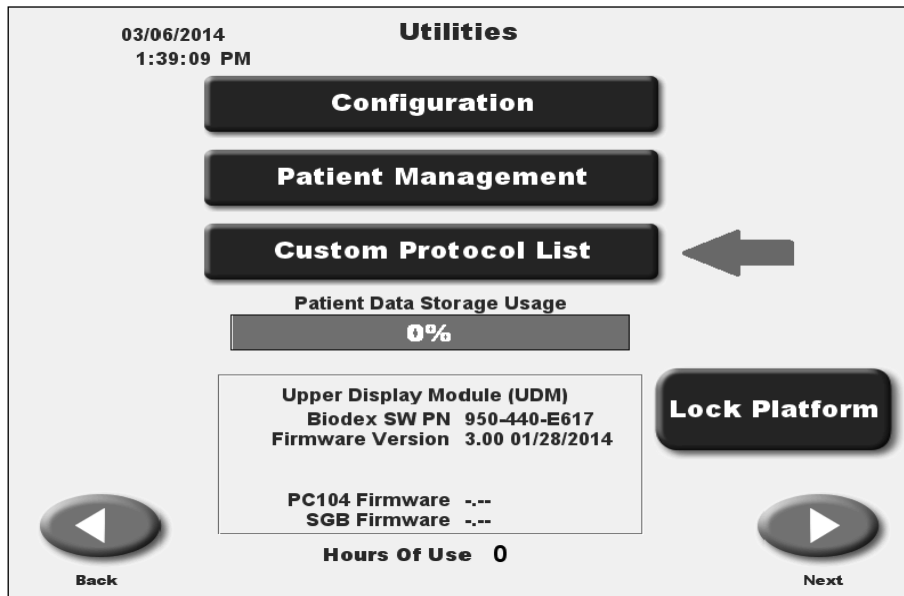


Figure 3.2 The <Custom Protocol List> allows the user to create a custom program.

Use the key pad to enter access code 781.

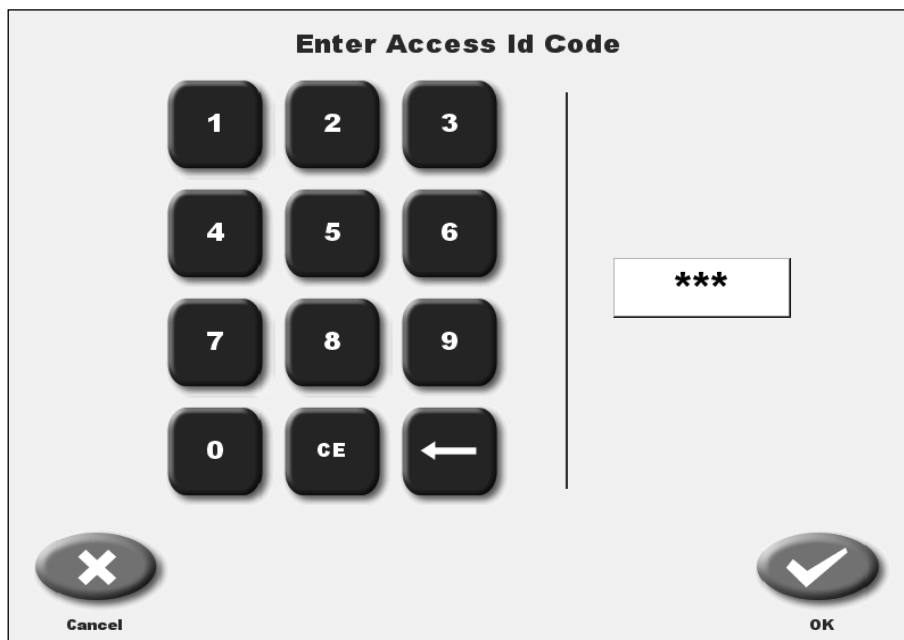


Figure 3.3 The access ID code can be entered using the keypad.

Touch the <Create Protocol> button to access the Protocol Setup screen.

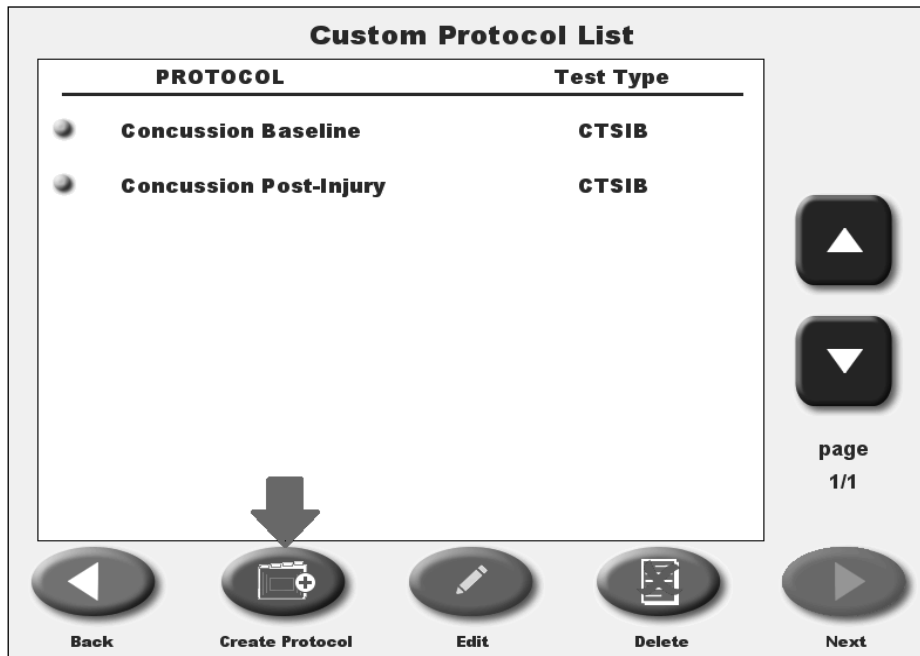


Figure 3.4 The <Create Protocol> button brings the user to the Protocol Setup screen.

Touch the <Testing> button on the Protocol Setup screen.



Figure 3.5 The <Testing> button on the Protocol Setup menu.

Touch the <Custom Sensory Integration> button on the Protocol Setup screen.

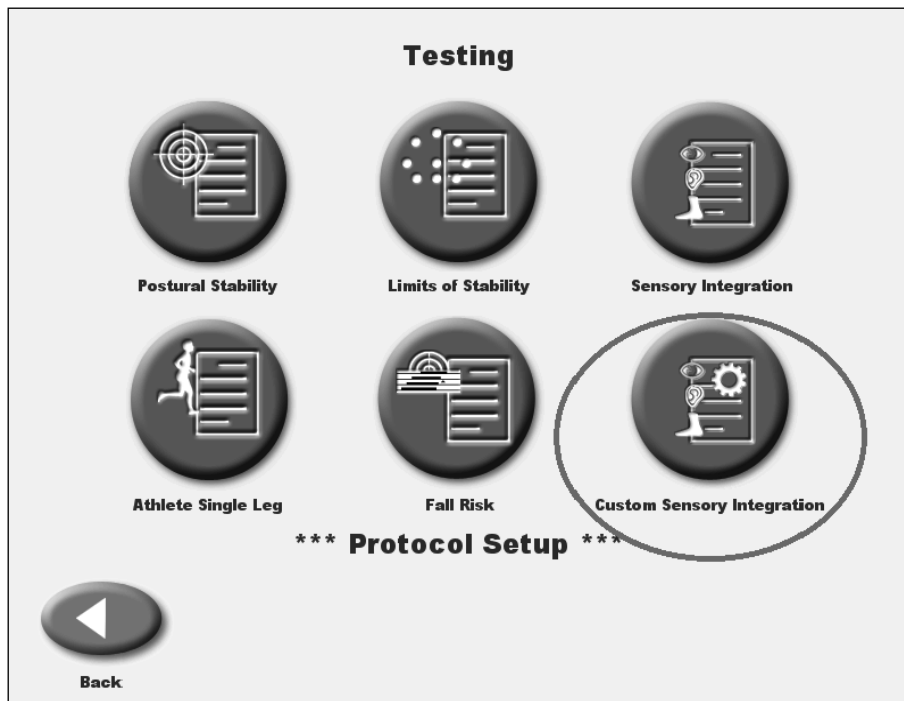


Figure 3.6 The <Custom Sensory Integration> button on the Protocol Setup menu.

1. Touch the 'Protocol Name' field and use the keypad to name the protocol.
2. Touch the 'Condition Name' fields and use the keypad to add conditions.
3. Touch the <Foot Position> icon next to each condition name to customize a foot position: regular stance, narrow base of support, single leg (left or right), tandem straight, or tandem diagonal. This feature is new to this software update.

NOTE: On the BioSway, due to the platform size and rectangular shape, the diagonal foot position requires patients with larger feet to position feet corner to corner. This does not apply to the Balance SD platform since the platform is round and larger.

4. Touch the <Metronome> field to choose a metronome time if using a vestibular ocular reflex (head shake). The frequency can be 1, 2, or 3 Hertz per second for a 30 degree rotation from facing forward in both directions (60 degrees total).
5. Touch the 'Associate with normative data table' square to denote that this protocol will be connected to a set of normative values. Note that the square will turn green when selected. (Entering specific normative data for a Custom Sensory Integration test is detailed on pages 24-28.)
6. Touch the 'Error Scoring' square if conducting a BESS test and errors need to be reported. Touch the <Next> button to access the Custom Protocol Overview screen.

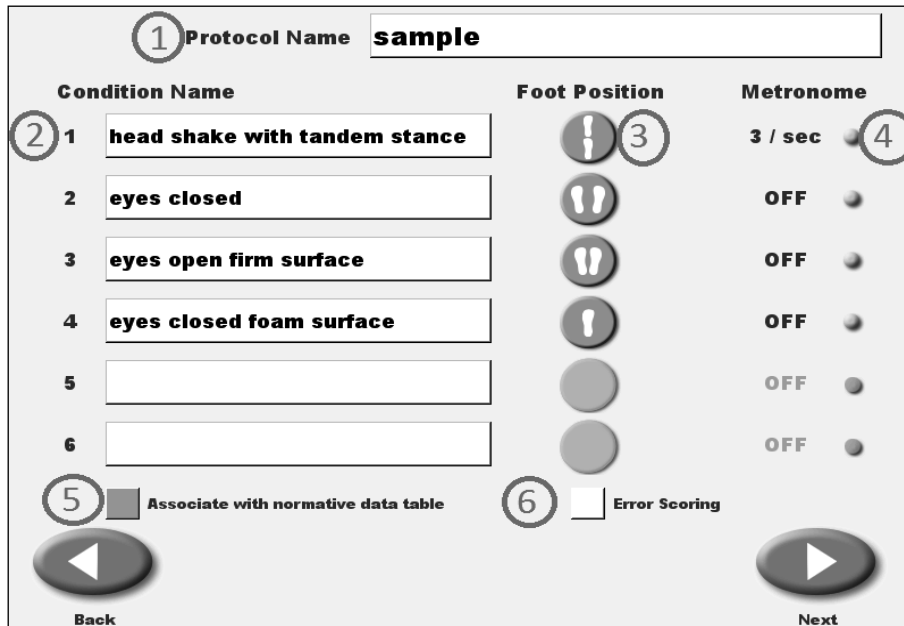


Figure 3.7 The Protocol Setup screen with sample name, condition names, foot positions, and metronome frequency chosen.

The Custom Protocol Overview screen features the options that have been chosen for the new Custom Sensory Integration test. From this screen, the tracing function can be turned on or off.

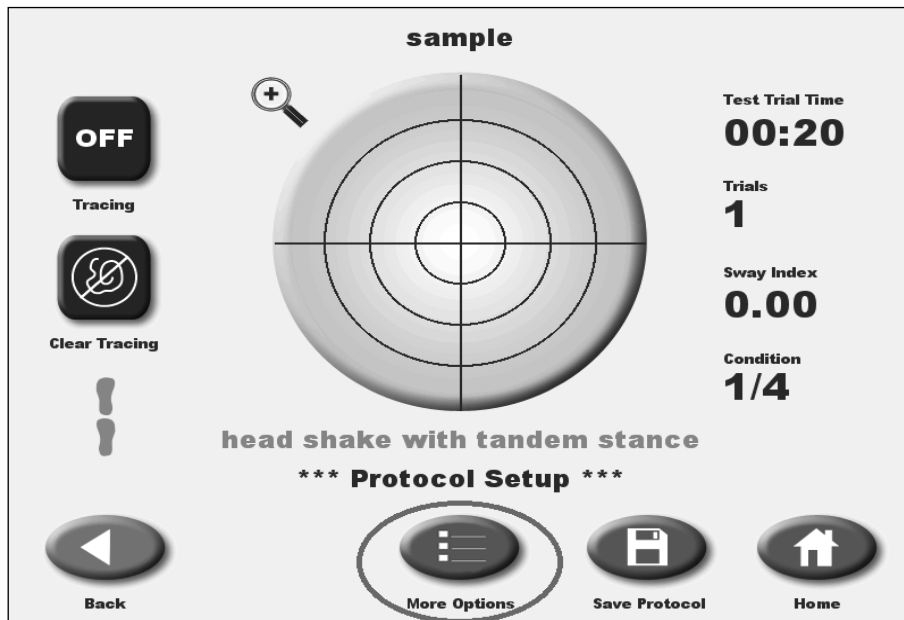


Figure 3.8 The Custom Protocol Overview screen featuring the options chosen.

Touch the <More Options> button to access the Options screen for the Custom Sensory Integration test that was just created. From this screen, the Test Trial Time, Number of Trials, Rest Countdown can be changed. You can also deselect one or more of the conditions.

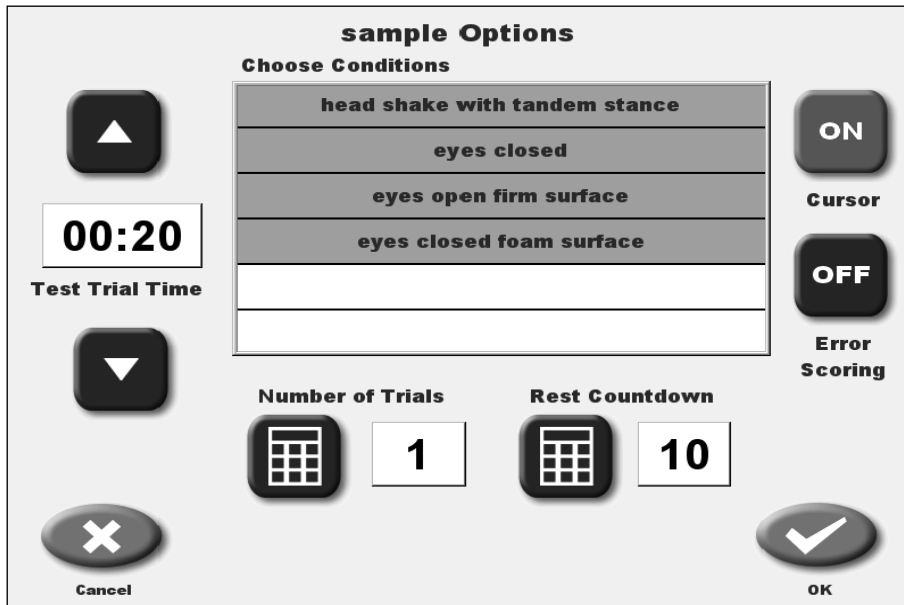


Figure 3.9 The Options screen for the new Custom Sensory Integration test.

Touch <OK> to return to the Custom Protocol Overview screen. Touch the <Save Protocol> button to save the new protocol.

Touch the <Home> button from the Custom Protocol Overview screen to return to the main menu. Then touch on the <Testing> button.



Figure 3.10 The Testing button on the main menu for the Balance SD.

Note that now the <Custom Sensory Integration> button is visible because a Custom Sensory Integration test has been created.

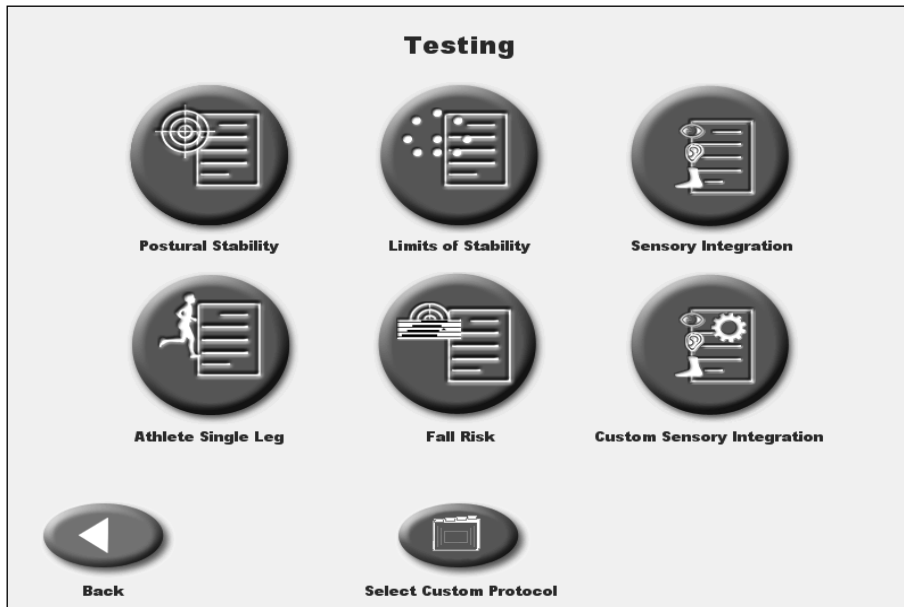


Figure 3.11 The Testing menu with the <Custom Sensory Integration> button visible.

Touch the <Custom Sensory Integration> button to access the Custom Sensory Integration screen that features the newly created protocol.

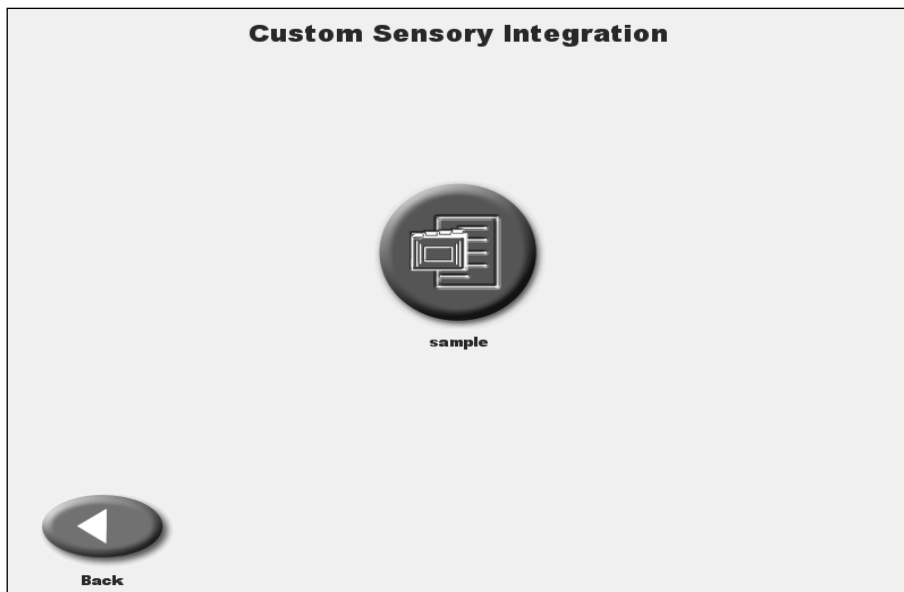


Figure 3.12 The Custom Sensory Integration screen featuring the newly created protocol.

