Polar BodyAge System

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POLAR BODYAGE SYSTEM SW HELP

About the Polar BodyAge System

About the BodyAge Score

The BodyAge score is an integral part of the Polar BodyAge® System and software developed by Polar. The instruments used to calculate the BodyAge score are validated and published in their respective fields and are listed on the following pages. All normative and percentile ranking references are listed in the technical references. BodyAge simplifies fitness test results into one number that the non-professional can understand. Using BodyAge has been shown to increase motivation levels of clients and increase exercise compliance.

Calculation of BodyAge

The BodyAge calculation is based on a population of 6,469 apparently healthy 18-79 year-old men and women. Low levels of cardiovascular fitness and elevated blood pressure levels have been shown to increase the risk of premature death; therefore, they are weighted more heavily in the calculation. This results in more years being added or taken away from the BodyAge score depending on each test result. Assessments that affect quality of life rather than longevity, such as flexibility and strength, are weighted slightly less. A minimum of four assessments must be taken in order to calculate BodyAge. Two of the four assessments must be strength, flexibility, cardiovascular or body composition assessments. The other two can be any of the other assessments: systolic blood pressure, diastolic blood pressure, total cholesterol, HDL, body composition, cardiovascular, flexibility or strength.

The Polar BodyAge in the Unites States

Since its introduction in 2001, Polar BodyAge® System has been implemented and adopted by over 900 health and fitness centers, major universities and corporations in the United States. A partial list of customers include: United Parcel Service (UPS), United States Air Force, Department of Education, Department of Defense, PGA West, Ford Motor Company, Gold's Gym, Wal-Mart, US Marines, Boeing International, YMCA, Lifetime Fitness, Pepperdine University and Florida State University.

The Polar BodyAge System in Europe

The Polar BodyAge® System was released in Germany under the name Polar OwnTest™ System in 2004. Before that time a pilot study was done by a German based research organization, LINK Institute, to evaluate the effectiveness of the system in the European market. An overview of the study design, results and conclusions are listed below.

Target and Study Design

Polar BodyAge System

• The target of the study was to evaluate the use and feasibility of the BodyAge system as well as validity of measurements by collecting the feedback from clients of the pilot clubs.

• The pilot was carried out in three fitness clubs in Germany.

• Each club provided a BodyAge system pilot test battery and feedback for a minimum of 50 typical club members with a pre-test and post-test, minimum five weeks between tests.

• After taking part in the assessment, each participant received a questionnaire (Q1) and after the retest they received a second questionnaire (Q2).

• The instructors received a questionnaire at the end of the pilot (T).

Test Battery of Pilot Project

• PAR-Q

• Medical Questionnaire

• Weight and Height for BMI

• Body Composition (skinfold or bioimpedance)

• Polar OwnIndex® for $V0_{2MAX}$

• Polar OwnZone®

• Crunch Test

• Biceps Strength Test

• Wall Sit Test

• Sit and Reach Test

Results: Club Members

• 90% of club members believe that the BodyAge assessment is important.

• 80% of members believe going through the BodyAge system is rather easy (not difficult).

• 76% of the club members think the reports are very useful (6 on a 6 point scale) and 86% believe it is well presented.

• 81% of the members felt that the BodyAge Score was motivation for further training.

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• In 7 out of the 8 tests, all the people on average improved their results from the first test to the second test. This supports the results that the members felt that the BodyAge system and BodyAge Score motivate for further exercise training.

Results: Instructors

• The instructors judge the importance of the BodyAge system as high and the difficulty as low.

• The reports are judged as useful and no additional materials are needed in the reports.

• On average the instructors suggest they need 41 minutes to conduct the test.

• The instructors agree with the club members that the BodyAge is a very meaningful parameter.

• The instructors feel a high increase of quality of work, a high support in motivating clients and a high support in communicating heart rate controlled training.

Polar BodyAge System Declaration of Conformity

The Polar BodyAge® System (AKA Model TriFIT 700) is tested under the EU Medical Device Directive –93/42/ECC.   A Class 1 Electrical Medical Device Type BF Protection. Testing standards used are the EN 60601 – Safety of Electrical Medical Equipment. The Polar BodyAge® System (AKA Model TriFIT 700) bears the CE MARK as verified by investigation by the EU Notified Body, TUV Rheinland.

The Polar BodyAge® System (AKA Model TriFIT 700) Product complies with the RoHS Directive 2002/95/EC and WEEE Directive 2002/96/EC mandatory as of July 1st, 2006.

Technical References

Biometrics

PAR-Q

Canadian Society for Exercise Physiology (revised 1994)

Height / Weight and BMI Adults

American College of Sports Medicine Guidelines for Exercise Testing and Prescription. 7th Edition (2006)

Clinical Guidelines on the Identification, Evaluation, Treatment of Overweight and Obesity in Adults: Evidence Report developed by the NHLBI Expert Panel (1998)

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Seventh Report on the Joint Committee on Detection, Evaluation, and Treatment of High Blood Pressure (JNCB), Hypertension. 2003 Dec;42(6):1206-52

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Ratio Reference

Cooper, Kenneth H. Controlling Cholesterol. The Cooper Institute, 1985, pg 65.

Glucose Norms

American College of Sports Medicine Guidelines for Exercise Testing and Prescription. 7th Edition, pg. 47 (2006)

Girth Measurements (Waist to Hip Ratio)

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Body Composition

Body Composition Norms (3-Site and 7-Site Adult Skinfold Protocols)

Hoeger & Hoeger (1991). Principles and Labs for Physical Fitness and Wellness, p. 90. ** we changed the classifications from Excellent/Good/Moderate/Overweight/Obese to Low/Optimal/Moderate/High/Very High.

A*dding 1.9% for black males and 1% for black females reference: Lohman and Heyward, (1989), Advanced Fitness Assessment and Exercise Prescription, page 148.*

Body Composition Percentile Rankings (3-Site and 7-Site Skinfold Protocols)

American College of Sports Medicine *Guidelines for Exercise Testing and Prescription.* 7th Edition, (2006)

Cooper Institute for Aerobics Research, Dallas TX (1994).

Skinfold Site Descriptions

American College of Sports Medicine *Guidelines for Exercise Testing and Prescription.* 7th Edition, (2006)

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Generalized Equation for Predicting Body Density of Women.

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7-site Equation – Men and Women

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Jackson, A.S., Pollock, M.L. (1978). *Generalized Equation for Predicting Body Density of Men.* British Journal of Nutrition, 40, 497-504.

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Conversions of Body Density to Body Fat

Lohman and Heyward, (1989) Advanced Fitness Assessment and Exercise Prescription, page 148. Ages 7 to 50+ Years of Age using a multicomponent model that takes into account Age, Gender, Fat Free Body density (changed based on differences in body water & bone mineral in different age groups).

BioImpedence guidelines and information

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 Polar Electro Oy, Finland

OwnZone®

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Pollock Bike Ergometer

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Setting up the Polar BodyAge System

Requirements and Recommendations

The Polar BodyAge® System is designed to gather, process, interpret and display fitness and wellness data. The Polar BodyAge® System is designed to be used by exercise professionals.

These items are necessary to operate the Polar BodyAge® System:

- 220 Volt Power outlet highly recommended to be a dedicated line. A dedicated line is where only one circuit is servicing the outlet. (European)

- 110 volt power outlet highly recommended to be a dedicated line. A dedicated line is where only one circuit is servicing the outlet. (U.S.)

These items are recommended:

- Private/quiet environment for fitness testing

- Cool temperature (72°F, 22°C), moderate humidity and good air circulation (fan recommended for bike & treadmill testing).

- Telephone with outside line for emergency access and technical support.

- Flat, firm surface for the platform/scale.

Unpacking the Polar BodyAge System

Once the system is out of the shipping container and on the floor:

• Remove all packing materials

• Move the scale and any boxes off of the cart

• Mount the monitor onto the main post, being careful not to pinch any of the cables (see photo)

Packing List

The following is a list of all the items included with your system. These are standard items included with every system. You may have other items as part of your individual order.

1. Polar heart rate transmitter and elastic strap

2. Strength handle and strength strap assembly

3. On-line Skyndex Skinfold calipers w/calibration dowel

4. Flat Panel LCD monitor w/speakers

4. Computer

5. Keyboard

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6. Mouse

7. Printer

8. Power cord attached for the cart power

9. BodyAge System computer installed in the cart (if ordered)

10. BodyAge System cart with integrated range of motion (ROM) unit

11. WindLink™ Heart rate receiver

12. Platform/scale

13. 2 Allen wrenches for assembly/repair.

14. Polar BodyAge® System software

15. Blood Pressure included with 3 cuffs.

16. Polar FlowLink

Compatible Hardware

- Tanita BF-350 Bioimpedance Unit

- Tanita BC-418 Bioimpedence Unit (European)

- Monark Bike

- Magnum Bike and Trackmaster Treadmill

- Ergofit Ergometers: cycle 3000 med (series), recumbent 3000 med (series), and circle 3000 med (series). (European)

Tanita Bioimpedance Unit

The **Tanita Bioimpedance unit** interfaces with the Polar BodyAge® System to obtain body fat % and total body water.

Tanita BF-350

Polar BodyAge System

Tanita BC-418

Contact your Polar dealer for more information on where to purchase the Tanita BF-350 or BC-418.

Monark Bike

If a Monark 828E was purchased with your system, you will receive a bike interface split cable. This cable plugs into the interface unit where it is labeled with the heart and pedals icon. Position the split end that holds the Polar receiver per the set up instructions included with the cable. Refer to the instruction manual that came with the Monark 828 for assembly instructions.

Magnum Bike & Trackmaster Treadmill (U.S.)

If a Magnum Upright bike was purchased with your system, you will receive a serial cable that plugs into the back of the computer. Go to **Test Environment** > **Cardiovascular Settings** and select Magnum and the correct serial port. For more information, see Cardiovascular Settings. The same steps apply for the TrackMaster Treadmill.

ErgoFit Ergometer

Contact your Polar dealer for more information on where to purchase the ErgoFit Ergometers. The Polar BodyAge® System is compatible with ErgoFit cycle 3000 med (series), ErgoFit recumbent 3000 med (series), and ErgoFit circle 3000 med (series).

Assembling the Polar BodyAge System

Interface Connections

Noting that the interface box is secured to the top of the computer with a velcro strip, connect the following peripherals to the box:

Skinfold Calipers	
Platform	
Heart Rate Cable/RPM cable interface	
ROM (Range of Motion) Unit	

Printer

Plug the power into the printer.

Main Unit Power

Using the main power cable, plug the system into a wall outlet. Power is applied to the system via the power entry module located on the left rear of the cart.

1. Plug power cable into a wall outlet. 2. Always use the system main power switch to turn the entire system on and off. On is "|" and off is "o".	

Power Entry Module Information

The power entry module is a switchable power supply between 110v (USA and Canada) and 230v (European). The unit is shipped from the factory with the 230v selected.

Fuse Types:

For the 110Volt (USA and Canada), the fuses are ¼ x 1 ¼" 250Volt, 2 Amps, Slow Blow Fuses.

For the 230Volt (European), the fuses are 5mm x 20mm, 250Volt, 3.0-3.5 Amp Slow Blow Fuses.

Replacing the Fuses:

• To replace the fuses, make sure the power is unplugged and completely disconnected from the power.

• Next, using a small flathead screwdriver, pry the cover open on the far right side.

• Carefully pry the fuses out and insert the new fuses.

• Close the cover, insert the power cord and turn the power switch on "|".

Platform/Scale

• Screw in the eyebolt on the scale strap assembly into the top of the platform. Make sure it is tightened all the way.

• Attach the "C" connector on the strength strap assembly to the strength handle. Make sure it is tightened all the way.

• Check the strap for any wear or defects before each use, as this can cause injury to the client being tested on the biceps strength test.

Ergofit Ergometer

The ErgoFit bike needs to be connected to the Polar BodyAge® System with a null modem cable. This cable plugs into the back bottom of the ErgoFit ergometer. Plug the other end of the serial cable into an available serial port in the back of the CPU.

Note: The serial cable is a 9-pin null-modem Cable. You must use a null-modem cable or a null-model adaptor for the Ergofit Ergometer to function properly with the Polar BodyAge® System.

1. Power cable for the Ergofit. 2. Plug the null modem serial cable into the Ergofit serial plug.	

Tanita BF-350 or BC-418

The Tanita BF-350 or BC-418 is a unit for measuring bioimpedance using the Polar BodyAge® System. It interfaces to the system with a serial cable.

Note: The serial cable is a 9-pin null-modem cable. You must use a null-modem cable or a null-model adaptor for the Tanita BF-350 to function properly with the system.

Plug the power cord into a 220v power outlet. Plug the serial cable into the Tanita BF-350 or BC-418 as	

shown here.	
Plug the other end of the serial cable into Device Port 1 or Device Port 2 on the TF700iu box.	

Polar Sonic Interface™

The optional Polar Sonic Interface™ uses the speaker and microphone ports on your PC to send and receive information to Polar training computers (F11, F6, F4 and all Polar UpLink enabled computers).

Installation Instructions

Plug the GREEN Polar Sonic Interface cable into the Speaker port on the computer. Alternately, This can be plugged into a headphone jack on the	

computer	
Plug the PINK Sonic Interface cable into the Microphone port on the computer.	

If you want to use your existing speakers and microphone on your PC, use the included "Y" splitters. If you have your PC Speakers enabled using the "Y" Splitter, you will hear a sound from your PC speakers when setting the training computer. There is never sound when uploading files from the training computer to the PC. You will need to adjust the speaker and microphone volume for proper operation, depending on the noise of your environment and computer sound card type.

1. To your microphone	
2. To your speakers	

Transporting the polar BodyAge System

Before transporting your system:

• Unplug the following peripherals: skinfold calipers, platform. Leave the bike cable plugged in; coil and store in the computer compartment.

• Secure the central processing unit with foam or other materials such as wadded paper or bubble wrap to prevent shifting.

• Consider dismounting the monitor and wrapping with bubble wrap.

• Secure the printer on its tray with an elastic cord around the top of the printer or use stretch wrap.

• Avoid laying the system on its side. The central processing unit is not secured with anything except the materials you place in the compartment. If you must lay it down, make sure the CPU compartment opening is facing upwards.

Preparations

Recommendations for Operating Staff

It is recommended that ALL OPERATORS have a basic understanding of Windows operating system. If not, it is recommended that the primary operator take a course in the basic operation of Windows.

Polar recommends that the operator of the Polar BodyAge® System be certified in CPR and hold a certification in fitness assessment or sports degree.

Turning on The Polar BodyAge System Power

1. Turn on the system main power switch located at the left side of the cart.

2. When the power is applied to the unit, a green light appears in the interface box above the power indicator and you hear a start-up verification sound.

3. Turn on the central processing unit.

4. Turn the power to the printer on.

Setting up the Software settings

To view and change the test environment settings for the BodyAge System, select **System Settings** > **Test Environment**.

The following window appears:

Polar BodyAge System

In this window you can enter the settings below. Click on the name of a setting for instructions.

General

Cardiovascular

Body Composition

Email Settings

Import/Export

Cardio 5 Zone

Other Programs

Calibrating On-line Peripherals

When initially setting up your Polar BodyAge® System and each time the Polar BodyAge® System is transported or every two months, it is recommended to calibrate the skinfold calipers, the load platform (which calibrates both scale and biceps strength test) and the range of motion unit to ensure accurate results.

Select **System Settings** > **Calibrations**. Select the **Calibration Type** from the drop-down box. You will be prompted with instructions regarding how to calibrate the equipment. For further instructions, see the following sections:

Calibrating the Skinfold Calipers

Calibrating the Load Platform

Calibrating the Range of Motion

Shutting Down the Polar BodyAge System

Before turning off the power to the system, it is important to shut down the Polar BodyAge®
System properly.

1. Click the "X" in the upper right corner, or go to **File** > **Exit** to exit the software.

2. Turn off the computer.
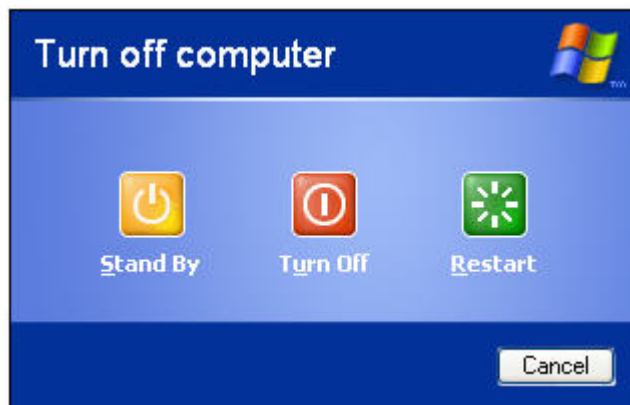
3. Now, turn off the power to the printer by pressing the printer power button located on the front
panel of the printer.

4. Turn off the main power on the right side of the cart.

Client Management

Adding a New Client

There are two ways to add a new client:

Select **File** > **New Client**, or click on the button in the upper left corner.

The **Client Information** window appears. In this window you can enter the following information on your new client.

1. **General Information**

The information that is shown in this window depends on your choices in **System Settings** > **Test Environment** > **General** > **Client Information Options**. For more information, see General Settings. It is strongly suggested that you enter a unique identification code (up to 50 characters) for each client to organize your data. **First Name**, **Last Name**, **Date of Birth** and **Gender** are required fields.

Click **OK** to save the client data and to return to the main view.

Click **Cancel** to cancel adding a new client or making changes in the current client's information.

2. Groups

Polar BodyAge System
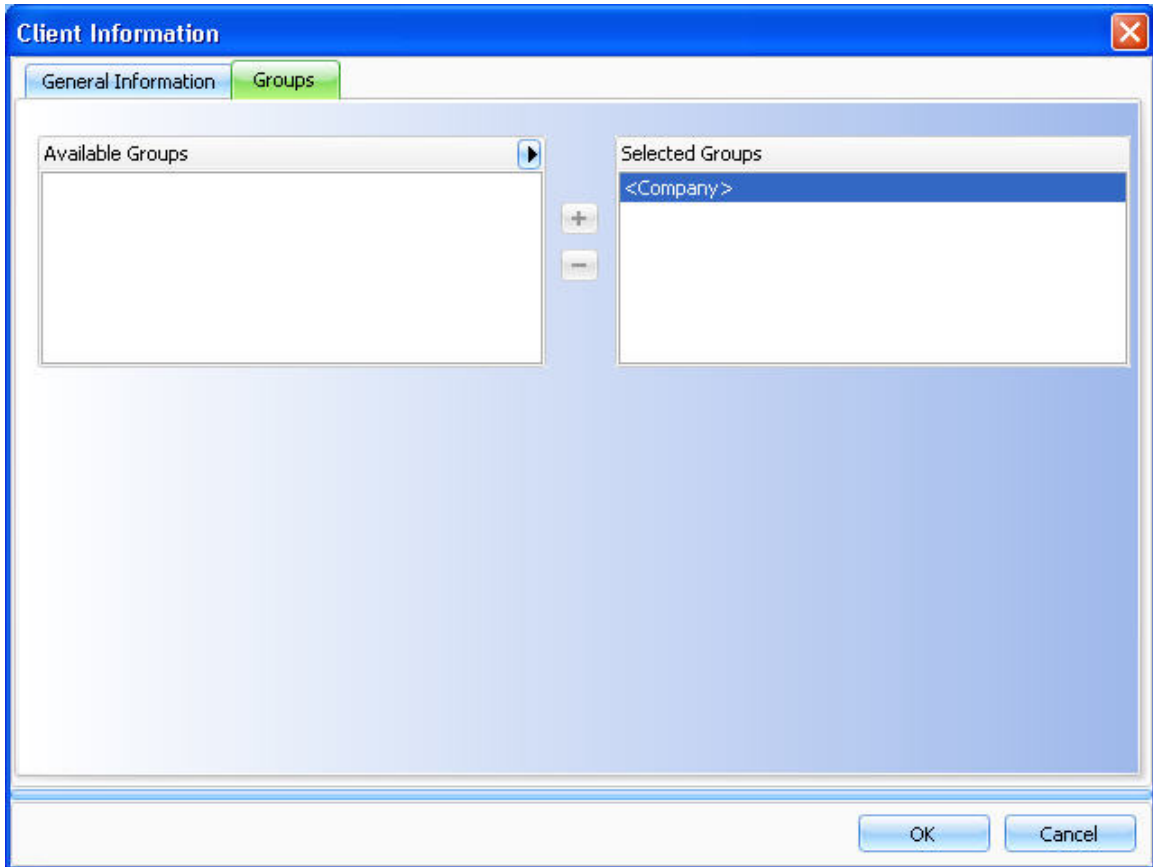
To add a client to a group, highlight the group from the list of available groups and click +.

To create a new group, click on the button on the **Available Groups** field. The **Customize** window appears:
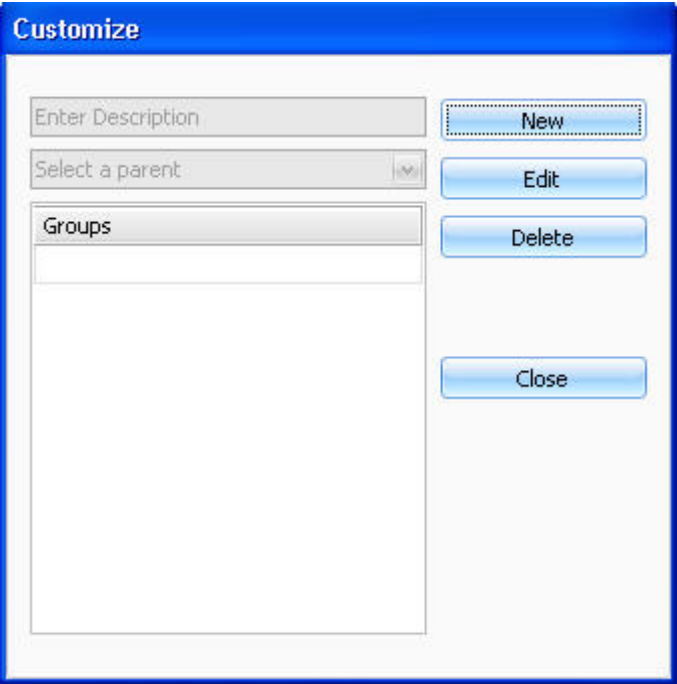
1. Click **New** to activate text field.
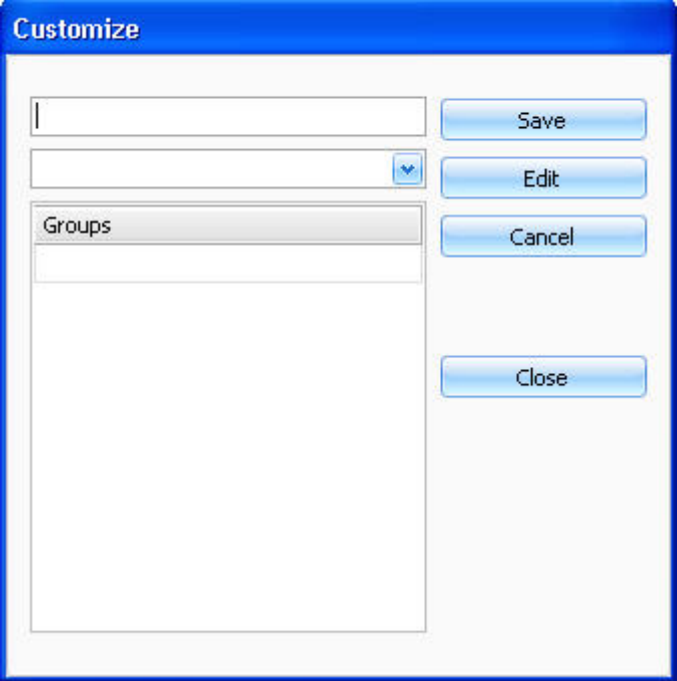
2. Type in the name of the group.

3. Select a parent group from the drop-down list. If you have not created groups before, the only option on the list is **Club**.

Polar BodyAge System

4. Click **Save** to save the group.

5. Click **Close** to exit the **Customize** window.

6. The group is now shown on the list of available groups and you can add the client to this group.

Click **OK** to save the client information.

You can enter **Client Information** afterwards by clicking the **Client Information** tab on the upper left corner of the main view. You will also have options to enter additional client information. For more information, see Client Information.

Main Screen View - Client Information

The **View** menu offers you a selection of useful features for managing client data. Check or uncheck the features to show or hide them on the main screen.
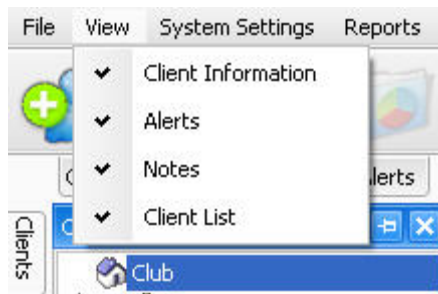
For more information on the features, see the following sections:Notes, Alerts and Client Information

If all the features from the **View** menu are selected, they will appear on the main screen as follows:
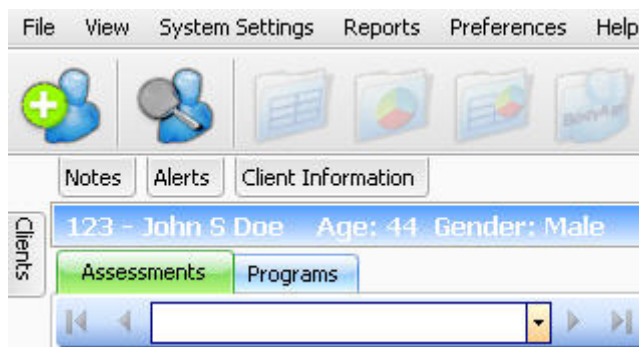
If you roll the mouse over any of the items above, then a roll-out screen with additional information appears.

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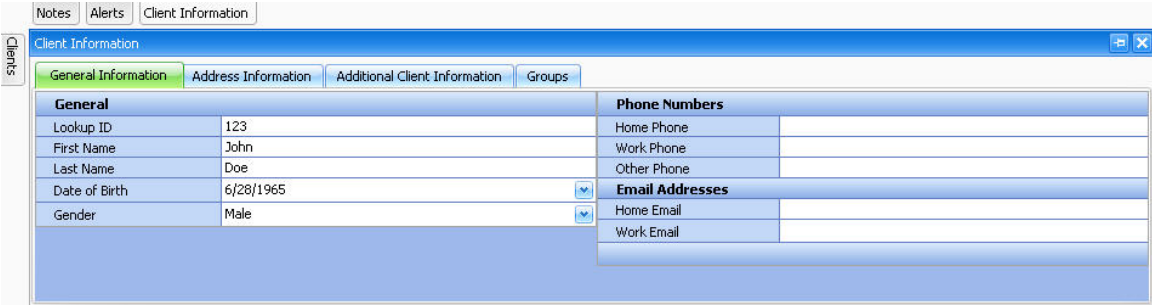
If you move your mouse off of the roll out screen, it will roll back in.

By clicking on the pushpin in the upper right corner, the roll-out screen stays visible until you re-click on the pushpin.

Notes

Notes is a feature that allows you to add a comment about a particular day or session. For example, if your client was sick one day, you can make a note of it under the client's name with a date stamp.

To enter **Notes**, roll your mouse over the **Notes** tab. The following roll down screen appears:
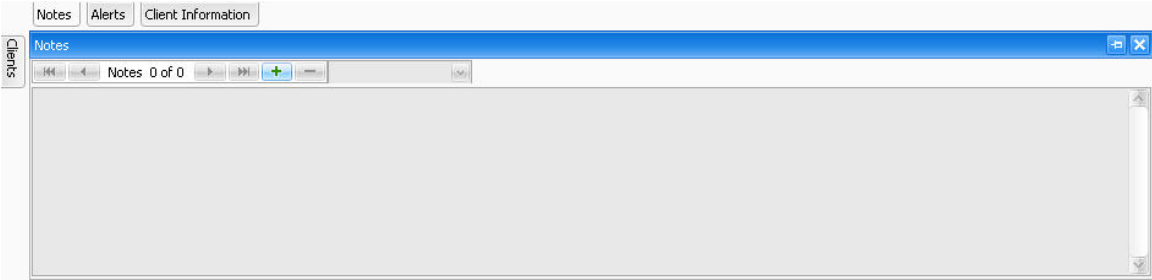
Click the **+** icon to activate the text screen. When you are finished typing your note, click the X in the upper right corner of the notes screen. The note will be saved.

To delete a note, use the mouse to highlight the text and hit backspace on the keyboard.

Alerts

Polar BodyAge System

Alerts is a feature that informs you on any urgent medical information on a client. For example if your client has cardiovascular disease or is allergic to bee stings, you can make a note of it in Alerts so that in an emergency you can act accordingly.

To enter **Alerts**, roll your mouse over the **Alerts** tab. The following roll down screen appears:
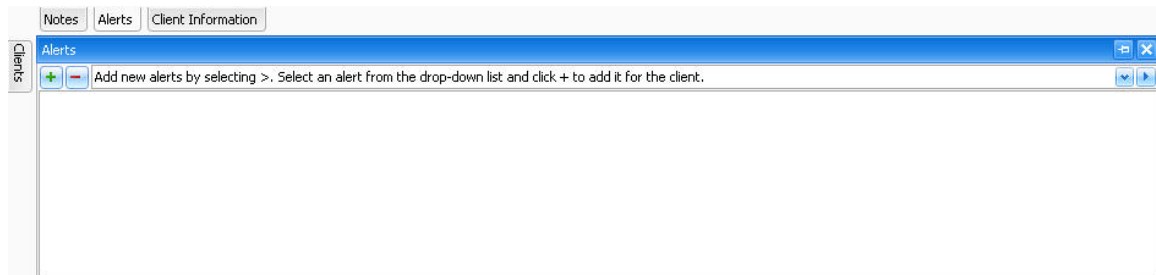
If you click on the drop-down arrow you will see the two default alerts (Asthma and Diabetes).

To add a new selection, click on the button on the right of the drop-down box.

The following window appears:
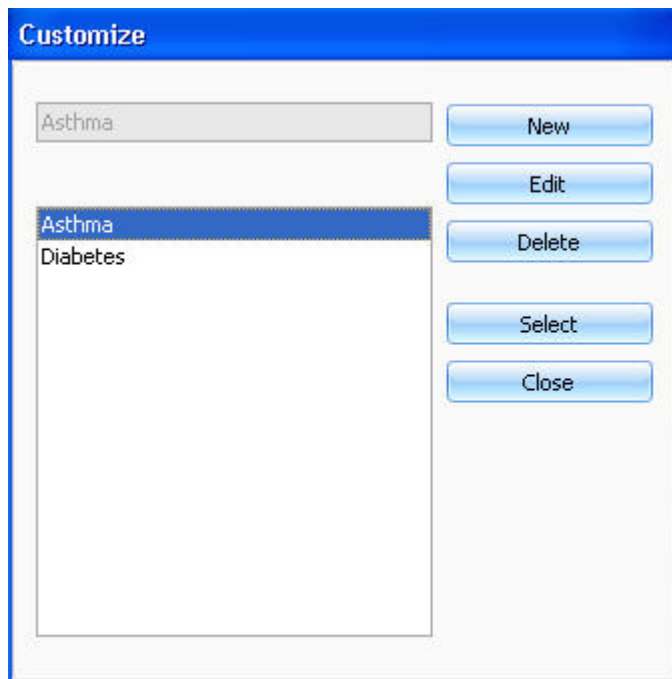
1. Click **New** to activate text field.