In order to view all protocols, for any of the six options on the Testing menu, touch the <Select Custom Protocol> button from the Testing menu.

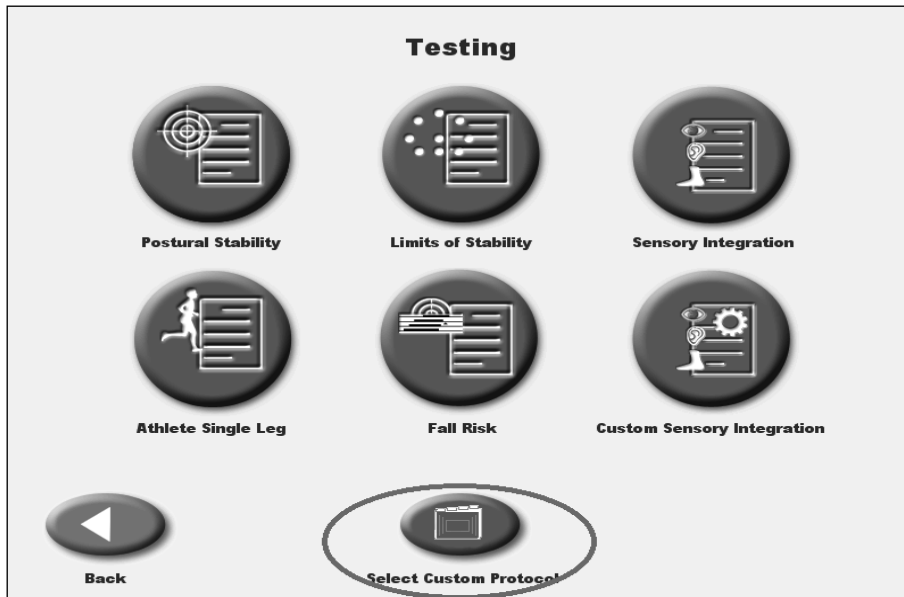


Figure 3.13 The <Select Custom Protocol> button on the Testing menu.

On the Testing Custom Protocols screen, all protocols are visible. Touching on the name of an individual test allows the user to edit the User Setup Information and Options. The m-CTSIB tests are labeled CTSIB, BESS tests will be labeled BESS, and Custom Sensory Integration tests will be labeled SIB-C.

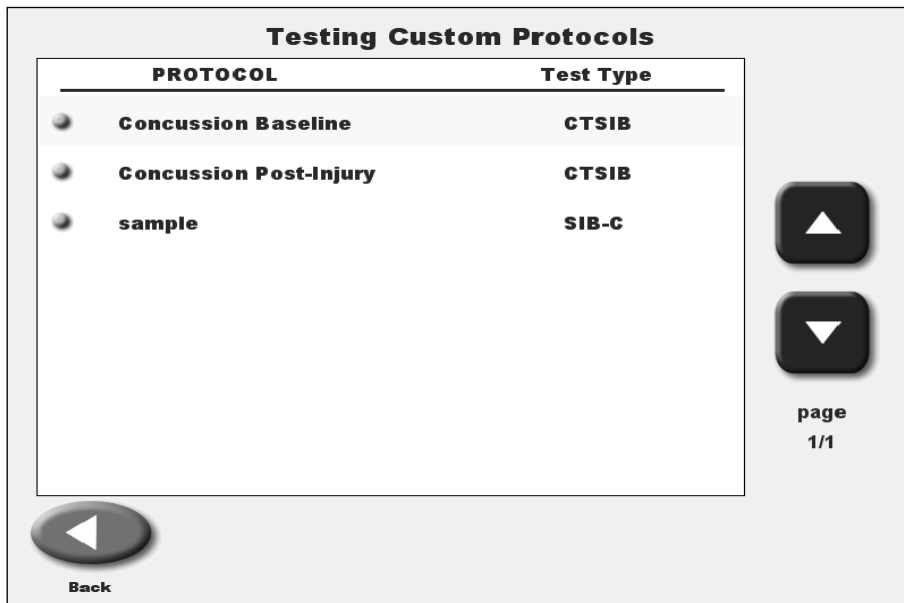


Figure 3.14 The Testing Custom Protocols screen.

4. Normative Data

New Normative Data

Your Biodex Balance device comes equipped with several sets of normative data. Normative data for Balance are typically noted as the Average and Standard Deviation numbers derived from various scores in previous controlled studies. These data sets are separated into different population groups in order to give you relevant norms for the population you will be testing.

It is highly recommended that when you conduct your tests you have the right normative data set associated with your population and protocol. Having the relevant normative data enables the vetting of baseline testing. Additionally, if a patient does not have a baseline test, then the normative data becomes “their” baseline.

For the m-CTSIB test, there are four normative data sets available.

For the Aggregate General Population, ages 13 – 85, data on CTSIB reliability and predictive score is the combined data of the three other data sets listed below.

The Male and Female, ages 13 – 18, 20 second trial normative data was collected from a population of student athletes, male and female, ages 13 – 18. The data was collected by Carolinas Medical Center, Charlotte, NC, Department of Sports Medicine & Special Events, at four special events during the 2011 summer. Data analysis was provided by Raymond F. McKenna, PT, PhD, Clinical Associate Professor, Stony Brook University School of Health Technology and Management, Department of Physical Therapy State University of New York.

The 65 – 84 Male and Female Independent normative data was collected from two populations of older adults, male and female, ages 65 – 84. The data was collected by Georgia Southern University in Statesboro, GA, and Adelphi University in Garden City, NY.

The 17 – 23 Male and Female NCAA Baseline normative data was collected from a population of athletes, male and female, ages 17 – 23. The data was collected by David Bica, DO and Anthony S. Kulas PhD, ATC, LAT, Department of Sports Medicine, the Brody School of Medicine, East Carolina University, Greenville, NC.

The normative data for the Athlete Single Leg balance test has been updated with recent research done at Armstrong Atlantic State University. The Athlete Single Leg balance test assesses proprioception and dynamic joint stability. This test provides a quick means of evaluating and comparing to age based normative values. Results outside the age predicted score are notable and suggest looking for an underlying cause.

Normative Data Procedures

In order to associate normative data to a Sensory Integration protocol, touch the <Utilities> button on the Home screen.



Figure 4.1 The <Utilities> button on the main menu of the Balance SD interface.

Touch the <Configuration> button on the Utilities screen.

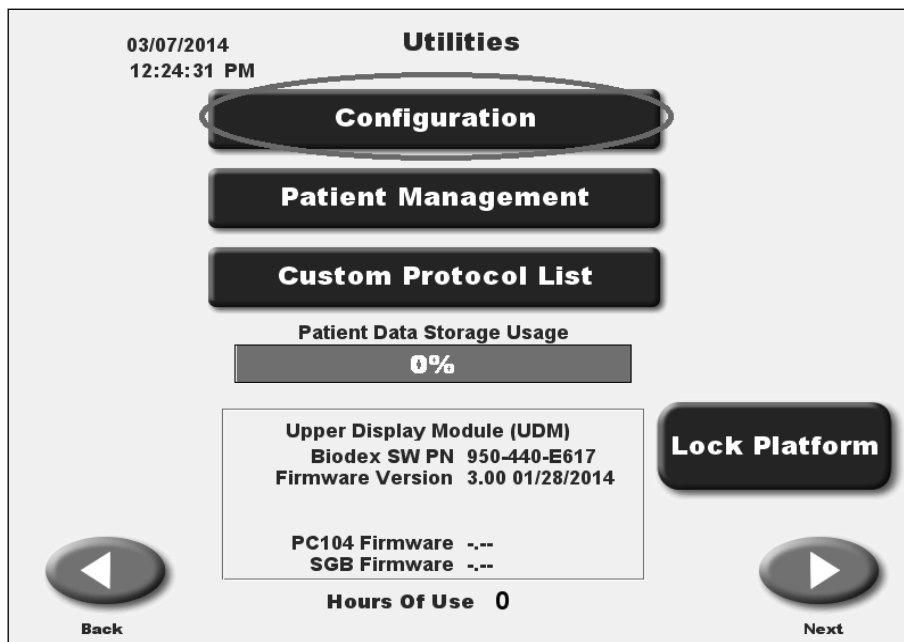


Figure 4.2 The <Configuration> button on the Utilities screen.

Enter the access code. In order to change the normative data set, touch the <Sensory Integration Defaults> button.

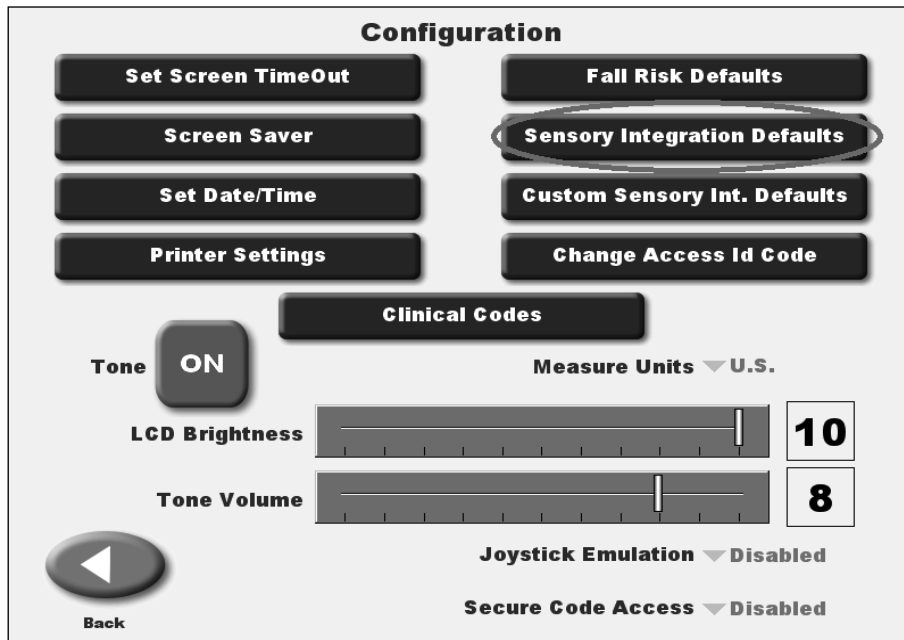


Figure 4.3 The options on the Configuration screen.

Select a protocol by touching it and then touch <Next>.

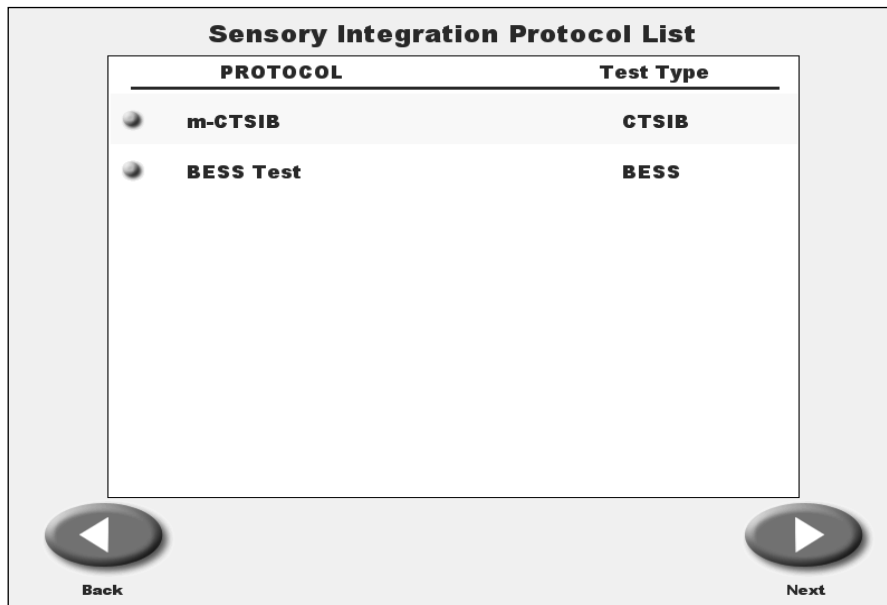


Figure 4.4 The Sensory Integration Protocol List screen with an m-CTSIB test selected.

Touch the <Group> button on the m-CTSIB Defaults screen in order to choose another group with which to compare your data.

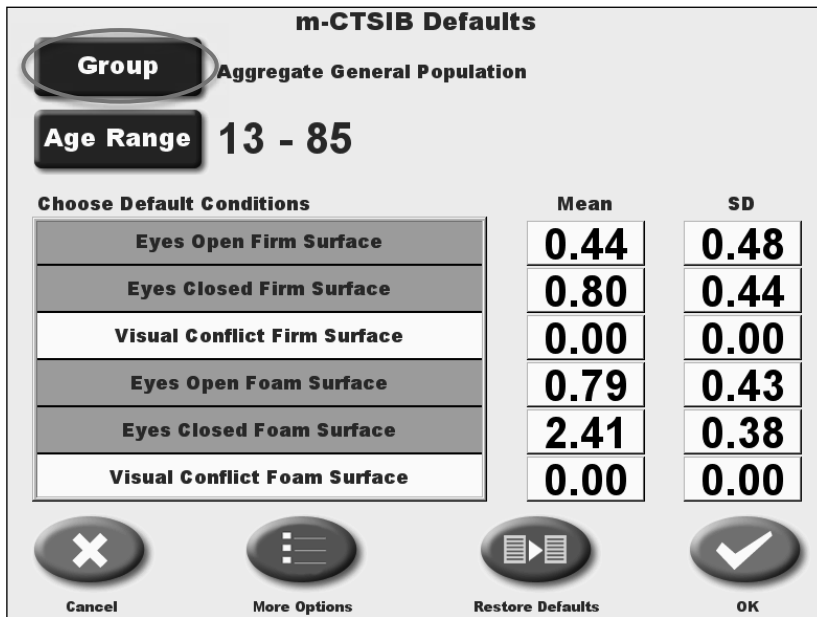


Figure 4.5 The <Group> button on the m-CTSIB Defaults screen.

Select another data set on the m-CTSIB Groups screen and then touch <OK>.

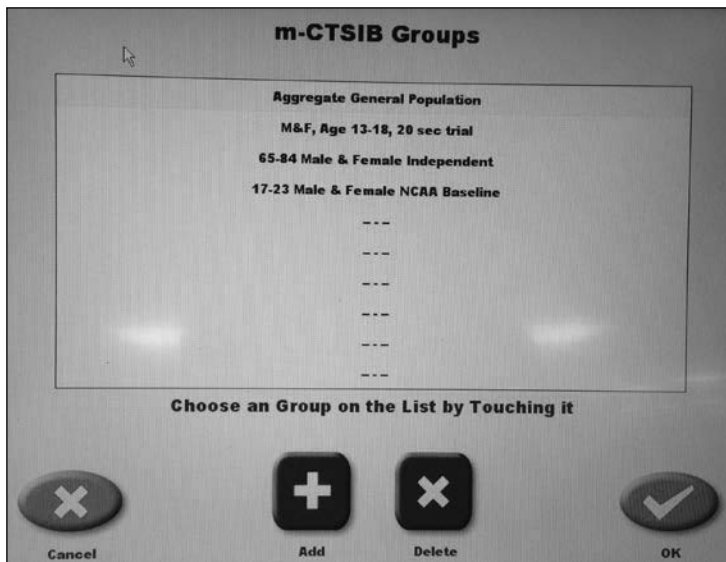


Figure 4.6 The m-CTSIB screen with the 65-84 Male and Female Independent data set selected.

Note that the Mean and Standard Deviation numbers have all changed to reflect the new data set.

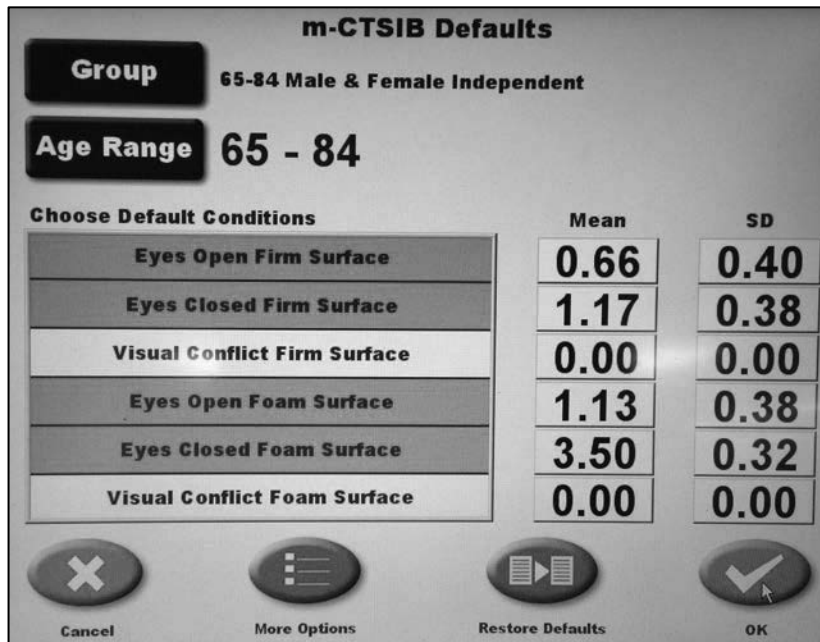


Figure 4.7 The m-CTSIB Defaults screen with the new Mean and Standard Deviation numbers reflecting the selection of the 65-84 Male and Female Independent data set.

While the Balance SD and BioSway devices do not come with normative data associated for BESS tests, normative data sets can be added. In order to associate data, choose a BESS test from the Sensory Integration Protocol List and then touch <Next>.

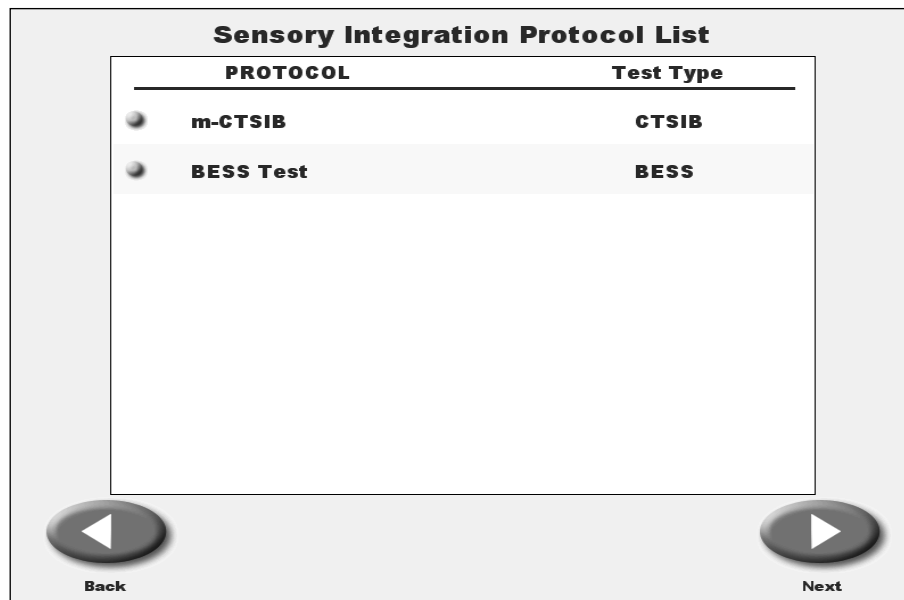


Figure 4.8 The Sensory Integration Protocol List screen with a BESS test selected.