2. Type in the name of the alert.

3. Click **Save** to save the alert.

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4. Click on **Close** and the added alert will appear in the drop-down selection of the **Alerts** roll down screen.

To add an alert, highlight it and click on the green plus (+) sign. To erase an alert, highlight it (it will now appear in the large white text field) and click on the red minus(-) sign.

Client Information

To add or edit **Client Information**, roll your mouse over the **Client Information** tab. The following roll down screen appears:

1. General Information

In this view you can add or edit the client information that was initially entered in **Client Information** when the client was added to the system. The information that is shown in this window depends on your choices in **Client Information Options** in **System Settings** > **Test Environment** > **General Settings**. For more information see General Settings.

2. Address Information
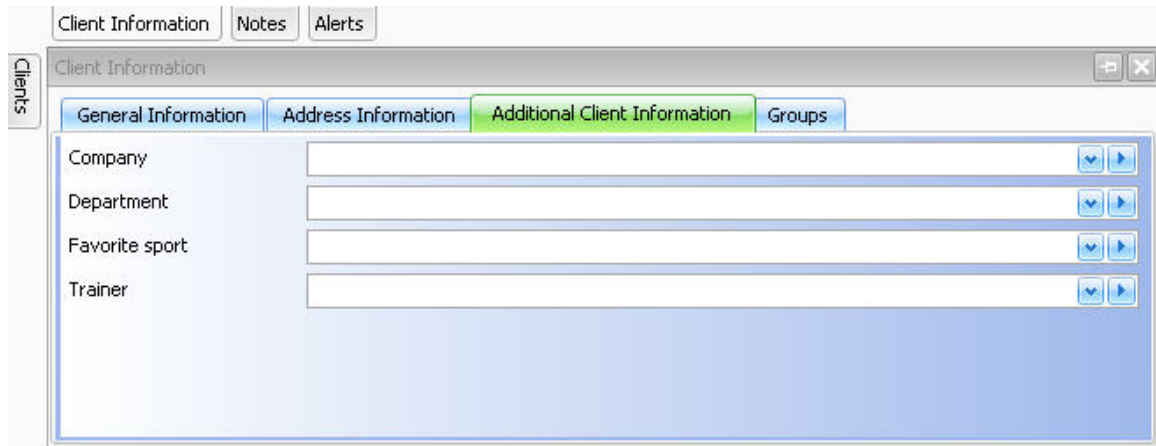
In this view you can add or edit the client's address information.

3. Additional Information

In this view you can add drop-down selections for the fields created in **Preferences** > **Edit Additional Information** (for more information, see Edit Additional Information). For example if you want to know what is your client's sport, or if they follow a specific diet (i.e. vegetarian), you can make fields with a drop-down box of selections.
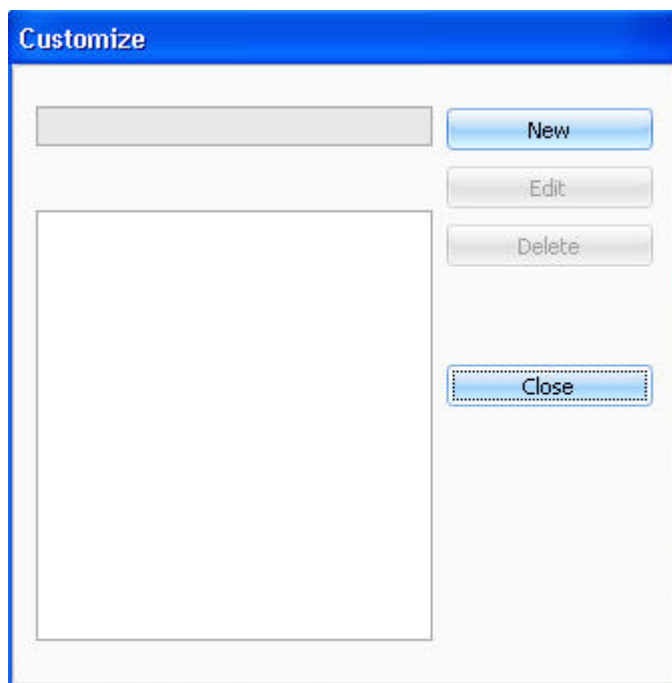
For example, if you have added a field "Favorite sport" in **Edit Additional Information**, the field will be shown in **Additional Client Information** as shown below:

Polar BodyAge System

To add drop-down selections for the fields, click on the button on the upper right corner.

The following window appears.

Click **New** to enable the text field and type the selection.

If you select **Save**, the selection will appear in the larger box field.

By clicking on **New** you start the process over again.

By highlighting the selection, and selecting **Edit**, you can change the option.

By clicking **Close**, the selections will appear on the drop-down list next to the question field.

4. Groups

Add the client to a group by highlighting the group from the list of available groups. Click **Add**.
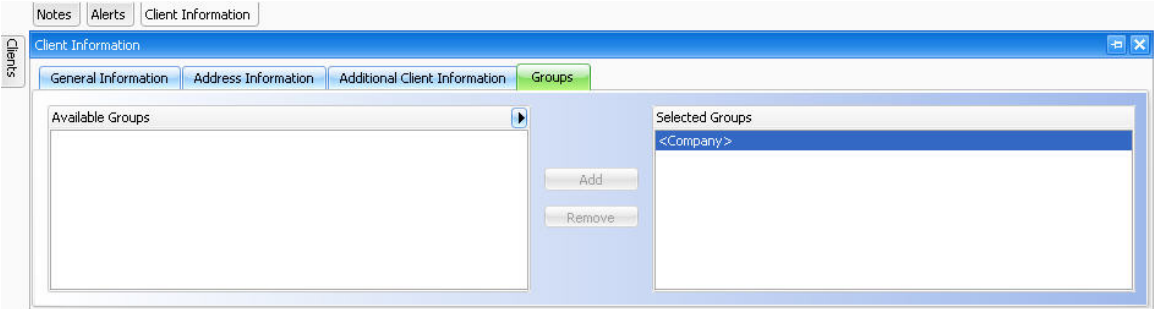
To create a new group, click on the button on the **Available Groups** field. The following window appears:
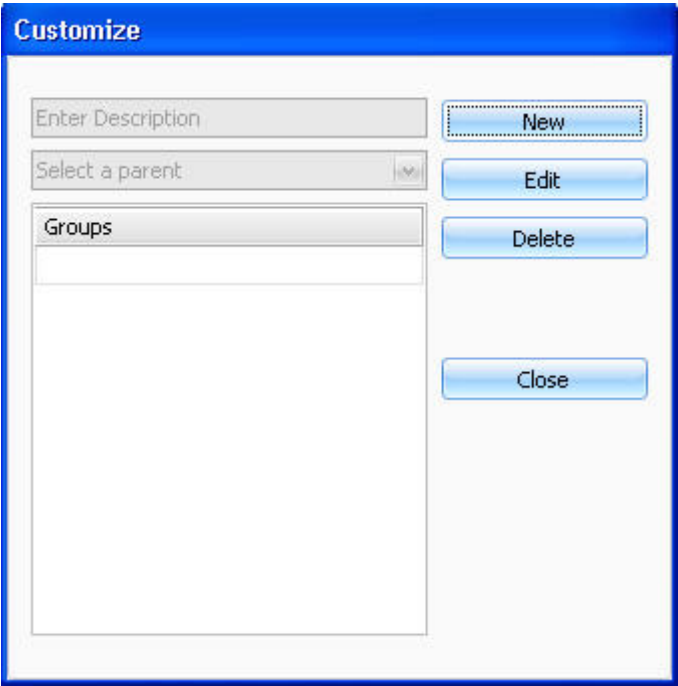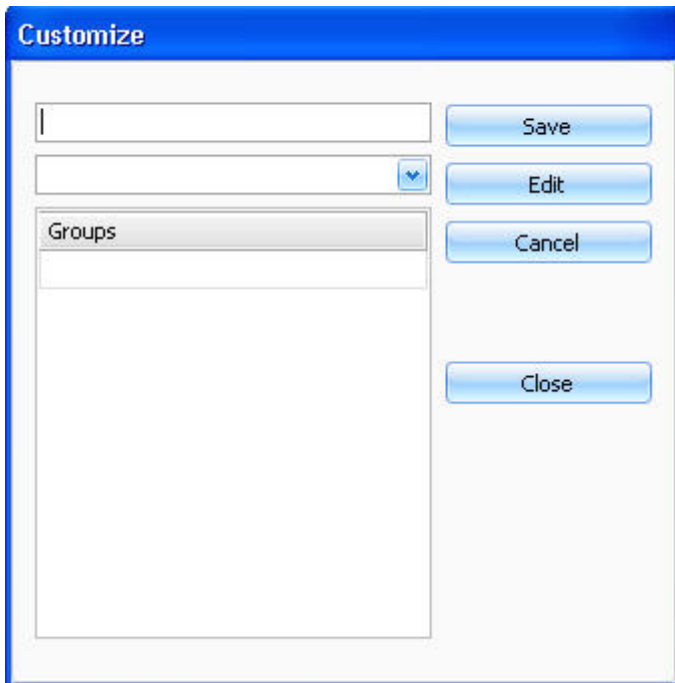
1. Click **New** to activate text field.

2. Type in the name of the group.

3. Select a parent group from the drop-down list. If you have not created other groups before, the only option on the list is club.

4. Click **Save** to save the group.

5. Click **Close** to exit the **Customize** window.

6. The group is now shown on the list of available groups and you can add the client to this group.

Searching for a Client

Use search to you find a client based on last name, first name, or ID.

To run a search, select **File** > **Search Client** or click on the button in the upper left corner.

When the **Search Client** box appears, select the criteria for your search and/or enter a keyword/letter, for example last name, or the first letter of the last name.
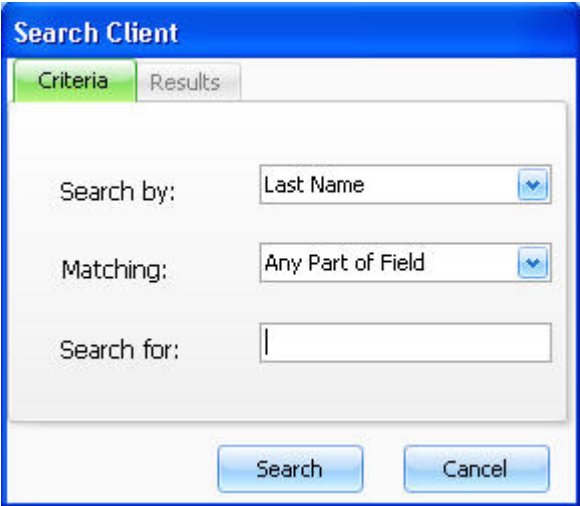
Click **Search** and all the clients that meet the criteria will be displayed.

Deleting a Client

To delete a client, select **File** > **Delete Client**.
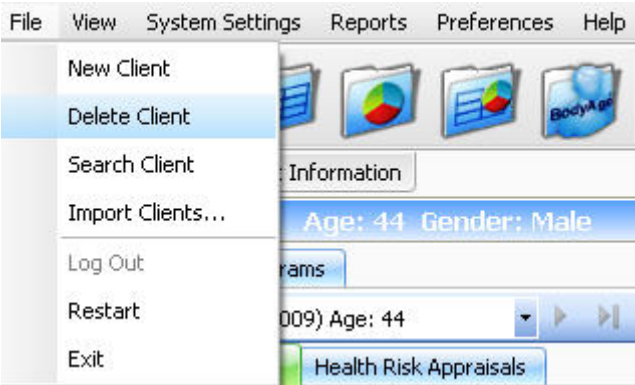
The following message appears:
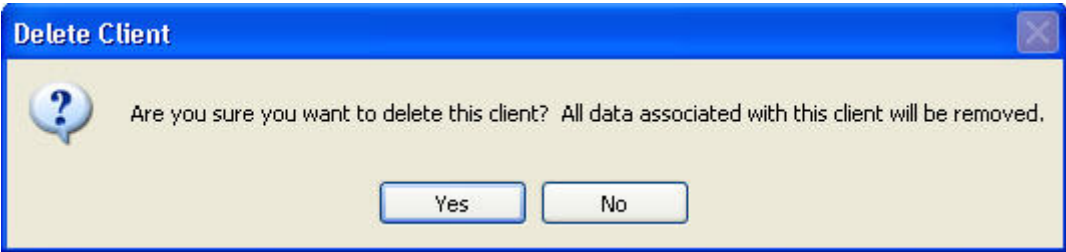
Clicking **Yes** permanently removes a client's data. Clicking **No** cancels the operation.

Testing

Pre-Test recommendations

Before any exercise testing is done, the following is recommended by Polar/HealthFirst:

• **PAR-Q** (Physical Activity Readiness Questionnaire) should be completed by the client. If "Yes" is answered to ANY of the seven (7) questions, it is recommended that the client sees a doctor before performing any physical activity or exercise testing.

• **MEDICAL HISTORY** questionnaire must also be completed, printed out and kept in the client's file in hard copy.

General guidelines to be given to client before any testing:

• Wear comfortable, loose-fitting clothing.

• Drink plenty of fluids over the 24-hour period preceding the test.

• Avoid food, tobacco, alcohol and caffeine for 3 hours prior to taking the test.

• Avoid exercise or strenuous physical activity the day of the test.

• Get an adequate amount of sleep (6 to 8 hours) the night before the test.

Test Environment

The test environment is important for test validity and reliability. Anxiety, emotional problems, food in the stomach, bladder distention, climate variation, and pain should be controlled as much as possible. To minimize anxiety, the test environment should be quiet and private and the temperature of the room maintained at about 72°F/22°C. The room should be equipped with a comfortable seat and/or examination table to be used for resting blood pressure. The demeanor of personnel should be one of relaxed confidence so as to immediately put the subject at ease. Testing procedures should not be rushed, and all procedures must be clearly explained prior to initiating the process. These seemingly minor tasks are easily accomplished and will assist in achieving valid test results.

Importance of Test Order

When exercise testing a client you must consider the testing battery order. For example: if a cardiovascular test is given first, then a blood pressure measurement is taken, the blood pressure measurement will be affected by the cardiovascular test.

Manual Entry

After any manual entry, press the enter on the keyboard to save data. These changes will now be seen in the reports.

General Guidelines for the Client

General guidelines to be given to client before any testing:

• Wear comfortable, loose-fitting clothing.

• Drink plenty of fluids over the 24-hour period preceding the test.

• Avoid food, tobacco, alcohol and caffeine for 3 hours prior to taking the test.

• Avoid exercise or strenuous physical activity the day of the test.

• Get an adequate amount of sleep (6 to 8 hours) the night before the test.

Main Screen View - Testing

After you have created a new client (see Adding a New Client), the following view opens:

1. If you want to change the client, go to **Clients** tab. Click the name of the client.
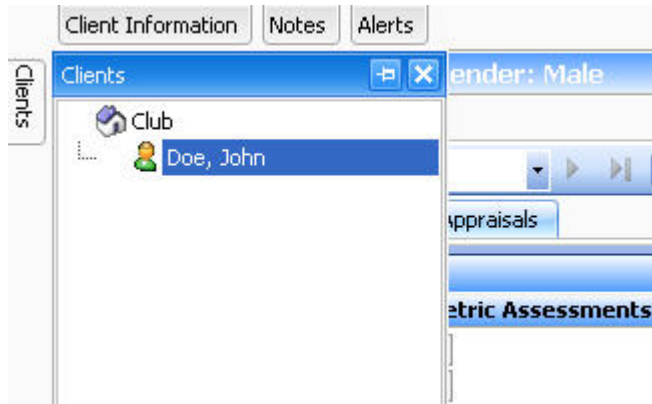
2. Select one of the existing test protocols or create a new test protocol for the client. For more information, see Test Protocols and Adding, Editing or Deleting a Test Protocol.

3. To carry out a test by using the Autopilot, click **Testing** and select **New Test Result Using Autopilot** or **Edit Test Result Using Autopilot**. For more information, see Testing With Autopilot. Alternatively you can add or edit the test records manually by clicking **Testing** and selecting **New Test Record** or **Edit Test Record**. For more information, see Testing Manually.
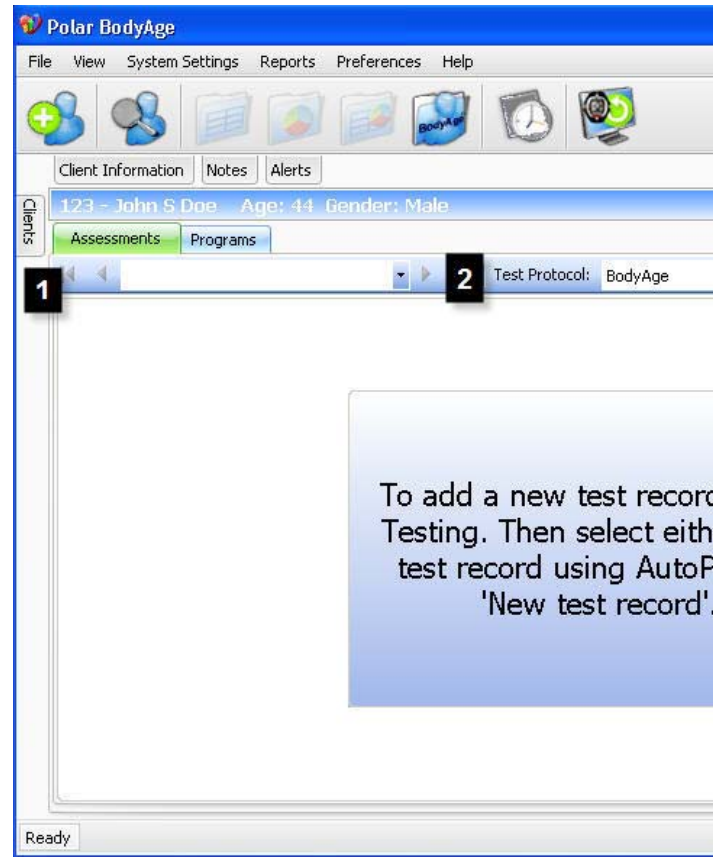
Test Protocols

A test protocol is a group of fitness assessments and health risk appraisals that you want to display on the main page or in the AutoPilot. You can make your own test protocol and name it accordingly so that each time you test a client, you can select the test protocol from a drop-down menu. For more information, see Adding, Editing or Deleting a Test Protocol.

The default test protocol is called **Body Age** and includes the following assessments:

PAR-Q (Physical Activity Readiness Questionnaire), Medical History, Height/Weight, Blood Pressure, BioImpedance, OwnIndex, OwnZone, Crunch, Bicep Strength, Wall Sit, Sit & Reach

For more information on the assessments, see Fitness Assessments and Health Risk Appraisals.

Adding, Editing or deleting a test protocol

To add or edit a test protocol, click **Test Protocol** and select **Add, Edit or Delete Test Protocols**:

The following screen appears:

Polar BodyAge System

If you have already created a test protocol, you can click **Next** to edit it.

To create a new test protocol, click **New Test Protocol**. Enter a name for the test protocol and check the box for the features you want to include in the test protocol, then click **Next**.

If you want to delete a particular test protocol, select the group from the drop-down menu and click **Delete Protocol**.

***NOTE: you cannot modify or delete the **BodyAge** test protocol.

Select the assessments from the menu.
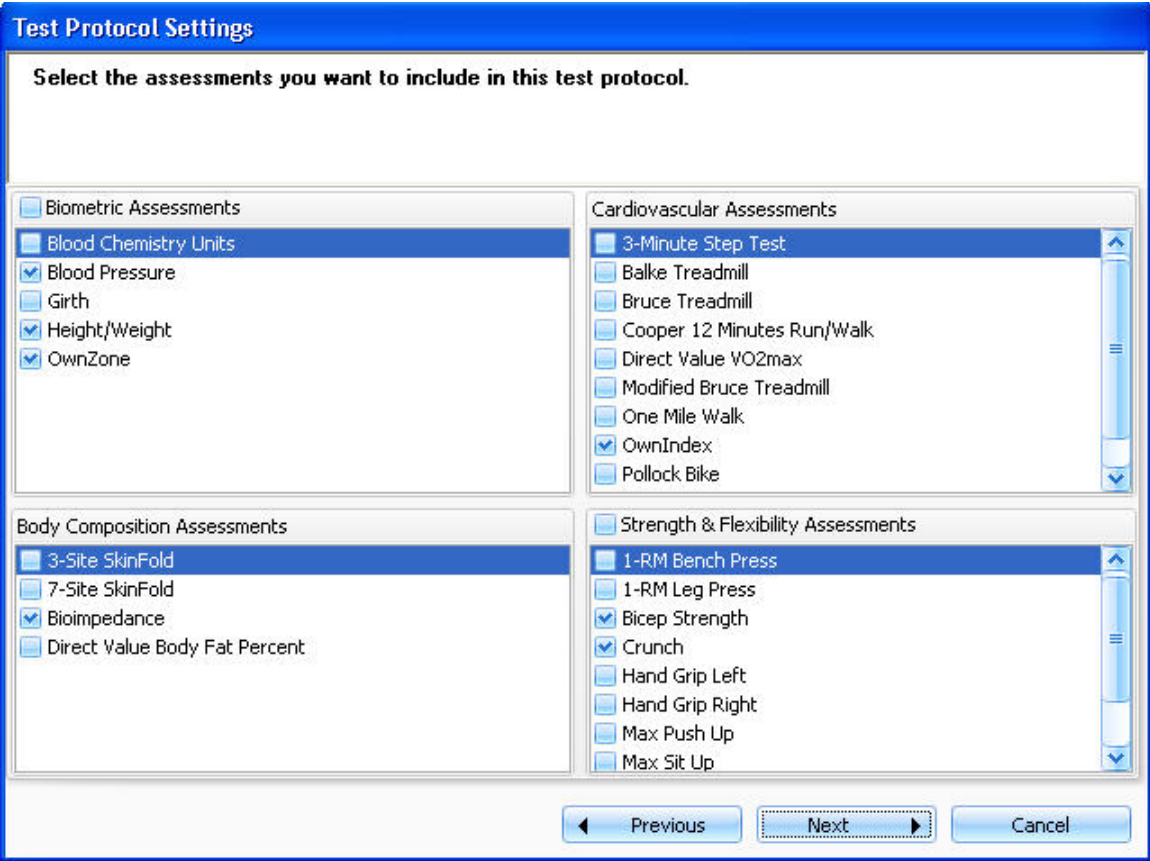
For **Body Composition Assessments**, only one assessment can be selected per test protocol.

For **Cardiovascular Assessments**, only one assessment plus **OwnZone** can be selected per test protocol.

Click **Next** after making you selections. A menu appears where you can select the health risk appraisals you want to include in the test protocol.

Polar BodyAge System

Test Protocol Settings

Select the health risk appraisals you want to include in this test protocol.

☐ Health Risk Appraisals
☐ Depression
☑ Heart Disease
☑ Nutrition
☐ Stress

◄ Previous | Next ► | Cancel

Click **Next** after making your selections. In the following view you can customize the order of the assessments in Autopilot.
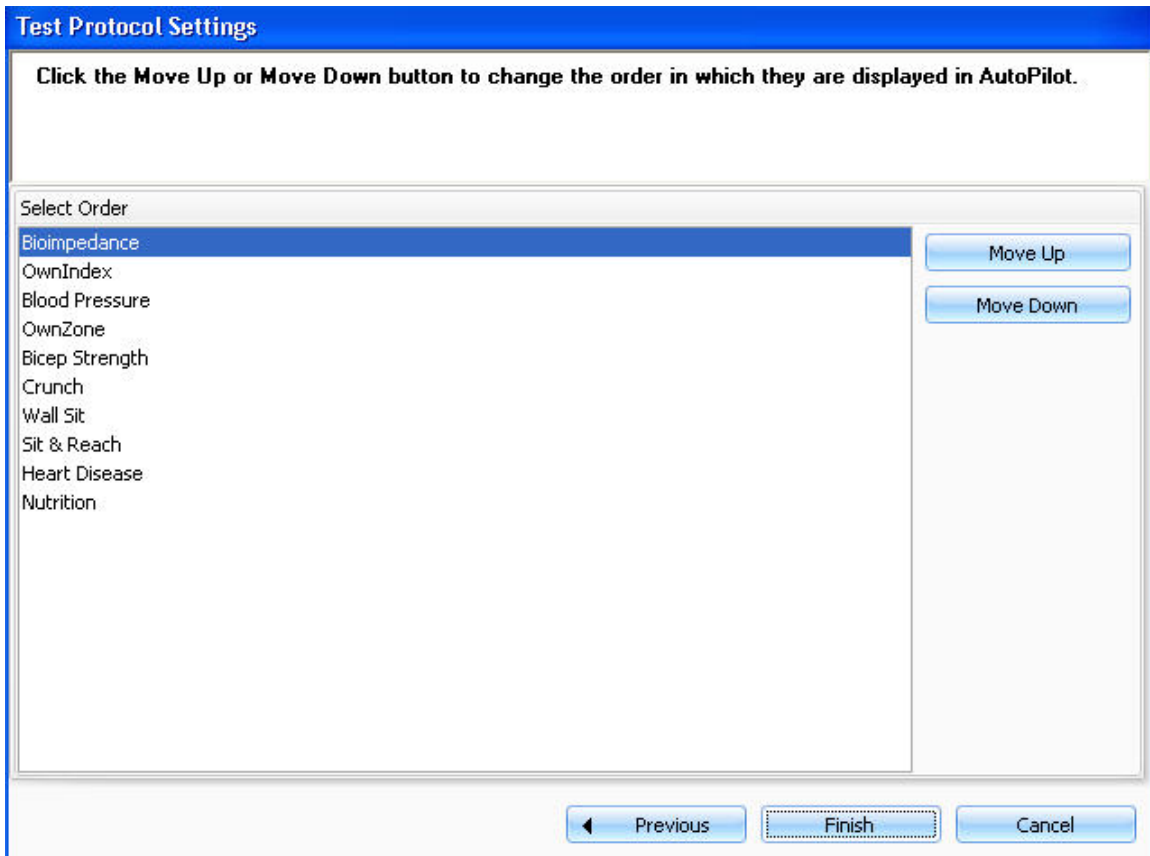
To change the order of the assessments, highlight an assessment and click **Move Up** or **Move Down**.

Click **Finish** to save your test protocol.

Your new test protocol will now appear under the **Test Protocol** drop-down menu.

Fitness Assessments

The fitness assessments in a test protocol are divided into four categories: **Biometrics**, **Cardiovascular**, **Body Composition** and **Strength & Flexibility**.

Polar BodyAge System

If you want to view an assessment that is not included in the test protocol, click the **Other Assessments** button (**Other Biometric Assessments**, for example). When you use an assessment that is not included in the test protocol, it will be indicated by red text.

NOTE: To view the **Other Assessments** button in **Fitness Assessments**, **Other Categories** must be included in the test protocol. For more information, see Adding, Editing or Deleting a Test Protocol.

Biometrics

The following assessments can be found in **Fitness Assessments** > **Biometrics**. For more information on a specific assessment, click the name of the assessment below.

PAR-Q

Medical History

Girth

Height/Weight

OwnZone

Blood Pressure

Blood Chemistries

Body Composition

The following assessments can be found in **Fitness Assessments** > **Body Composition**. For more information on a specific assessment, click the name of the assessment below.

3-Site SkinFold

7-Site SkinFold

Bioimpedance

Direct Value Body Fat Percent

For more information on body composition, see Importance of Body Composition.

Cardiovascular

Before starting a cardiovascular test, see Guidelines for Cardiovascular Testing.

The following assessments can be found in **Fitness Assessments** > **Cardiovascular**. For more information on a specific assessment, click the name of the assessment below.

Treadmill

Cycle Ergometer

Cooper 12 Minutes Run/Walk

Direct Value VO2$_{max}$

One Mile Walk

OwnIndex

For general cardiovascular information, see the following sections:

About Cardiovascular Fitness

About the Polar WindLink

Major Symptoms or Signs of Heart Disease

Polar BodyAge System

Heart Disease Risk Factors

Strength and Flexibility

The following assessments can be found in **Fitness Assessments** > **Strength and Flexibility**.
For more information on a specific assessment, click the name of the assessment below.

1-RM Bench Press

1-RM Leg Press

60 sec. Sit-Ups

Bicep Strength

Crunch

Max Push Up

Sit & Reach

Wall Sit

Health Risk Appraisals

Health Risk Appraisals

Click on the **Health Risk Appraisals** tab to view the appraisals included in the test protocol.
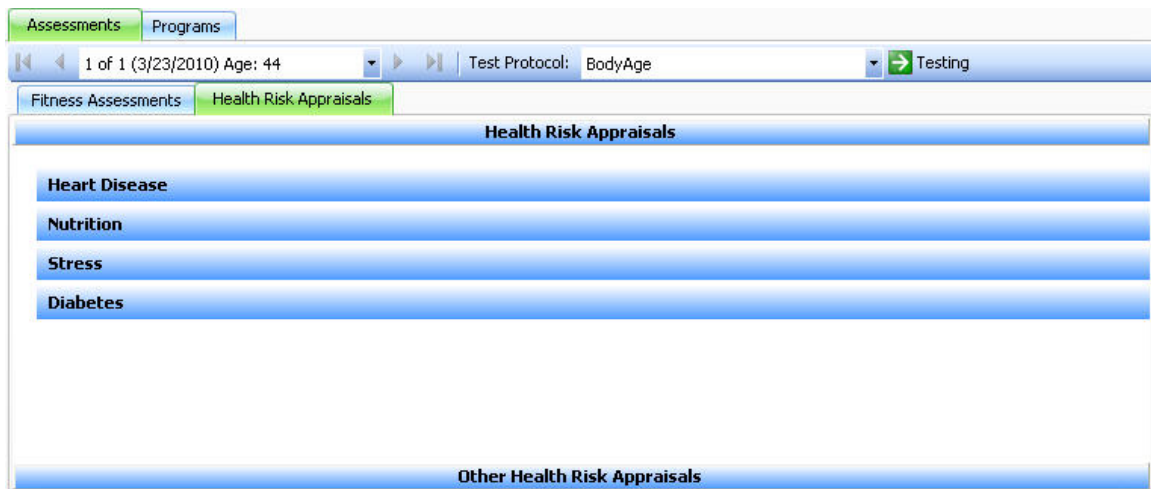
To open a health risk appraisal questionnaire, heart disease for example, click on **Heart Disease**.
Then click on **Start the Heart Disease Assessment**.

If you want to open the questionnaire for a health risk appraisal that is not included in the test protocol, click on **Other Health Risk Appraisals**.

Using Heart Disease HRA

The **Heart Disease** HRA questionnaire consists of 9 questions. The heart disease questionnaire requires weight information to correctly assess the heart disease risk for an individual.

Coronary heart disease is the most common form of heart disease and the leading cause of death globally. Estimates are that almost 7.6 million deaths a year are due to coronary heart disease. Many of these deaths could be avoided by simply understanding the risk factors associated with coronary heart disease and what steps can be taken to reduce the risk.

The heart disease HRA uses assessment data as part of the scoring. Blood pressure and blood chemistry values are needed to get the most accurate score for this HRA.

Using the Nutrition HRA

The **Nutrition** HRA questionnaire consists of 12 questions.

Good nutrition is essential for maintaining health and providing the energy necessary for optimal physical and mental performance. Poor nutrition is a significant risk factor in many of the leading causes of death globally, including coronary heart disease, cancer, stroke, and diabetes.

Using the Stress HRA

The **Stress** HRA questionnaire consists of 19 questions.

Stress may be thought of as a reaction to real or imagined threats in the present or future and to feelings of vulnerability or weakness. Even the most psychologically stable persons will have occasional periods of stress. Relatively mild episodes of stress are universal and require no special treatment. But, in some people, these emotions can gather momentum and have a negative effect on the quality of life and health. In most cases individuals can manage and control stress on their own. The trick is to recognize the problems for what they are and to take appropriate corrective actions.

Using the Depression HRA

The **Depression** HRA questionnaire consists of 20 questions.

Depression may be thought of as a reaction to past events combined with feelings of helplessness and hopelessness. Even the most psychologically stable persons will have periods of depression. Relatively mild episodes of depression are universal and require no special treatment. But, in some people, these emotions can gather momentum and have a negative

effect on the quality of life and health. The trick is to recognize the problems for what they are and to take appropriate corrective actions.

Using the Diabetes HRA

The **Diabetes** HRA questionnaire consists of 9 questions.

Diabetes is a serious disease that can lead to blindness, heart attack, stroke, kidney failure and amputations. Research shows that type II diabetes can be prevented by leading a healthy lifestyle. Maintaining a healthy weight, eating low fat foods, and getting regular exercise can help reduce risk.

Using the Cancer HRA

The **Cancer** HRA questionnaire consists of 26 questions for males and 37 questions for females.

The cancer risk assessment has been developed by the American Cancer Society to help you learn about:

1. your risk factors for certain types of cancer and

2. the early symptoms of a cancer

Using the Prevention HRA

The **Prevention** HRA questionnaire consists of 13 questions.

Using the Safety HRA

The **Safety** HRA questionnaire consists of 23 questions.

Testing with Autopilot

What is AutoPilot?

AutoPilot has been designed to streamline and standardize the sequencing of fitness assessments. By creating a new record with AutoPilot, each desired assessment comes up automatically in the desired order. Running a test protocol with AutoPilot means that you never have to select the assessment you want to use. As you complete one assessment of the test protocol, the next assessment appears automatically.

How to start AutoPilot

AutoPilot will automatically run with the test protocol that you select. To change the test protocol settings or selection, see Test Protocols and Adding, Editing or Deleting a Test Protocol for instructions.

1. Click **Testing** to open the drop-down box and select **New Record Using AutoPilot** to create a new test record or **Edit Test Record Using AutoPilot** to edit an existing test record.
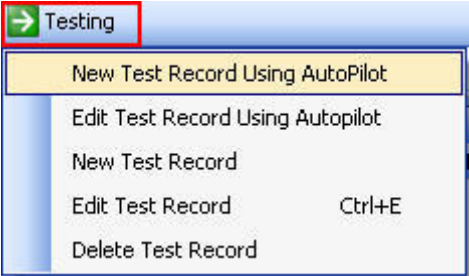
2. A new screen will appear. This is the first assessment to complete in order to run a complete test protocol.

3. When you are finished with the first assessment, click **OK** in the lower right corner and you will be automatically forwarded to the next assessment.

4. To close AutoPilot and return to the main screen, click on the button.

To view an existing record, use the arrows or the drop down menu shown below:

Testing Manually

After you have created a new client (see Adding a New Client), you can create a record for that client.

Every time you add a new client, your main testing screen will be disabled until you click **Testing** and make your selection:
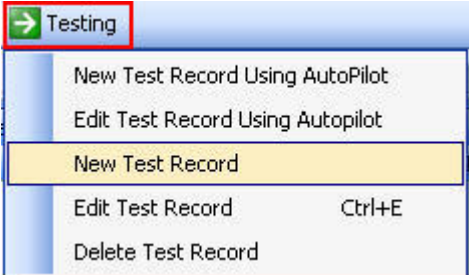
Polar BodyAge System

Select **New Record** to create a new record for the client. The main testing screen will be enabled. You can now select the assessment you want to view. For example, if you want to enter the clients height and weight, click on the **Height/Weight** button in **Biometrics** category. A screen for entering a client's height and weight will appear.

Select **Edit Record** to modify an existing record.

Select **Delete Record** to permanently remove the record.

To view an existing record, use the arrows or the drop-down menu shown below:
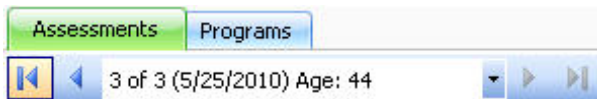
NOTE: If you have created a new client, you can only select **New Record** or **New Record Using Autopilot**.

Programs

Creating a New Program

To design a customized program for your client, click on the **Programs** tab to open the program view. Then click the button and select **New Program**.
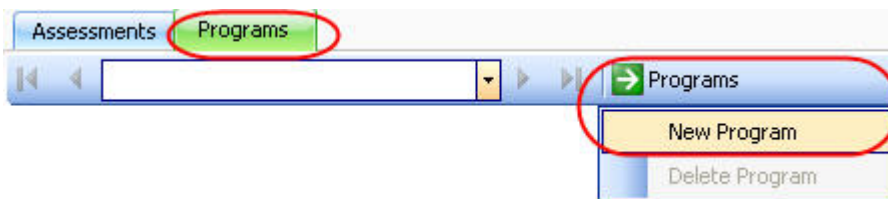
The following view appears:
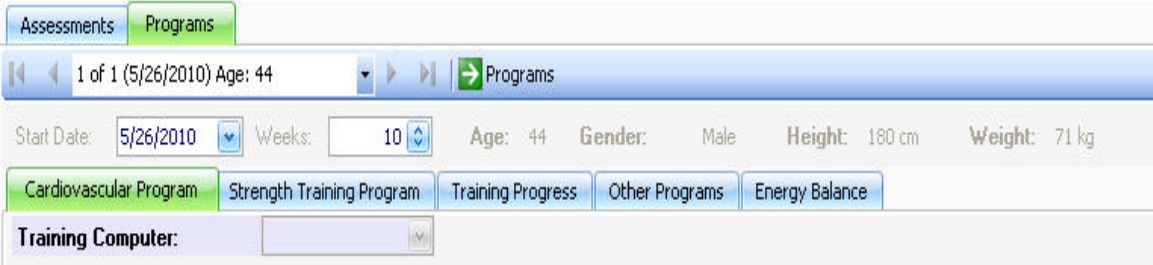
For more information on the options in this view, see the links below.

[Cardiovascular Program](#)
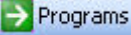
[Strength Training Program](#)

[Training Progress](#)

[Other Programs](#)

[Energy Balance](#)

Cardiovascular Program

To design a customized cardiovascular program for your client, click on the **Programs** tab to open the program view. Then click on Programs and select **New Program**.

The following view appears:
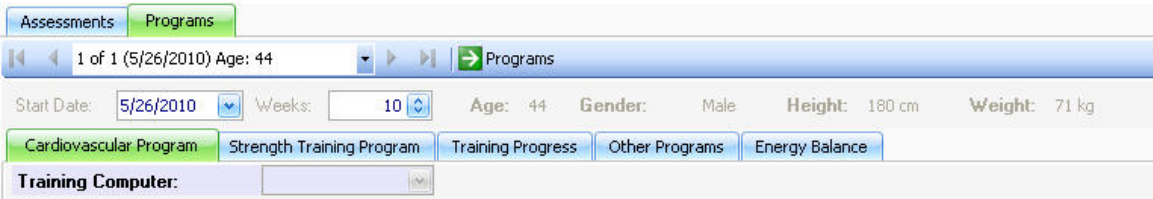
Start by selecting the client's training computer from the drop-down list. This selection will determine the program type. Depending on the training computer selection, click on the program name below for further instructions:

Polar BodyAge System

- **Polar Keeps U Fit program:** F4, F6/F7, F11, F55

- **Polar Energy Pointer program:** FT7, FT40

- **Polar STAR Training Program:** FT60, FT80

- **5 Zone Program:** RS300X, RS400, RS800, RS800CX

Strength Training Program

To design a customized strength program for your client click on the **Programs** tab to open the program view. Then click on and select **New Program**.

The following view appears:
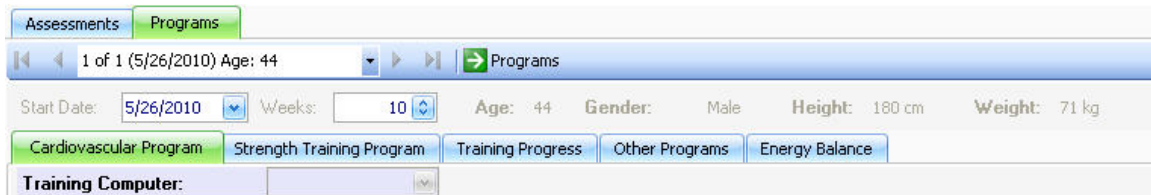
1. Click on the **Strength Training Program** tab to view the strength training program main screen.

2. Click **Create New Workout**. The following screen appears:
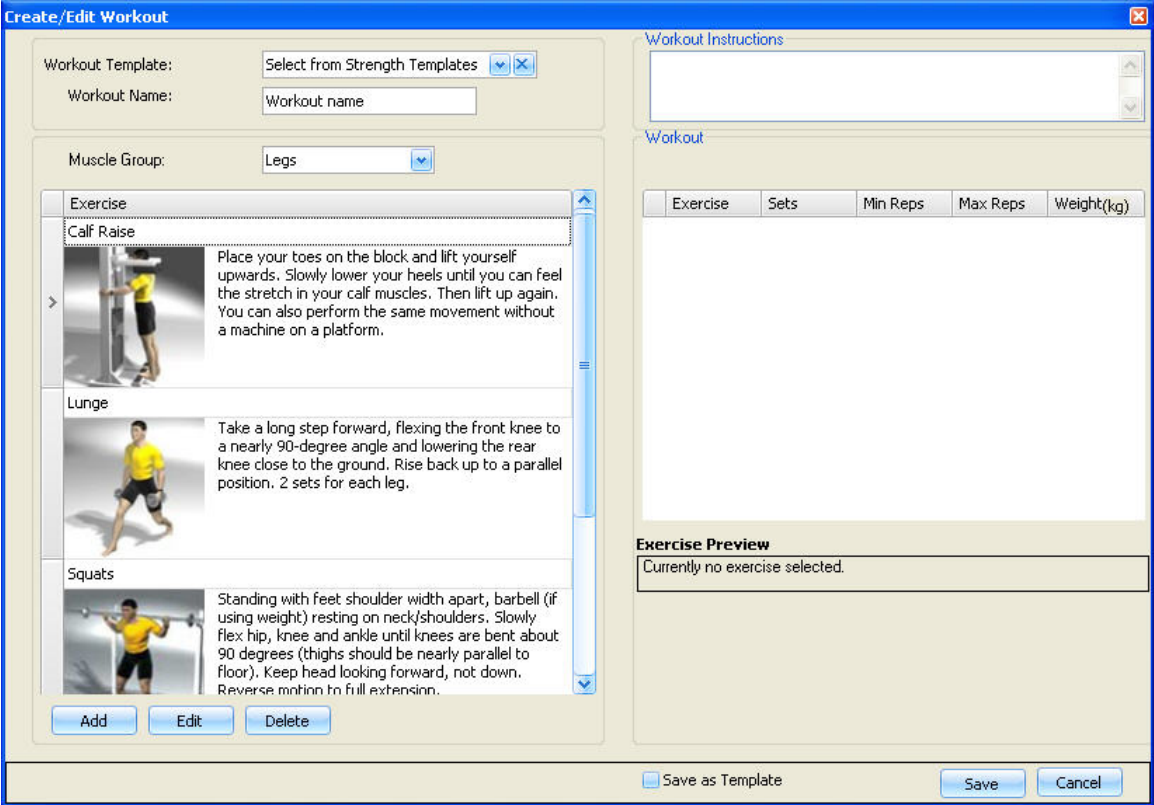
3. If you have already created a workout template, select it from the drop-down menu. If you want to create a new workout, enter the workout name.
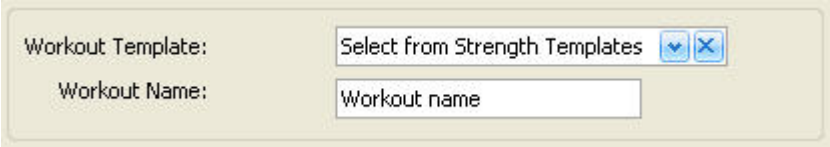
4. Select the muscle group in which you want to add exercises. Double-click or drag and drop the exercise to add it to the workout.

5. If you want to add a new exercise, click **Add**.

- Give the exercise a name and place it in a muscle group.

- Browse to find the picture that corresponds with the new exercise.

- Write the instructions for the new exercise.
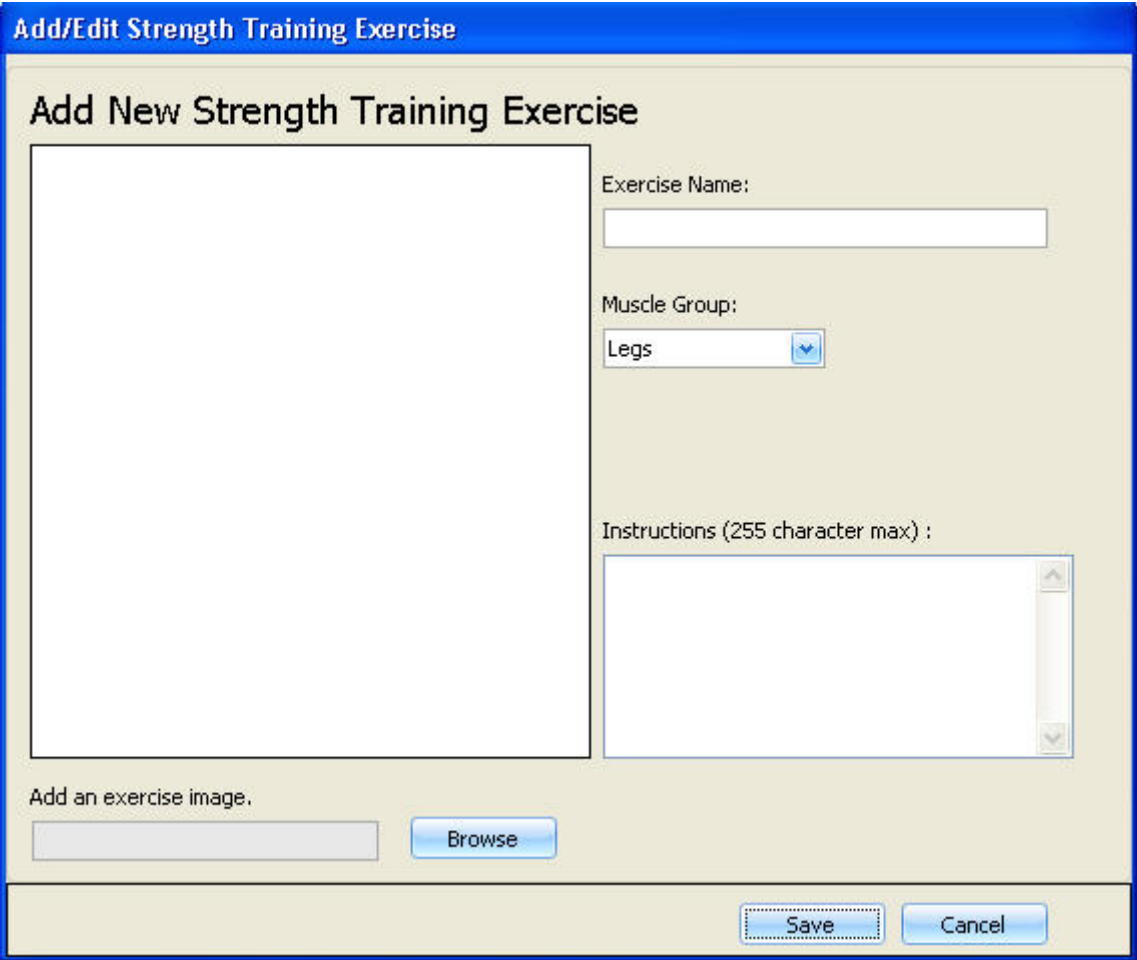
6. If you want to save the workout as a template, check the box next to **Save as Template**. Then select **Save**.

7. After saving the workout, a weekly calendar appears on the **Strength Program** main screen. Select the days when this workout should be done.
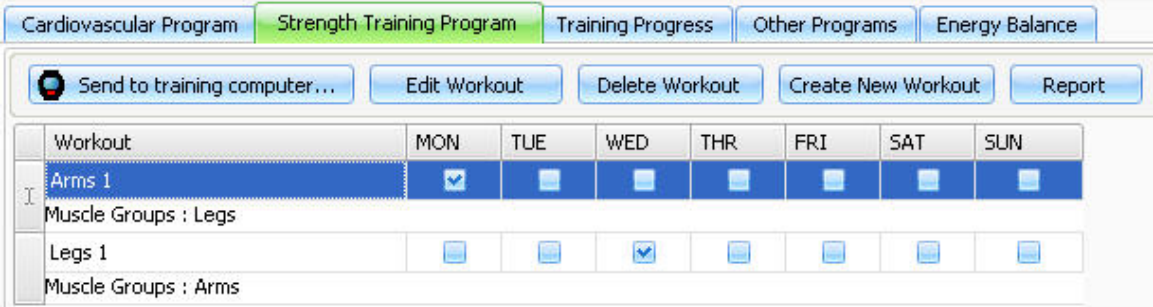

8. Click **Report** to view and print a strength program. The report includes a strength training calendar and detailed instructions for carrying out the exercises.

Polar BodyAge System

9. To transfer workouts (a maximum of three) to the Polar FT80 training computer, place the training computer on the FlowLink and click **Send to training computer...**

The following screen appears. Check the boxes next to the workouts you want to send to the training computer and click **Transfer**.
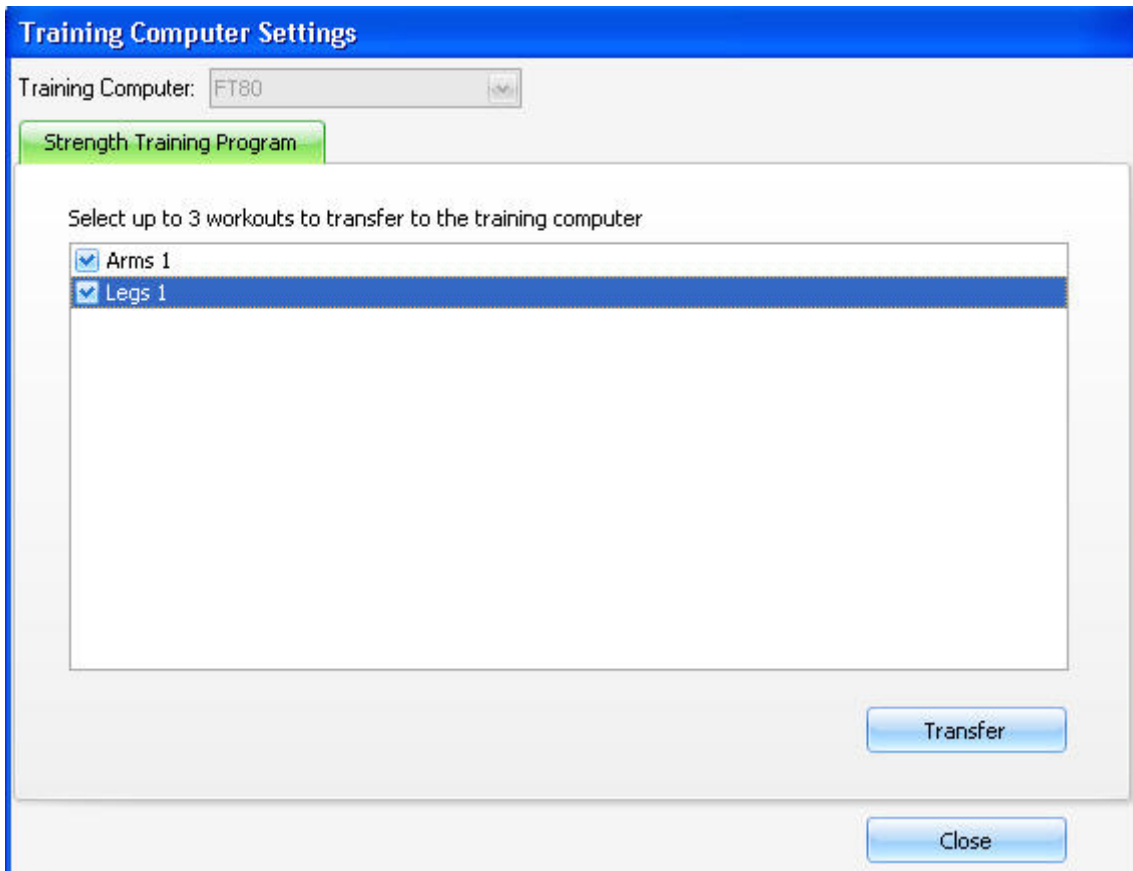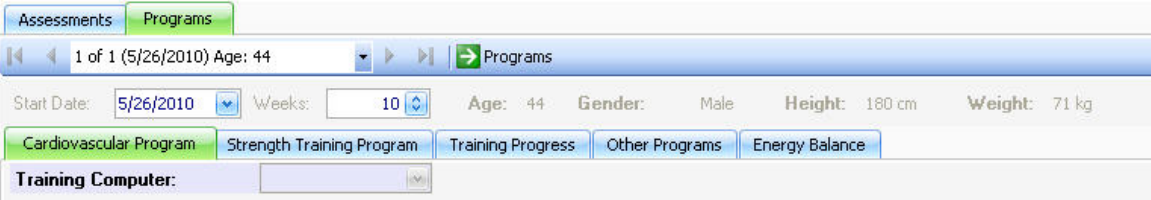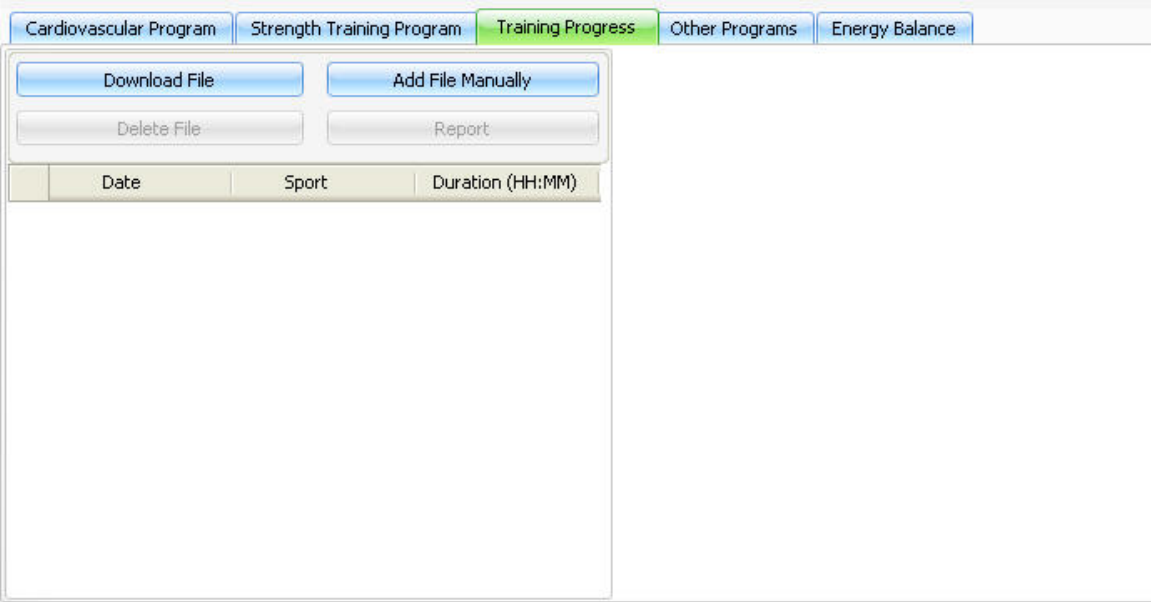

Training progress

To view and follow your client's training progress, click on the **Programs** tab to open the program view. Then click on ![Programs] and select **New Program**.
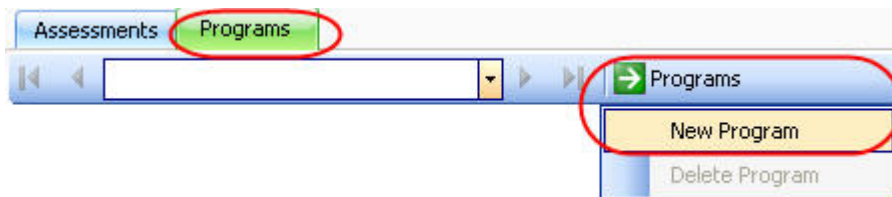
The following view appears:

1. Click on the **Training Progress** tab to view the training progress main screen.

2. Click **Download File** to download the training files from the client's training computer. Select the training computer and the sport from the drop down lists and then click **Download.** See Downloading Files for more information.

3. Click **Add File Manually** to add a training file manually. A new file will be added to the list. Enter the information for the highlighted training file, and click **Save** to save the training file information.

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4. To delete a highlighted training file from the list, click **Delete File**.

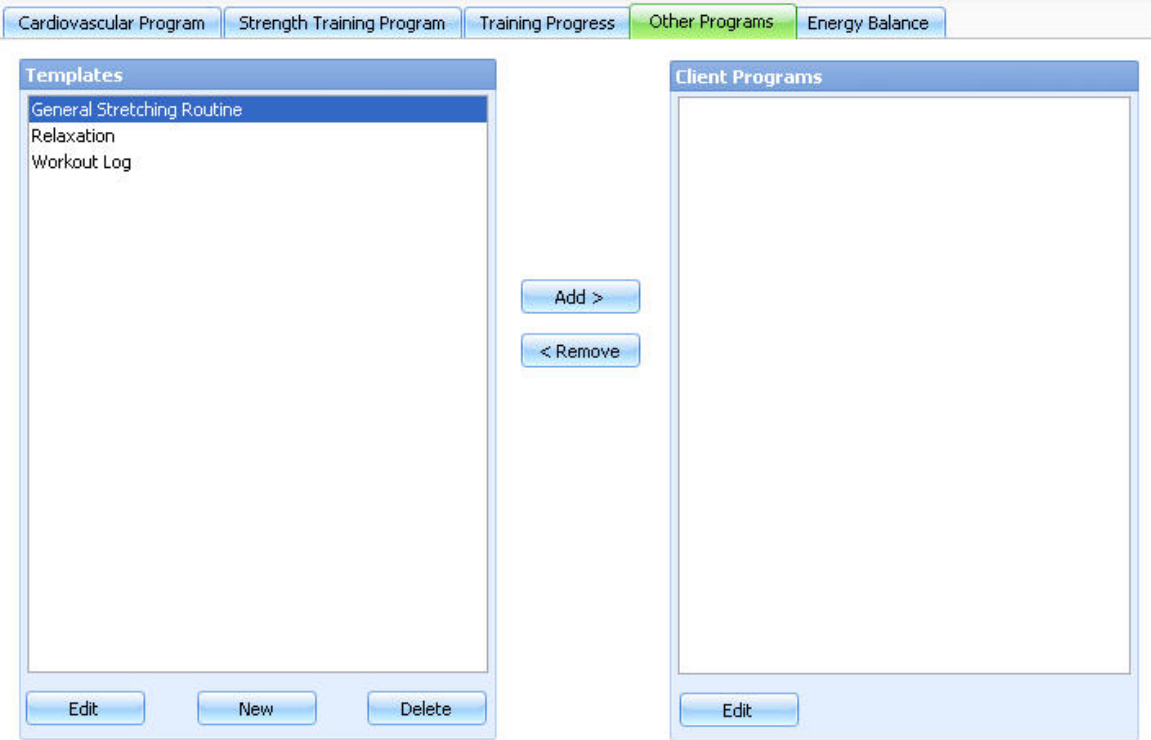5. To view a training progress report, click **Report**.

Other Programs

In **Other Programs** you can include additional programs or training instructions for you client.
Click on the **Programs** tab to open the program view. Then click on and select **New Program**.

The following view appears:

1. Click on the **Other Programs** tab brings to view the other programs main screen.

To add one of the program templates for your client, highlight the program name and click **Add**.

To create a new template, click **New**. This selection will open a text editor. After creating the template in the text editor, select **File** > **Save**.

Energy Balance

The Energy Balance function calculates the total daily calorie burn target based on the client's weight loss target and daily activity level.

Click on the **Programs** tab to open the program view. Then click on and select **New Program**.
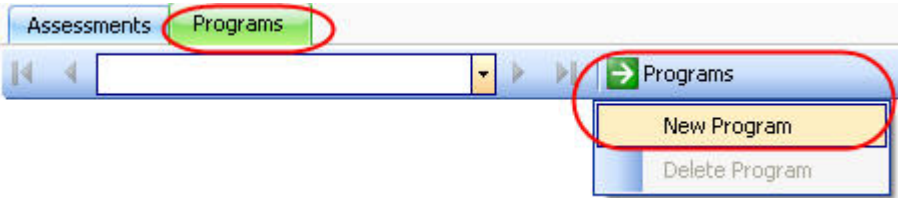
The following view appears:

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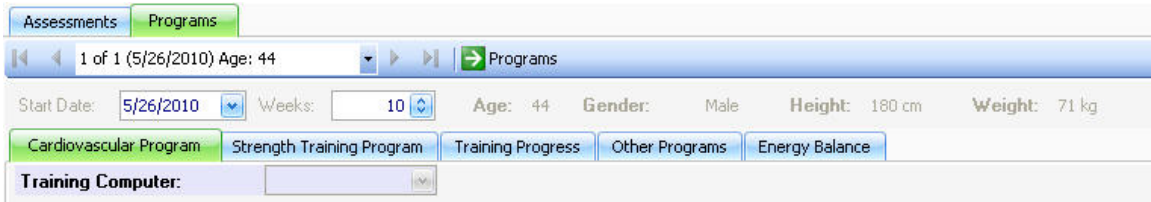
Clicking on the **Energy Balance** tab brings up the **Calorie Analysis** view.	
This view provides an analysis of the client's total daily calorie burn. Choose the lifestyle that best describes the client's daily activity level. Clicking on the ⊡ button brings up a screen with descriptions of the lifestyle options.	
After the lifestyle selection, the following data will be displayed in the calorie analysis view automatically: • **RMR:** Resting	

metabolic rate is the number of calories burned daily for normal physiologic function:

- **Avg. Exercise cals/ Day:** This value is automatically entered from the cardio program. The cardio program creates a

weekly total and the energy balance function divides that by 7 for daily calorie expenditure. • **Total Calorie Burn/ Day** is a sum of the lifestyle, RMR and average exercise calories.	