Touch the <Group> button on the BESS Test Defaults screen.

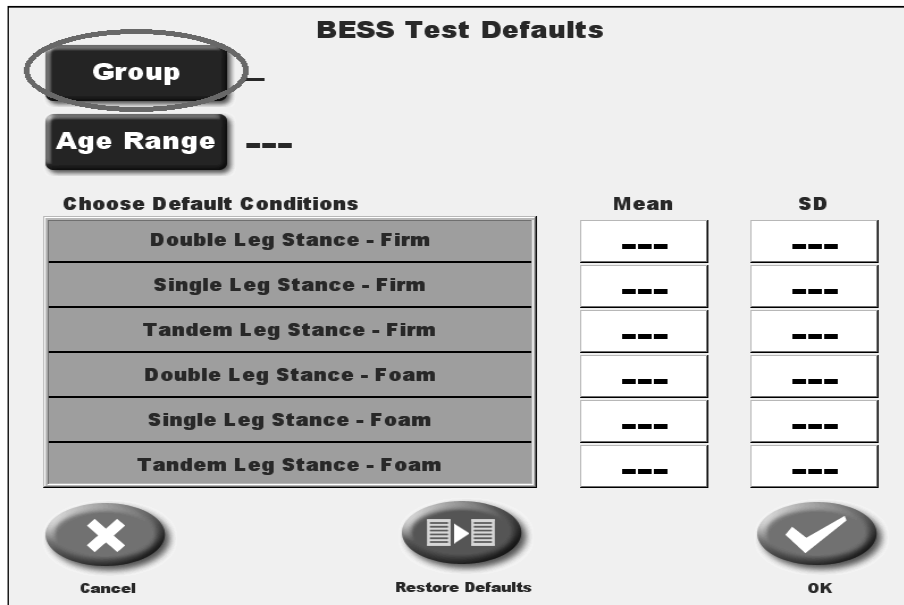


Figure 4.9 The <Group> button on the BESS Test Defaults screen.

Touch the <Add> button in order to create a new normative data set. Create a Group Name, associate an Age Range, associate conditions, and input Mean and Standard Deviation data.

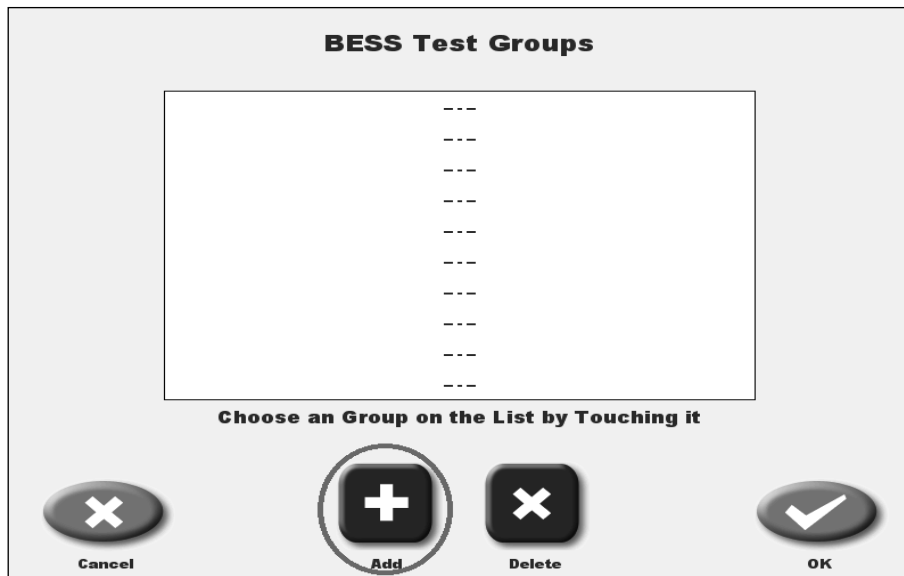


Figure 4.10 The <Add> button on the BESS Test Groups screen.

When a Custom Sensory Integration protocol is created, normative data sets will also have to be created. To associate a normative data set, touch the <Configuration> button on the Utilities screen.

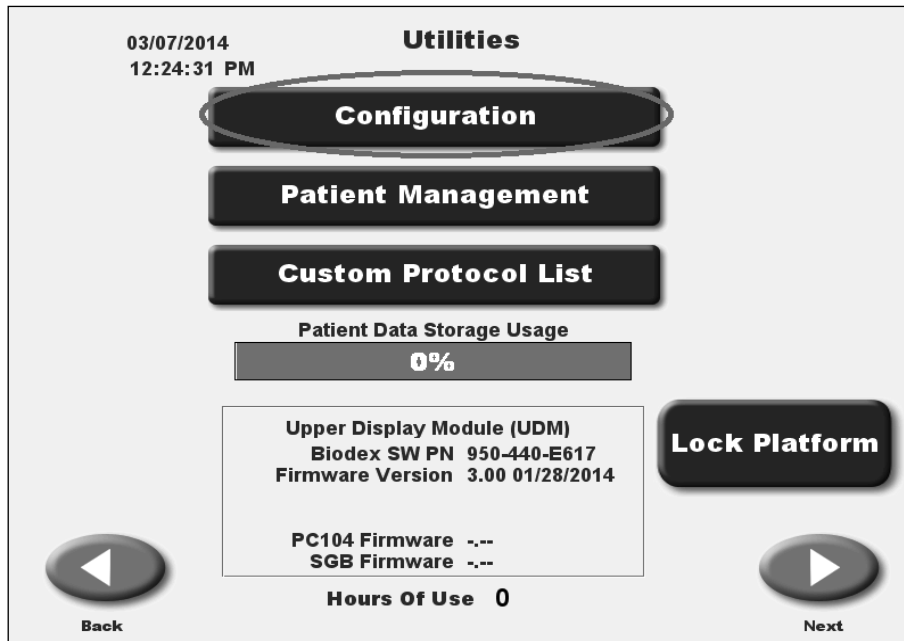


Figure 4.11 The <Configuration> button on the Utilities screen.

Touch the <Custom Sensory Int. Defaults> button.

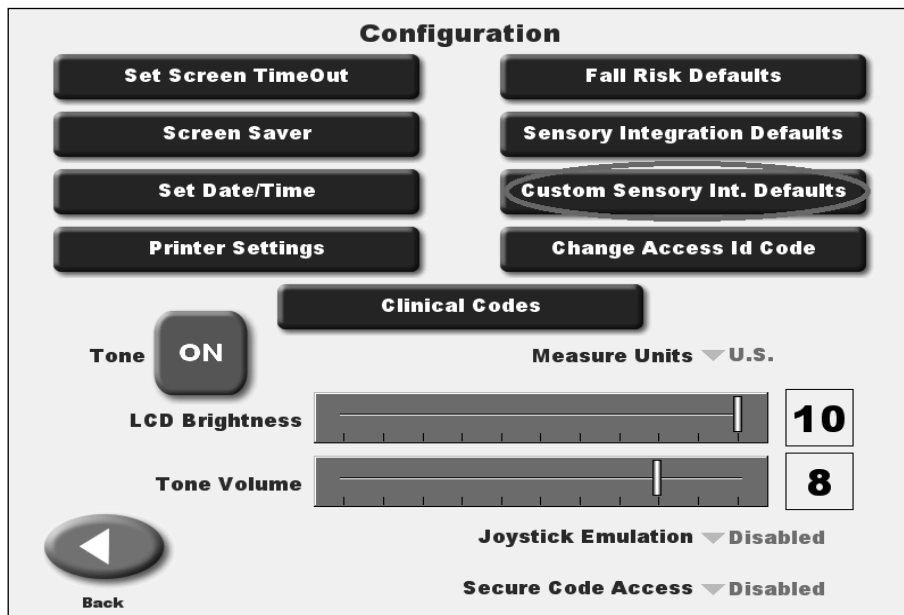


Figure 4.12 The <Custom Sensory Int. Defaults> button on the Configuration screen.

Choose the Custom Sensory Integration protocol to which you will be associating a normative data set and then touch <Next>.

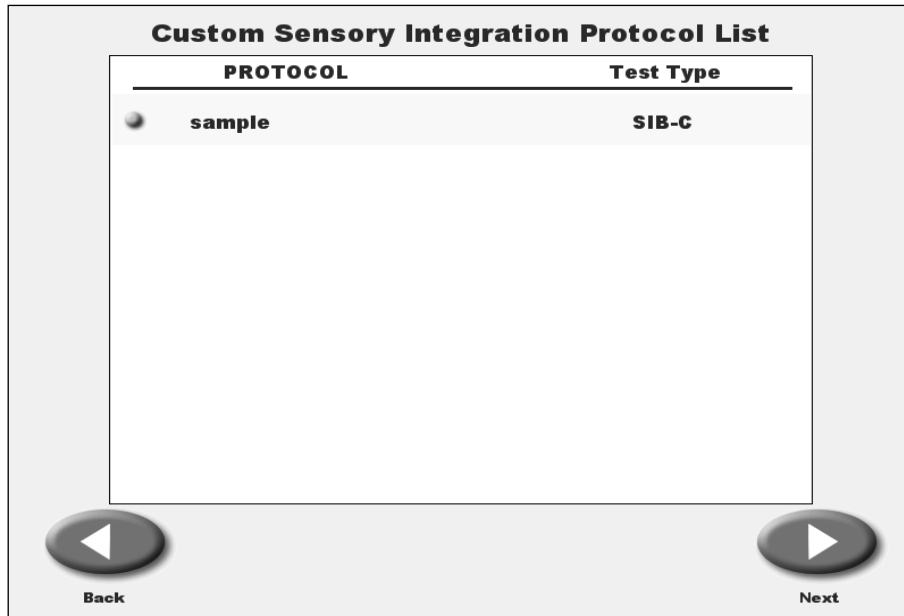


Figure 4.13 The Custom Sensory Integration Protocol List.

Touch the <Group> button and then the <Add> button on the Groups screen. Use the keypad to create a Group Name.

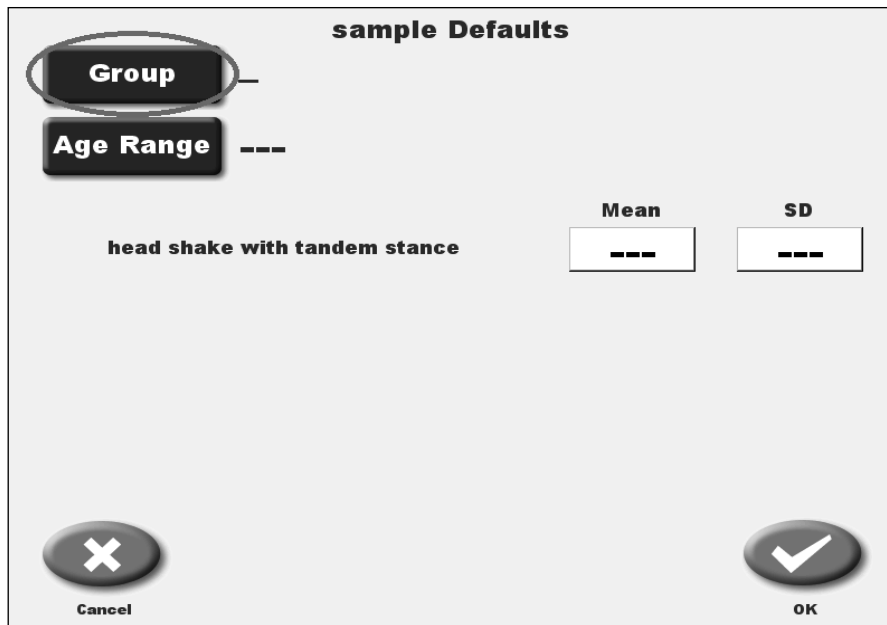


Figure 4.14 The <Group> button on the Defaults screen.

Then touch on the <Age Range> button and then the <Add> button on the Age Ranges screen.

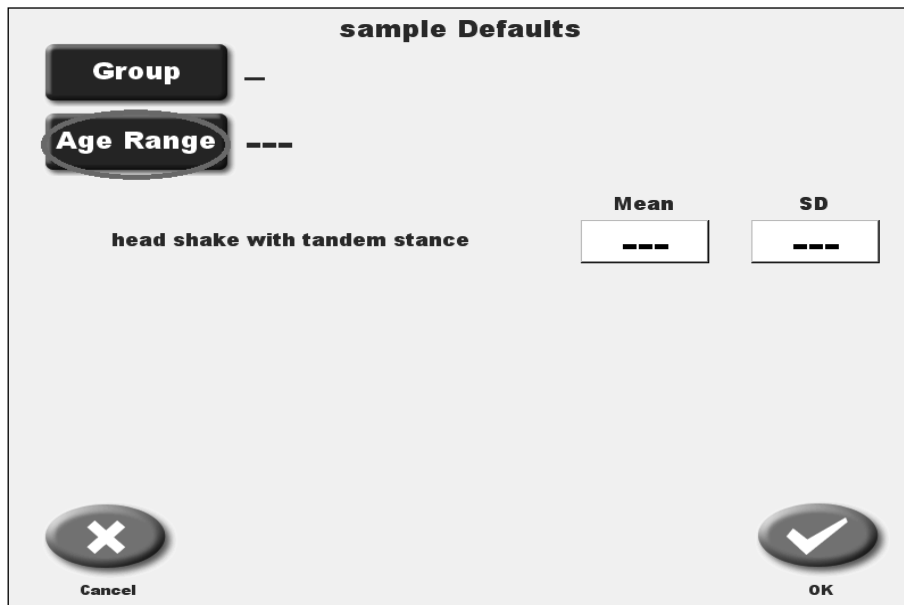


Figure 4.15 The <Age Range> button on the Defaults screen.

Touch the 'From' field on the Age Ranges screen to enter the lower age of your normative data set.

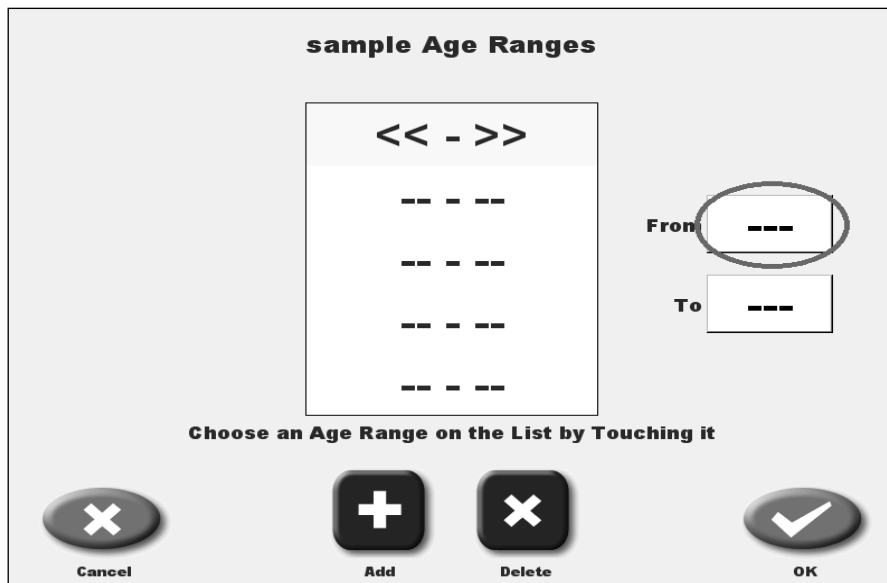


Figure 4.16 The 'From' field on the Age Ranges screen.

Touch the key pad or the Up or Down arrows on the Patient Age screen to enter the appropriate age. Then touch <OK>. Touch the 'To' field on the Age Ranges screen to enter the higher age of your normative data set. Touch the Up or Down arrows on the Patient Age screen to enter the appropriate age. Then touch <OK>. Touch <OK> on the Age Ranges screen to return to the Defaults screen.

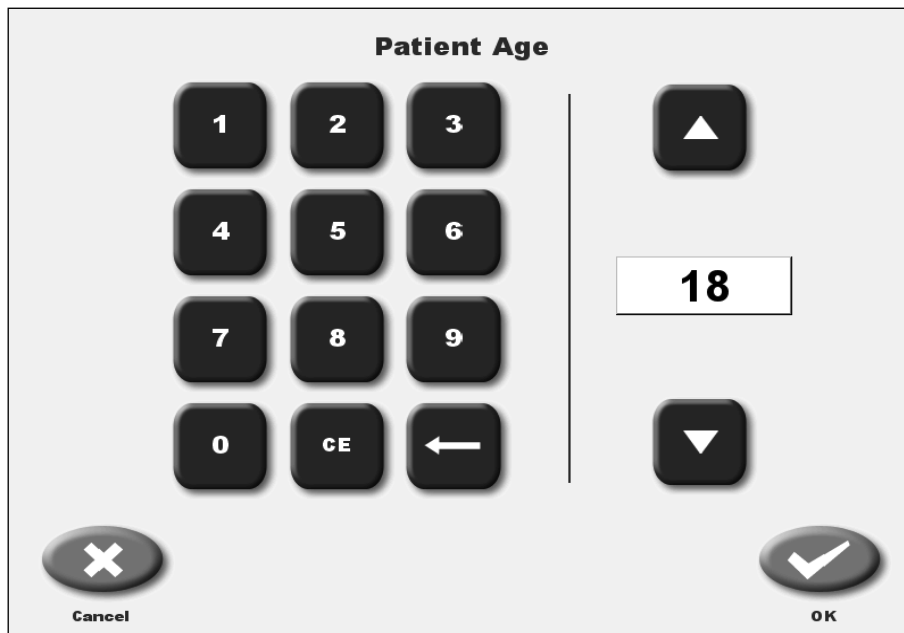


Figure 4.17 The Patient Age screen.

On the Defaults screen, touch on the Mean and SD fields to enter your data. If you want to add normative data that is derived from testing that was done on Biodex balance devices, you must use Biodex's Software Utility to convert the .bio file (in which the patient records will be found) to a .csv file that can be opened with Microsoft Excel. In an Excel spreadsheet, you can calculate the Mean and SD (Standard Deviation) numbers.