Once the calorie analysis is complete, the **Targets** view appears.
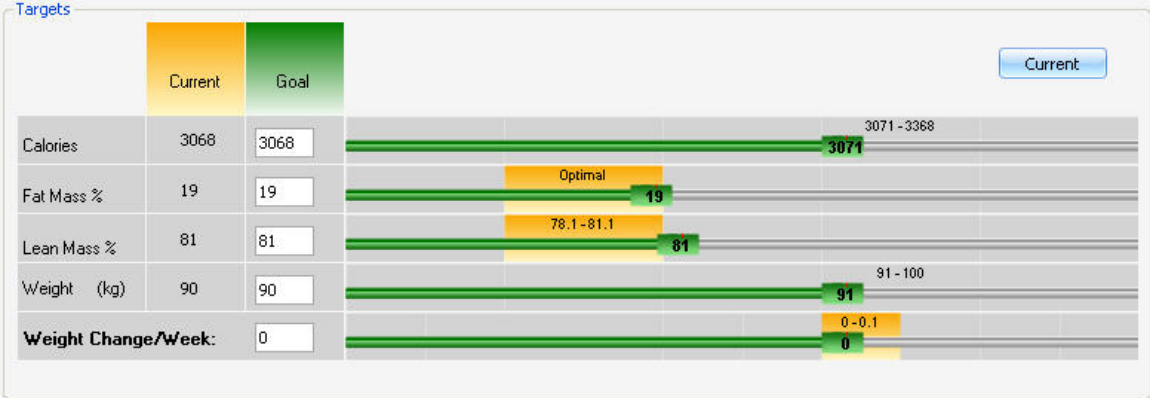
In this view, the **Current** values show the client's current condition. The body fat, lean mass and weight are brought over from Body Composition assessments and Client Information.

The **Goal** values can be adjusted by sliding the bars or by manually entering a goal value in each text box. The **Weight Change/Week** will change accordingly.

Reports

Graphical Summary

A graphical summary gives the client a graphical view of how they did on the fitness assessment. It presents norms and places clients into categories based on their health or performance.

To build a graphical summary report, select **Reports** > **Graphical Summary**. The **Graphical Summary** report window appears:
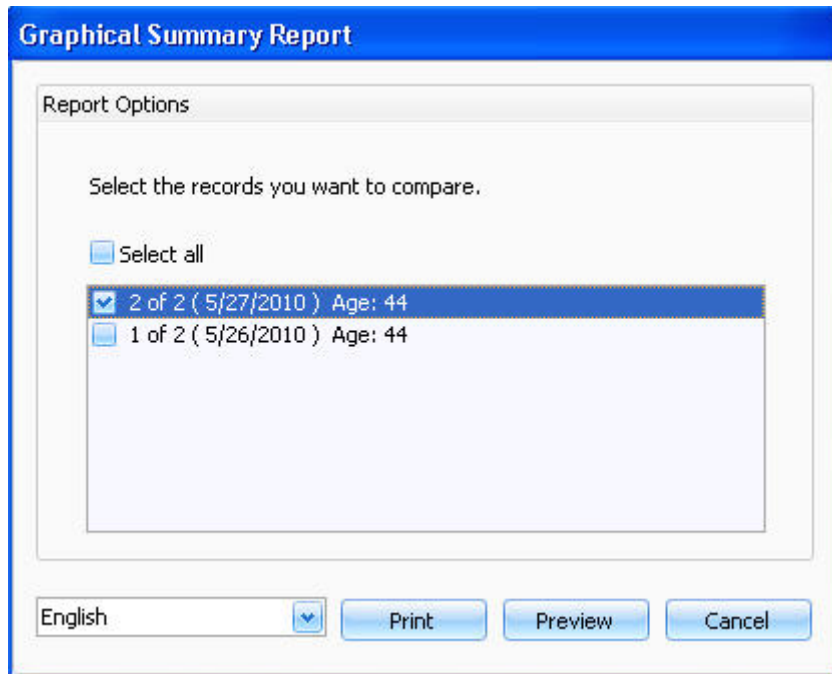
Check the box next to the record you want to compare. You may compare all records or choose individual records for comparison.

Click **Preview** to view the report before printing. Click on the ⌷ button to print the report, or the ⊗ button to exit the graphical summary preview and return to the main screen.

Click **Print** to print the report.

Summary Report

A data summary report will present the client's data from the fitness assessment. It will also reflect the changes made if more than one record is compared.

To build a summary report, select **Reports** > **Summary Report**. The **Data Summary Repor**t window appears:

The first option allows you to compare the results of the current test to one of the client's other tests. You can compare it by selecting an earlier test record from the drop-down menu. The second option shows only the current test record.

Click **Preview** to view the report before printing.

Click on **Print** to print out the data summary report.

Personal Profile

A personal profile presents an in-depth report of the client's fitness assessment. It uses graphs, percentages, charts, norms and tips to give the clients detailed, yet easy to understand feedback on their fitness status. It also prints out their cardiovascular program and training progress if they are created and selected.

To build a personal profile report, select **Reports** > **Personal Profile**. The **Personal Profile Report** window appears:
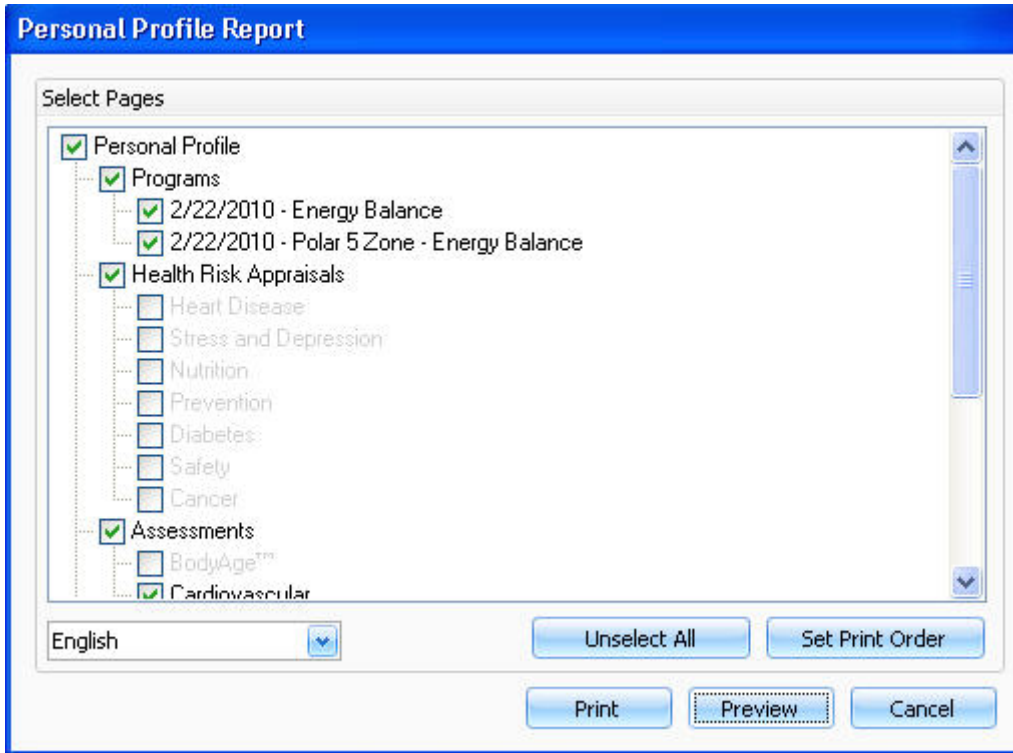
Check marks indicate reportable data. If you do not want all of the selected data in the report, either remove the check marks one by one or click **Unselect All**.

Click **Preview** to view the report before printing.

Click **Print** to print out the personal profile.

Click **Set Print Order** to select the order in which the personal profile information is printed.
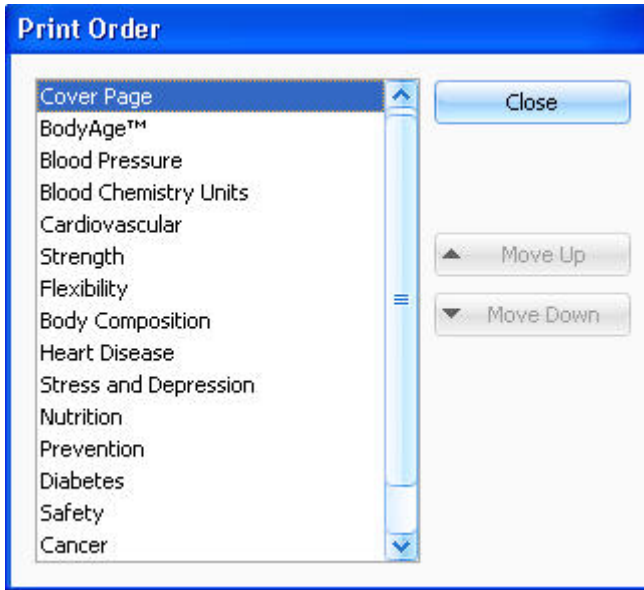
To change the order, highlight the item and use the up and down arrow buttons to move it.

NOTE: The cover page cannot can not be moved, it is ALWAYS the first page.

When you have it in the order that you want, click on **Close** button.

BodyAge Report

A BodyAge™ report is generated if it is selected when printing or previewing a personal profile.

Why BodyAge

BodyAge is based on health screening and fitness test scores. Fitness testing is done to serve two purposes; the first is to monitor progress of a fitness program and the second is to provide motivation to the client to improve fitness levels. The problem in the past has been that when presenting clients with just their fitness results: they tend to be overwhelmed with the amount of information and do not understand many of the fitness concepts, such as VO_{2MAX}. Because of this, clients tend to be less motivated to change their fitness levels and therefore exercise adherence is lower and incidence of dropout from exercise programs is higher. The BodyAge system was developed over 10 years from the information gathered and real-world testing in over 1300 health clubs in the U.S.

BodyAge simplifies fitness test results into one number that the non-professional can understand. Using BodyAge has been shown to increase motivation levels of clients and increase exercise compliance.

How BodyAge Works

The BodyAge score is calculated using 4 to 13 health and fitness assessments. Each assessment has a "Healthy" or "Average" percentile ranking that has been determined and validated by a research (example: VO_{2MAX} values and normative rankings from Shvartz E, Reibold RC: Aerobic fitness norms for males and females aged 6 to 75 years: a review. Aviat Space Environ Med; 61:3-11, 1990. as reference by the World Health Organization). A person in the "Healthy" or "Average" percentile for all assessments will have a BodyAge score equal to their biological age. A person lower in the percentile categories for any of the assessments will have years added to their BodyAge score accordingly. The same works for the person in the Good or Excellent categories-years will be taken off of the BodyAge score. Assessments that affect life expectancy are weighted more heavily. Assessments that affect quality of life rather than lifespan are weighted slightly less.

Customizing Report Cover Page

To view and/or change the cover page for the personal profile report, select **System Settings** > **Customize Report Cover Page**.

The cover page opens. In this view you can change the formatting, wording, colors and even add your own images.
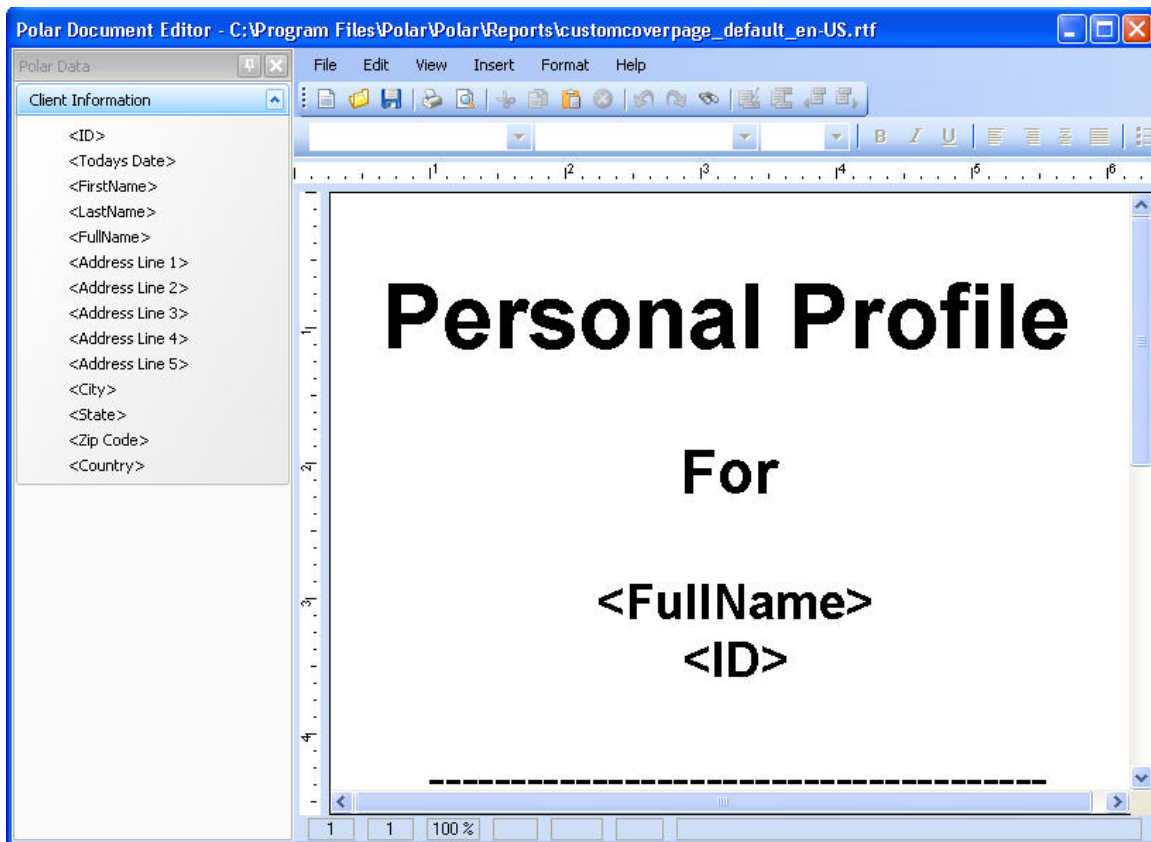
To change the text, place the cursor on the part that you want to change or delete text. The tags listed (i.e. <FullName>) indicate that a personalized tag (i.e. John Doe) will show up on the cover page.

To change the format, font, and/or text features, use the tool bar.

To insert an image or logo, go to **Insert** > **Image...** and browse the file from your computer.

When the cover page is complete, go to **File** and select **Save**. Click **Close** to exit.

Group Reports

Group Reports are aggregate summaries of group populations. These reports are extremely useful in corporate settings.

To build a group report, select **Reports** > **Group Report**. The **Group Reports** window appears:
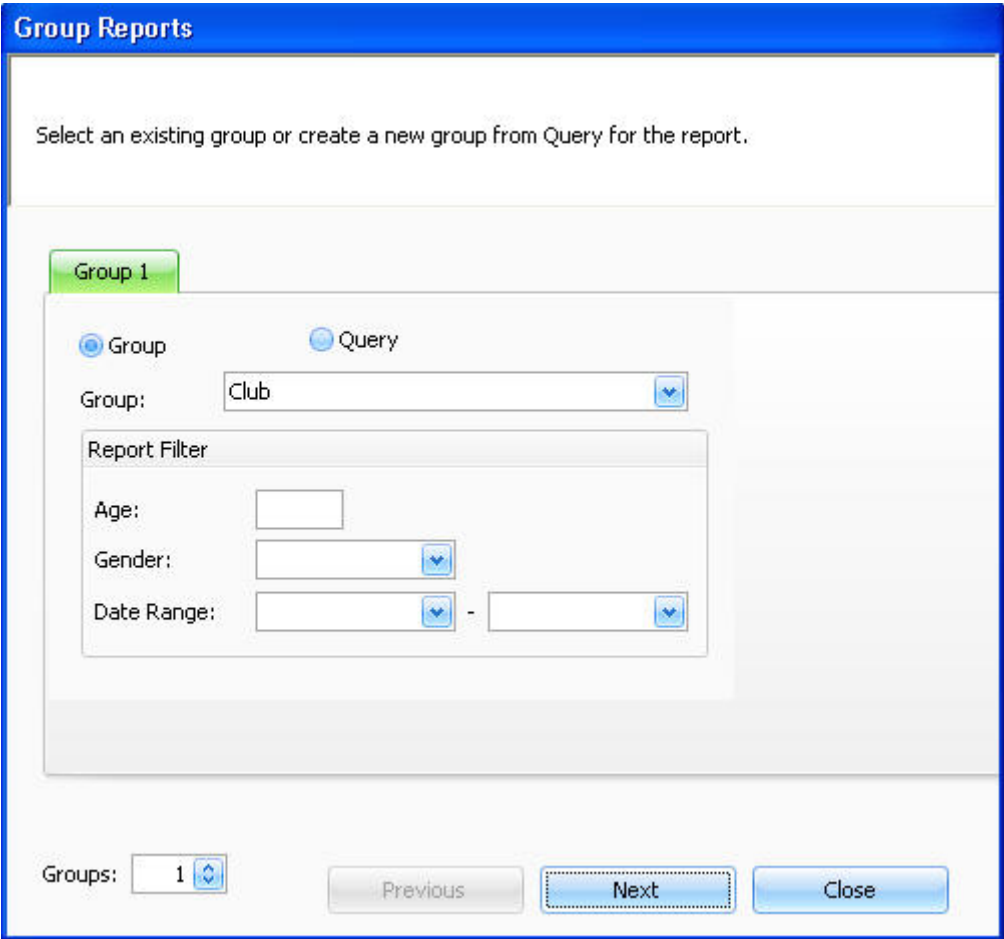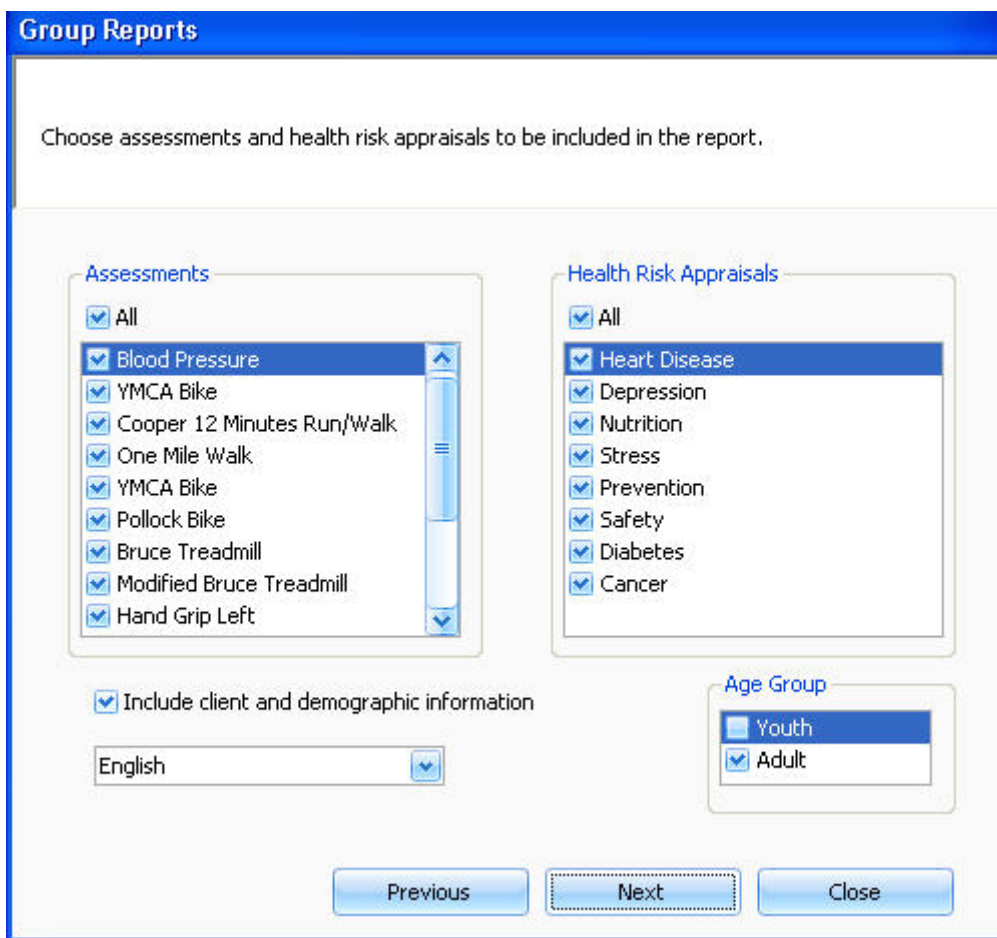
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1. If you want to compare two groups, click on the arrow on the lower left corner of the screen to raise the number of groups from 1 to 2. A **Group 2** tab will appear.

2. Select a group from the drop-down list next to the group field. If you want to create a new group with a specific population of clients, select **Query**, and click on [...].

Query: All Clients   ⌄ [...]

See Query Builder for more information.

3. The report filter customizes your report. You can filter your group report based on age or sex or test date or all three. For example, you can choose only males between the ages of 25 and 40 years of age within your group report.

4. Press **Next**. The following screen will appear allowing you to choose the assessments and health risk appraisals to be included in the report.

5. Press **Next** to complete the report. The following screen appears:
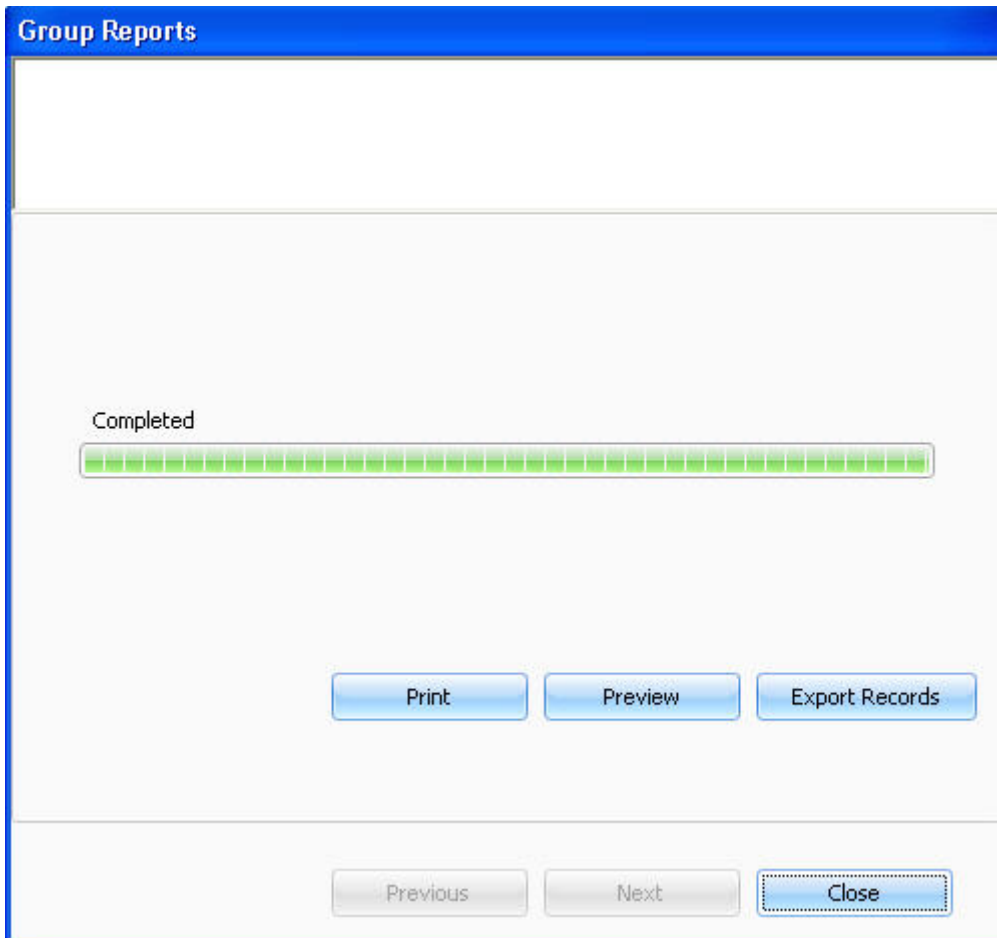
Click **Print** to print out the summary report.

Click **Preview** to view the report before printing.

Click **Export Records** to save the data in .xml format.

Batch Report

The batch report function allows you to compile a report of chosen assessments for a specific group of people.

To build a batch report, select **Reports** > **Batch Report**. The **Batch Printing** window appears:

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1. If you do not want all of the listed assessments to be included in the report, remove the checks you do not want to include in the report or click **Unselect all**.

2. Select the type of the report by checking or unchecking the box next to the report type:
 Personal Profile, **Data Summary** or **Graphical Summary**. You can select more that one report type to be included in the batch report.

3. If you want to attach a form letter to the report, check the box next to **Form Letters**. Then check the box next to the form letter which you want to attach. For more information on form letters, see Define Form Letters.

4. Click **Next**. The following screen appears.
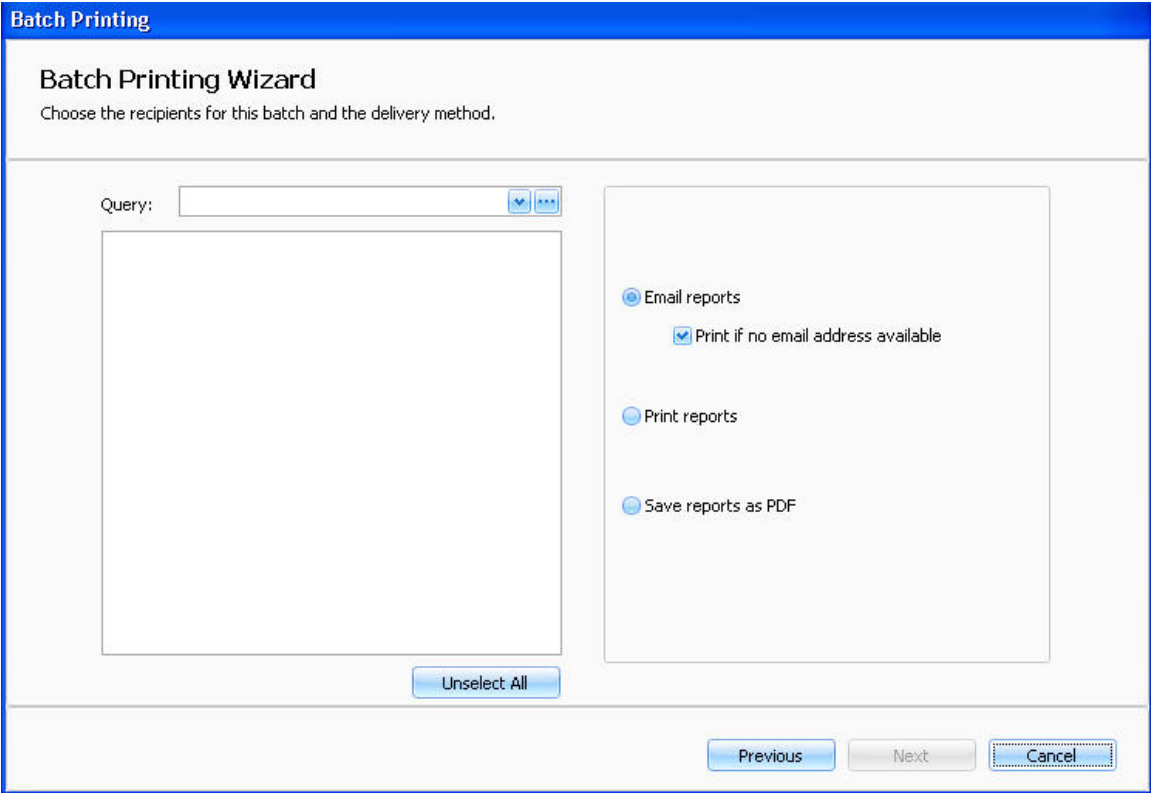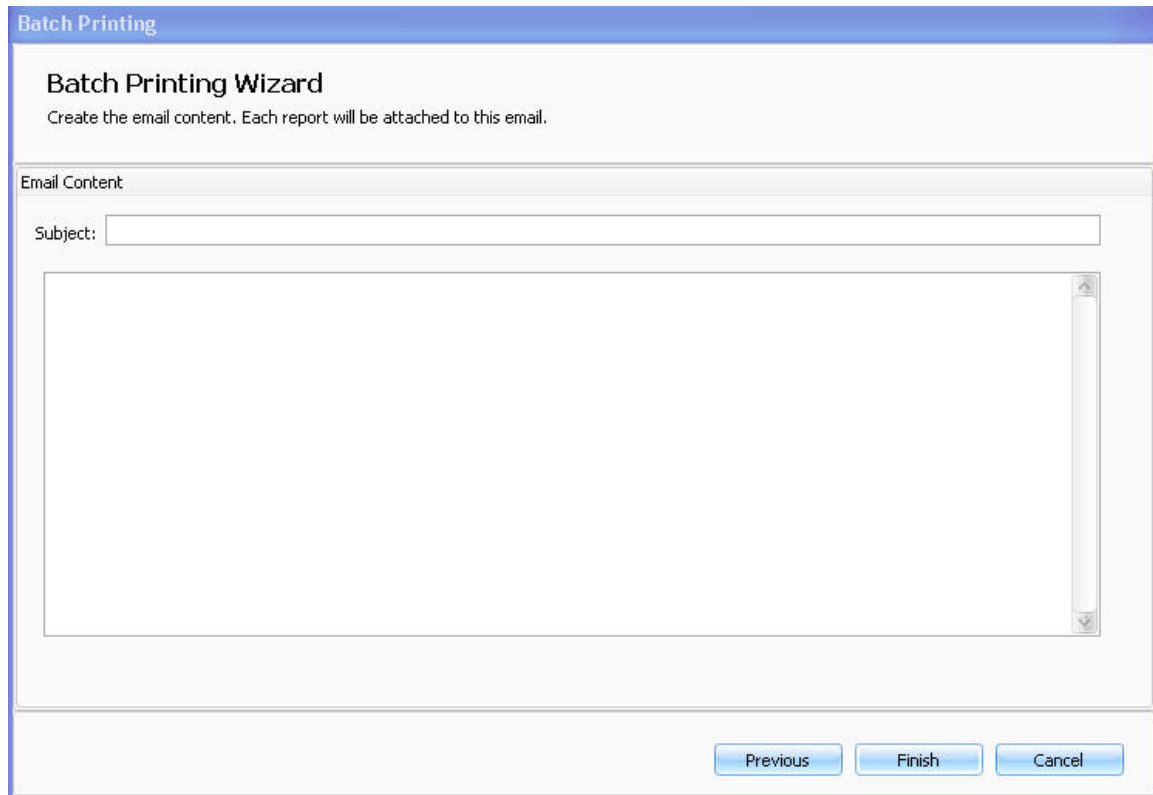
5. Choose the delivery method and select the recipients from the drop-down list. If you want to create a new group with a specific population of your clients, click on .