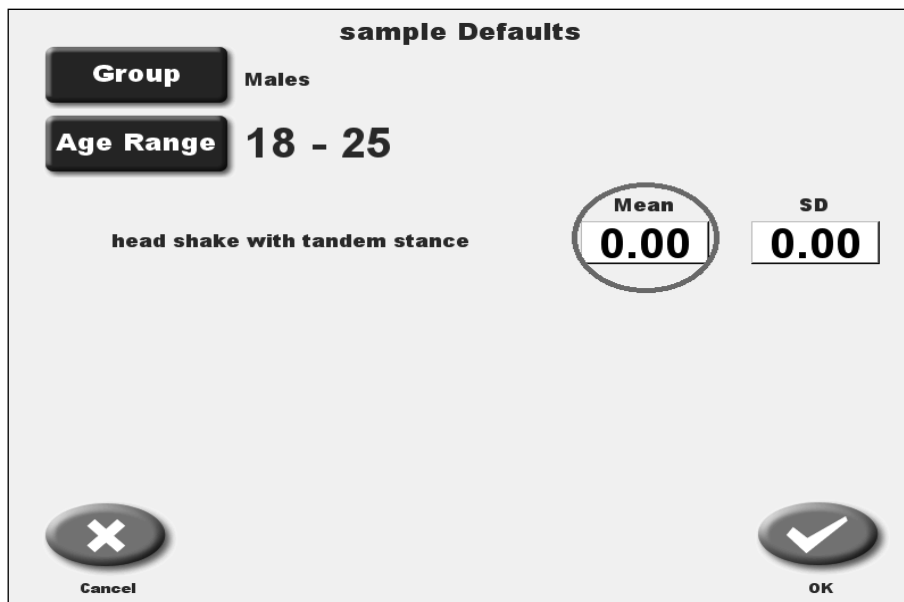


Figure 4.18 The Mean field on the Defaults screen.

Use the key pad or Up and Down arrows on the Sway Index Screen to enter your data. Then touch <OK>.

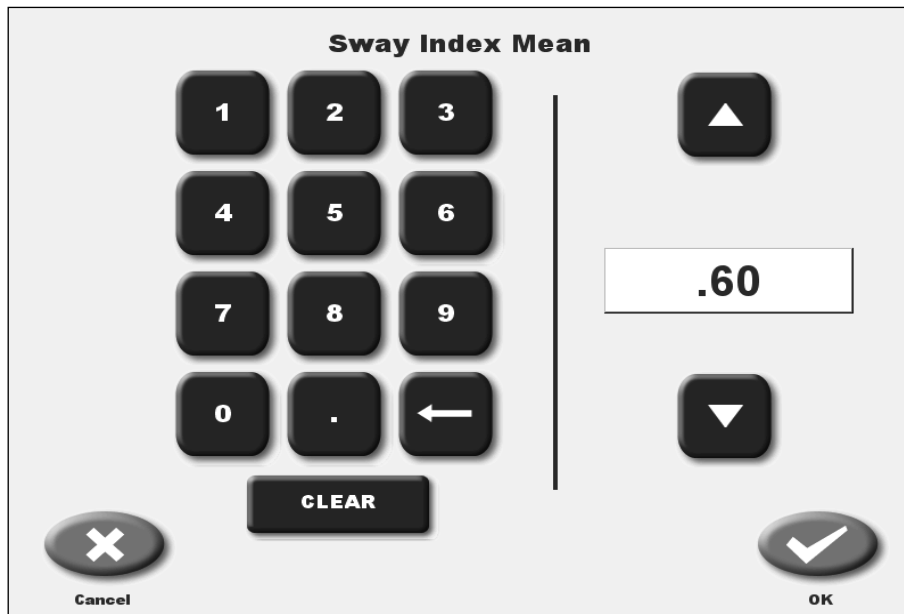


Figure 4.19 The Sway Index screen.

The Fall Risk normative data has not changed, but customers frequently ask about changing the Fall Risk default normative data. The Fall Risk Test is the suggested test to assess a person's balance relative to other people of similar age in an active community that have not had unexplained falls. It should be noted that although the Balance SD has normative data for various populations for the specific protocols, population data can vary greatly.

It should also be noted that the default Fall Risk Test included with the product uses a 12 to 8 protocol. If test subjects seem to all pass with no difficulty, then this protocol is not sensitive enough and the 6 to 2 protocol should be used. The normative values will change accordingly.

To change the default normative data for the Fall Risk test, touch the <Utilities> button on the Home screen.



Figure 4.20 The <Utilities> button on the main menu of the Balance SD interface.

Touch the <Configuration> button on the Utilities screen and then enter your access code and touch <OK>.

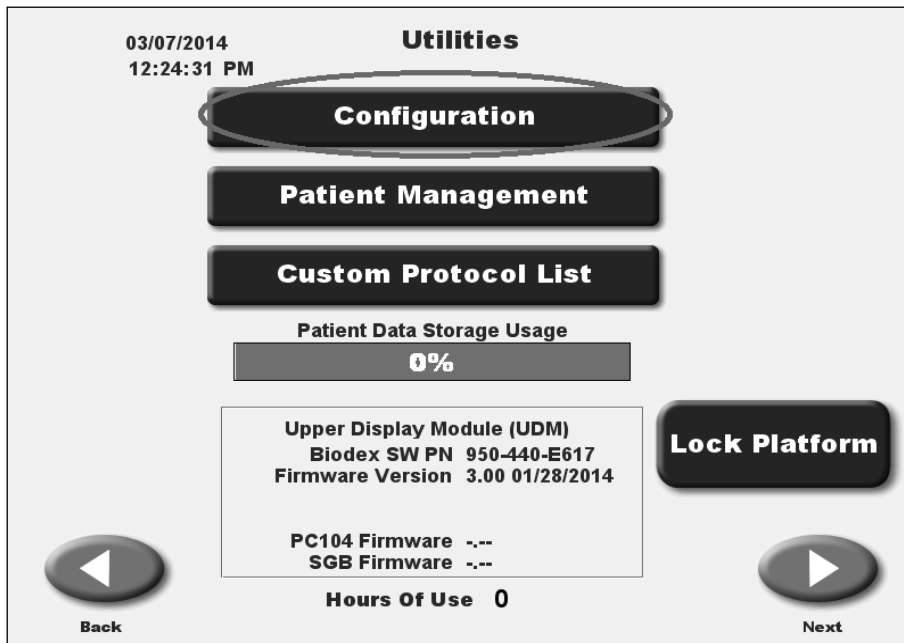


Figure 4.21 The <Configuration> button on the Utilities screen.

Touch the <Fall Risk Defaults> button on the Configuration screen.

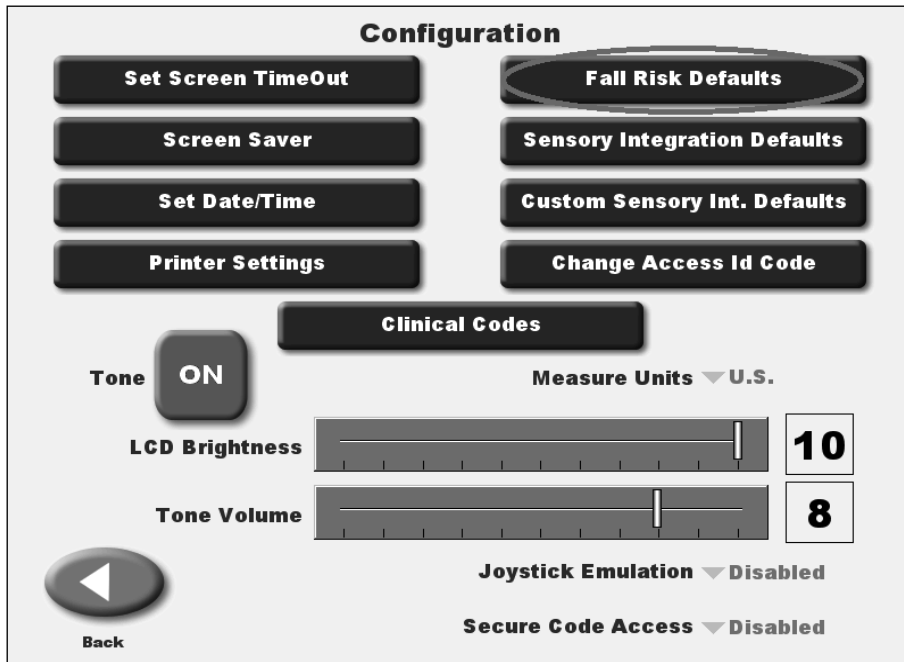


Figure 4.22 The <Fall Risk Defaults> button on the Configuration screen.

Touch the 'Initial' and 'Ending' fields and use the keypad to change the Fall Risk Platform Settings. The setting of 6 to 2 is generally more challenging than 12 to 8.



Figure 4.23 The Initial field on the Fall Risk Defaults screen.

Then touch on each Predictive Value field to highlight it and use the Up or Down arrows to change the values.

Fall Risk Defaults

Fall Risk Platform Setting **Initial** **Ending**

Fall Risk Platform Setting **6** **2**

Predictive Values

Age Range	Index		
17-35 YRS	0.82	To 2.10	<input type="button" value="▲"/> <input type="button" value="▼"/>
36-53 YRS	0.70	To 3.10	
54-71 YRS	0.90	To 3.70	
72-89 YRS	2.00	To 4.00	

 Cancel Restore Defaults OK

Figure 4.24 A highlighted Predictive Value field on the Fall Risk Defaults screen.

Note the following Predictive Values for the 6 to 2 Fall Risk Platform Settings. Each one of these numbers must be entered manually—they do not change automatically when the platform settings are changed to 6 and 2.

Fall Risk Defaults

Fall Risk Platform Setting **Initial** **Ending**

Fall Risk Platform Setting **6** **2**

Predictive Values

Age Range	Index		
17-35 YRS	0.82	To 2.26	<input type="button" value="▲"/> <input type="button" value="▼"/>
36-53 YRS	1.23	To 3.30	
54-71 YRS	1.79	To 3.35	
72-89 YRS	1.90	To 3.50	

 Cancel Restore Defaults OK

Figure 4.25 The Fall Risk Defaults screen with the appropriate Predictive Values for a 6 to 2 Fall Risk Platform Setting.

Log Transformation Option

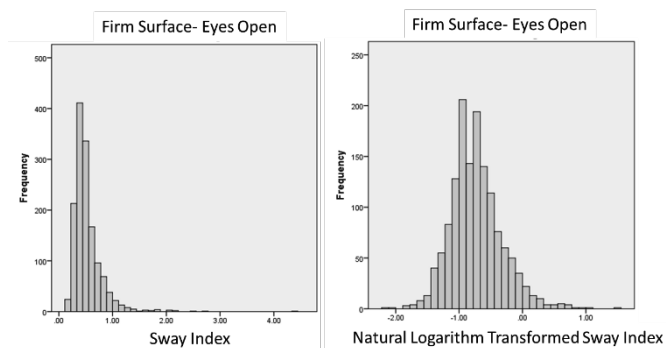
In addition to new normative data, this version of the software gives users the option to conduct something called a log transformation of their current normative data.

Some Biodex customers have reported that patient results for the m-CTSIB test were not always presenting on the test report standard deviation graphs as expected. A statistician reviewed the data bases and the manner of presenting scores relative to a typical bell curve distribution.

Since human performance is inherently unpredictable, numerical units that objectify human performance will not always fit perfectly into a bell shaped curve. The solution was to apply a log transformation to the normative data. Log transformation is a standardized, well accepted means to apply a logarithmic (i.e., base 10 natural log) to the data set. The power of a log transformation is that it moves large values closer together and small values further apart. (Scores are no longer bunched together.) The result is a distribution that is closer to normal.

One may choose not to use the transformation option if the raw data is of importance for research or other such purposes. By choosing to not log transform the normative data base, the plots of the results will not represent a true bell curve distribution of the normative data and the results will appear skewed to the right (i.e., worse) on standard deviation graphs.

Therefore, Biodex recommends using log transformed data for typical clinical use.



Distribution of Firm Surface-Eyes Open prior to natural logarithm transformation (left) and following transformation (right)

If you have not created your own custom normative data—or if you have not altered the factory default normative—the log transformation will occur automatically as part of the software update process.

After the software update is completed, when you navigate to the m-CTSIB defaults screen you will see that the normative data that was previously called “General Population 17-72, 30 sec trial” is now simply called “Aggregate General Population.” All normative data sets now feature the log-transformed data.

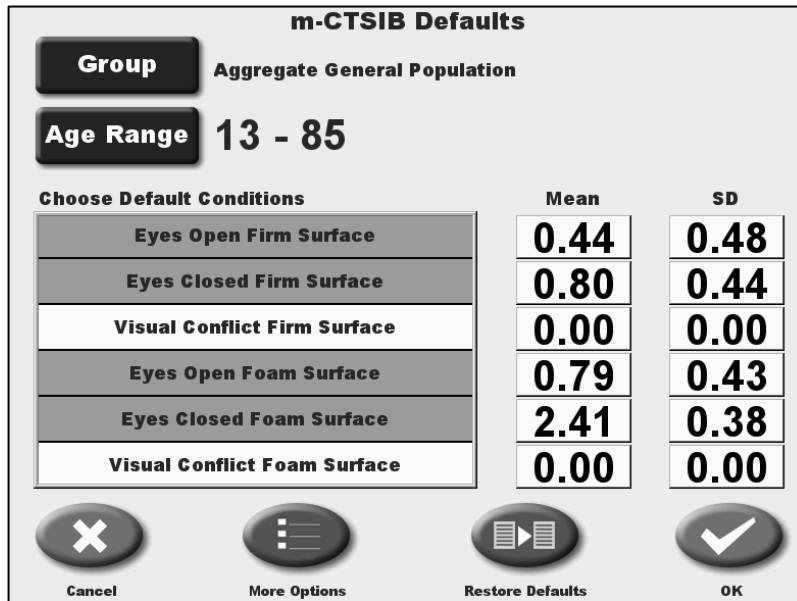


Figure 4.26 The m-CTSIB Defaults screen featuring updated General Population normative data set.

However, if you have created your own normative data sets (or altered the factory default data), the software update will not automatically update the device’s normative data. This means the new normative data will not be introduced, nor will the log transformation be applied.

Hence, the M-CTSIB Defaults screen will continue to display the “17-72” data. If you would like to have your device’s data undergo the log transformation, touch the <More Options> button.

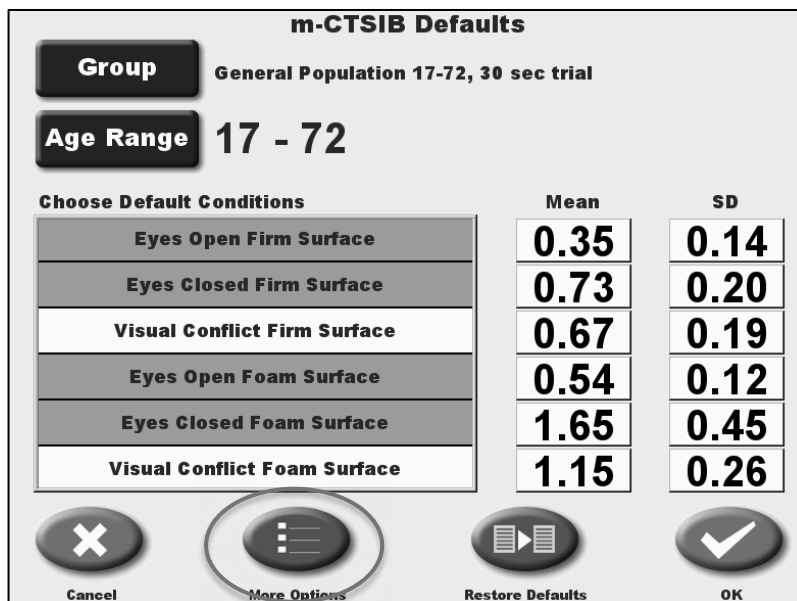


Figure 4.27 Touch the More Options button to begin the normative data log transformation process.

On the Normative Data Method screen, you have the option to activate the log transformation by touching the <ON/OFF> toggle button to ON.

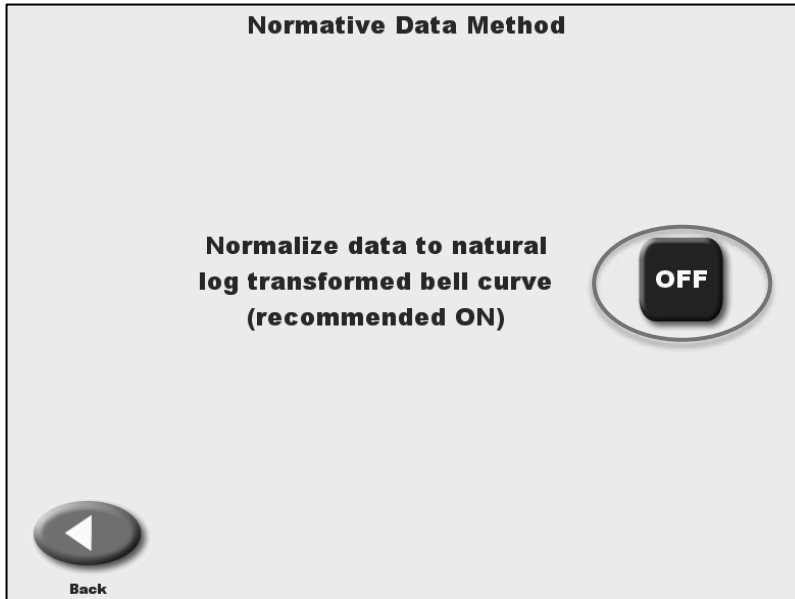


Figure 4.28 The Normative Data Method screen.

By choosing this method, you will lose any normative data sets that have been created to this point. There will be a confirmation screen asking you if you are sure you want to make this change.

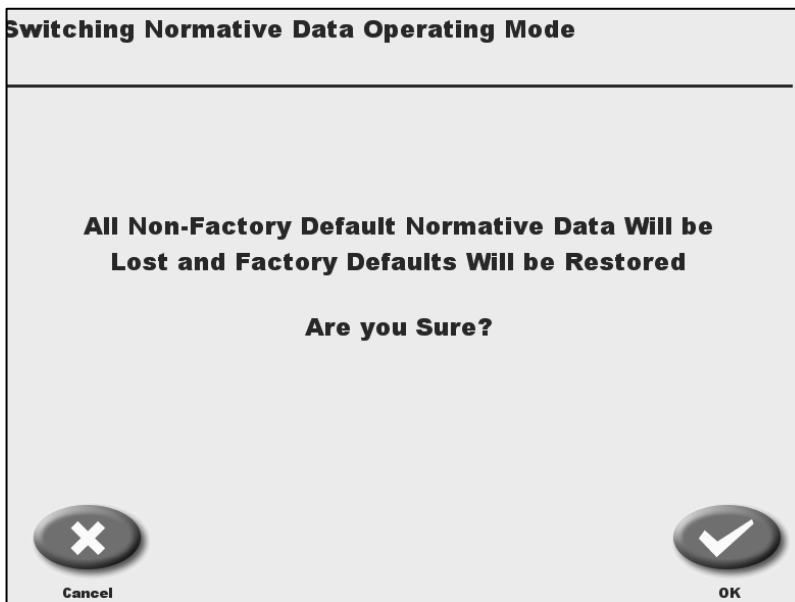


Figure 4.29 The Switching Normative Data Operating Mode confirmation screen.

Touching the <OK> button will bring you back to the m-CTSIB Defaults screen.

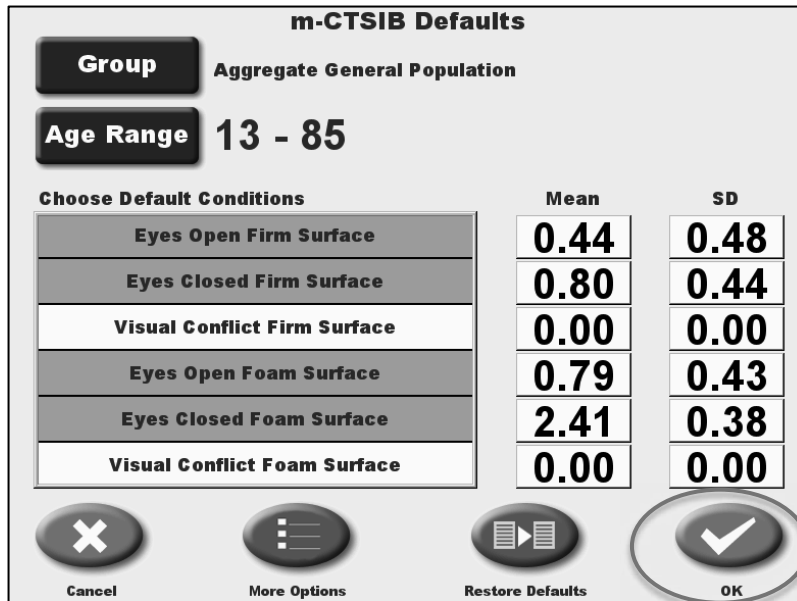


Figure 4.30 The m-CTSIB Defaults screen.

Touching the <OK> button on this screen will prompt a confirmation regarding the Impairment levels used in G-Codes. (Changing the device’s normative data affects the calculations used in Impairment levels.)

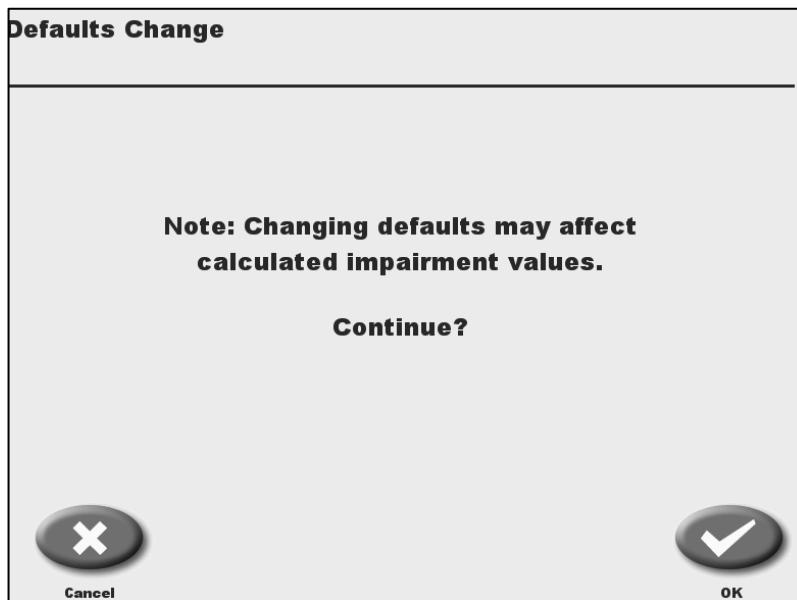


Figure 4.31 Confirmation screen for changing normative data defaults (and therefore G-Code impairment values.)

If you choose <Cancel>, this will prompt a confirmation screen which states that the normative data changes you have just made will not be applied.

Touch <OK> to return to the m-CTSIB Defaults screen, where you will note that the new “Aggregate General Population” is now on display. (And you can assume the log transformation of data has occurred as well.)





m-CTSIB Defaults

Group Aggregate General Population

Age Range 13 - 85

Choose Default Conditions

	Mean	SD
Eyes Open Firm Surface	0.44	0.48
Eyes Closed Firm Surface	0.80	0.44
Visual Conflict Firm Surface	0.00	0.00
Eyes Open Foam Surface	0.79	0.43
Eyes Closed Foam Surface	2.41	0.38
Visual Conflict Foam Surface	0.00	0.00

Cancel More Options Restore Defaults OK

Figure 4.32 The updated m-CTSIB Defaults screen, featuring new, log transformed data set.

5. G-Codes

G-Codes are a method of recording and tracking a patient's functional limitation at the outset of therapy, during the course of therapy, and at the time of discharge.

G-Codes are now required by Medicare for outpatient therapy services billed under Medicare Part B in order to collect data on beneficiaries' functional outcomes from therapy services. Functional tests are used to report a functional limitation category (G-Code) and a percentage of impairment (Severity Code Modifier). The G-Codes will be used by those who provide outpatient therapy services such as physical therapists, occupational therapists, speech-language pathologists, physicians, physician assistants, nurse practitioners, and clinical nurse specialists.

G-Codes can be assigned in the % Weight Bearing Training mode as well as for the m-CTSIB test.

Touch the <Training> button on the Balance SD home screen.

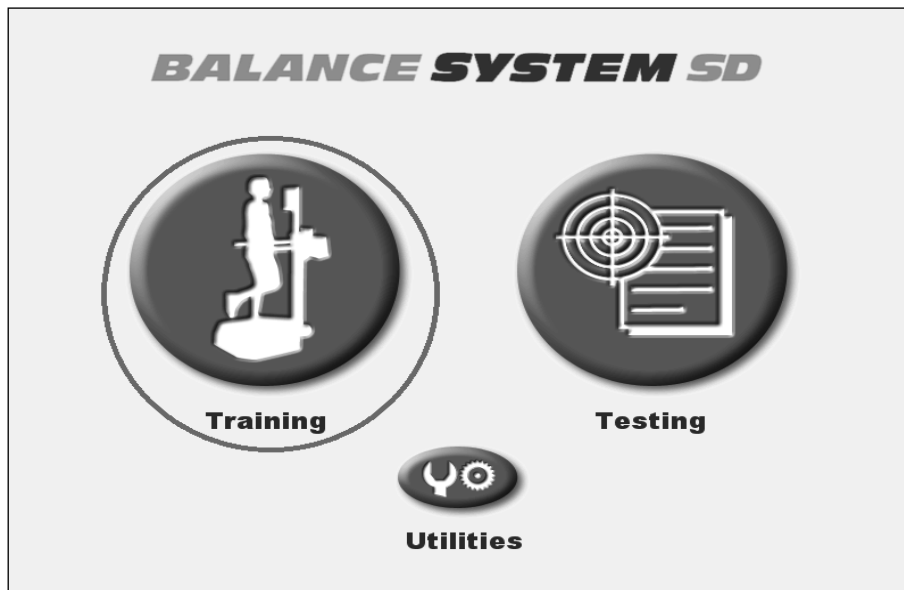


Figure 5.1 The <Training> button on the Balance SD home screen.

Touch the <% Weight Bearing> button on the Training screen.

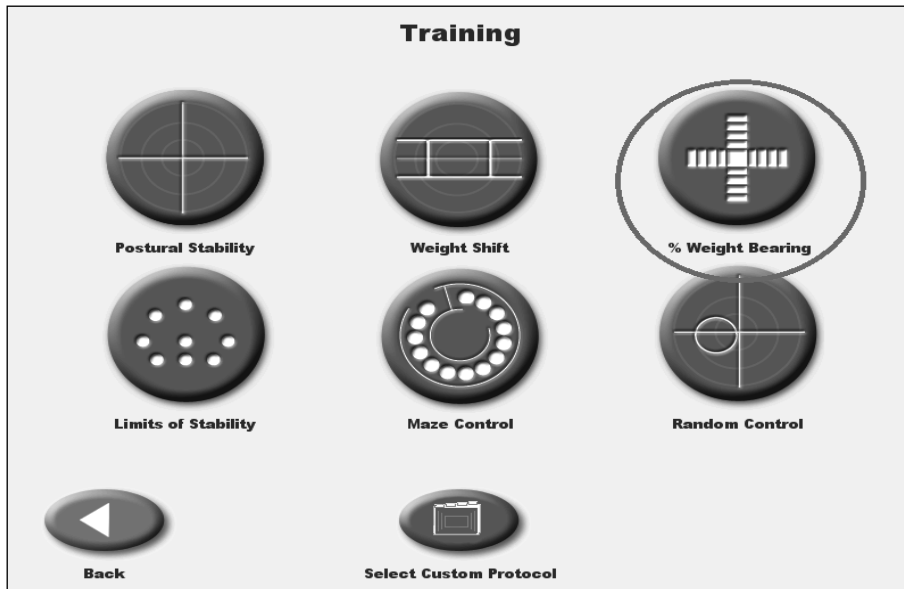


Figure 5.2 The <% Weight Bearing> button on the Training screen.

Touch the <G-Code> button on the User Setup Information screen.

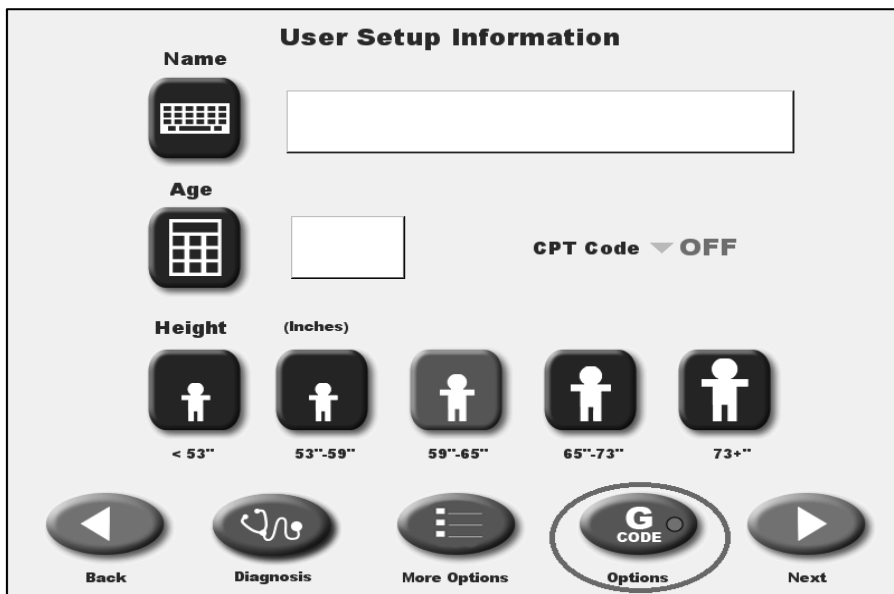


Figure 5.3 The <G-Code> button on the User Setup Information screen.

On this screen, you can associate G-Code data with the patient by making selections in the drop-down menus. The top drop-down menu allows you to select a G-Code Result Option. This means that the Report will feature either the **Impairment %** or the **Severity Modifier Code**, or both. Or, if the drop-down menu is set to **Off**, then the Report will show neither column and the G-Code button on the Set-up screen will have a red (as opposed to green) dot on it.

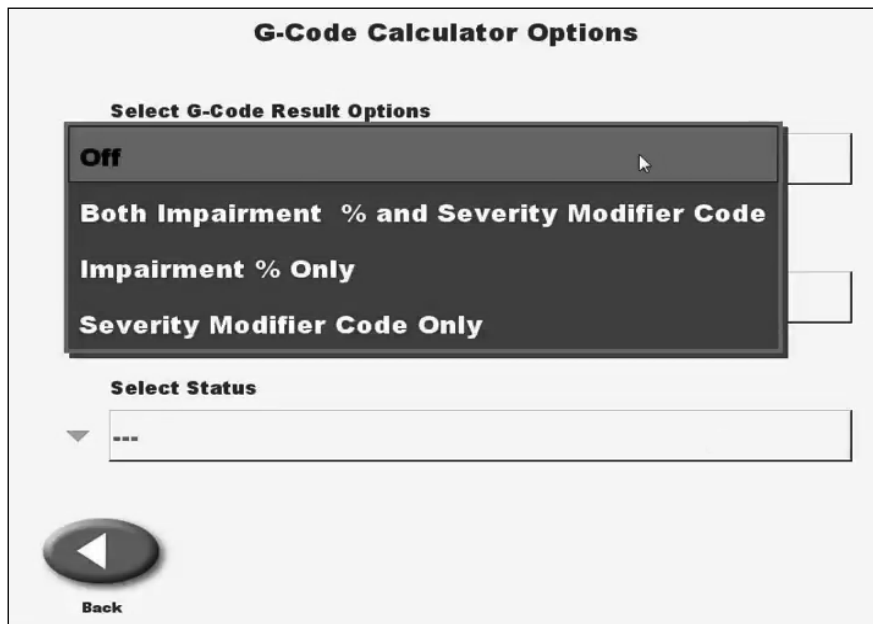


Figure 5.4 The top drop down menu options on the G-Code Calculator Options screen. This menu allows the user to customize the G-Code data that will appear on the Report.

The G-Code category drop-down menu features a list of commonly used rehabilitation categories. The category most likely to be associated when using the Balance SD is the **Changing and Maintaining Body Position**.

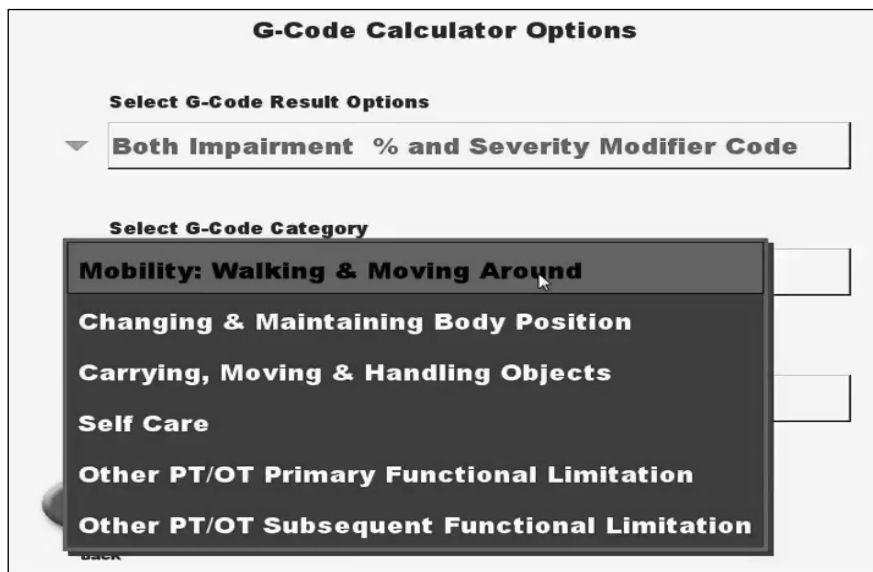


Figure 5.5 The second drop-down menu on the G-Code Calculator Options screen in the Balance SD interface allows the user to choose a G-Code category.

The Status drop-down menu relates to the patient's treatment timeline. If this is the patient's first treatment, or one in a series of treatments, then the status should be set to **Current Status**. If it is the last treatment, then the **Discharge Status** should be selected.

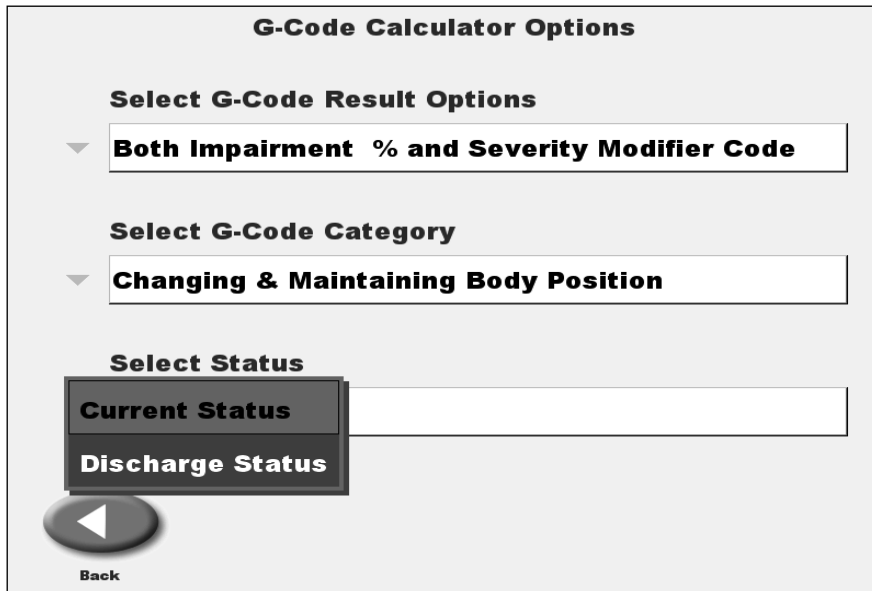


Figure 5.6 The third drop-down menu on the G-Code Calculator Options screen in the Balance SD interface allows the user to select the status of the beneficiary.

G-Codes can also be associated for the m-CTSIB test. Touch the <Testing> button on the Balance SD home screen.



Figure 5.7 The <Testing> button on the Balance SD home screen.

Then touch <Sensory Integration> button on the Testing menu.

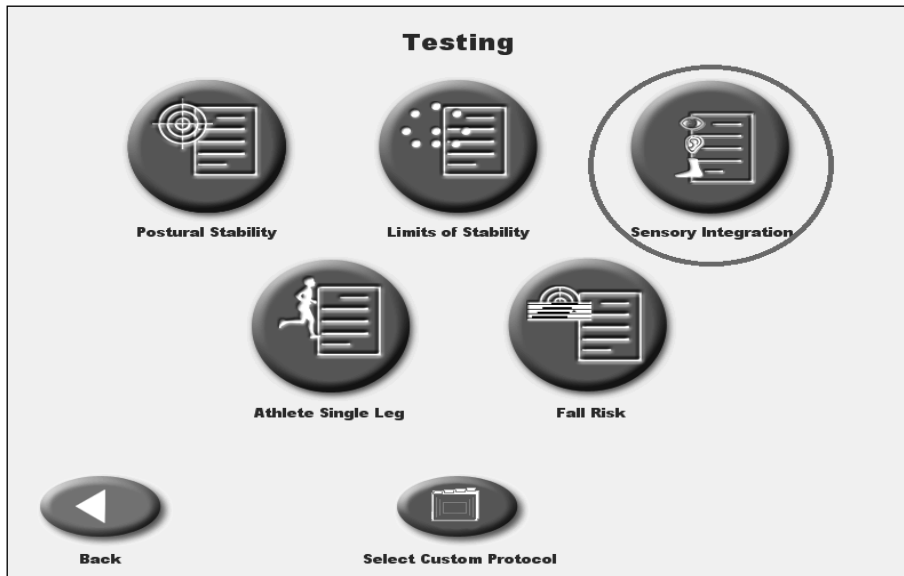


Figure 5.8 The <Sensory Integration> button on the Testing menu.

Choose the m-CTSIB test on the Sensory Integration menu. Then touch the <G-Code> button in order to associate G-Code information. The process is the same as for the % Weight Bearing Training described above.