See Query Builder for more information.

6. If the delivery method of you choice is **Email reports**, the below screen will appear. Create the e-mail content, and click **Finish** to send the reports.

Support for the Polar BodyAge System

Troubleshooting

Computer will not turn on

1. Turn the main power switch, located on the right side of the computer compartment, off and on. If power is applied, the switch will glow red.

2. Hold the power button on the front of the CPU down for 2 seconds. If the switch glows green, power is on.

3. Unplug the unit and test the wall power outlet with an electrical appliance (such as a lamp). If outlets are changed, repeat steps 1 and 2.

4. Unplug the ROM cable from the system interface. Slowly remove the computer and set it down directly behind the cart. Make sure the power cable is securely plugged in on the back of the case as well as the surge protector.

5. Repeat steps 1 and 2.

Computer turns on, but the monitor does not

1. Check the power cable on the back of the monitor. Make sure it is secure.

2. If no lights are on in the monitor, press the monitor power switch again. Wait for 30 seconds. Note the color of the monitor lights.

3. If there is power on in the monitor, but you have no video (amber light), reseat the VGA cable on the back of the monitor.

4. If power is still not applied (no lights), turn off the main power switch on the left rear of the cart. Unplug the ROM cable from the system interface. Slowly remove the computer and set it down directly behind the cart. Make sure the AC adapter for the monitor is securely plugged in on the surge protector and the body of the adapter.

5. Turn on the main power switch and check again.

6. If you have power to the monitor (lights on the front) and still no video, verify that the VGA cable is securely connected on the rear of the computer.

Printer will not Turn On or Print

Hardware checks

1. Check the power cable going into the right side of the back of the Hewlett Packard printer.

2. Check the data cable (USB) going into the right side on the back of the Hewlett Packard printer.

3. Turn off the main power switch on the left rear of the cart. Unplug the ROM cable from the system interface. Slowly remove the computer and set it down directly behind the cart. Verify that the AC adapter for the printer is securely connected to the surge protector.

4. Check the back of the computer to see that the USB cable is securely connected.

5. Check the printer cartridges as described in the Hewlett Packard material, which came with the printer (located in the accessories box).

Software Checks

1. Close the BodyAge system.

2. Click Start.

3. Go to Printers.

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4. With the mouse, highlight the printer you are using and click the right mouse button.

5. Go to Properties and click the left mouse button.

6. The printer should be checked as being the default printer. If it is not, click on the default.

7. Write down any error codes to help identify any problem.

On-Line Peripherals

PLATFORM

Platform is giving low or high readings

• Re-calibrate (Defaults/Calibration) being sure to follow the instructions on the screen exactly.

• Use a person who has a known weight between 68 and 86 kg or 150 and 189 lbs.

• Make sure the person does not step on the scale before it is zeroed. Stepping on the scale causes the platform calibration to fail.

• Make sure the person stands very still. Any movement from side to side will cause the calibration to fail.

• Go to a test and perform an actual body weight with the same person that was used to calibrate the scale. The weight should be within 0.5 kg / 1.1 lbs.

• If the weight is not within 0.5 kg / 1.1 lbs, re-calibrate and re-measure the body weight.

CALIPERS

Online calipers are giving inaccurate readings

• Re-calibrate as instructed on the screen. (Defaults/Calibration).

• Go into a 3-site Skinfold test.

• Zero the calipers.

• Place the 25.4mm calibration dowel in the jaws of the calipers lengthwise.

• Press the switch on the calipers.

• The reading on the screen should be within 24.5mm and 26.0mm. Repeat this three times and note each reading.

• If the readings are not within 24.5mm and 26.0mm, re-calibrate and repeat.

SIT & REACH (Range of Motion)

Range of motion (ROM) handle is not retracting

• If the ROM handle is not retracting, the internal mechanism needs to be repaired by Polar/HealthFirst service personnel.

• Remove the ROM unit from the sit & reach station using a 5/32" Allen wrench provided with your system.

• Remove the two upper screws mounting the unit to the station.

• Unplug the ROM cable from the system.

• Remove the ROM unit.

Range of motion is inconsistent

• Re-calibrate ROM. See Calibrating the Range of Motion for instructions.

• Enter into a client test and perform another sit and reach test.

• When the screen prompts to "Zero the System", pull the handle out exactly 30 cm (11.8 inches) from the footplate and press the Enter key.

• Return the handle slowly to the footplate and allow the TriFIT to take the reading.

• The measurement should be within 1 cm (0.4 inches) of 30cm (11.8 inches).

• If the measurement is not within 1 cm (0.4 inches) , re-calibrate and repeat.

Limited Polar International Warranty for Polar bodyage System

Polar Electro Group (Polar) warrants its equipment for one year from the date of shipment. This warranty is limited and is in lieu of all other warranties expressed or implied. Within the warranty period, Polar or its local representative will repair or replace, without charge, any parts, which become defective due to material or workmanship.

Accessories, components and major sub-assemblies of Polar systems not manufactured by Polar (i.e. Bike Ergometer, HP Computer, Tanita Body Composition Analyzer) will be warranted according to the terms of the original manufacturer. This warranty shall not apply to any part or parts of the system if it has been altered, repaired or misused through negligence; nor does this warranty cover replacements or repairs necessitated by loss or damage resulting from any cause

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Security

User Roles and Profiles

User Roles

In **User Roles** you can determine the functions that are allowed for different roles.

1. Select **Preferences** > **User Management** > **User Roles**. The following window ppears:
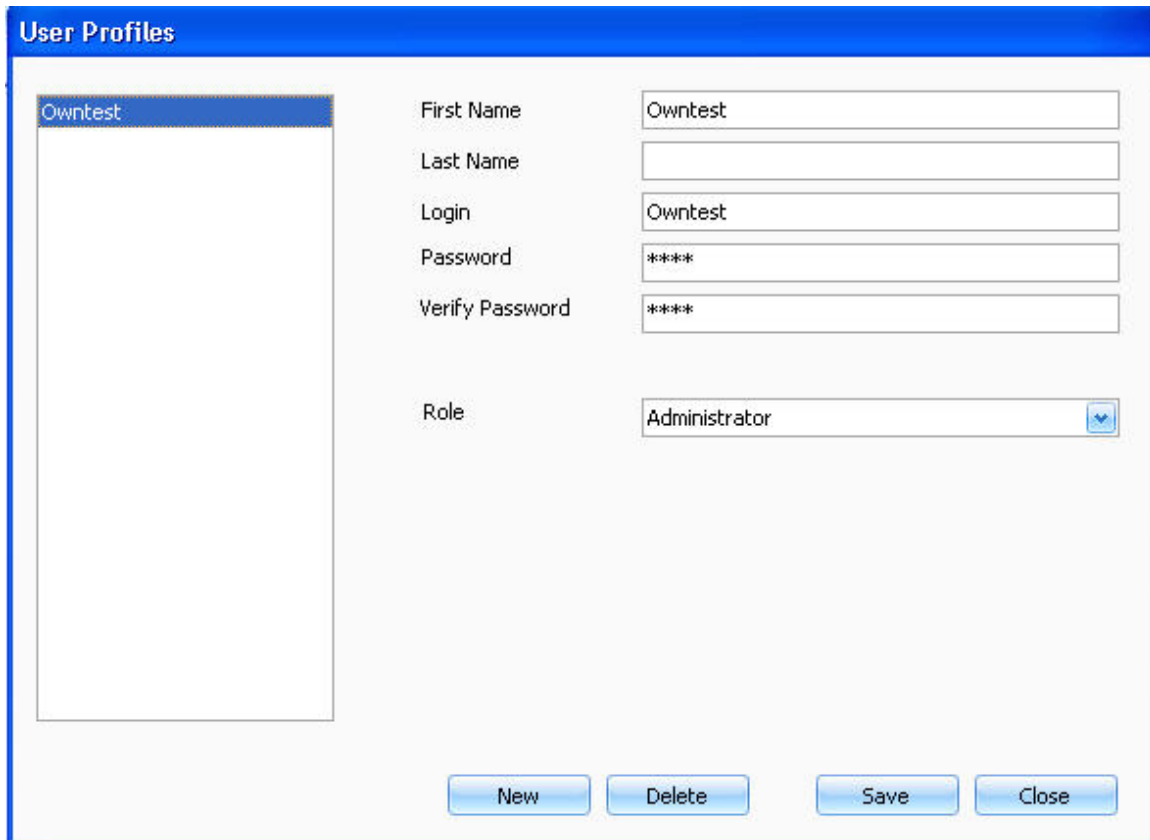

2. Click a role and then determine the functions that are allowed for this role by checking the box next to each function you want the role to have.

3. Click **Save** to save the data.

User Profiles

In User Profiles you can create new users and select the role that will be given to the user.

1. Select **Preferences** > **User Management** > **User Profiles** from the menu. The following window appears.

2. Insert the user data to the text fields, and select the role from the drop down list.

3. Click **Save** to save the data.

Database Management

Backup

Select **Preferences** > **Database Management**. The following window appears informing you that running database management requires closing the system:

Polar BodyAge System
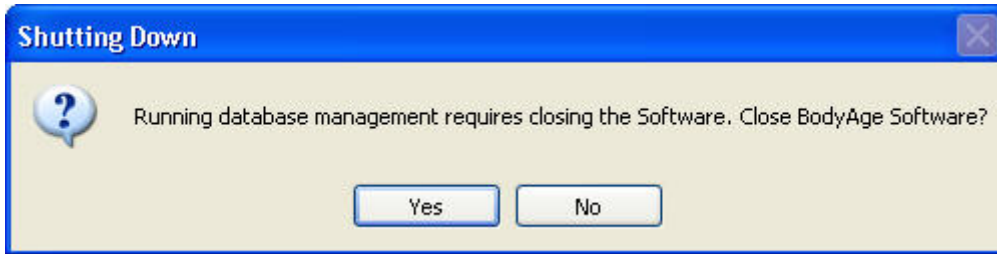
In order to backup, you need to close the BodyAge system. To run database management, click **Yes**. The following window appears:
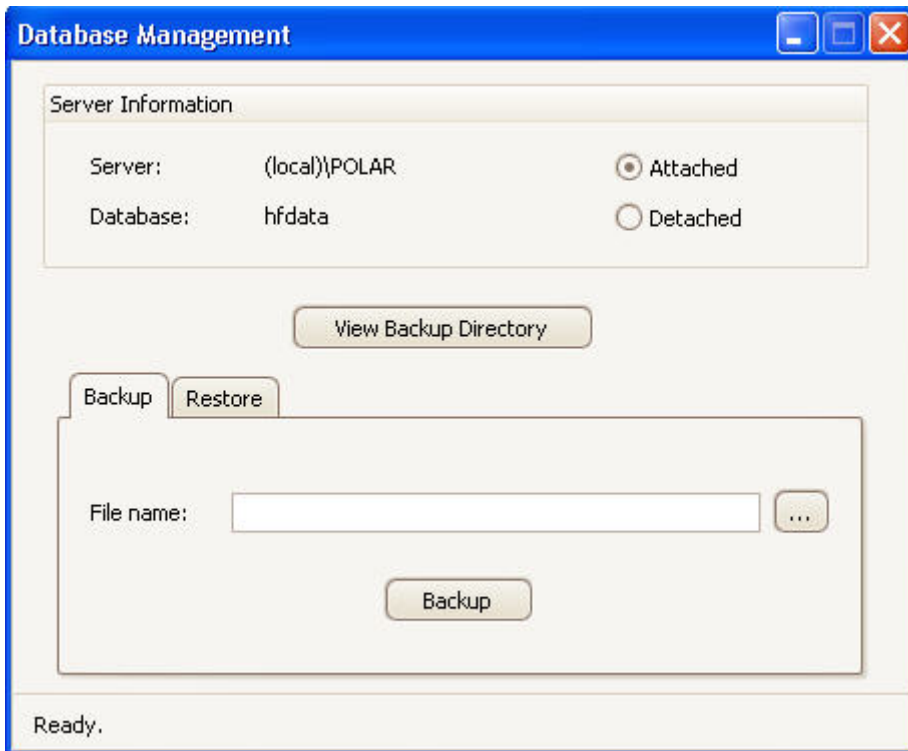
Browse the location for the backup data and click **Backup**.

Backup directory will show you all of the databases that have been saved previously to the backup folder.

Restore

Select **Preferences** > **Database Management**. The following window appears:
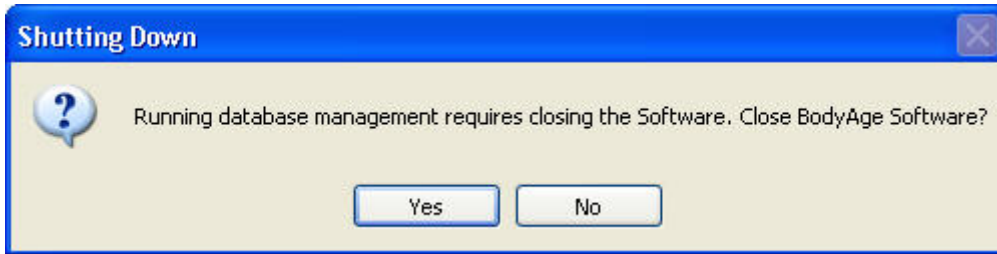
In order to restore the data, you need to close the BodyAge system. To run database management, click **Yes**. The following window appears:
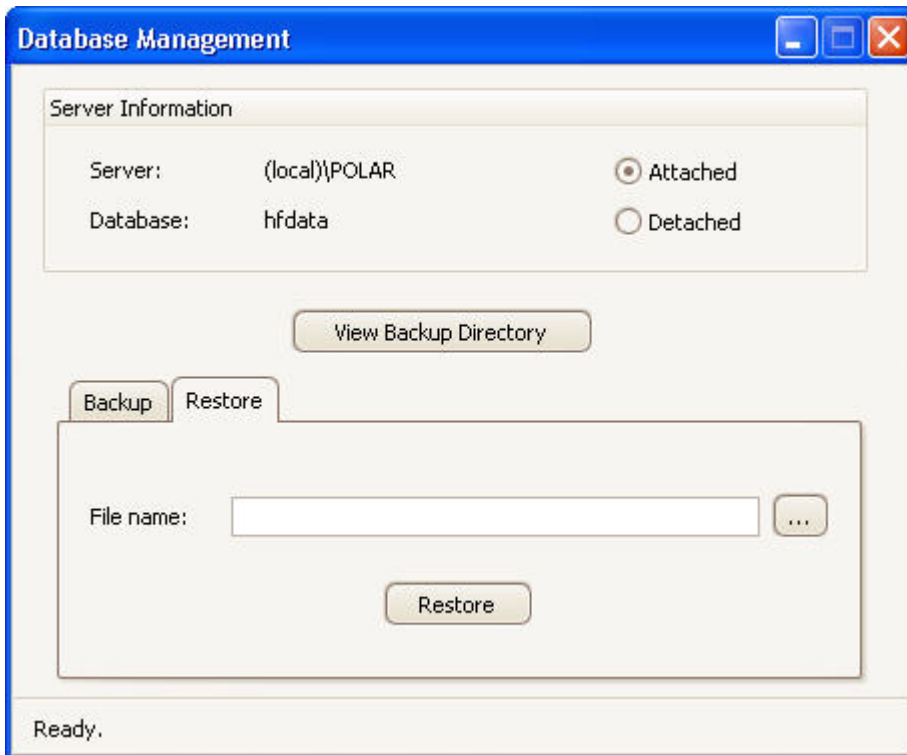
Open the **Restore** tab. Browse for the backup file and click **Restore**.

Backup Directory will show you all of the databases that have been previously saved to the backup folder.

More...

1-RM Bench Press

One repetition maximum in bench press: client performs one repetition of bench press with maximum weight.

Polar BodyAge System

Click on **1-RM Bench Press** link from the **Strength & Flexibility** section of **Fitness Assessments** to view the screen for entering the client's test result. The test's input box appears. After entering the result, the line graph shows where the user ranks in the norm.

1-RM Leg Press

One repetition maximum in leg press: client performs one repetition of leg press with maximum weight.

Click on **1-RM Leg Press** link from the **Strength & Flexibility** section of **Fitness Assessments** to view the screen for entering the client's test result. The test's input box appears. After entering the result, the line graph shows where the user ranks in the norm.

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3-Site Skinfold

Guidelines for Skinfold Measurements

NOTE: With all body composition measurement techniques, the technician must be well-trained, routinely practice the technique, and demonstrate reliability in his/her measurements before collecting actual data.

- All measurements should be made on the right side of the body.

- Caliper should be placed 1 cm away from the thumb and finger, perpendicular to the skinfold and halfway between the crest and the base of the fold.

- Wait one to two seconds before taking the measurement.

- The actual fold measurement will be displayed on the screen after each measurement.

- When all sites have been measured, a pie chart with percentage of the fat and lean body mass will appear.

3-Site Skinfold Sites

Men

Chest: Diagonal fold; one-half the distance between the anterior axillary line and the nipple.

Abdomen: Vertical fold; two cm to the right side of the umbilicus.

Thigh: Vertical fold; on the anterior midline of the thigh, midway between the proximal border of the patella and the inguinal crease (hip).

Women

Triceps: Vertical fold; on the posterior midline of the upper arm, halfway between the acromion and olecranon processes, with the arm held freely to the side of the body.

Suprailiac: Diagonal fold; in line with the natural angle of the iliac crest taken in the anterior axillary line immediately superior to the iliac crest.

Thigh: Vertical fold; on the anterior midline of the thigh, midway between the proximal border of the patella and the inguinal crease (hip).

Using 3-Site Skinfold

This is the view of the 3-site on the main screen.

Polar BodyAge System

Enter the values manually here or click on the **3-Site SkinFold** link to view the 3-Site Skinfold on-line measurement screen.

Use the calipers to measure the skinfolds according to the guidelines and sites.

When the caliper is pinching the skin in the proper position, click the switch on the back of the calipers and the value will appear in the text field.
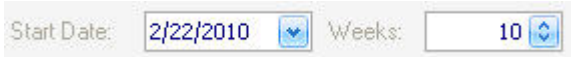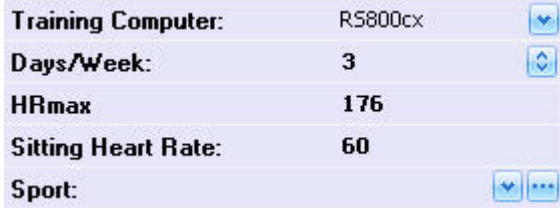
The test automatically advances to the next measurement.

When you complete all skinfold measurements, a pie chart will be generated showing the client's body composition.

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Click **OK** to save the data and to return to the main screen.

5 Zone Program

A 5 zone program can be created for the following training computers: RS300X, RS400, RS800, RS800CX.

Select the start date and the number of weeks that the program will last.	Start Date: 2/22/2010 ▾ Weeks: 10 ↕
Enter the following information: • The number of days per week that the client will be exercising (the recommended number of days is given based	**Training Computer:** RS800cx ▾ **Days/Week:** 3 ↕ **HRmax** 176 **Sitting Heart Rate:** 60 **Sport:** ▾ ⋯

according to training targets (click the field to activate the text screen) You can print the 5 Zone Program by clicking **Program Report**. Click **Send to HR Monitor** from the Cardiovascular Program main screen to upload user information and sport zones to the client's watch.	

You can download the training files from the client's training computer to create a training progress report. See [Training Progress](#) for instructions on downloading training files.

60 sec. Sit-Ups

In 60 sec. sit-up test the client repeats as many sit-ups as she/he can in 60 seconds time.

Click on **60 Sec. Sit-Ups** link from the **Strength & Flexibility** section of **Fitness Assessments** to bring up the instructions for performing the sit-up test.

After reading the instructions, click **Continue**. The following screen appears:

When the client is ready to begin the test, click **Start**. The timer will count down from 1 minute.

To count the number of full repetitions, click an alphanumeric key on the keyboard each time a repetition is completed.

When the minute is up, the timer will automatically stop and beep to indicate that the test is over.

Click **OK** to save the data and return to the main screen.

7-Site Skinfold

Guidelines for Skinfold Measurements

NOTE: With all body composition measurement techniques, the technician must be well-trained, routinely practice the technique, and demonstrate reliability in his/her measurements before collecting actual data.

- All measurements should be made on the right side of the body.

- Caliper should be placed 1 cm away from the thumb and finger, perpendicular to the skinfold and halfway between the crest and the base of the fold.

- Wait one to two seconds before taking the measurement.

- The actual fold measurement will be displayed on the screen after each measurement.

- When all sites have been measured, a pie chart with percentage of the fat and lean body mass will appear.

7-Site Skinfold Sites

7-Site skinfold site are the same for men and women.

1. Chest: Diagonal fold; one-half the distance between the anterior axillary line and the nipple.

2. Midaxillary: Vertical fold; on the midaxillary line at the level of the xiphoid process of the sternum. An alternate method is a horizontal fold taken at the level of the xiphoid/sternal border in the midaxillary line.

3. Tricep: Vertical fold; on the posterior midline of the upper arm, half-way between the acromion and olecranon processes, with the arm held free to the side of the body.

4. Subscapular: Diagonal fold (at a 45 degree angle); one to two cm below the inferior angle of the scapula.

5. Abdomen: Vertical fold; two cm to the right of the umbilicus.

6. Suprailiac: Diagonal fold; in line with the natural angle of the iliac crest taken in the anterior axillary line immediately superior to the iliac crest.

7. Thigh: Vertical fold; on the anterior midline of the thigh, midway between the proximal border of the patella and the inquinal crease (hip).

Using 7-Site Skinfold

This is the view of the 7-site on the main screen.

Body Composition

Body Composition Assessments

7-Site SkinFold

Chest:	0	mm
Midaxillary:	0	mm
Tricep:	0	mm
Subscapular:	0	mm
Abdomen:	0	mm
Suprailiac:	0	mm
Thigh:	0	mm

Enter the values manually here or click on the **7-Site SkinFold** link to view the 7-Site Skinfold on-line measurement screen.
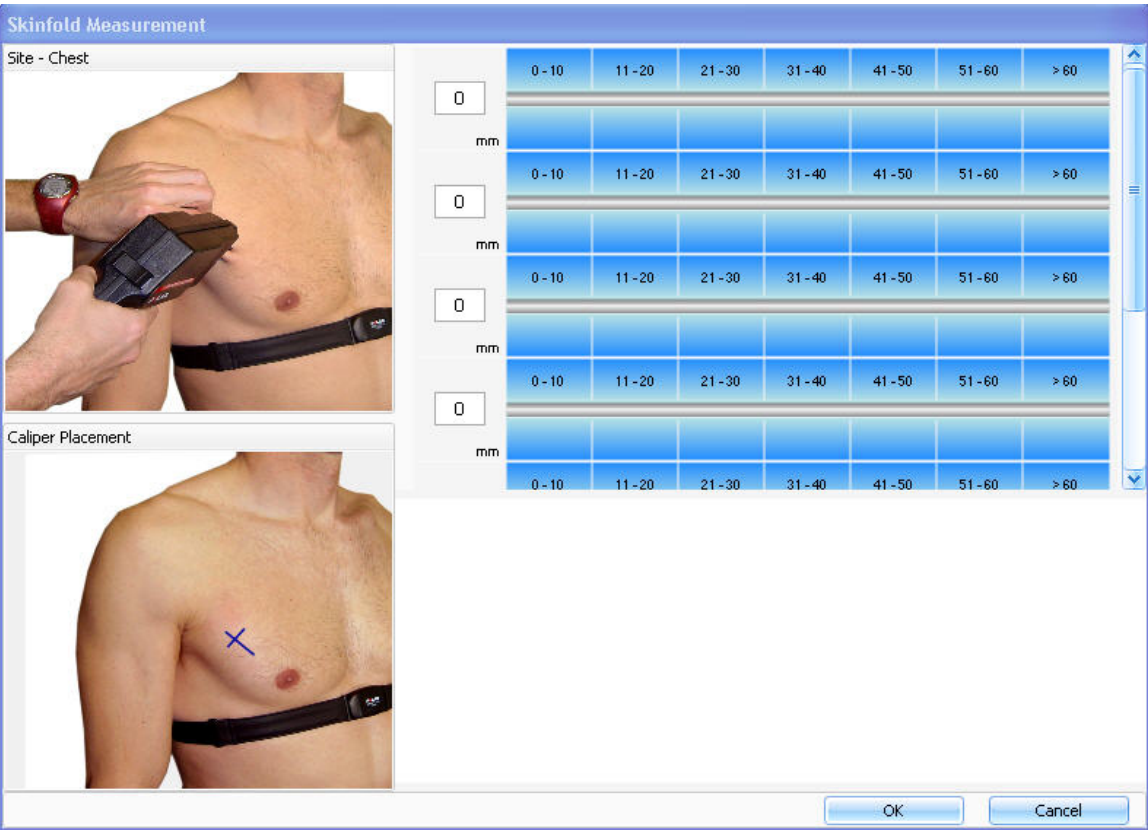
Use the calipers to measure the skinfolds according to the guidelines and sites (see above sections).

When the caliper is pinching the skin in the proper position, click the switch on the back of the calipers and the value will appear in the text field.

The test automatically advances to the next measurement.

When you complete all skinfold measurement, a pie chart will be generated showing the client's body composition.

Click **OK** to save the data and to return to the main screen.

About Cardiovascular Fitness

Cardiovascular or aerobic fitness relates to how well your cardiovascular system works to transport oxygen to your body. The better the cardiovascular fitness, the stronger and more efficient your heart is.

Having good cardiovascular fitness has many health benefits. For example, it decreases your risk of cardiovascular diseases, stroke and high blood pressure.

To improve cardiovascular fitness, it takes a minimum of 6 weeks of regular training to see a noticeable change. Less fit individuals tend to see improvement quicker. More active individuals typically need more time to see progress.

Cardiovascular fitness is best improved by exercise types which use large muscle groups. Such activities include walking, jogging, swimming, rowing, skating, cross-country skiing and cycling.

About the Polar Keeps U Fit Cardiovascular Program

Keeps U Fit -program is an exercise prescription tool, which allows creating a personal exercise program for aerobic fitness maintenance or improvement. The improvement has two alternatives: improve and maximize. The personalized program takes into account current fitness level and how many times per week the client wants to exercise. Based on these values, daily and weekly exercise targets are created. The program provides weekly calories and the number and duration of weekly exercises. In addition, calories, duration and intensity are provided for individual exercise sessions.

To get the individual exercise program, start by measuring the client's fitness level (VO_{2max} or Polar OwnIndex). Select the program target: maintain, improve or maximize your fitness. Target selection affects the recommended weekly exercise number, intensity and duration. Easy and hard exercise sessions alternate in the program to minimize the risk of fatigue and overtraining.

Goals:

Program goals are maintain (about 1.5hr/week), improve (about 3hr/week) and maximize (about 4.5hr/week) fitness. These all are related to the user's current fitness level (VO_{2max} or OwnIndex).

Maintain: Select Maintain if the target is to maintain the client's current fitness level. If they have not exercised recently, maintain is a good start for them and may even improve their fitness. The program recommends that the client exercises approximately fore one and a half hours per week with light to moderate intensity, divided into two to three exercise sessions. The average duration of one exercise session is 30-45min.

Improve: Select Improve if the target is to improve the client's current fitness level and if they are able to exercise regularly. The program recommends that the client exercises for approximately three hours a week divided into three to five exercise sessions and by varying light, moderate and hard intensity. The average duration of one exercise session is 40-60min.

Maximize: Select Maximize if the target is to maximize the client's current fitness level, if they have been exercising regularly for at least 10-12 weeks and exercising nearly every day is not a problem for them. The program recommends that the client exercises for approximately five hours a week, divided into four to six exercise sessions varying light, moderate and hard intensity. This goal will include the highest number of high intensity sessions. The average duration of one exercise session is 45-70min.

Frequency, duration and intensity

In order to understand the default program and adjust the program the user needs to understand the meaning and interactions between the frequency, duration and training intensity. Regularity is the key. More often is better than less often. However, too often may lead to exhaustion and increase the risk of injuries. It is generally known that 1-2 times weekly is not enough to improve; 3 or more times weekly is needed for this target. It is advised to start with a warm-up and close with a cool-down in every exercise session. More energy is expended during a longer session when compared to a shorter session with the same intensity. This is the key in the structure of exercise sessions and their naming. The higher the intensity, the more energy is expended. The high intensity sessions are shorter in duration than others to avoid overstrain and to ensure maximal adherence to the program.

HR Zones:

In the Keeps U Fit Own Workout program there are 3 different heart rate zone targets for the weekly exercises. The program displays the time targeted in each of the zones. Most exercises are in the moderate zone. The more you exercise, the wider the variation in HR zones.

Light 60-70% HRmax   Aerobic endurance

Moderate 70-80% HRmax Aerobic power

Hard 80-90% HRmax   Aerobic stamina, anaerobic power

Exercise sessions:

Polar BodyAge System

The program gives suggestions: e.g. Short1, Normal2, Long1, which depend on the number of exercise session selected. The order of exercises is decided by the program to optimize results.

The length of each session is defined by the target for the program (maintain, improve, maximize) and the number of exercise sessions per week (range from 1-6 sessions). Short exercise session is shorter than Normal, which is shorter than Long.

Polar Keeps U Fit -program includes weekly exercise volume in terms of frequency (number of sessions), total duration (hours:minutes) and energy expenditure. The harder the intensity, the shorter the duration. Short sessions are typically "hard" (80-90 % HRmax) in intensity, Normal sessions "moderate" (70-80 % HRmax) and Long sessions "light" (60-70 % HRmax).

Exercise sessions in the program are arranged so that there are no successive similar sessions (hard or light ones) and that there are several days between the hard sessions. This helps to carry out the program, ensures needed recovery time and helps to avoid overreaching and becoming tired.

About the Polar windlink

The BodyAge™ System comes with a Polar WindLink™ which transfers online real-time heart rate recording to the computer.

WindLink receiver is used with the cardiovascular protocols. If the client is wearing a Polar WearLink W.I.N.D. transmitter, an electrocardiogram signal will be sent directly to the computer via the WindLink receiver. The computer uses a sophisticated averaging algorithm to ensure an accurate and stable heart rate reading.

Applying the Training Computer

Thoroughly clean the subject's skin so that oil and dirt are removed. Wipe with alcohol if necessary. Moisten the inside of the heart monitor belt (preferably with electrode jelly) and securely fasten the belt below the pectoral muscles. The logo on the middle of the belt must be centered on the lower sternum. Instruct the client to keep the upper body erect without shoulders slouching.

NOTE: Transmitter belt must completely contact the skin below the pectoral muscles. Chest hair or underwire bras may interfere with this.

Interference

It is important to control environmental conditions that may interfere heart rate transmission. You may experience interference in small crowded areas, especially with a lot of electronic equipment. Also, be sure that there are no additional transmitters or cell phones being utilized near (within 10-15 feet) of the receiver. Sometimes florescent lights and movement of the receiver can cause

significant interference. It is important to have the receiver mounted to prevent movement during the tests.

Assembling the Polar BodyAge System

Interface Connections

Noting that the interface box is secured to the top of the computer with a velcro strip, connect the following peripherals to the box:

Skinfold Calipers	
Platform	
Heart Rate Cable/RPM cable interface	
ROM (Range of Motion) Unit	

Printer

Plug the power into the printer.
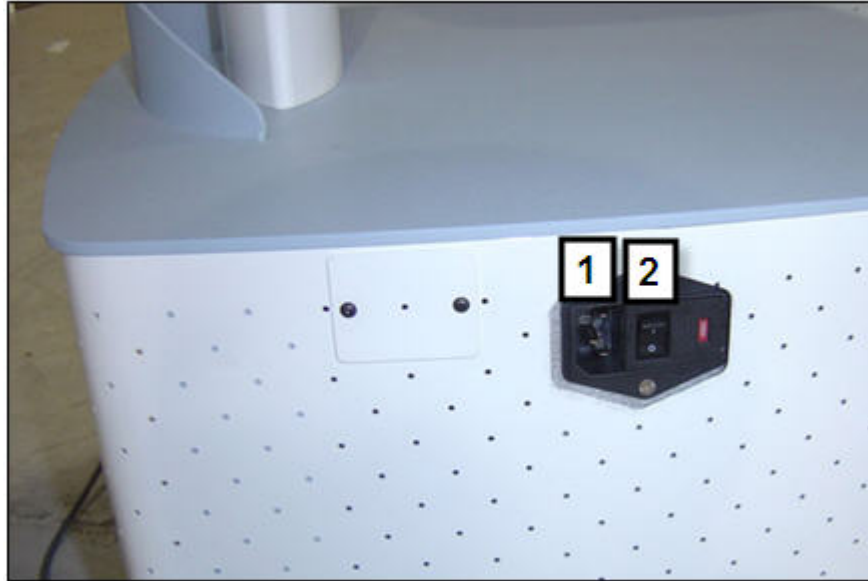
Main Unit Power

Using the main power cable, plug the system into a wall outlet. Power is applied to the system via the power entry module located on the left rear of the cart.

1. Plug power cable into a wall outlet. 2. Always use the system main power switch to turn the entire system on and off. On is "|" and off is "o".	

Power Entry Module Information

The power entry module is a switchable power supply between 110v (USA and Canada) and 230v (European). The unit is shipped from the factory with the 230v selected.

Fuse Types:

For the 110Volt (USA and Canada), the fuses are ¼ x 1 ¼" 250Volt, 2 Amps, Slow Blow Fuses.

For the 230Volt (European), the fuses are 5mm x 20mm, 250Volt, 3.0-3.5 Amp Slow Blow Fuses.

Replacing the Fuses:

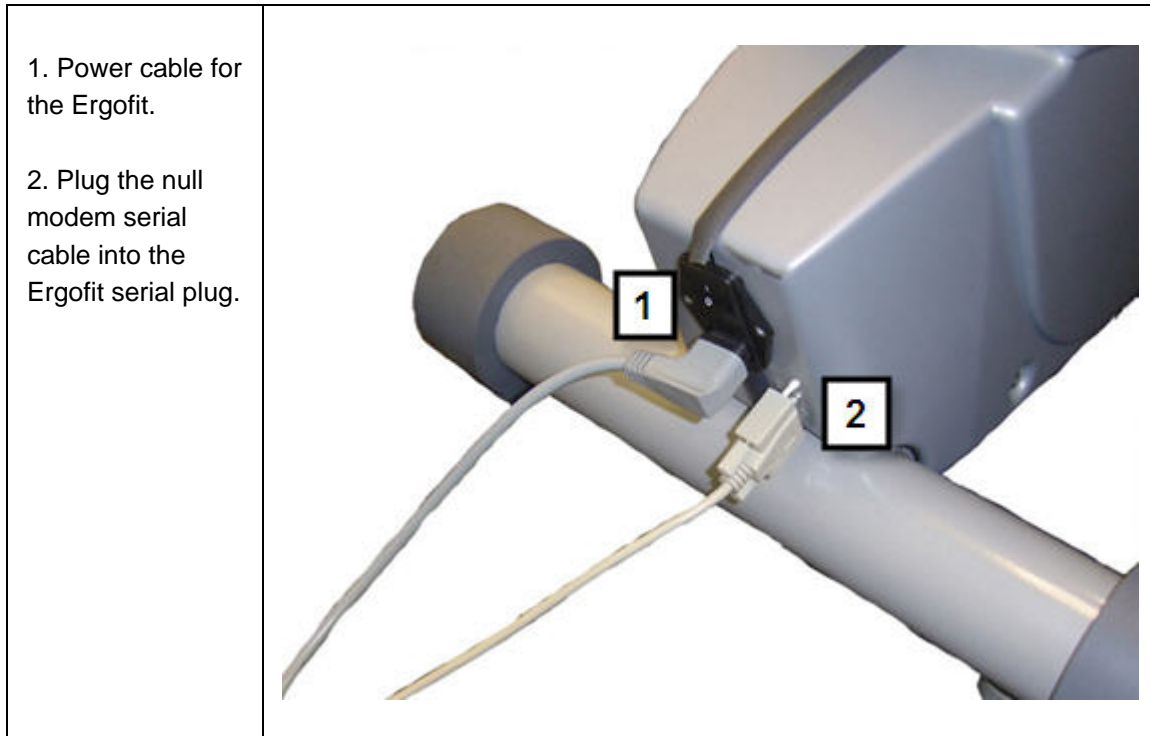|	
• To replace the fuses, make sure the power is unplugged and completely disconnected from the power. • Next, using a small flathead screwdriver, pry the cover open on the far right side. • Carefully pry the fuses out and insert the new fuses. • Close the cover, insert the power cord and turn the power switch on "|".	

Platform/Scale

• Screw in the eyebolt on the scale strap assembly into the top of the platform. Make sure it is tightened all the way. • Attach the "C" connector on the strength strap assembly to the strength handle. Make sure it is tightened all the way. • Check the strap for any wear or defects before each use, as this can cause injury to the client being tested on the biceps strength test.	

Ergofit Ergometer

The ErgoFit bike needs to be connected to the Polar BodyAge® System with a null modem cable. This cable plugs into the back bottom of the ErgoFit ergometer. Plug the other end of the serial cable into an available serial port in the back of the CPU.

Note: The serial cable is a 9-pin null-modem Cable. You must use a null-modem cable or a null-model adaptor for the Ergofit Ergometer to function properly with the Polar BodyAge® System.

1. Power cable for the Ergofit. 2. Plug the null modem serial cable into the Ergofit serial plug.	

Tanita BF-350 or BC-418

The Tanita BF-350 or BC-418 is a unit for measuring bioimpedance using the Polar BodyAge® System. It interfaces to the system with a serial cable.

Note: The serial cable is a 9-pin null-modem cable. You must use a null-modem cable or a null-model adaptor for the Tanita BF-350 to function properly with the system.
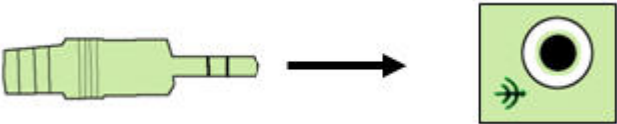
Plug the power cord into a 220v power outlet. Plug the serial cable into the Tanita BF-350 or BC-418 as	

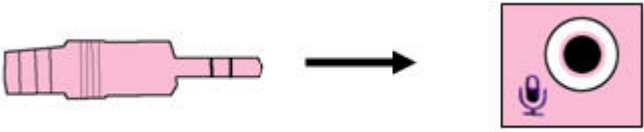|	
shown here.	
Plug the other end of the serial cable into Device Port 1 or Device Port 2 on the TF700iu box.	

Polar Sonic Interface™

The optional Polar Sonic Interface™ uses the speaker and microphone ports on your PC to send and receive information to Polar training computers (F11, F6, F4 and all Polar UpLink enabled computers).
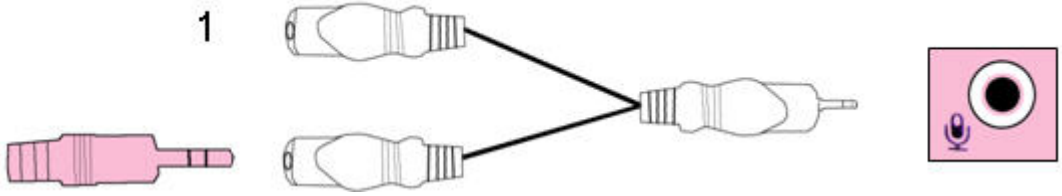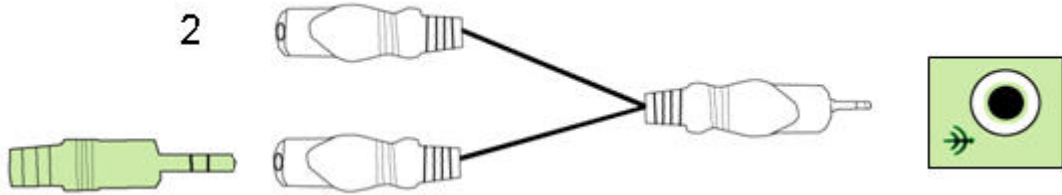
Installation Instructions

Plug the GREEN Polar Sonic Interface cable into the Speaker port on the computer. Alternately, This can be plugged into a headphone jack on the	

computer	
Plug the PINK Sonic Interface cable into the Microphone port on the computer.	

If you want to use your existing speakers and microphone on your PC, use the included "Y" splitters. If you have your PC Speakers enabled using the "Y" Splitter, you will hear a sound from your PC speakers when setting the training computer. There is never sound when uploading files from the training computer to the PC. You will need to adjust the speaker and microphone volume for proper operation, depending on the noise of your environment and computer sound card type.

1. To your microphone	
2. To your speakers	

Bicep Strength

Bicep strength is measured from an isometric contraction against the unique 'four load cell' platform. Strength is calculated by the average resistance over the last three seconds of a five second lift.

Using Bicep Strength

Click on **Bicep Strength** link from the **Strength & Flexibility** section of **Fitness Assessments**. You will be prompted to initialize the scale.

1. Instruct the client to stand on the platform with his/her feet shoulder-width apart holding the bar at their side. Note! Do not pull on bar.

2. Adjust the strap so that the client's forearms are 90 degrees to the torso.

3. Click **Continue**. The bicep strength test screen appears.

4. Once the client is ready, click the **Start Trial 1** button in the lower part of your screen.

- A countdown from 0:03 to 0:01 will begin immediately. This prepares the client for the start of the test. At this point, the client should be instructed to start the five second lift. DO NOT JERK.

- At the end of the lift, the value lifted will appear in the lower part of your screen.

- A 30 second timer will begin after the first two trials to give the client a rest in between.

- The final result will reflect the best lift.

5. Click **OK** to save the data and return to the main screen.

Bioimpedance

Bioelectrical Impedance Analysis technique (BIA) is based on the fact that lean tissues have a high water and electrolyte content, and thus provide a good electrical pathway. Fat mass contains a lower percentage of body water, and thus is a poor conductor of the electrical signal. By inducing a low energy, high frequency, electrical signal (Tanita BF-350 and BC-418 use 50

kHz, 500 microamp), a measurement of the baseline resistance to the flow of electrical current can be made. This current is passed though the anterior electrode on the scale platform, and the voltage drop is then measured on the posterior electrode. The resistance measurement relates directly to the volume of the conductor, which is used to determine total body water, lean body mass, and finally, fat mass. Percent body fat is calculated using a formula combining impedance and weight measurements with height, gender, and age information.

In order to obtain the most accurate results from your bioimpedance device, ensure the following conditions are met:

- No alcohol 48 hours before the test

- Avoid intense exercise 12 hours before the test

- Avoid eating or drinking (especially caffeinated products) 4 hrs before the test

- Empty bladder 30 minutes before test

- Avoid all diuretics for 7 days before test (only if possible)

- Measure in bare feet. Individuals wearing thin nylons will receive accurate results if a drop of liquid (saline solution, water) is placed in the center of each electrode.

Athlete Mode

There are physiological differences between standard adults and very athletic individuals. The actual impedance reading will be the same in both the standard and athletic modes, however, a different algorithm validated in athletic populations, must be used when interpreting this data. Thus, the percent body fat reported for an athletic individual measured in the standard mode (or vice versa) is incorrect.

When you go into the testing screen for Bioimpedance (see Using Bioimpedance) you will have the option to select 'Athlete' if the person being measured is an athlete. The guidelines for selecting 'Athlete' are as follows:

- Individuals over the age of 16 who exercise at least 10 hours a week consistently for a period of at least 6 months.

- Individuals who have a resting heart rate of approximately 60 beats per minute or less.

- This mode includes people who have been very fit for years, but currently exercise less than 10 hours per week.

Bioimpedance Measurement

Click on **Bioimpedance** link from the **Body Composition** section of **Fitness Assessments** to bring up the bioimpedance on-line measurement screen.
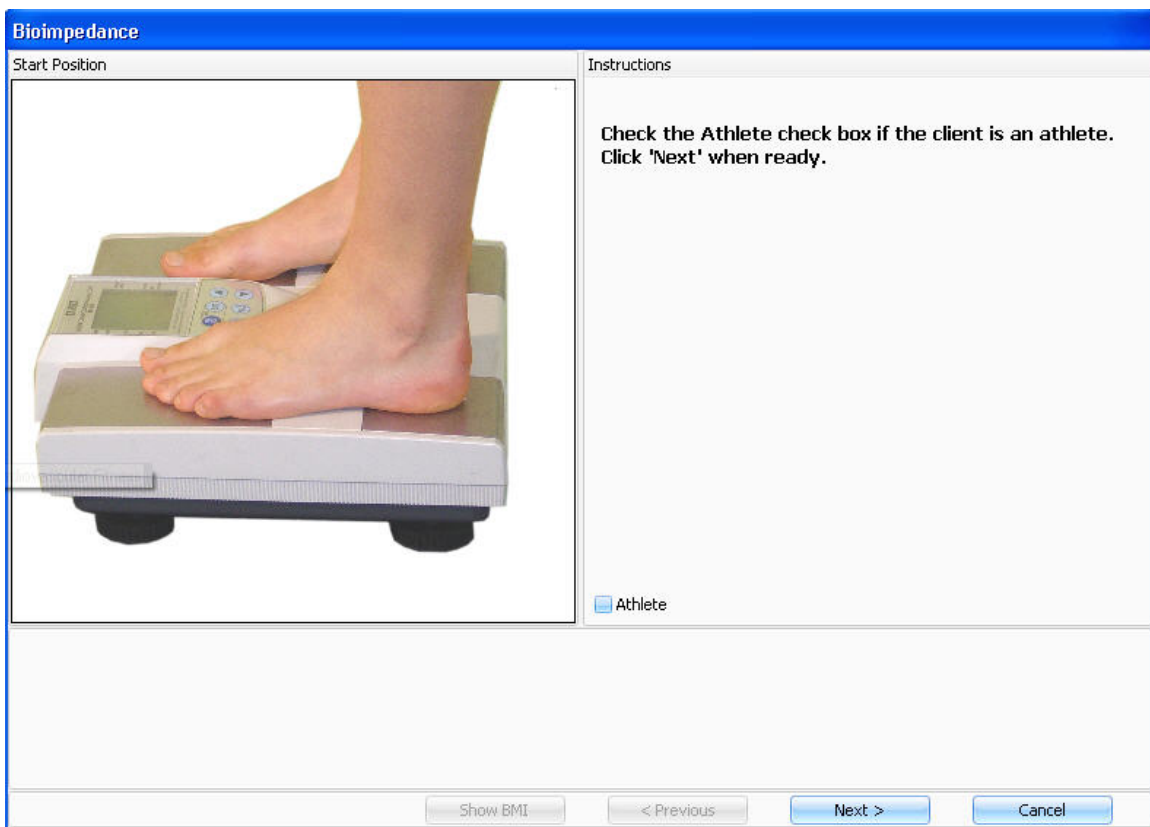
Follow the directions shown on the screen to carry out the bioimpedance measurement.

The last screen of the bioimpedance measurement wizard will show the results in a format of a line graph and a pie chart.

NOTE: If you have selected the default to use the bioimpedance device for weight measurement and you have not taken the height of your client, you will be prompted with a screen to enter height before entering the bioimpedance measurement. Type it in and select **Continue**.

If you have not selected the default to use the bioimpedance device for weight measurement and you have not taken the client's height and weight, you will be prompted with the message "Height and Weight must be accessed". Click **OK** after entering the height and weight of the client and then click on the **Bioimpedance** link.

Blood Chemistries

Healthy adults should have their blood cholesterol and triglyceride levels measured at least once every three years. Ideally, an individual should have their blood chemistries measured annually. If the client does not know their blood chemistry levels, contact a health care provider. Make an appointment to have blood samples analyzed and document the results for total cholesterol, LDL cholesterol, HDL cholesterol, triglycerides, and glucose.

Click on **Blood Chemistries** link from the **Biometrics** section of **Fitness Assessments** to view the screen for entering the blood chemistries.

Start by placing the cursor on the **Total Cholesterol** text box and type in the value.

To continue to the next text box, press the TAB key.

Viewing the Blood Chemistries Results

There are two ways to view the classification of the blood chemistry values:

1. As you enter the values for blood chemistries, a red line will run across the bar graph on the right of the text box and the classification will be highlighted in yellow.

2. Preview or print a [Graphical Summary](#) or [Personal Profile Report](#).

Blood pressure

Follow these suggestions to obtain a correct measurement:

• Instruct the client to rest and relax for at least five (5) minutes before the blood pressure is taken.

• Take the blood pressure measurement on the right arm.

• When repeating measurements, release the cuff pressure completely to remove its constriction to the arm. Elevate the arm to make certain of normal blood circulation before making another measurement.

• Repeated deep breaths, talking, coughing or sneezing may affect the reading. Relax and remain still and quiet during each blood pressure measurement.

• A rolled-up sleeve may constrict blood flow through the arm. Also, putting all or part of the cuff on top of a sleeve may affect the accuracy of the reading.

• Do not measure blood pressure after exercise.

• Instruct the client to urinate prior to measuring blood pressure. Blood pressure may be higher when a person has to urinate.

• Instruct the client to refrain from drinking caffeinated drinks prior to measuring blood pressure (coffee, tea, coke, etc.).

• Instruct the client to refrain from smoking prior to measuring blood pressure.

• The arm cuff must be the correct length and width for the client's arm. Use the appropriate cuff size based on circumference of bicep: Small 18-26cm, Regular 26-35cm or Large 32-42cm.

Blood Pressure Measurement

Click on **Blood Pressure** link from the **Biometrics** section of **Fitness Assessments** to view the screen for entering blood pressure.

Polar BodyAge System

Blood pressure can be entered either on-line or manually.

On-Line Blood Pressure Measurement

To measure blood pressure on-line using the 700IU blood pressure unit, follow the exact instructions displayed on the screen and click on the **Measure** button. After blood pressure has been measured, the results will be automatically displayed in the lower portion of the screen.

Manual Entry of Blood Pressure

To enter an individual's blood pressure results manually, do as follows:

1. Use the mouse to point and click on the **Systolic** input field in the lower section of your screen. The blinking cursor will appear.

2. Use the keyboard to manually enter the systolic measurement and then press the enter key. The cursor will now be blinking within the **Diastolic** input field.

3. Enter the diastolic measurement and press the enter key. The cursor will be placed in the **Pulse** input field.

4. Enter the pulse measurement and press the enter key.

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5. Click **OK** to save the result and return to the main screen.

Fluctuations in Blood Pressure

Unlike body temperature, blood pressure is not constant. Acute regulation of blood pressure is achieved by the sympathetic nervous system, while long-term regulation of blood pressure is primarily a function of the kidneys. The kidneys regulate blood pressure by their control of blood volume. Because blood pressure can be influenced by several systemic factors, it does not remain constant. In general, any circumstance leading to an increase of pulse rate tends to cause blood pressure to rise. The following can influence blood pressure measurements:

Exercise -- Exercise elevates blood pressure and heart rate. Always measure blood pressure and resting heart rate before you do the fitness assessment. Make sure to ask the client if he/she has walked briskly or exerted themselves in any way prior to their fitness assessment.

Medications -- There are various medications that elevate blood pressure, including some cold medicines. Many medications are used to decrease blood pressure in those individuals that have been diagnosed with high blood pressure.

Smoking -- Nicotine elevates blood pressure. Ask your clients not to smoke prior to the assessment if possible.

Caffeine -- Caffeine elevates blood pressure. Ask your clients to refrain from ingesting caffeine until after the assessment.

About your Blood Pressure Unit

Your 700iu Blood Pressure unit uses a state of the art technology in measuring blood pressure - a variation of the oscillometric procedure for measuring blood pressure. The unit does not listen to sounds, but instead detects the blood pressure through a sensor that responds to changes in the pressure in the arm cuff. This method is very sensitive and accurate. Since this unit does not depend on sound waves, it is not affected by false noises, but is sensitive to movement and the flexing of the biceps.

Body Composition Settings

Select **System Settings** > **Test Environment**. Choose **Body Composition** from the **Test Environment Settings** view.

Polar BodyAge System
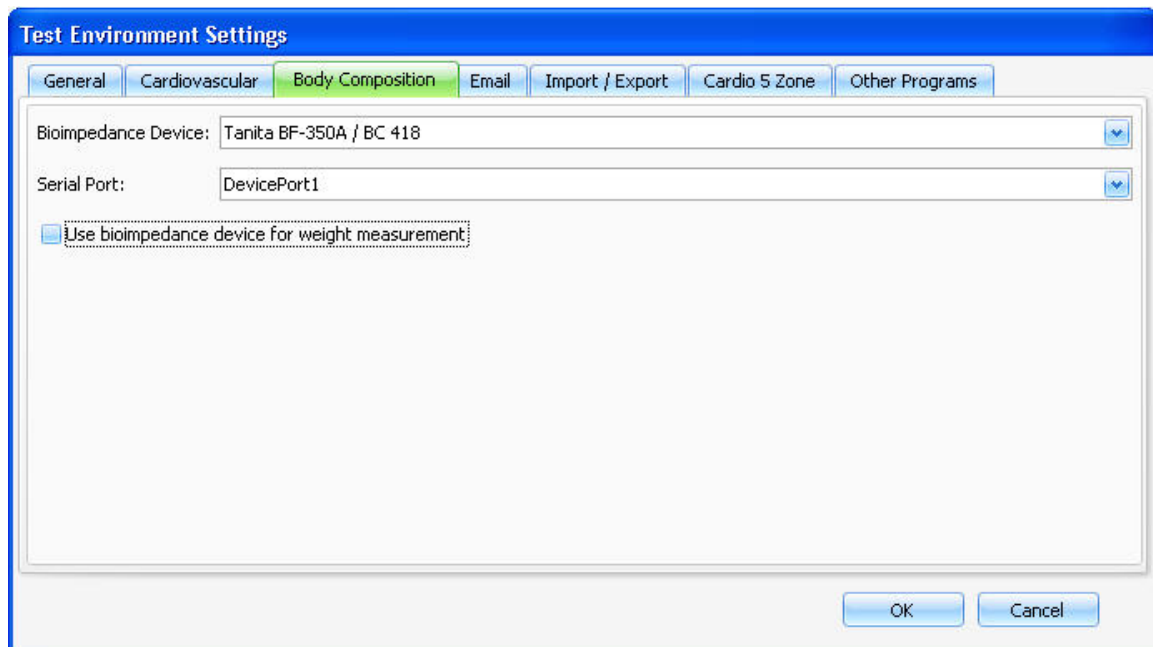
In **Body Composition** you can set a bioimpedance device to be interactive with the Polar BodyAge® System.

1. First select your device from the drop-down list next to **Bioimpedance Device**.

2. Select the **Serial Port** that the device is attached to (it can either attach to an additional serial port in your computer or it can be connected to **Device Port** 1 or **Device Port 2** on the 700iu box).

If you want use the bioimpedance device to calculate weight when you do a Bioimpedance body composition test, then you will need to check the check box next to **Use Bioimpedance Device for weight measurement**.

NOTE: If you are using bioimpedance without a bioimpedance device attached to the system, you must select **None** from the drop-down list next to **Bioimpedance Device**, or the correct screen will not appear when you click on **Bioimpedance** from the main screen.

Body Mass Index (BMI)

Body Mass Index is calculated as an individual's weight divided by height squared: kg/m2. The Body Mass Index results are broken down in the following manner:

Less than 18.5 Underweight

18.5 - 24.9 Normal

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25.0 - 29.9 Overweight

30.0 or Greater Obese
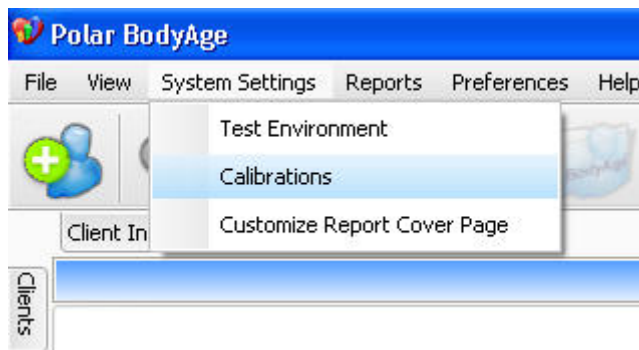
About Obesity (Related to BMI)

Obesity-related health risks include high blood pressure, increased blood fats and cholesterol, heart disease, stroke, diabetes and certain cancers. Obesity can reduce life expectancy and threaten quality of life. Health risks may multiply or become more severe as your BMI increases.

Overweight, but not Over Fat

Athletes with a large mass of muscle (bodybuilders, weight lifters, heavier wrestlers, football players, etc.) may be classified as overweight according to the BMI classifications, but they could still be in the healthy range of body composition. This is the drawback of the BMI classification scale. It is recommend that you use a means of measuring body composition when assessing athletes with large amounts of muscle mass.

Calibrating the Load Platform

1. Select **System Settings** > **Calibrations**.

2. Select **Load Platform** from the drop-down box. Click **Calibrate**.

Calibrate - Load Platform

Calibration Type:
Load Platform

Calipers
Load Platform
Range Of Motion

Calibrate   Close

3. Make sure there is nothing on the scale. Click **Next**.

Calibrate - Load Platform

- Zero the scale
- Click 'Next' to proceed

Next   ▶   Cancel

4. Have someone step on the scale that knows his or her exact weight. Have them measure their weight on a scale that is known to be accurate (i.e. Triple beam balance scale). Use that measurement when you enter the value while they are standing on the Polar scale. Click **Next**.

5. Make sure the current calibration reading is between 0.4-2.0

*It is best to use a person that knows his or her exact weight and weighs between 68 and 86 kg or 150 and 189 lbs to calibrate the scale, as weight plates are not always the exact weight as

printed on them. Make sure the person has the same clothing on he or she was wearing when measuring and calibrating. The weight scale is accurate to within 0.2 kg.

**Calibration result will be more accurate if there are two persons calibrating; one standing on the platform and the other typing the weight.

Calibrating On-line Peripherals

When initially setting up your Polar BodyAge® System and each time the Polar BodyAge® System is transported or every two months, it is recommended to calibrate the skinfold calipers, the load platform (which calibrates both scale and biceps strength test) and the range of motion unit to ensure accurate results.