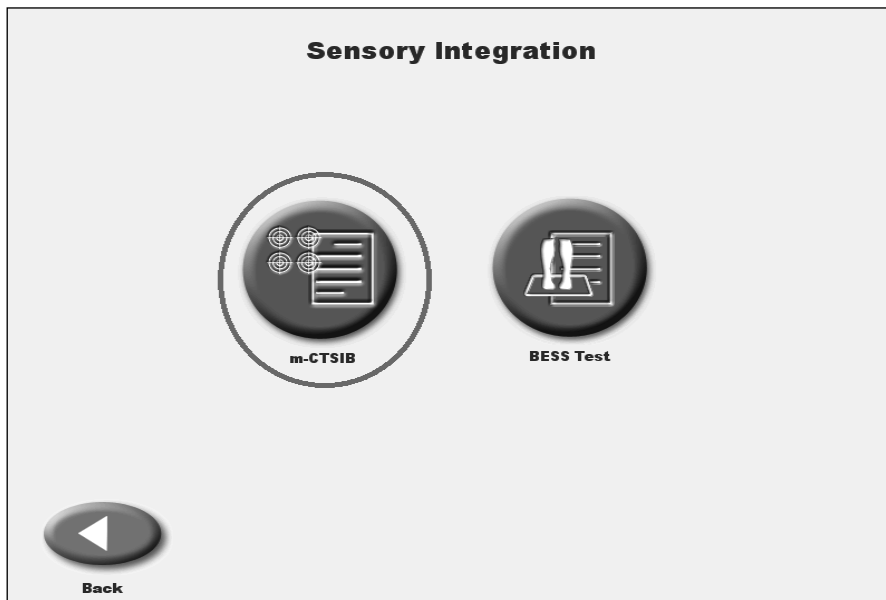


Figure 5.9 The <m-CTSIB> button on the Sensory Integration menu.

The Impairment Percentage numbers refer to what degree the patient could be considered impaired, with 100% meaning the patient is completely impaired and unable to do the associated task without help. The Severity Code Modifiers are a series of impairment level ranges made up of about 20 percentage points each, where “C1”, for example, would represent a status of 1-19% impairment.

Modifier Impairment / Limitation / Restriction	Modifier Code
0%	CH
1-19%	CI
20-39%	CJ
40-59%	CK
60-79%	CL
80-99%	CM
100%	CN

Figure 5.10 The scale of 7 modifiers is intended to denote the patient's degree of impairment/limitation/restriction.

When chosen and associated, the G-Code, Impair % and the Modifier Code will appear on the right side of the Clinical Test of Sensory Integration of Balance report.

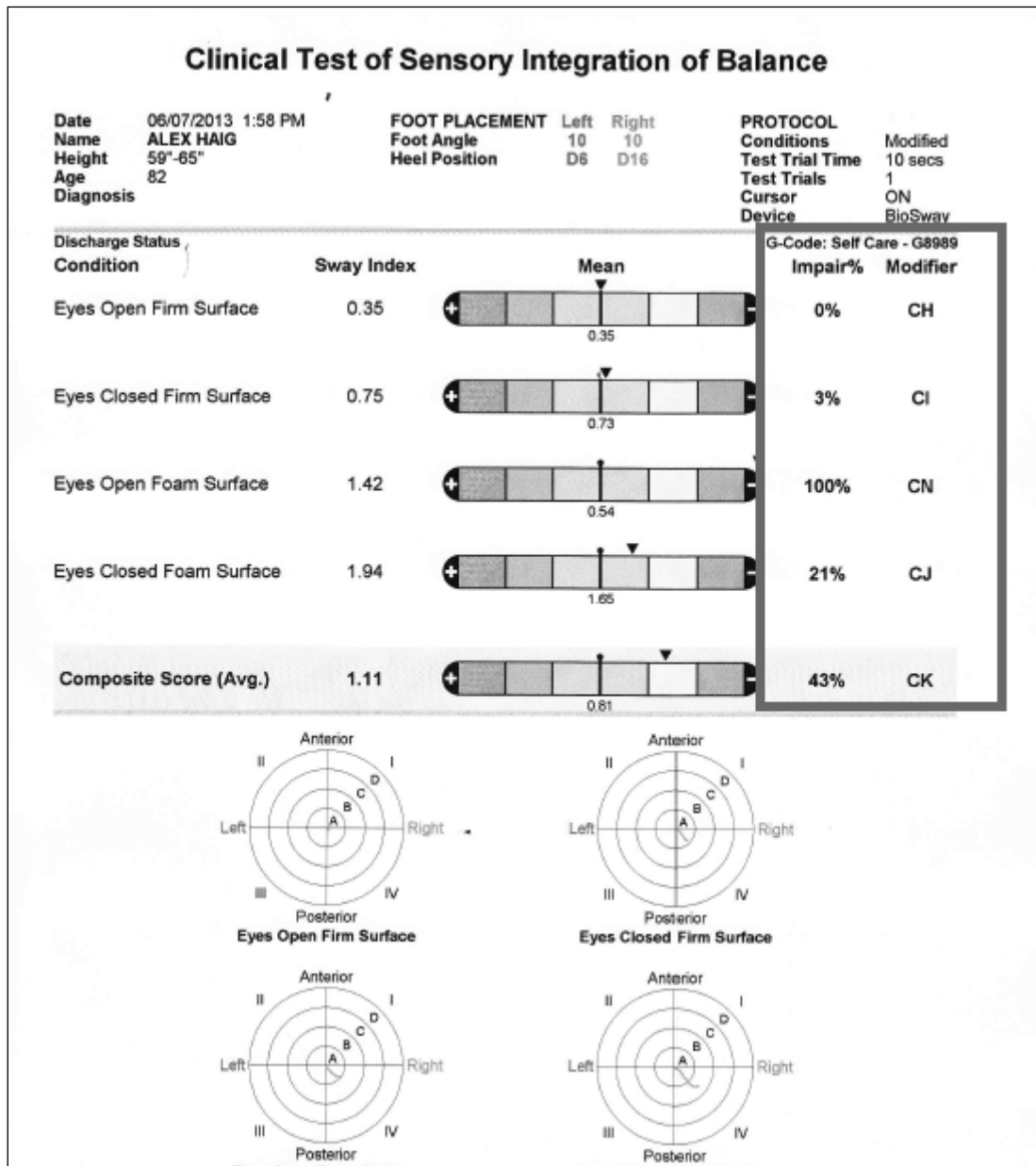


Figure 5.11 The G-Code Impair % and the Modifier Code on the Clinical Test of Sensory Integration of Balance Patient Record.

The therapist may also choose to alter the Impairment Percentage numbers manually. To do so, choose the patient's name on the Patient Management screen.

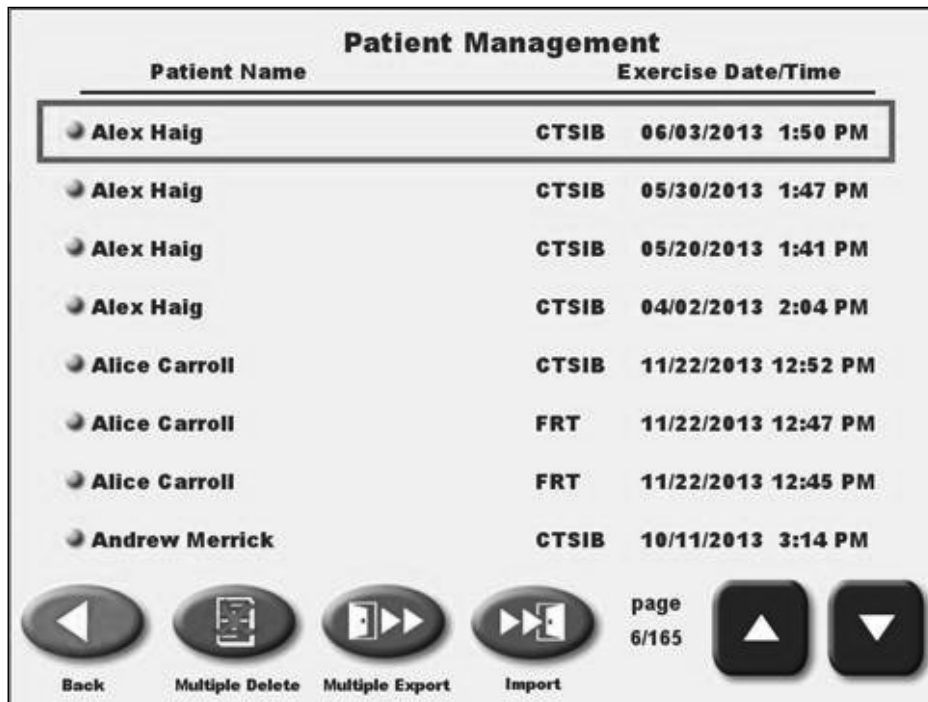


Figure 5.12 The Patient Management screen.

Touching the patient's name will bring up their m-CTSIB Test Results.

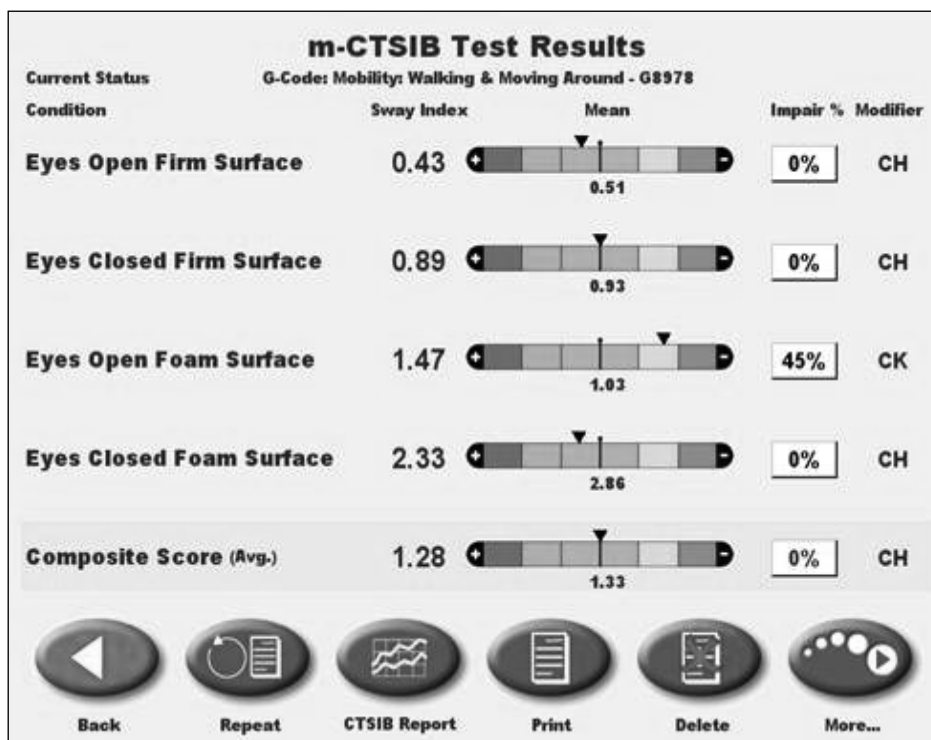


Figure 5.13 The m-CTSIB Test Results screen for the selected patient.

Touch the Impair % number that you would like to change.

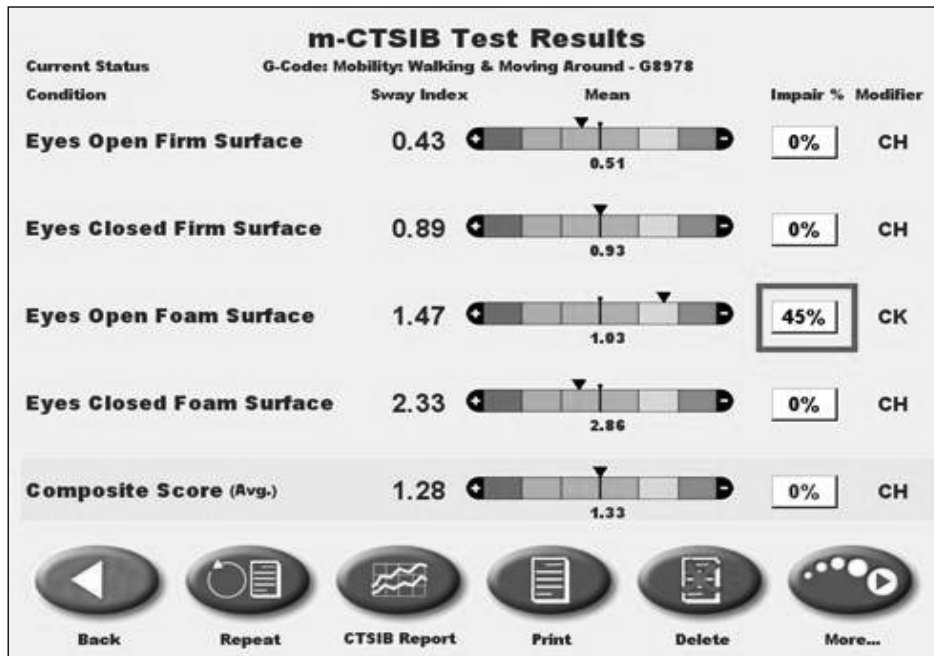


Figure 5.14 One of the Impair % numbers on the m-CTSIB Test Results screen.

On the Select Reason for Amendment screen, select a reason for the change from the drop down menu and then select the new Impair % number using the Up and Down arrows. Then touch <OK>.

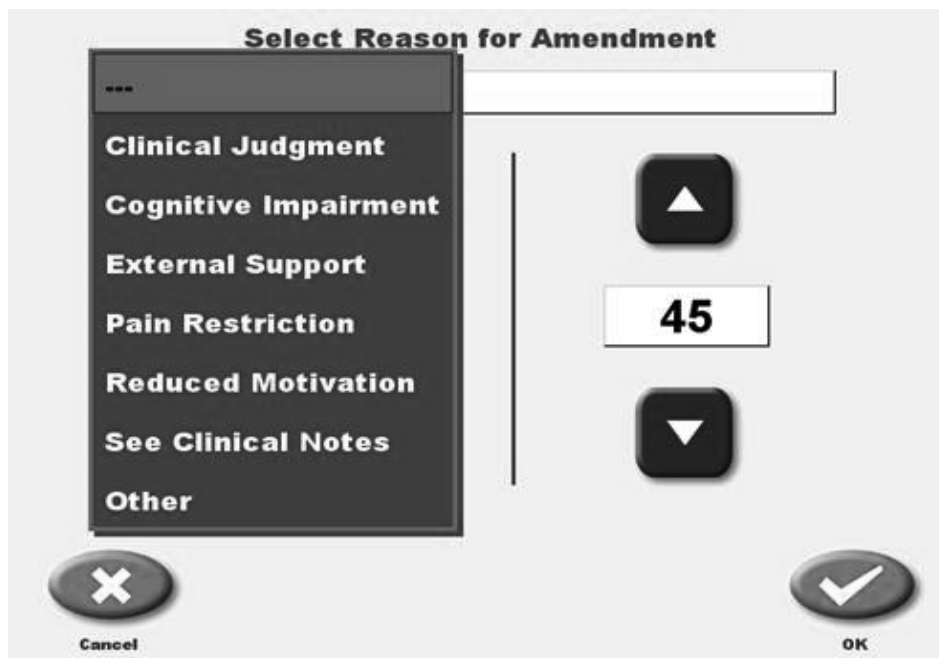


Figure 5.15 The Select Reason for Amendment screen.

When you return to the m-CTSIB Test Results screen you will note two things: First, a red asterisk has appeared next to the changed number, marking it as being amended. Also, since the impairment level change was a significant one - from 45 to 20 - note that the Severity Modifier Code has changed as well - from CK to CJ.

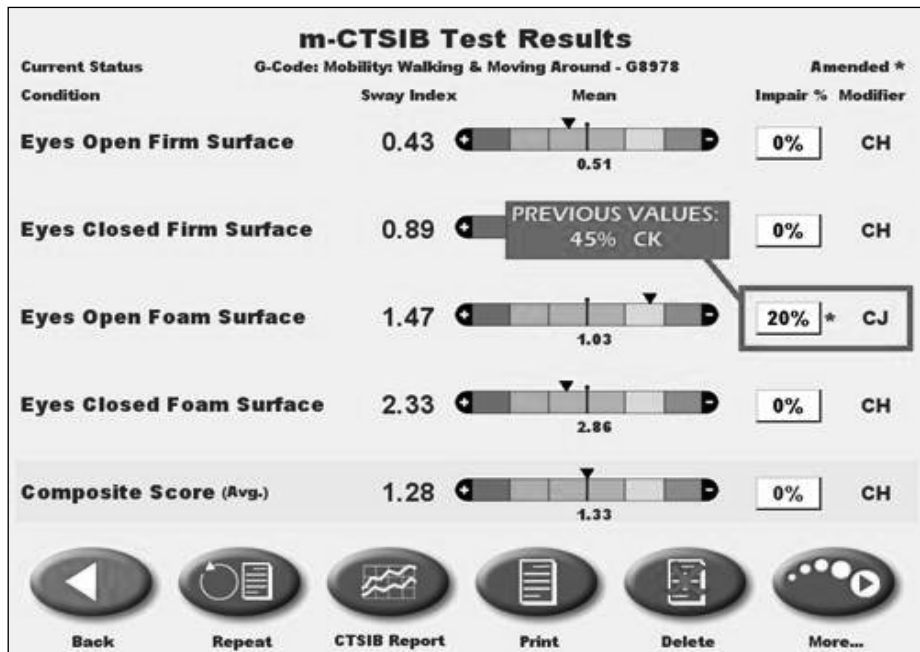


Figure 5.16 The m-CTSIB Test Results screen after the Impair % and Modifier has been changed.

To turn the G-Code functionality on or off, touch the <Utilities> button on the Balance SD home screen.



Figure 5.17 The <Utilities> button on the main menu of the Balance SD interface.

Touch the <Configuration> button on the Utilities screen and then enter your access code and touch <OK>.

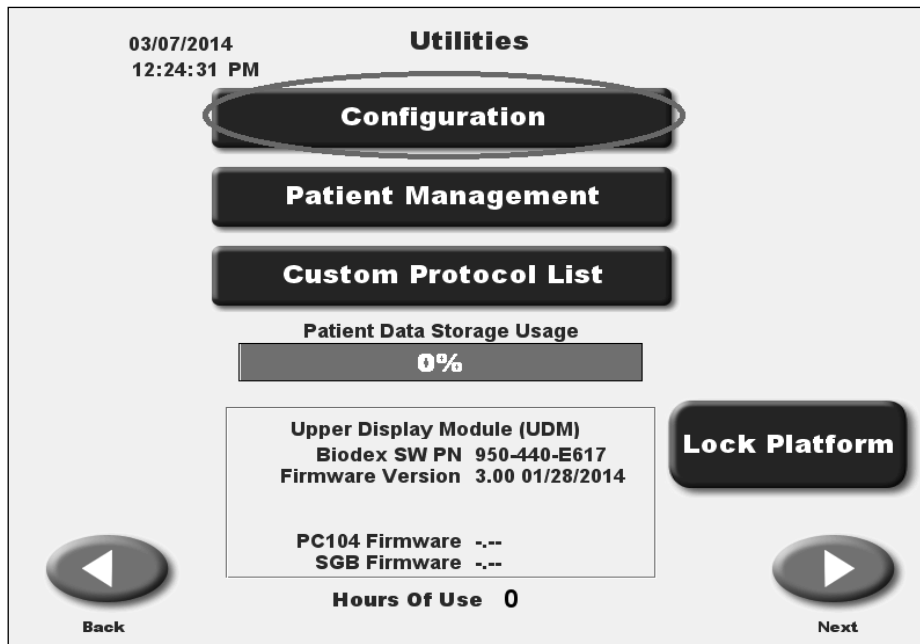


Figure 5.18 The <Configuration> button on the Utilities screen.

Touch the <Clinical Codes> button on the Configuration screen.