Select **System Settings** > **Calibrations**. Select the **Calibration Type** from the drop-down box. You will be prompted with instructions regarding how to calibrate the equipment. For further instructions, see the following sections:

Calibrating the Skinfold Calipers

Calibrating the Load Platform

Calibrating the Range of Motion

Calibrating the Range of Motion

1. Select **System Settings** > **Calibrations**.
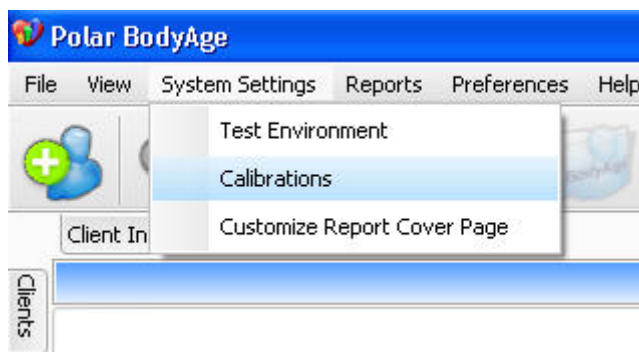
2. Select **Range of Motion** from the drop-down box. Click **Calibrate**.
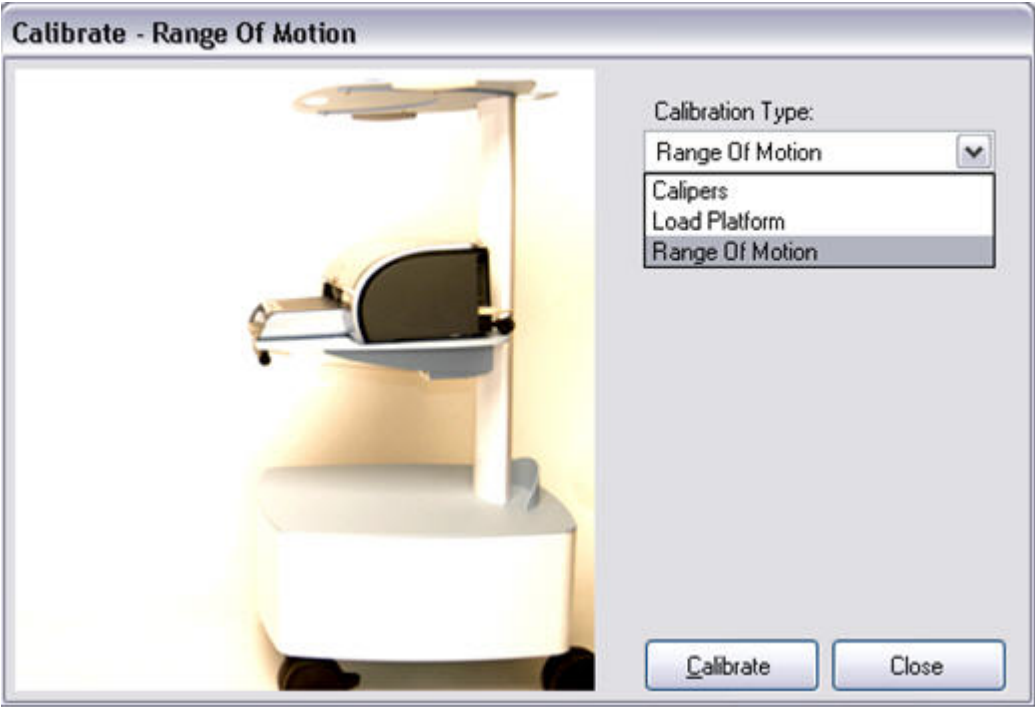
3. Make sure the handle is in the handle clips. Click **Next**.
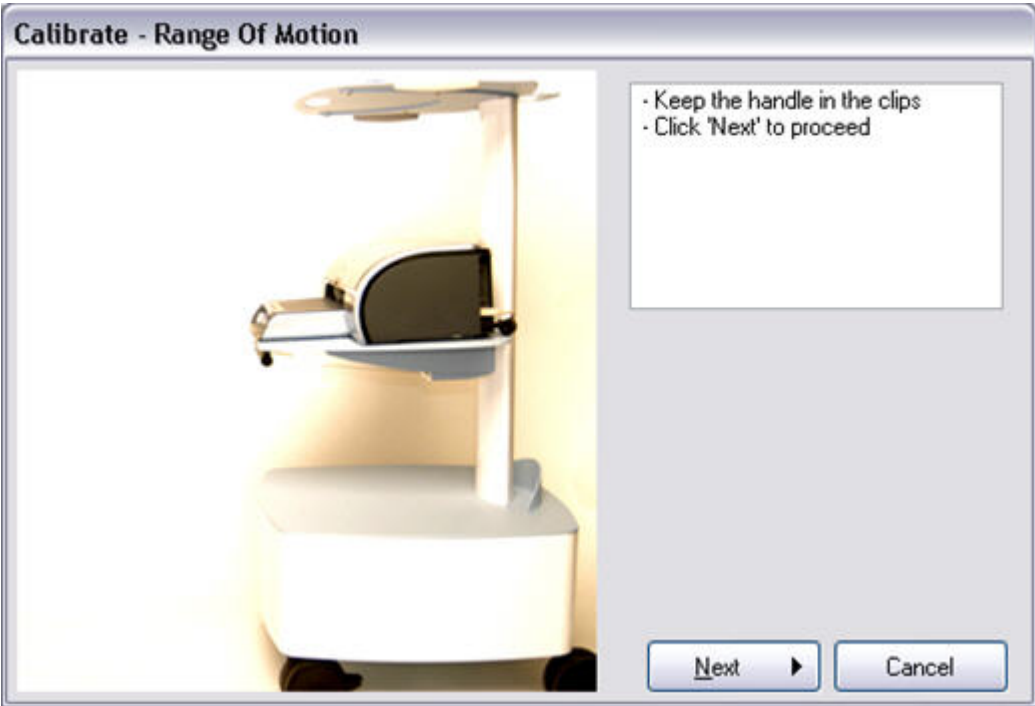
4. Pull the handle out exactly 30 cm / 11.8 inches. Click **Next**.
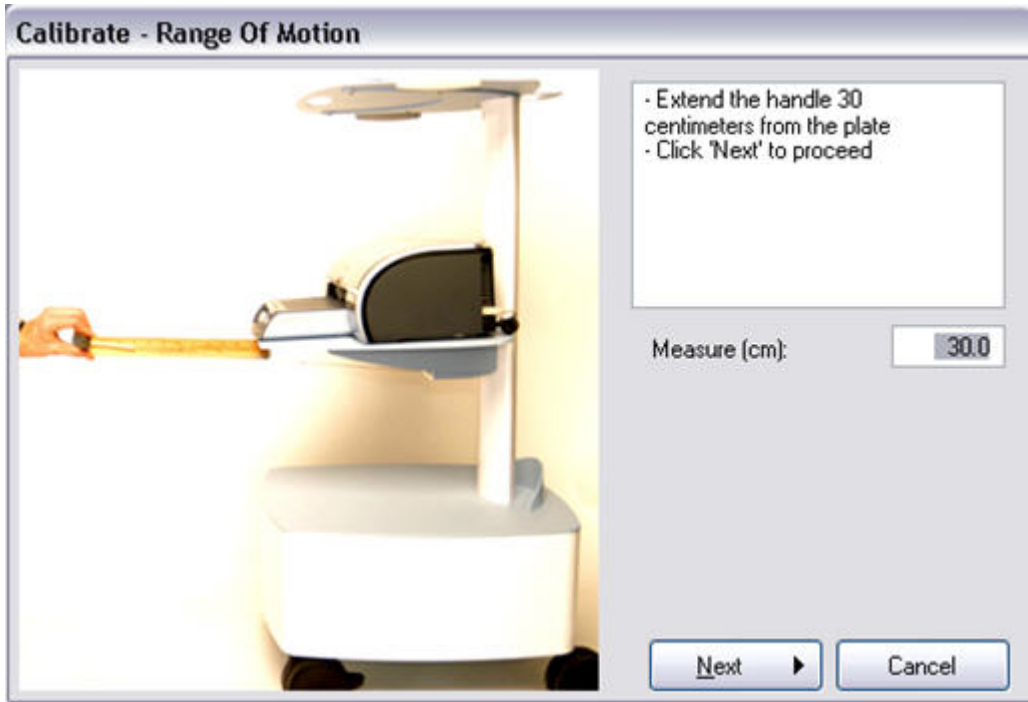
5. Make sure the current calibration reading is between 0.35-0.55.

* It is recommended that you have a 30 cm / 11.8 inches ruler when performing this calibration.

Note: It is easier and typically more accurate to use two people when calibrating the range of motion.

WARNING: Use care when pulling out and returning the handle. Do not pull the handle out too far and when a client has finished the test be careful they do not let go of the handle and let it snap back. This is a delicate measurement device.

Calibrating the Skinfold Calibers

1. Select **System Settings > Calibrations**.
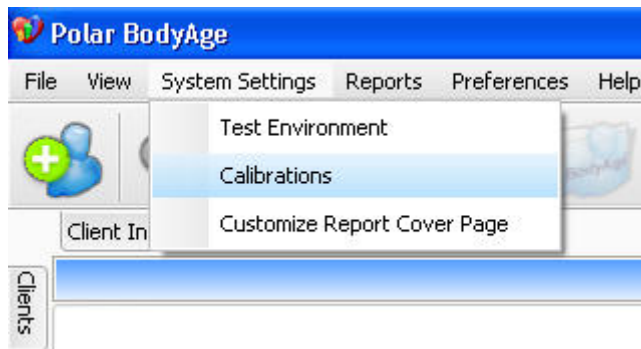
2. Select **Calipers** from the drop-down box. Click **Calibrate**.

3. Make sure the caliper jaws are in the closed position. Click **Next**.

Calibrate - Calipers

- Zero the calipers
- Click 'Next' to proceed

Next ▶   Cancel
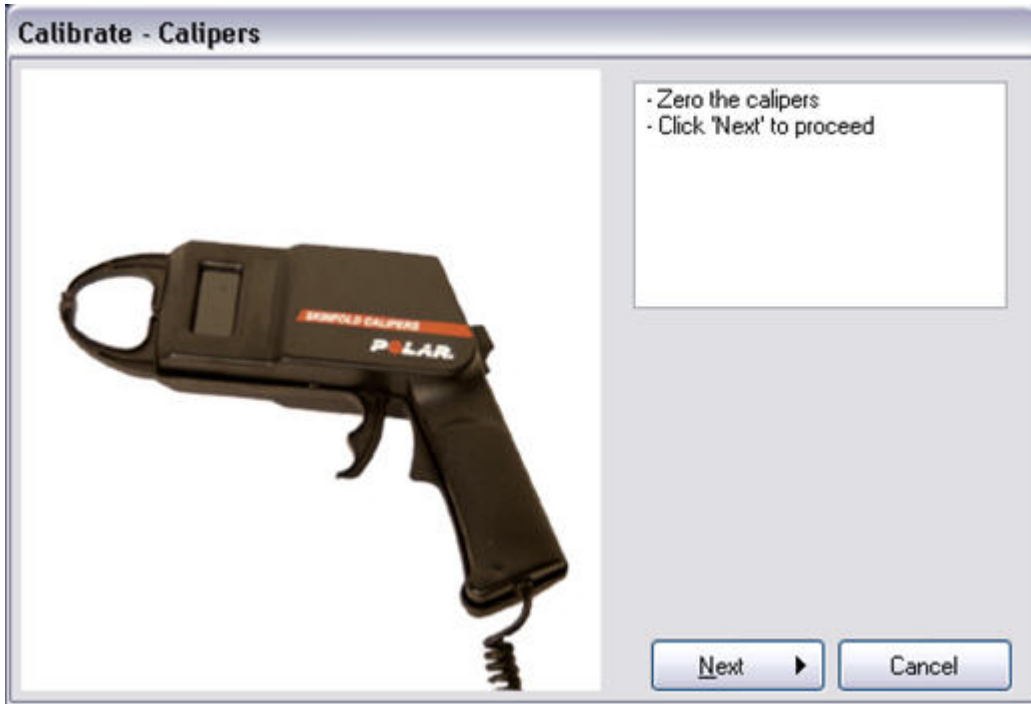
4. If using the metal dowel provided with the system, place it lengthwise between the calipers as shown. The measurement of the dowel is exactly 25.4 (that is the default value). If you are measuring something else than the dowel, enter the result in the text box. Click **Next**.

Calibrate - Calipers

- Place a known value in caliper
- Enter the known value
- Click 'Next' to proceed

Measure (mm):   25.4

Next ▶   Cancel
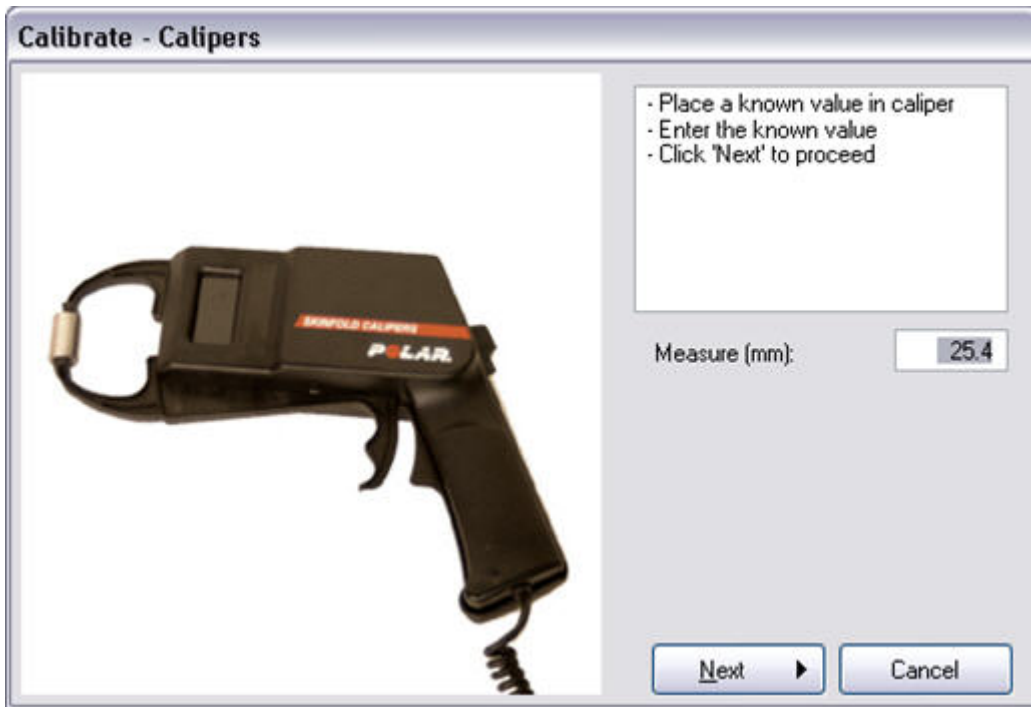
5. Make sure the current calibration reading is between 14.0-17.5

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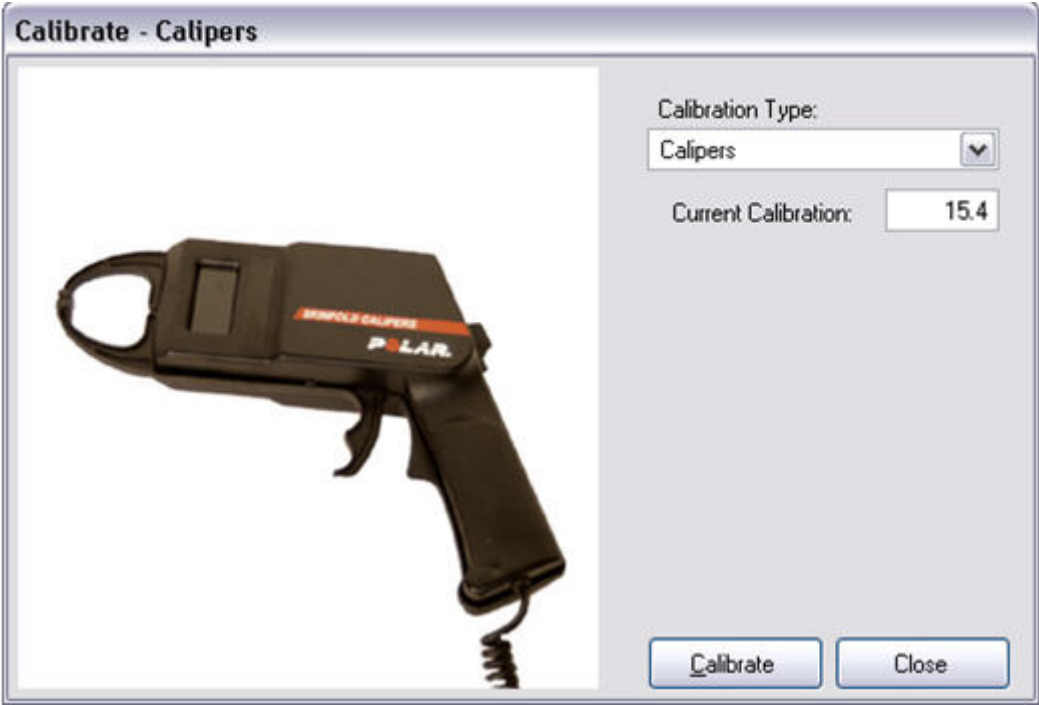
Cardio 5 Zone settings

Select **System Settings** > **Test Environment.**. Choose **Cardio 5 zone** from the **Test Environment Settings** view.

In this view you can define the heart rate zones that will be applied in 5 Zone training programs.
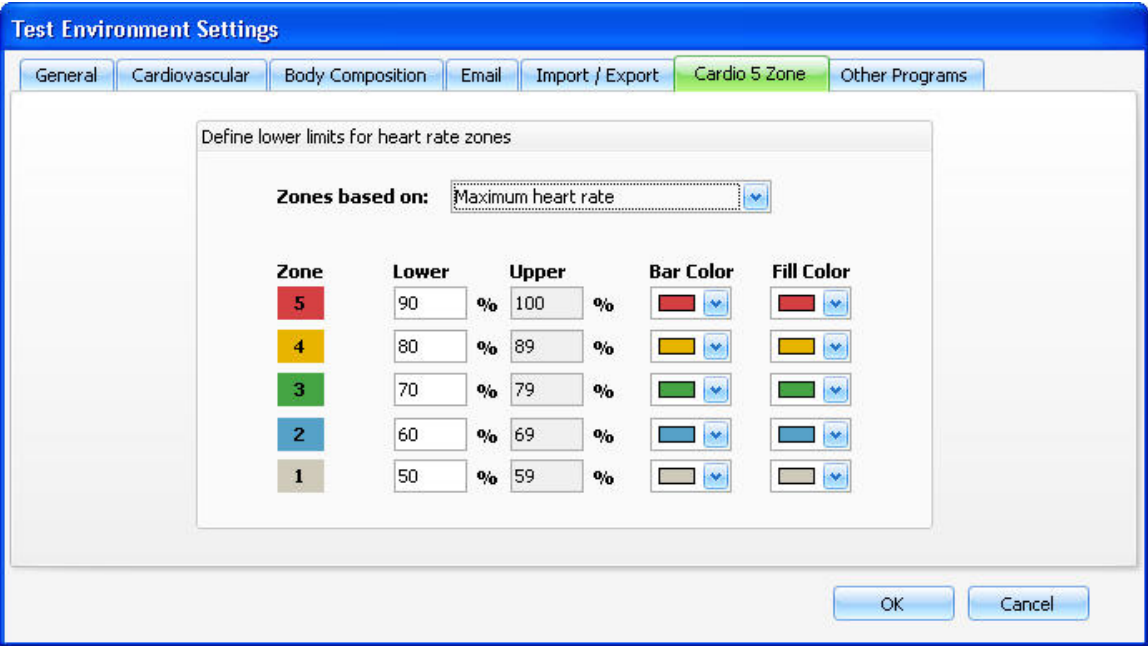
Polar BodyAge System

You can define two separate heart rate zones based on **Maximum heart rate** and **Anaerobic threshold**.

First select **Maximum heart rate** or **Anaerobic threshold** from the drop-down list. Then define the lower limit for each zone. The upper limits will adjust automatically.

Cardiovascular Settings

Select **System Settings** > **Test Environment**. Choose **Cardiovascular** from the **Test Environment Settings** view.
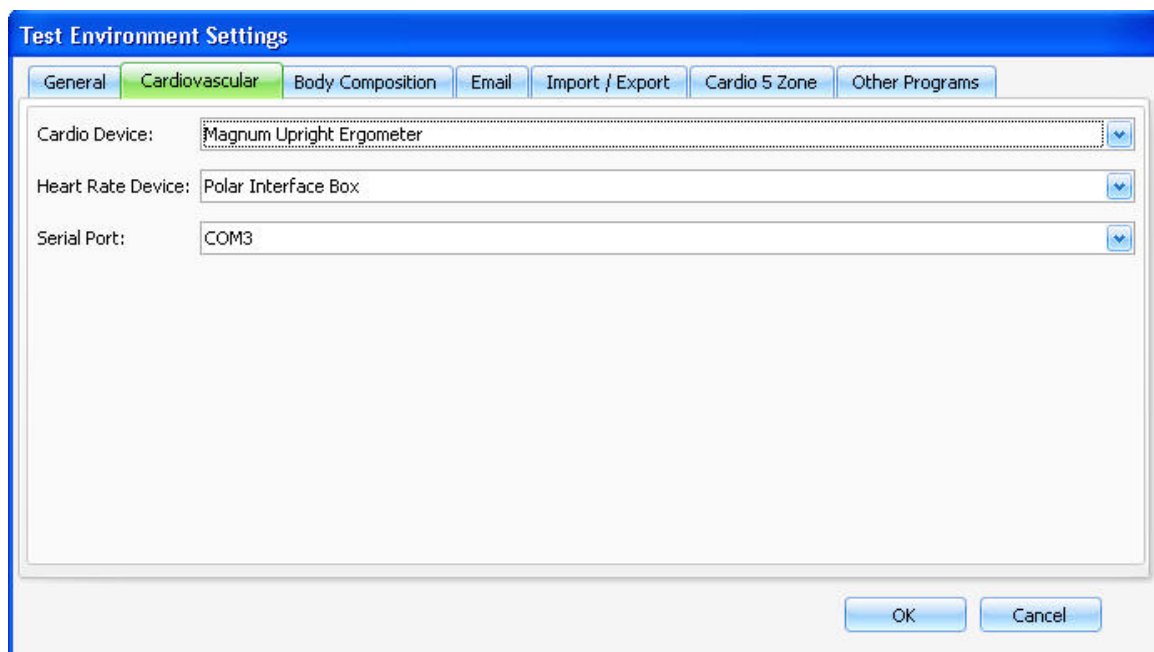
Enter the following information if you are doing cardiovascular testing with a cardio device (i.e. ergometer or treadmill).

Select the correct device from the drop-down list next to Cardio Device.

Select the Heart Rate Device that you will be using for the cardiovascular testing: **WindLink**, **Magnum Upright Ergometer** or **Polar Interface box**.

Attach the cardio device directly to the computer and select the serial port that it is connected to from the drop-down list next to **Serial Port**.

Enter the following information if you are taking a cardio test without a cardio device attached to the BodyAge System.

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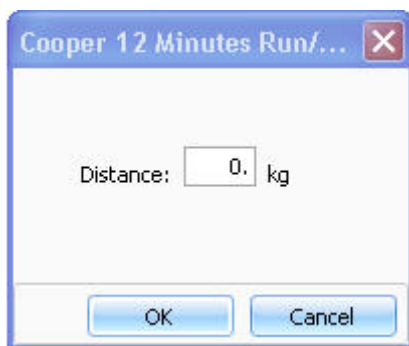
Select **None** from the drop-down list next to **Cardio Device**, or the test will not work properly.

Select the **Heart Rate Device** that will be used during cardiovascular tests: **WindLink** or **Polar Interface box**.

Cooper 12 Minutes Run/Walk

The client is instructed to run as far as possible in 12 minutes on a flat, uninterrupted track that has been measured. The required information is the distance.

Click on **Cooper 12 Minutes Run/Walk** link from the **Cardiovascular** section of **Fitness Assessments** to enter the client's test result. The test's input box appears.

Enter the required information and press **OK** to save.

Crunch

All sit-ups, including the bent-knee type, utilize the hip flexor muscles to raise the trunk. The hip flexors can be eliminated, and abdominal muscle endurance can be evaluated through the use of the crunch test.

1. Have the client lay on their back, on a mat, with the knees bent to 90 degrees.

2. The client should extend the arms, palms down and by the sides, so that the finger tips of both hands touch a strip of tape perpendicular to the body at just below hip level.

3. Two additional strips of tape are placed parallel to the first two, 3.5 inches (8.9cm) further toward the feet.

4. The client should curl up, sliding the fingertips along the mat until they touch the second set of tape strips, and then return to the starting position. The client's head does not need to come back to touch the mat as long as the shoulders do.
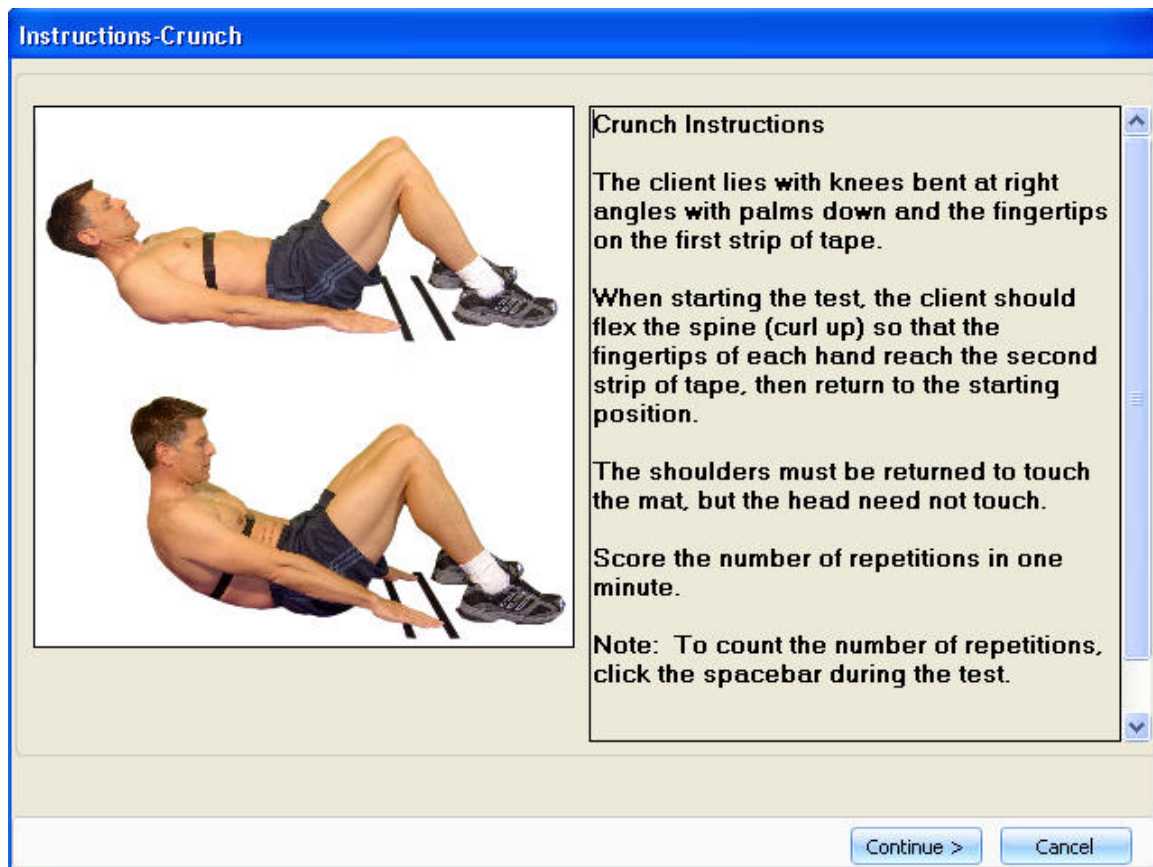
The crunch is slow, controlled and continuous. Only the head and shoulder blades leave the floor. The upper body moves through only 30 degrees.

The client performs as many crunches as possible in one minute.

How to Use the Crunch Test

Click on **Crunch** link from the **Strength & Flexibility** section of **Fitness Assessments** to bring up the crunch test screen.

You will be given a set of instructions.

After reading the instructions, click **Continue**. The following screen appears:

When the client is ready to begin the test, click **Start**. The timer will count down from one minute.

To count the number of full repetitions, click an alphanumeric key on the keyboard each time a repetition is completed.

When the minute is up, the timer will automatically stop and beep to indicate that the test is over.

Click **OK** to save the data and return to the main screen.

Cycle Ergometer

After creating a new record or opening an existing record for a client, their height and weight must be recorded before the VO_{2max} test can be performed.

1. Click on the link of the chosen Ergometer VO_{2max} test from the **Cardiovascular** section of **Fitness Assessments.**

2. The VO$_{2max}$ test screen appears. Verify that the heart rate is being transmitted correctly by looking at value next to the line graph on the top.
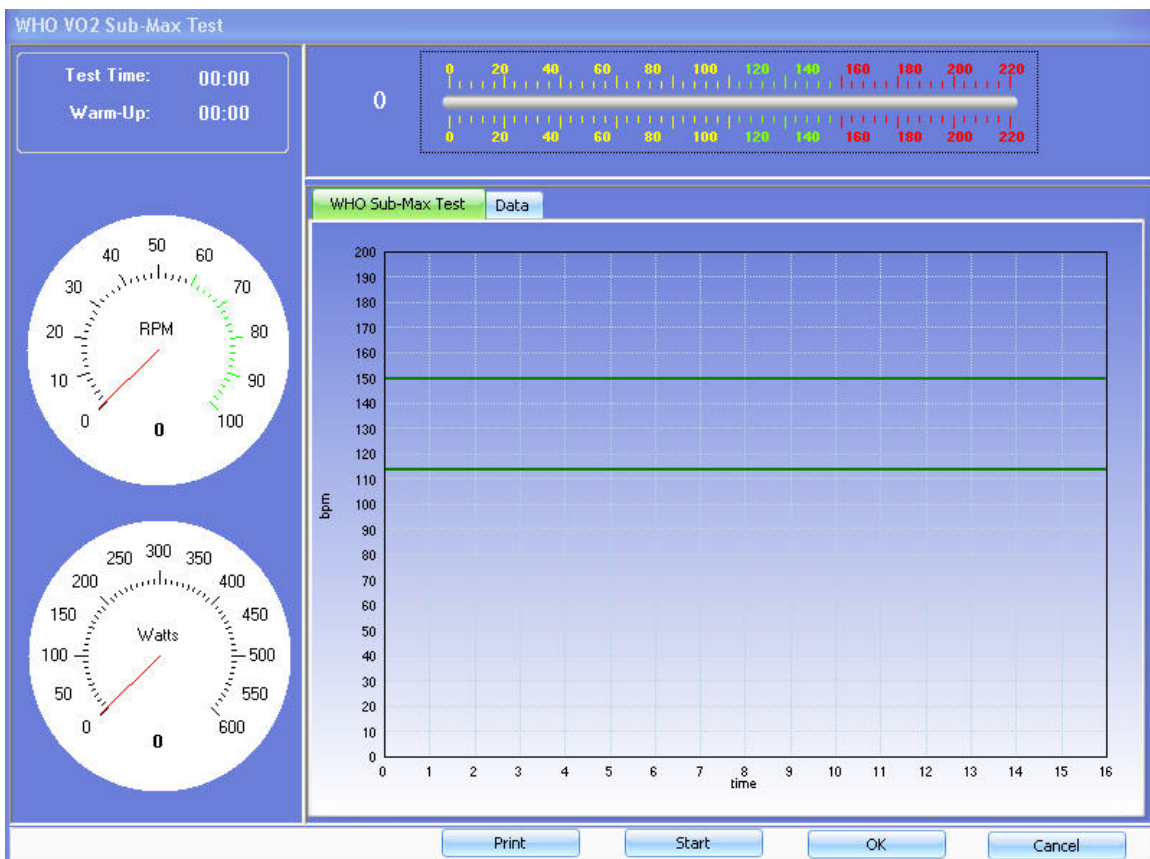
3. Click **Start** to activate the test. A physical activity rating questionnaire appears:

Physical Activity Questionnaire

Select the item below that best describes your current training program.

I don't participate regularly in programmed recreation, sports, or heavy physical activity.

○ I avoid walking or exertion (e.g., I use an elevator instead of stairs; I drive when possible instead of walking.

○ I walk for pleasure, routinely use stairs and occasionally train hard enough to perspire or breathe heavily.

I participate regularly in recreation or work requiring modest physical activity (such as golf, horseback riding, calisthenics, gymnastics, table tennis, bowling, weight lifting, yard work).

○ This activity takes 10 to 60 minutes per week.

○ This activity takes more than 60 minutes per week.

I participate regularly in heavy physical exercise (such as running or jogging, swimming, cycling, rowing, skipping rope, or engaging in vigorous aerobic activity such as playing tennis, basketball or racquetball).

○ I run less than 1 mile per week or spend less than 30 minutes per week in comparable activity.

○ I run 1 to 5 miles per week or spend 30 to 60 minutes per week in comparable physical activity.

○ I run 6 to 10 miles per week or spend 1 to 3 hours per week in comparable physical activity.

○ I run over 10 miles per week or spend over 3 hours per week in comparable physical activity.

Previous   Next   Cancel

4. Select the alternative that best represents the person taking the test. Click **Next**.

5. The heart rate of the client that is taking the test should appear in the top box. Instruct the client to begin pedaling. The RPM's will show up in the lower box (they will only appear if the bike is connected to the BodyAge system). **Next** will become activated when a heart rate is transmitted. Click **Next** to begin the test.

6. Instruct your client to maintain RPM at 60-80. When the test is complete, the data will be displayed.

7. Select **Print** to print the data and the graph. Select **OK** to save the data and return to the main screen.

About the WHO Submax Test

Protocol Overview:

• Test includes 3 to 4, 4 minute stages.

• Test starts with 4 min warm-up (included as stage 1).

• Target to reach 80% VO_{2max} (about 85-88% HR_{max})

• Selection of workloads is made based on a percentage of estimated VO_{2max} prediction by Jackson et al. 1990 Non-Exercise equation.