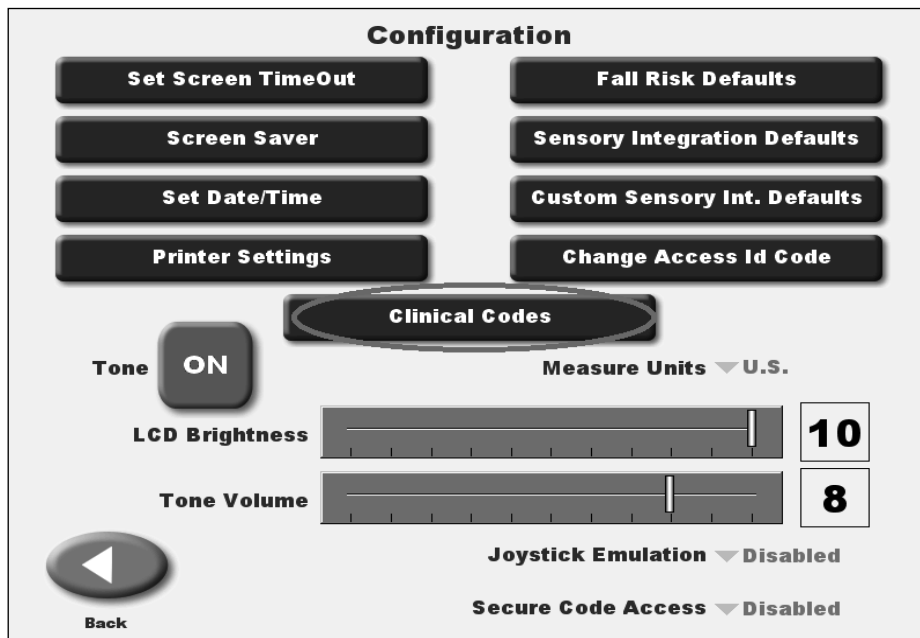


Figure 5.19 The <Clinical Codes> button on the Configuration screen.

Touch the Clinical Codes toggles to select 'Yes' or 'No'. If the G-Codes toggle is set to 'No', no G-Code information will appear on the Report.

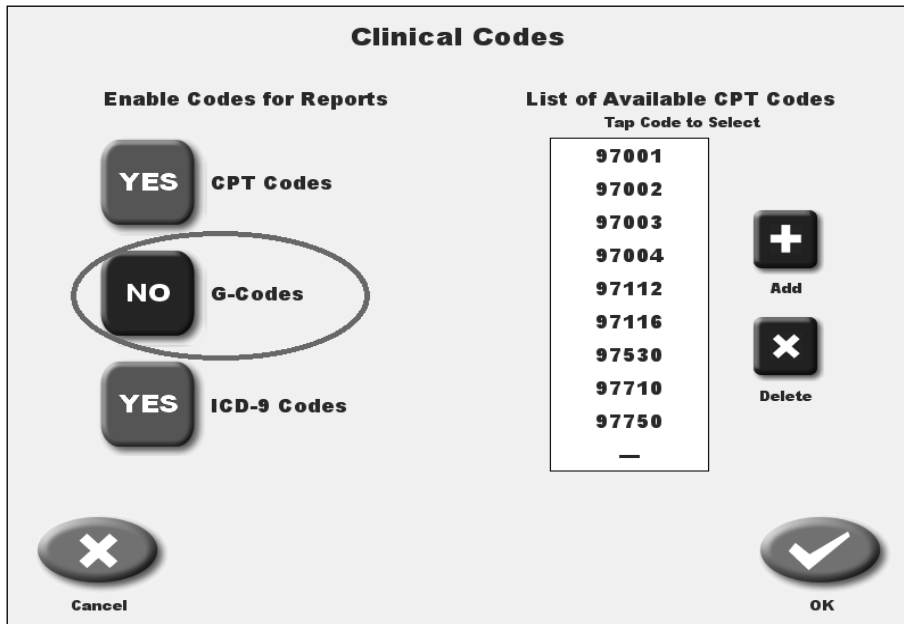


Figure 5.20 The G-Codes toggle button set to 'No' on the Clinical Codes screen.

Another feature new to this software update is the <Diagnosis> button. The <Diagnosis> button will be available on the User Setup Information screen in any of the Training or Testing modes.

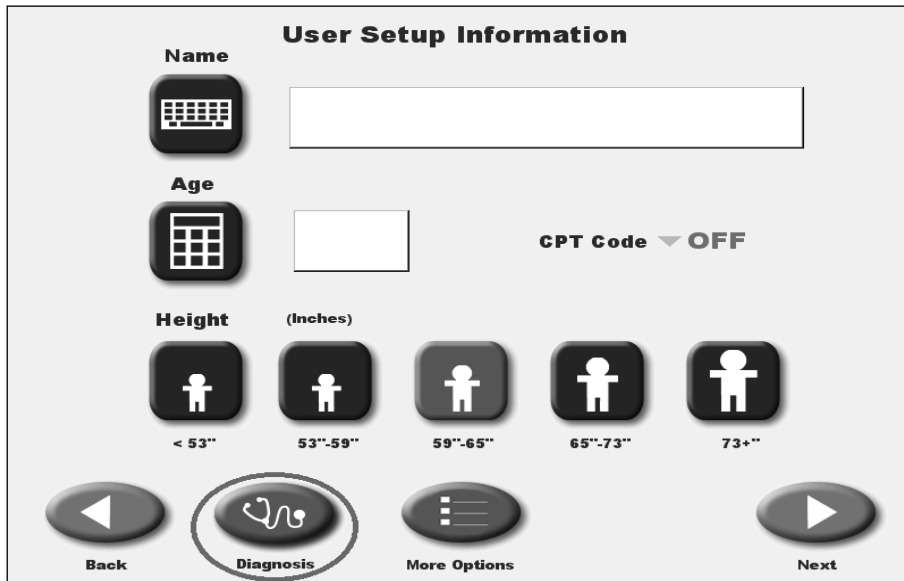


Figure 5.21 The <Diagnosis> button on one of the User Setup Information screens.

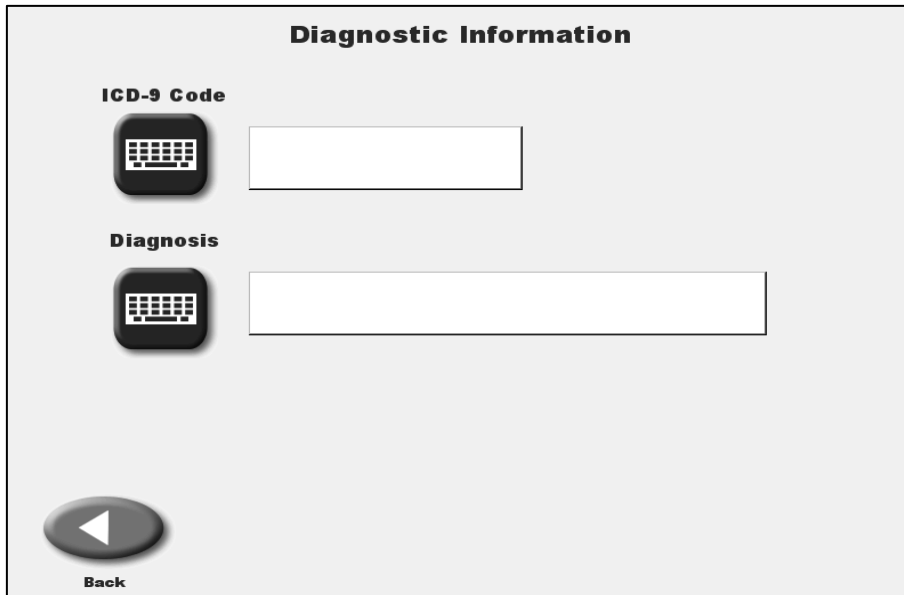


Figure 5.22 The Diagnostic Information screen.

The ICD-9 Code can be turned off so that it does not appear on Progress Reports. In order to turn off this feature, touch the <Utilities> button on the Balance SD home screen. Then touch the <Configuration> button and enter your access code and touch <OK>. Touch the <Clinical Codes> button and then touch the ICD-9 Codes toggle button to select 'No' on the Clinical Codes screen.

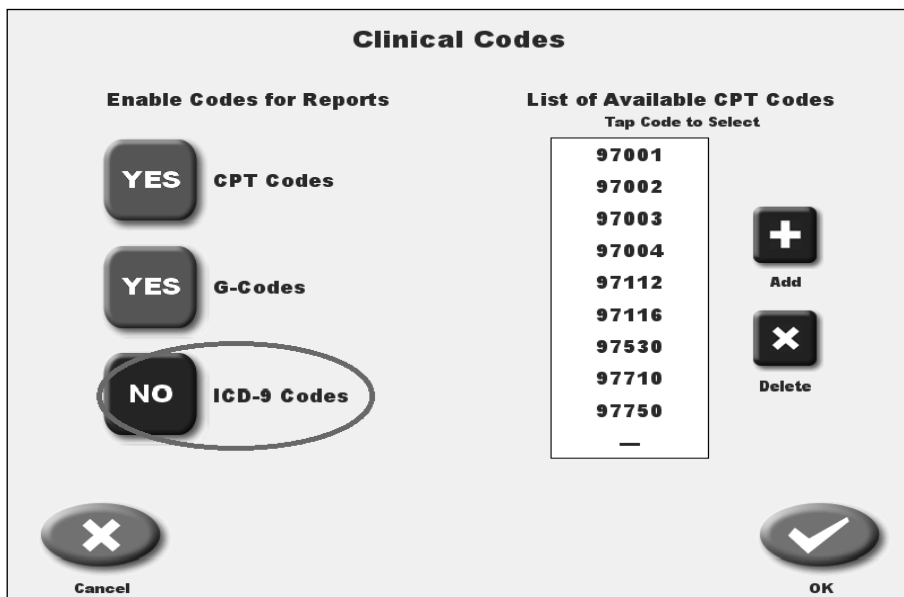


Figure 5.23 The ICD-9 toggle button set to 'No' on the Clinical Codes screen.

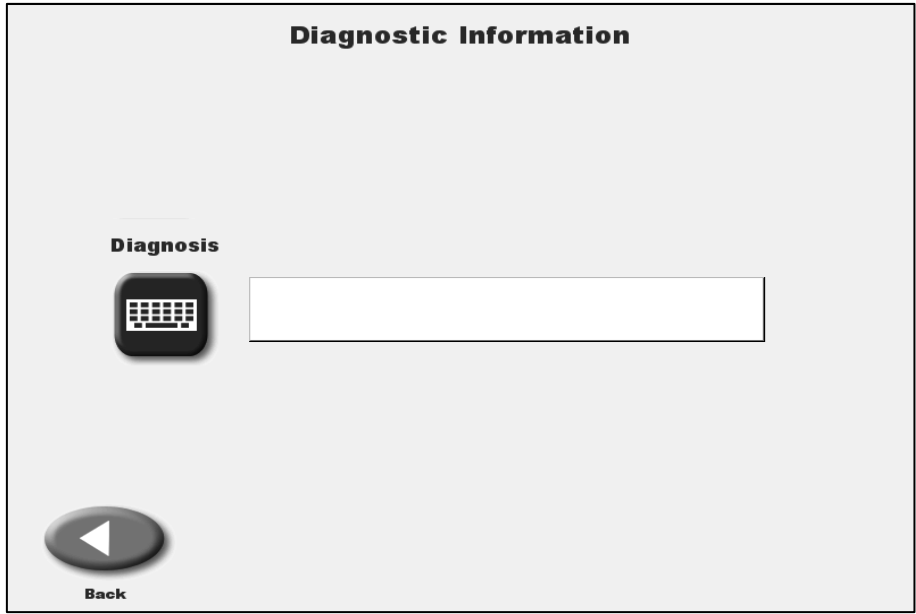


Figure 5.24 The Diagnostic Information screen with no ICD-9 Code field.

6. Sensory Integration Test Composite Score Reporting

The reporting functions in this version of the software are essentially unchanged. The only update to the reports is that users now have the ability to choose the Composite Score (average) as one of the four “conditions” seen in the report. The Composite Score helps to smooth out conditional learning effects. The individual data and tracings can still be viewed if any concerns are noted.

Reports can be created for both BESS Tests and m-CTSIB tests. To create a report for a BESS test, select the <Utilities> button from the home screen and then the <Patient Management> button on the Utilities screen and then enter your access code. Select a patient record for a BESS Test from the Patient Management screen.

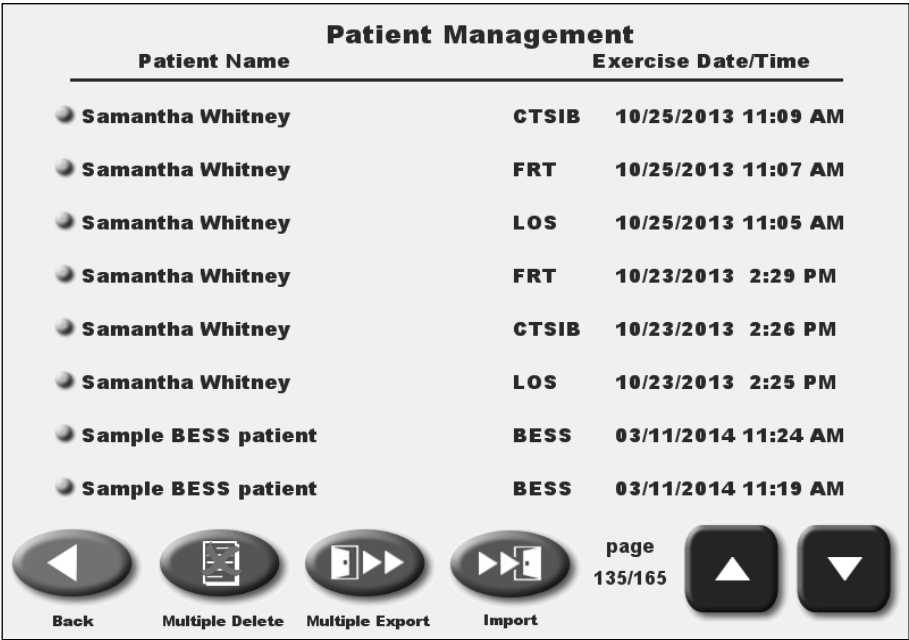


Figure 6.1 The Patient Management screen.

The BESS Test Results screen now features the new Composite Score row at the bottom. To see a progress report, press the <Progress Report> button.

BESS Testing Results		
Condition	Sway Index	Errors
Double Leg Stance - Firm	1.41	0
Single Leg Stance - Firm	3.61	1
Tandem Leg Stance - Firm	1.77	1
Double Leg Stance - Foam	1.85	0
Single Leg Stance - Foam	6.50	3
Tandem Leg Stance - Foam	2.68	0
Composite Score	Avg. 2.97	Total 5

Back	Repeat	Progress Report	Print	Delete	More...

Figure 6.2 The <Progress Report> button on the BESS Test Results screen.

On the BESS Test Progress Report Select screen, select up to four conditions that will appear on the patient's Progress Report. If you would like to include the Composite Score, choose only three conditions. If more than four selections are made on this screen, the <Next> button will be grayed out.

BESS Testing Progress Report Select				
Select Up To 4 Conditions				
Double Leg Stance - Firm				
Single Leg Stance - Firm				
Tandem Leg Stance - Firm				
Double Leg Stance - Foam				
Single Leg Stance - Foam				
Tandem Leg Stance - Foam				
Composite Score				

Back	Data Points	Report Options	Baseline %	Next

Figure 6.3 The BESS Test Progress Report Select screen with three conditions and the Composite Score selected.

Touch the <Next> button on the BESS Test Progress Report Select screen to access the BESS Test Progress Report.

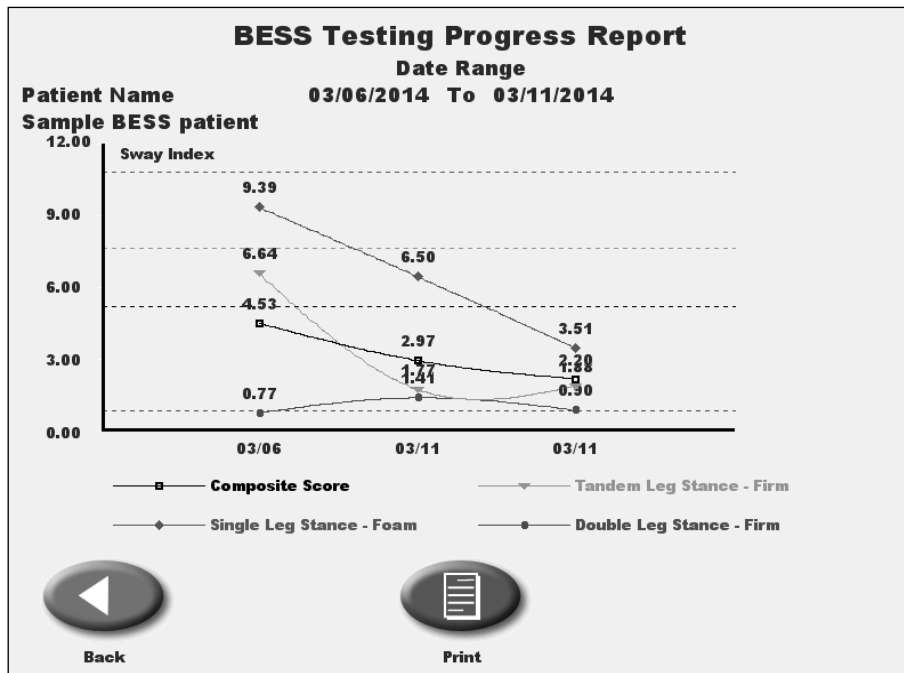


Figure 6.4 The BESS Test Progress Report screen with the three chosen conditions and the composite score plotted on a graph.

Touch the <Print> button at the bottom of the BESS Test Progress Report to create a print out of the Progress Report.

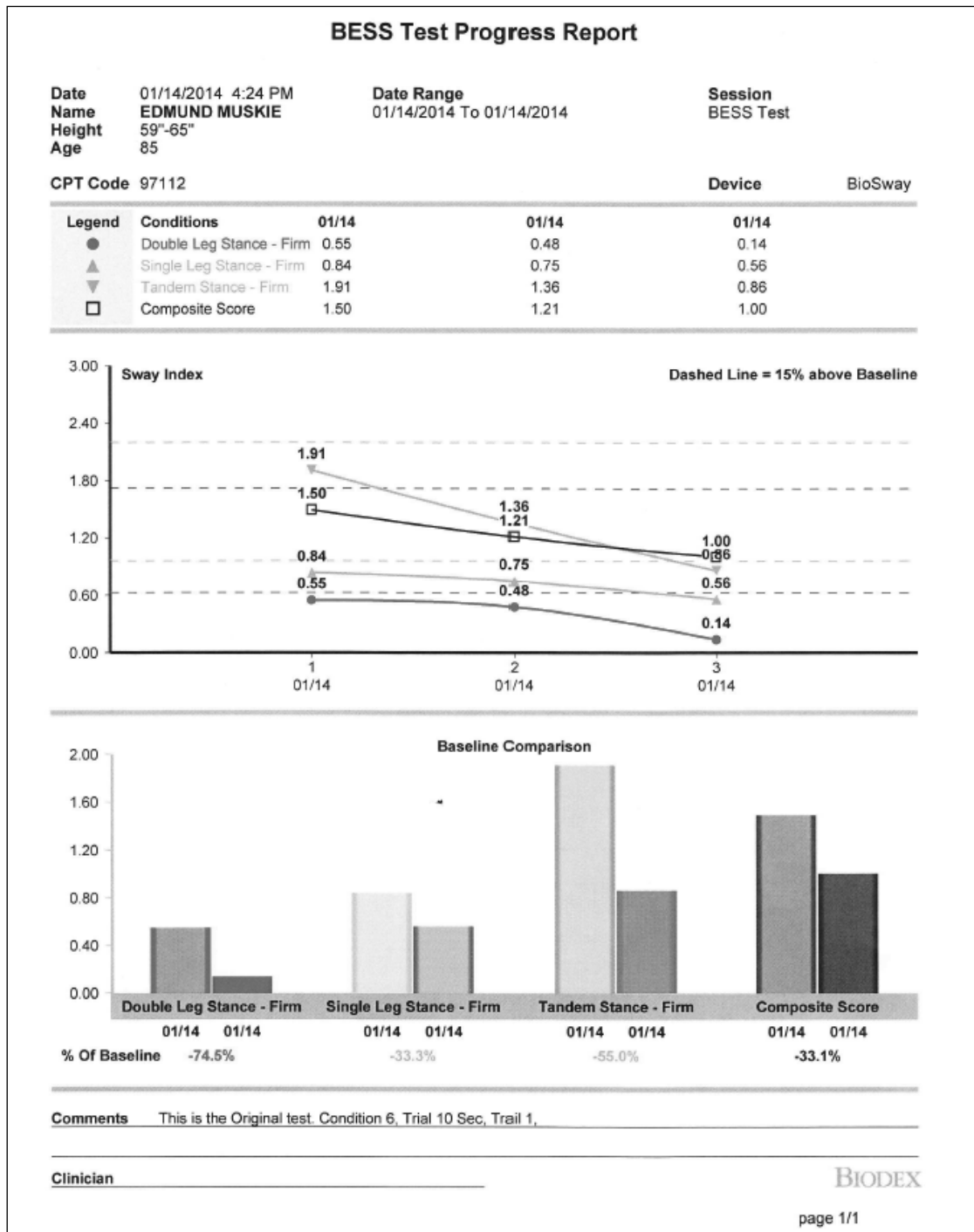


Figure 6.5 A print out of the BESS Test Progress Report screen.

Users can also print out the BESS Test Results screen shown here by touching the <Print> button at the bottom of the screen.

BESS Testing Results		
Condition	Sway Index	Errors
Double Leg Stance - Firm	1.41	<input type="text" value="0"/>
Single Leg Stance - Firm	3.61	<input type="text" value="1"/>
Tandem Leg Stance - Firm	1.77	<input type="text" value="1"/>
Double Leg Stance - Foam	1.85	<input type="text" value="0"/>
Single Leg Stance - Foam	6.50	<input type="text" value="3"/>
Tandem Leg Stance - Foam	2.68	<input type="text" value="0"/>
Composite Score	Avg. 2.97	Total 5







					
Back	Repeat	Progress Report	Print	Delete	More...

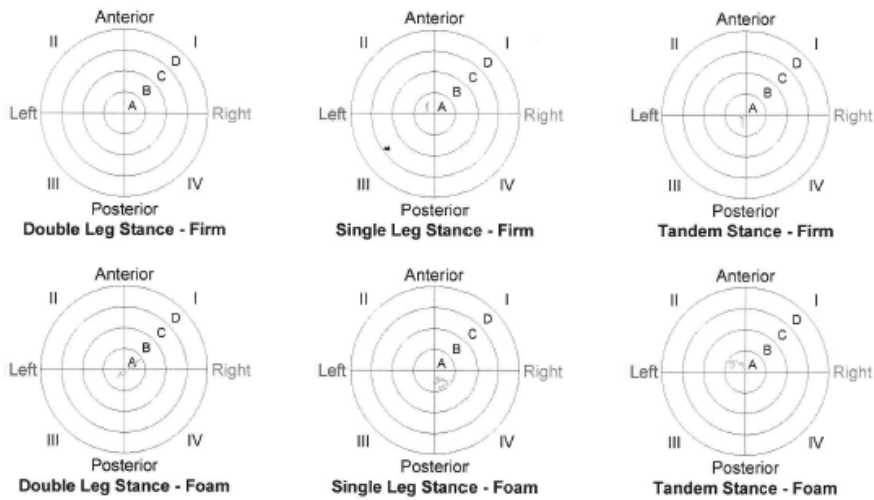
Figure 6.6 The BESS Test Results screen.

Balance Error Scoring System (BESS)

Date 01/14/2014 4:24 PM	FOOT PLACEMENT Left Right	PROTOCOL	
Name EDMUND MUSKIE	Foot Angle 10 10	Conditions	All
Height 59"-65"	Heel Position D6 D16	Test Trial Time	10 secs
Age 85		Test Trials	1
Diagnosis icd-9-9999 -Tower Commision		Cursor	ON
CPT Code 97112		Device	BioSway

Condition	Sway Index	Errors
Double Leg Stance - Firm	0.14	0
Single Leg Stance - Firm	0.56	0
Tandem Stance - Firm	0.86	30
Double Leg Stance - Foam	1.85	0
Single Leg Stance - Foam	1.24	0
Tandem Stance - Foam	1.35	0

Composite Score	Avg. 1.00	Total 30
------------------------	------------------	-----------------



Comments Another test same patient performed from repeated test

Clinician _____

BIODEX

Figure 6.6 A print out of the BESS Test Results screen.

To create a Progress Report for an m-CTSIB, select the <Utilities> button from the home screen and then the <Patient Management> button on the Utilities screen and then enter your access code. Select a patient record for a CTSIB Test from the Patient Management screen.

Patient Management		
Patient Name		Exercise Date/Time
Alex Haig	CTSIB	06/03/2013 1:50 PM
Alex Haig	CTSIB	05/30/2013 1:47 PM
Alex Haig	CTSIB	05/20/2013 1:41 PM
Alex Haig	CTSIB	04/02/2013 2:04 PM
Alice Carroll	CTSIB	11/22/2013 12:52 PM
Alice Carroll	FRT	11/22/2013 12:47 PM
Alice Carroll	FRT	11/22/2013 12:45 PM
Andrew Merrick	CTSIB	10/11/2013 3:14 PM

Figure 6.7 The Patient Management screen with a list of patients' CTSIB test results.

The m-CTSIB Test Results screen with the new Composite Score row at the bottom. From this screen, select the <CTSIB Report> button.

m-CTSIB Test Results					
Current Status	G-Code: Mobility: Walking & Moving Around - G8978				
Condition	Sway Index	Mean	Impair %	Modifier	
Eyes Open Firm Surface	0.81	0.51	71%	CL	
Eyes Closed Firm Surface	2.07	0.93	100%	CN	
Eyes Open Foam Surface	2.68	1.03	100%	CN	
Eyes Closed Foam Surface	3.37	2.86	20%	CJ	
Composite Score (Avg.)	2.23	1.33	76%	CL	

Figure 6.8 The m-CTSIB Test Results screen.

From the CTSIB Progress Report Select screen, users can choose the conditions that will appear on the Progress Report. Again, as with the BESS Test, only four conditions can be chosen. If the user wants to include the Composite Score, only three other conditions can be selected.

As in the last version of the software, users can choose the patient's baseline data or a normative data set. If choosing normative data, the user will choose the desired group on the CTSIB Progress Report Options screen.

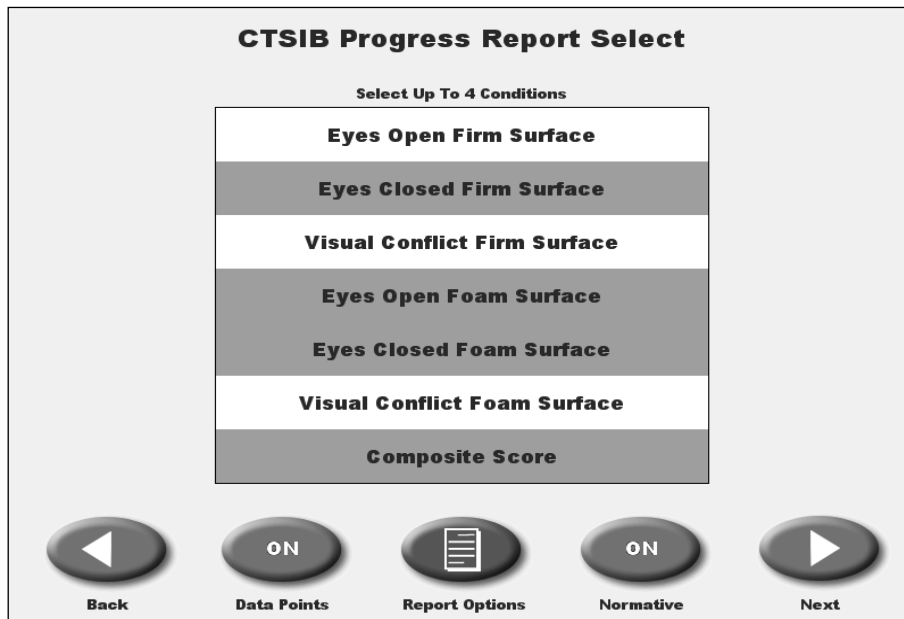


Figure 6.9 The CTSIB Test Progress Report Select screen with three conditions and the Composite Score selected.

Touch the <Next> button on the CTSIB Progress Report Select screen to access the CTSIB Test Progress Report.

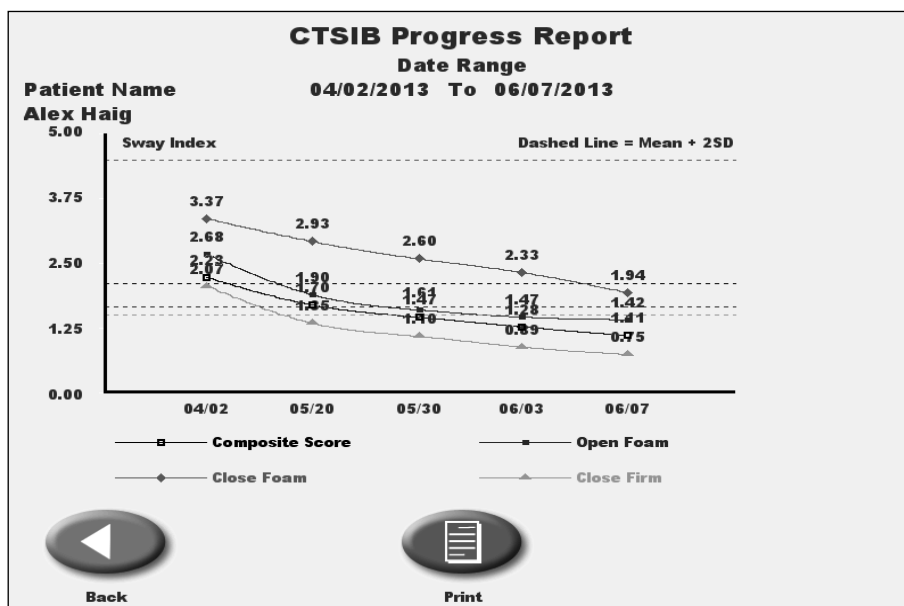


Figure 6.10 The CTSIB Test Progress Report screen with the three chosen conditions and the composite score plotted on a graph.

Touch the <Print> button at the bottom of the CTSIB Test Progress Report to create a print out of the Progress Report.

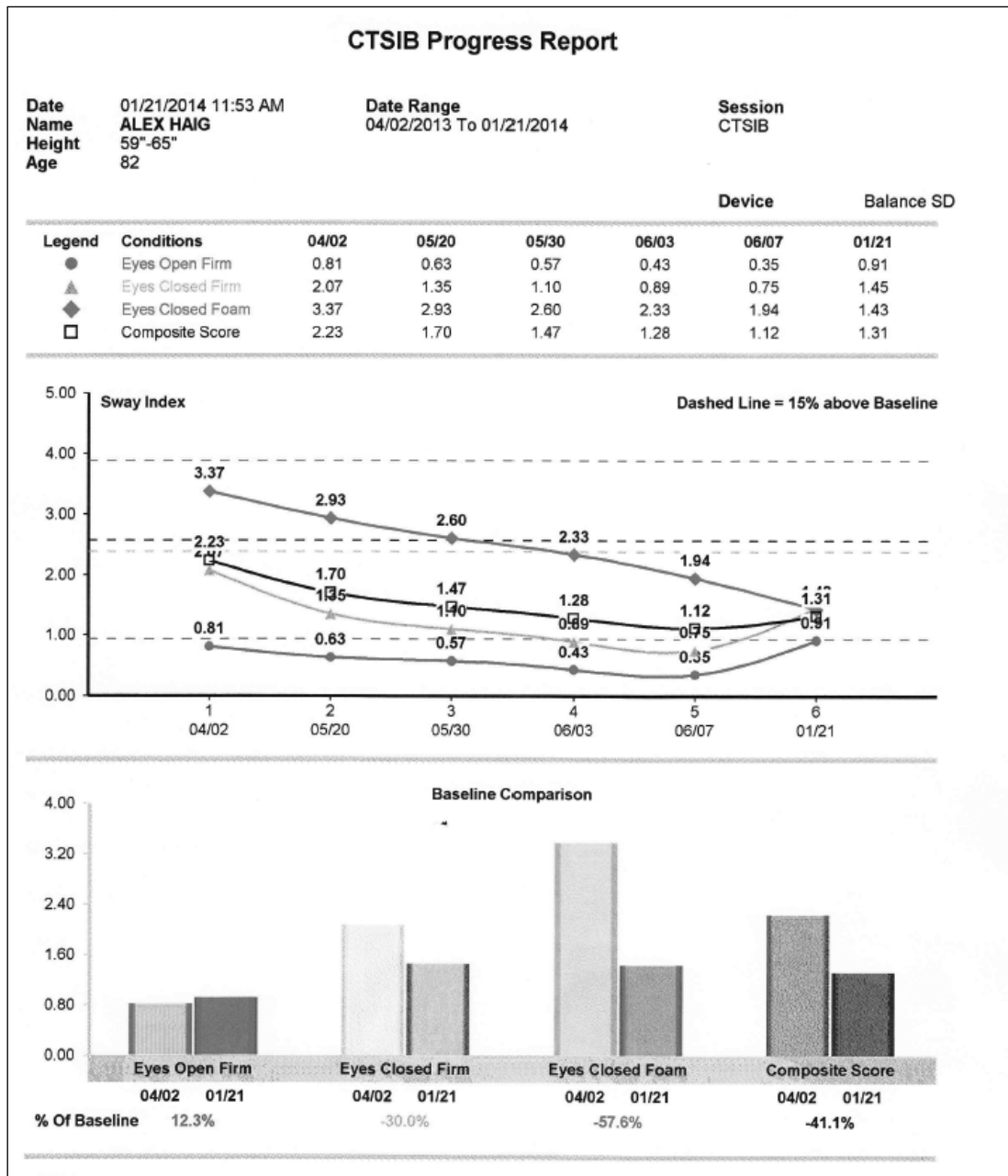


Figure 6.11 A print out of the CTSIB Test Progress Report screen.

Users can also print out the m-CTSIB Test Results screen shown here by touching the <Print> button at the bottom of the screen.

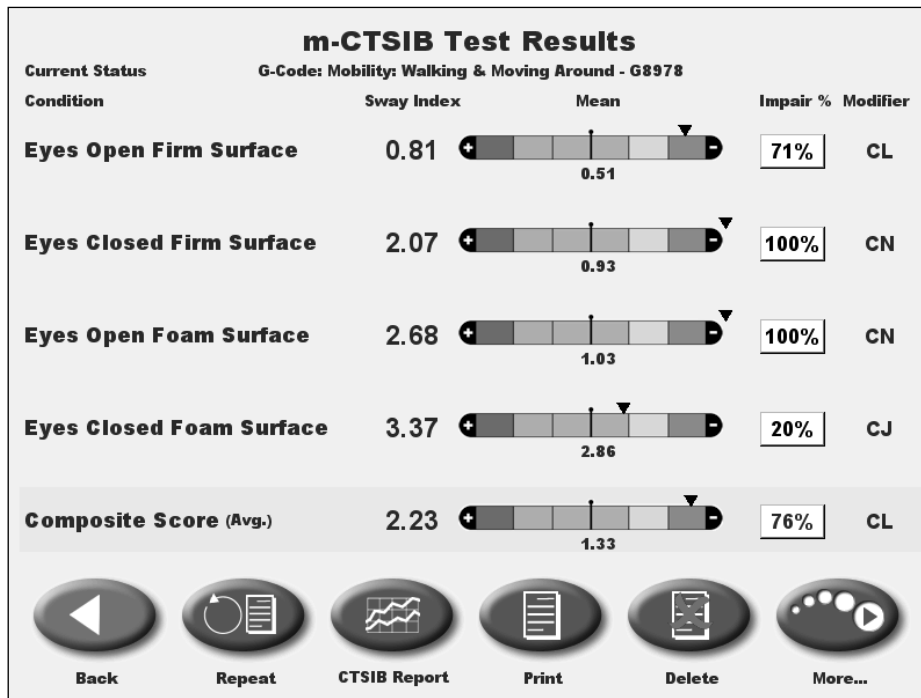


Figure 6.12 The m-CTSIB Test Results screen.

7. VibroTactile System Functionality

The Biodex VibroTactile System, sold separately from the Balance System SD and BioSway, consists of a set of wireless sensors and a belt that is worn by patients using Biodex balance devices. By wearing the belt, patients can benefit from vibrotactile cueing (in the form of light vibrations in different parts of the belt) as they shift their weight during balance exercises.

If you have purchased the VibroTactile System, the functionality within the software must be activated in the Configuration screen within System Utilities. For more information on the VibroTactile System, please refer to the VibroTactile System product page at: <http://biodex.com/physical-medicine/products/balance/vibrotactile-system>.



Figure 6.13 The Biodex VibroTactile System.

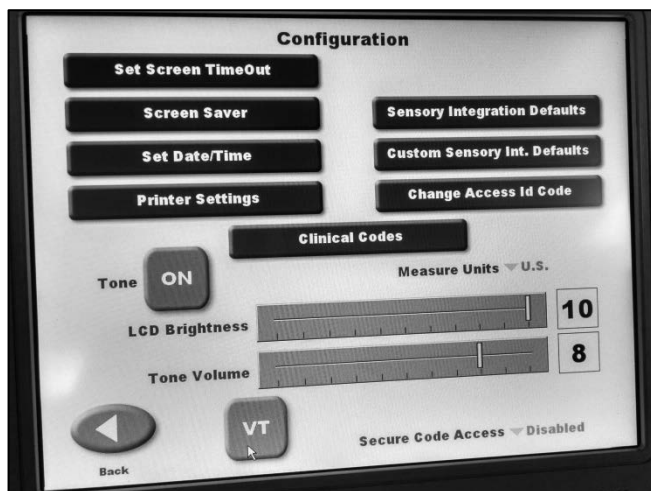


Figure 6.14 The “VT” button acts as a toggle switch for the device’s vibrotactile functionality. When the button is light blue—as shown here—the vibrotactile functionality is activated.





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