• VO_{2max} and Max Workload (WATTS) is based on a regression equation that uses age-predicted HR_{max} (220-age) and the stage Watts and steady state HR.

Protocol Stage Progression:

Stage 1: 38% VO_{2max} (based on Non-Exercise Prediction)

Stage 2: 52% VO_{2max} (based on Non-Exercise Prediction)

Stage 3: 65% VO_{2max} (based on Non-Exercise Prediction)

Stage 4: 78% VO_{2max} (based on Non-Exercise Prediction)

About the YMCA Submax Test

Protocol Overview:

The YMCA bike protocol is a single branching protocol. The number of stages and workloads depends on the heart rate after the first stage. If the heart rates are:

<80 bpm, then the second stage is 2.5 kp

80-89 bpm, then the second stage is 2.0 kp

90-100 bpm, then the second stage is 1.5 kp

>100 bpm, then the second stage is 1.0 kp

The following stages increase by 5 kp each stage independent of the heart rate response.

About the Pollock Submax Test

Protocol Overview:

The Pollock bike ergometer protocol is a multiple branching protocol and a more difficult protocol than the YMCA. Therefore, it is recommended for more active individuals.

The first workload is 1.0 kp. (1.0 kp is equal to 50 watts)

If after the first stage the heart rates are <90, then second stage is 3.0 kp

If after second stage heart rates are:

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<120, third stage = 4.5 kp

120-135, third stage = 4.0 kp

>135, third stage = 3.5 kp

If after the first stage the heart rates are 90-105, then second stage is 2.5 kp

If after second stage heart rates are:

<120, third stage = 4.0 kp

120-135, third stage = 3.5 kp

>135, third stage = 3.0 kp

If after the first stage the heart rates are >105, then second stage is 2.0 kp

If after second stage heart rates are:

<120, third stage = 3.5 kp

120-135, third stage = 3.0 kp

>135, third stage = 2.5 kp

Define Form Letters

To define a form letter, which you can attach to batch reports, select **Preferences > Define Form Letters**.
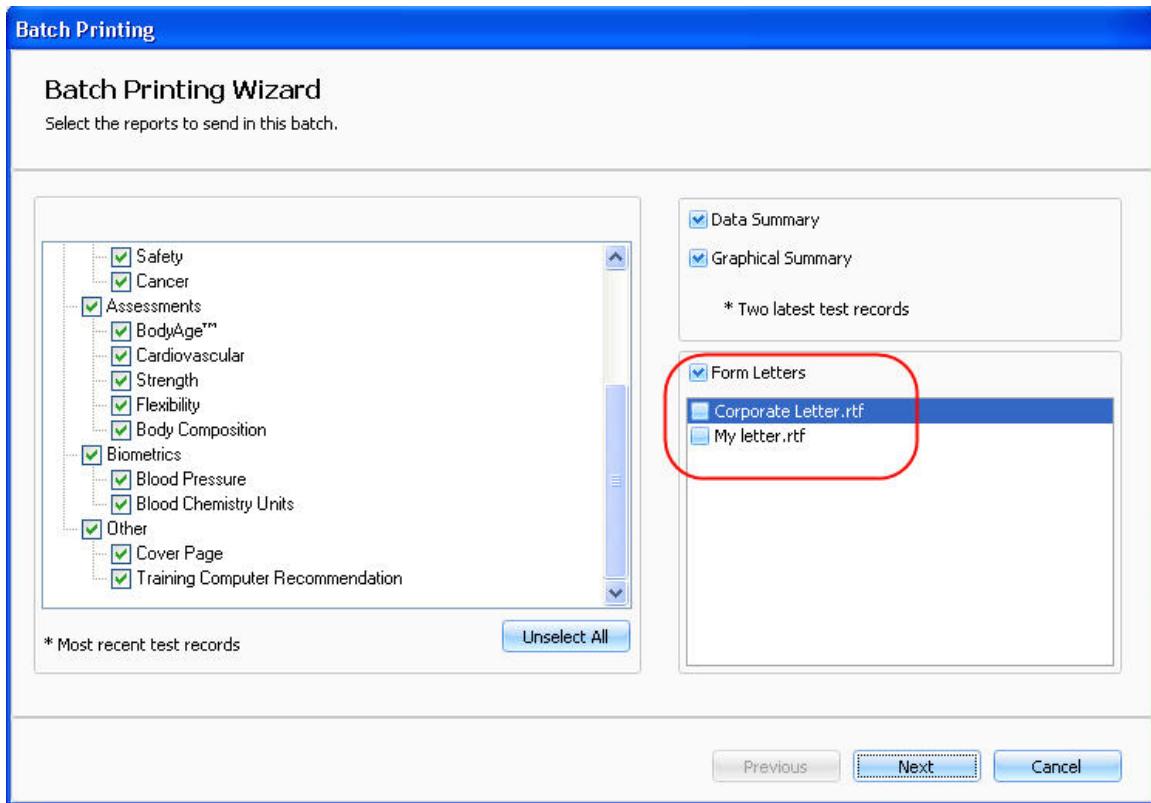
The following view will open:
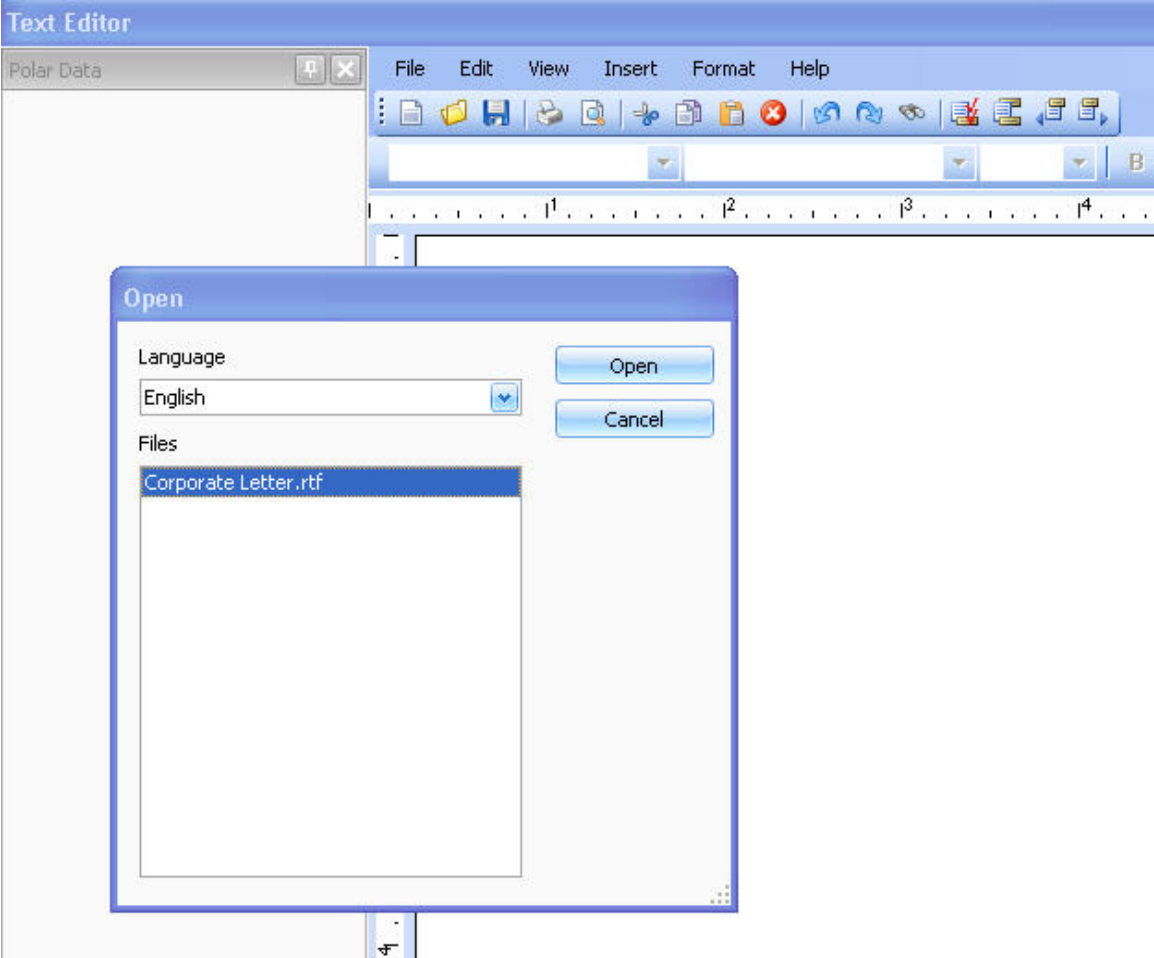
Select the language from the drop-down list and open the **Corporate Letter** template.

Polar BodyAge System
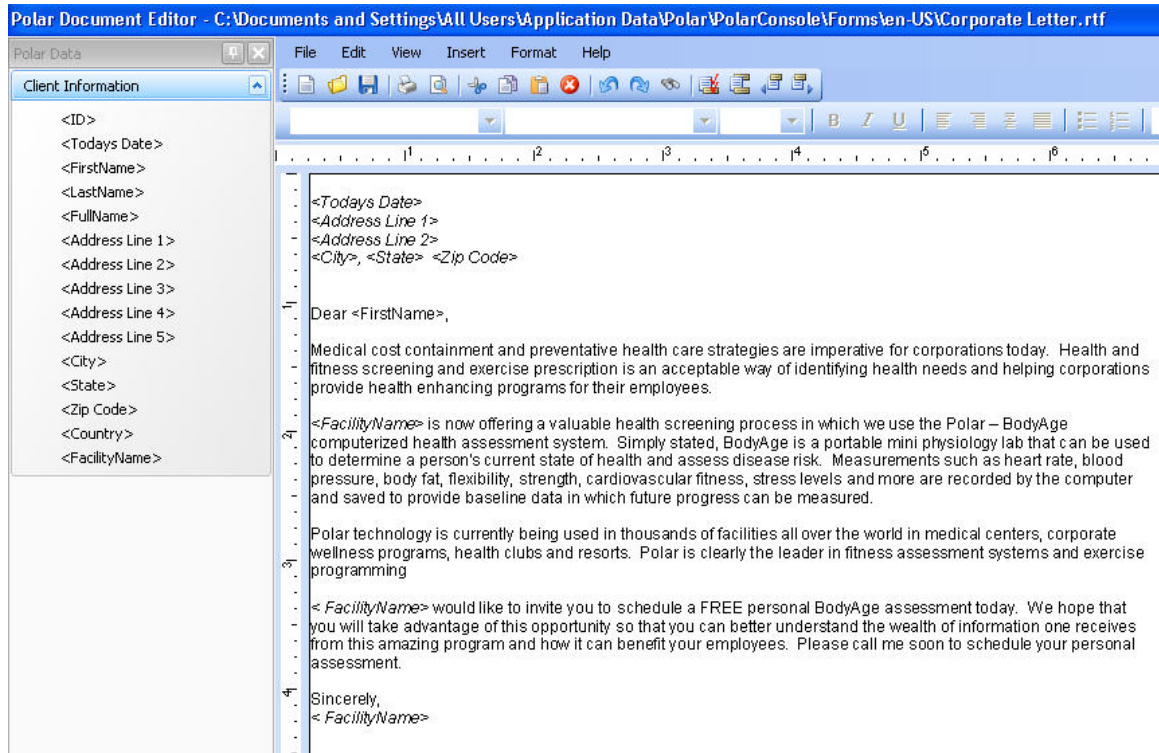
In this view you can create new content for the letter. When you are finished, select **File** > **Save**. Rename the file and click **OK**. The form letter will be added to the form letter options in **Batch Printing** window.

Direct Value Body fat percent

Direct value can be used to enter a percent body fat measurement obtained by another method such as hydrostatic weighing or Dual X-Ray Absorption.

Click on **Direct Value Body Fat Percent** link from the **Body Composition** section of **Fitness Assessments** to bring up the screen for entering a direct value.

The curser will be blinking within the input box. Enter the required information and press **OK** to save.

Direct Value VO$_{2MAX}$

If your client has had their VO$_{2max}$ tested directly in a lab setting, you can enter that value in BodyAge System.

Click on **Direct Value VO$_{2max}$** link from the **Cardiovascular** section of **Fitness Assessments** to enter a direct value.

The curser will be blinking within the input box. Enter the value and press **OK** to save.
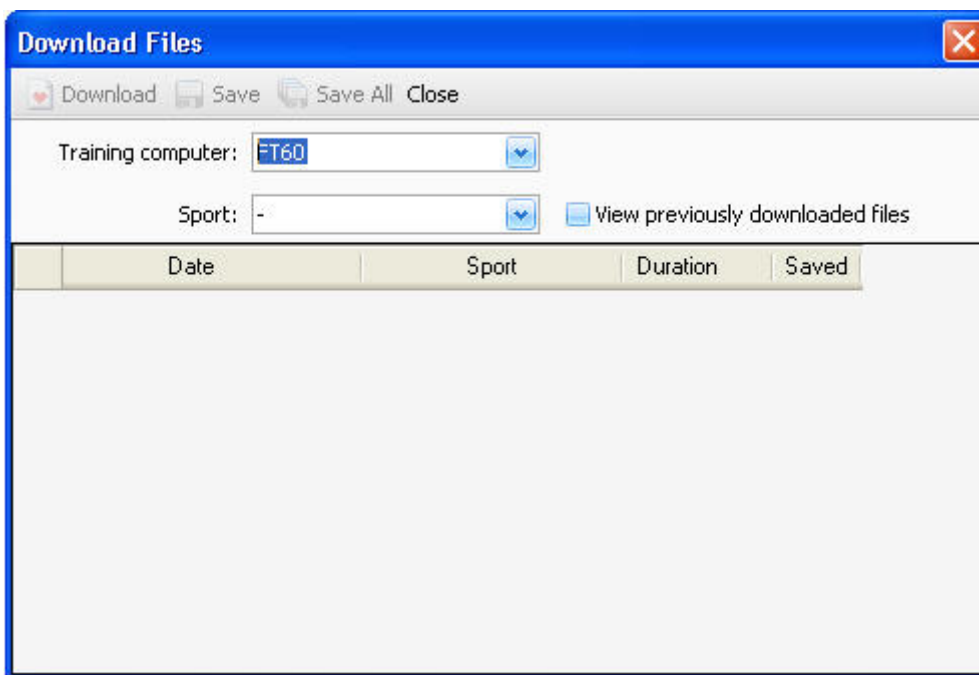
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Downloading Files

Downloading Files Using the Polar FlowLink

Use Polar Flowlink to download training files from Polar FT7, FT40, FT60, FT80 and RS300X training computers.

1. Place the training computer on the FlowLink. Click **Download File** in **Training Progress** view.
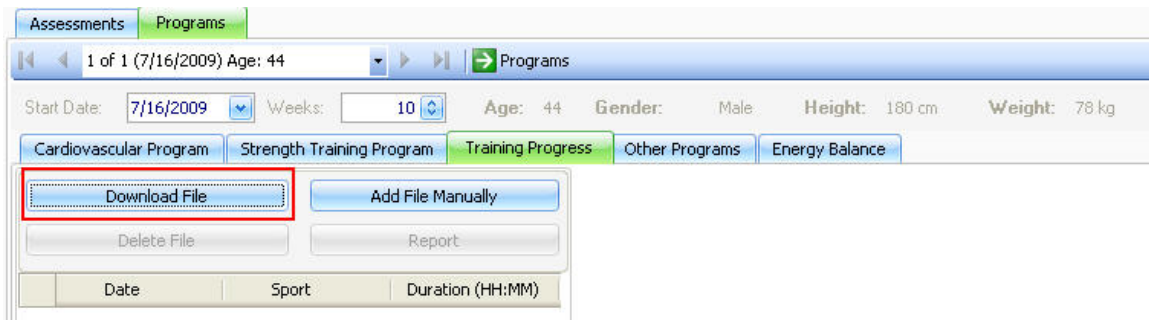
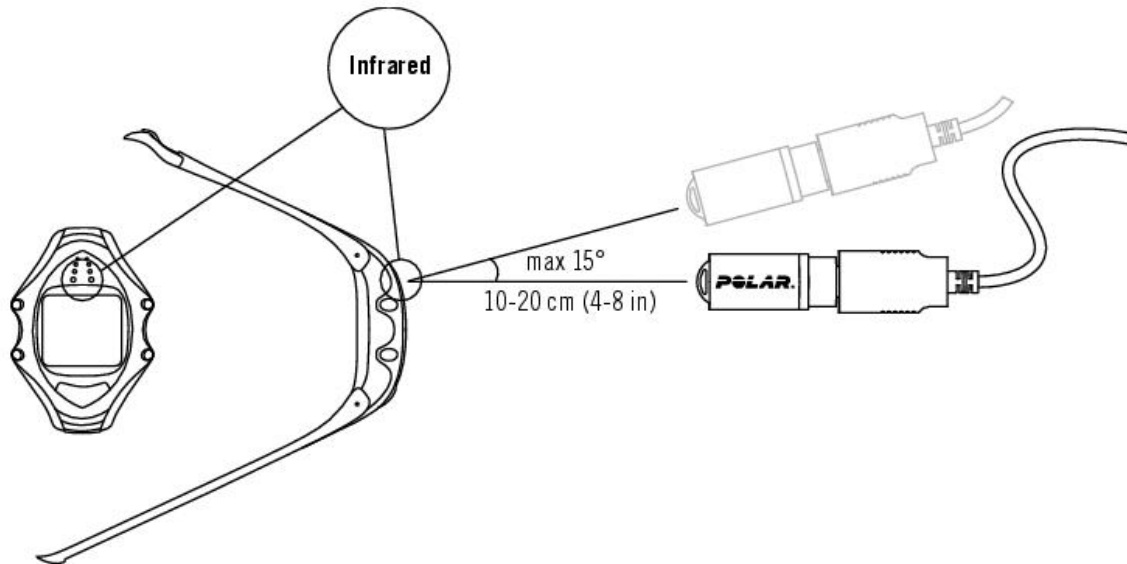2. The following window appears:

3. Click **Download** to start downloading the training files. The files will be listed in this view.

4. To save a file, highlight the file and click **Save**. To save all files, click **Save All.**

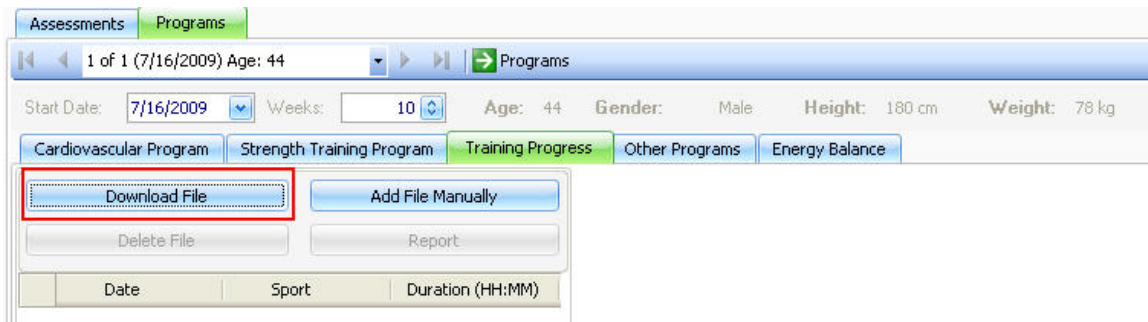### Downloading Files Using the Polar IrDA USB Adapter

Polar BodyAge System

Optional Polar IrDA USB Adapter is required to download files from RS400, RS800 and RS800CX training computers.
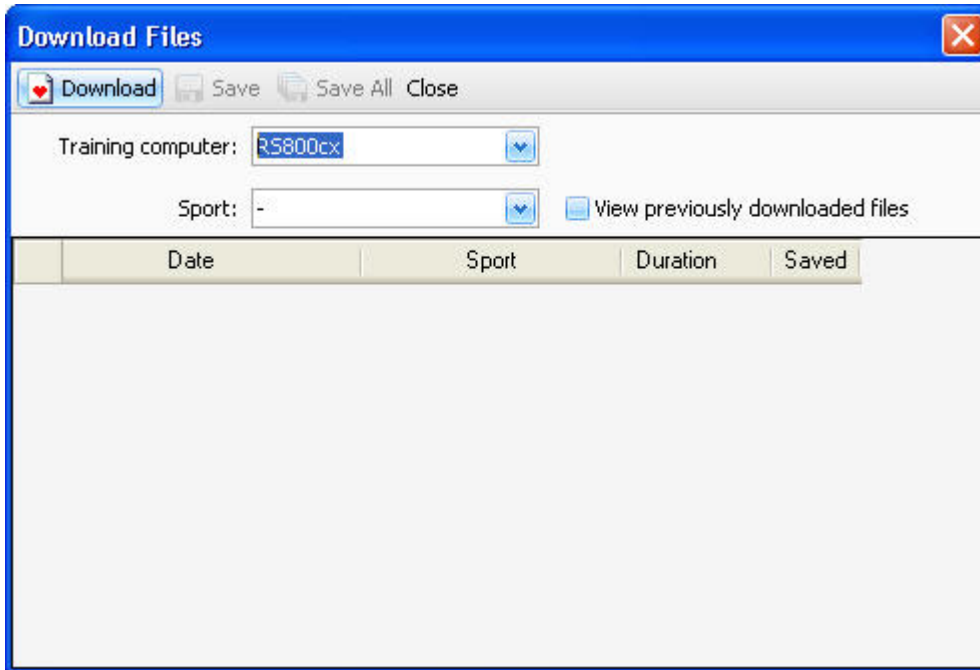
1. Place the training computer in front of the infrared window on the Polar IrDA USB Adapter or on the computer or other IrDA compatible infrared adapter.

2. Click **Download File** in **Training Progress** view.

2. The following window appears:

3. Click **Download** to start downloading the training files. The files will be listed in this view.
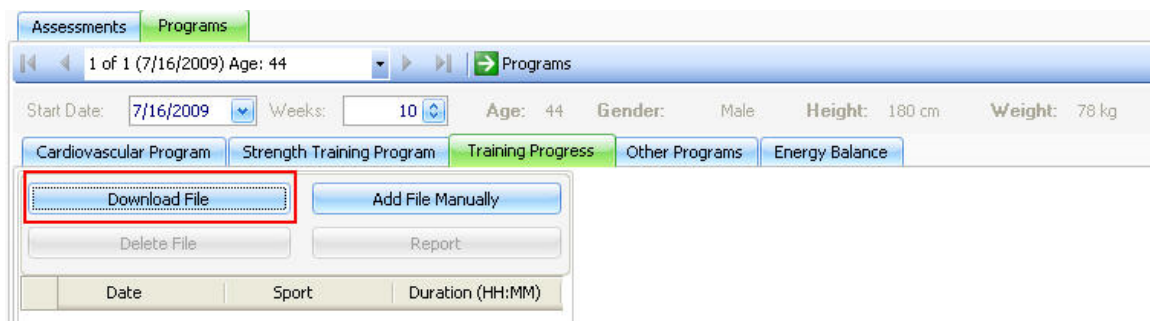
4. To save a file, highlight the file and click **Save**. To save all files, click **Save All.**

**Downloading Files Using the Polar Sonic Interface**

Optional Polar Sonic Interface™ is required to download files from F11, F6, F4 or other Polar UpLink enabled training computers.

The Polar Sonic Interface™ uses the speaker and microphone ports on your PC to send and receive information to Polar training computers. For installation instructions, see Polar Sonic Interface section in Assembling the Polar Bodyage System.

1. Place the training computer on the Sonic Interface. Click **Download File** in **Training Progress** view.
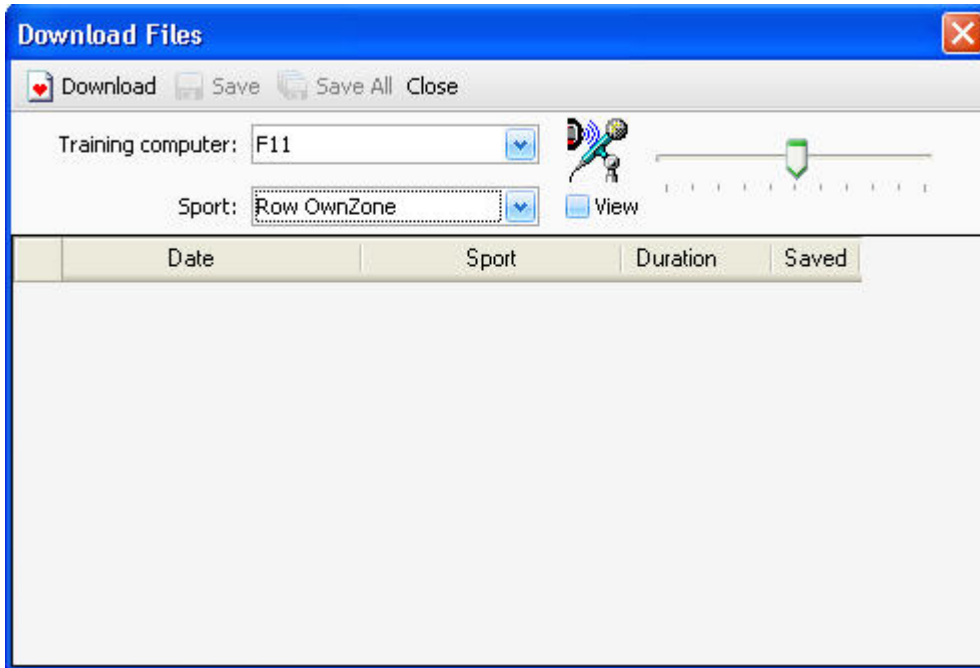

2. The following window appears:

3. Click **Download** to start downloading the training files. The files will be listed in this view.

4. To save a file, highlight the file and click **Save**. To save all files, click **Save All.**

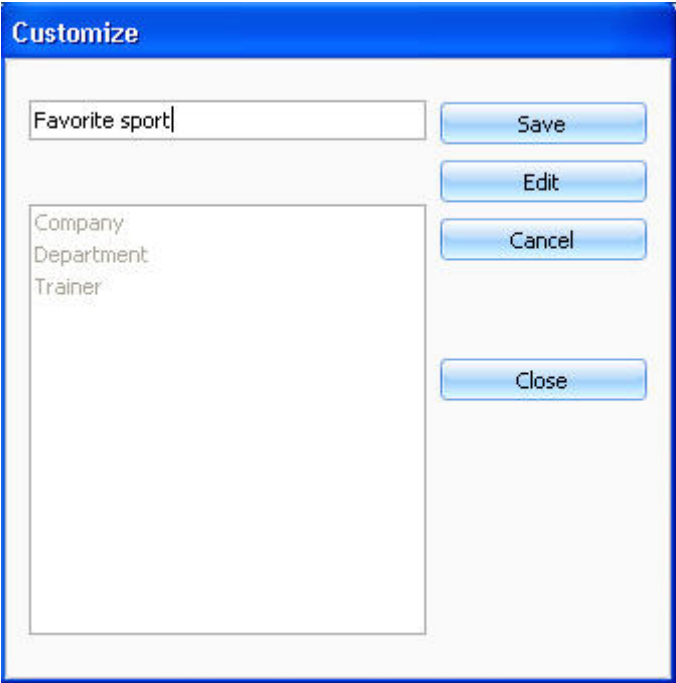## Edit Additional Information

You can add new question fields to be shown in **Additional Client Information** within **Client Information** in **Preferences > Edit Additional Client Information.**

For example if you want to know what sport your client plays or if they follow a specific diet (i.e. vegetarian), you can make a question field and add a drop-down list of selections later in **Additional Client Information**.

To add multi-answer questions to **Additional Client Information**, select **Preferences** > **Edit Additional Client Information**. The following window appears:
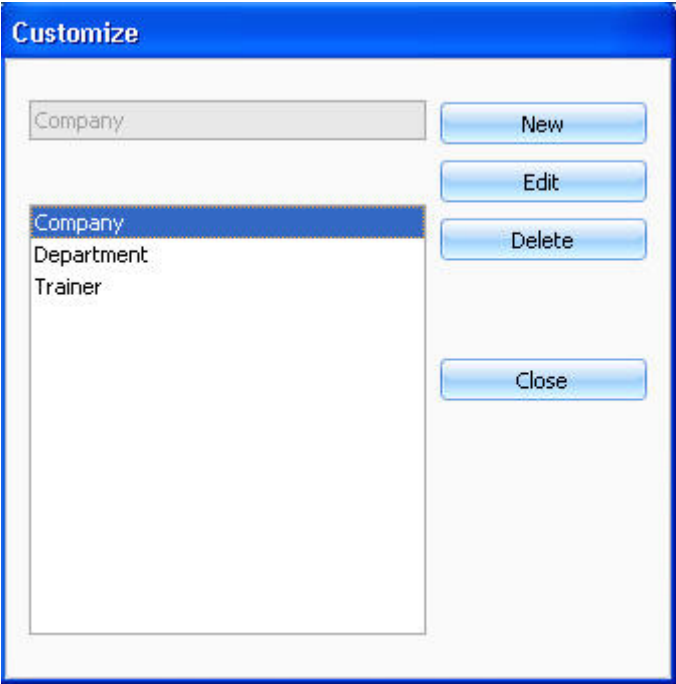
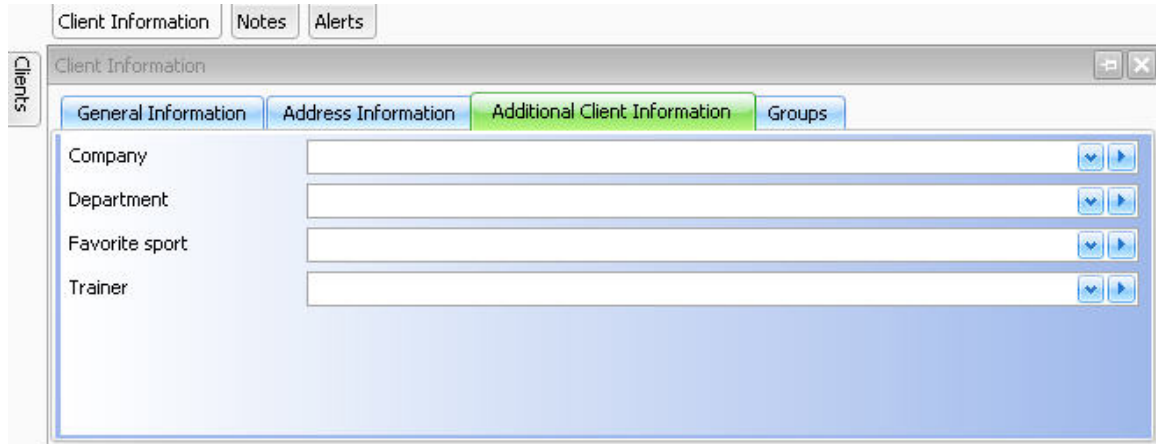Click **New** to enable the text field. Type in a new question.

By clicking **Save**, the question or Field Group will appear in the larger box field.

By clicking on **New**, you start the process over again.

Polar BodyAge System

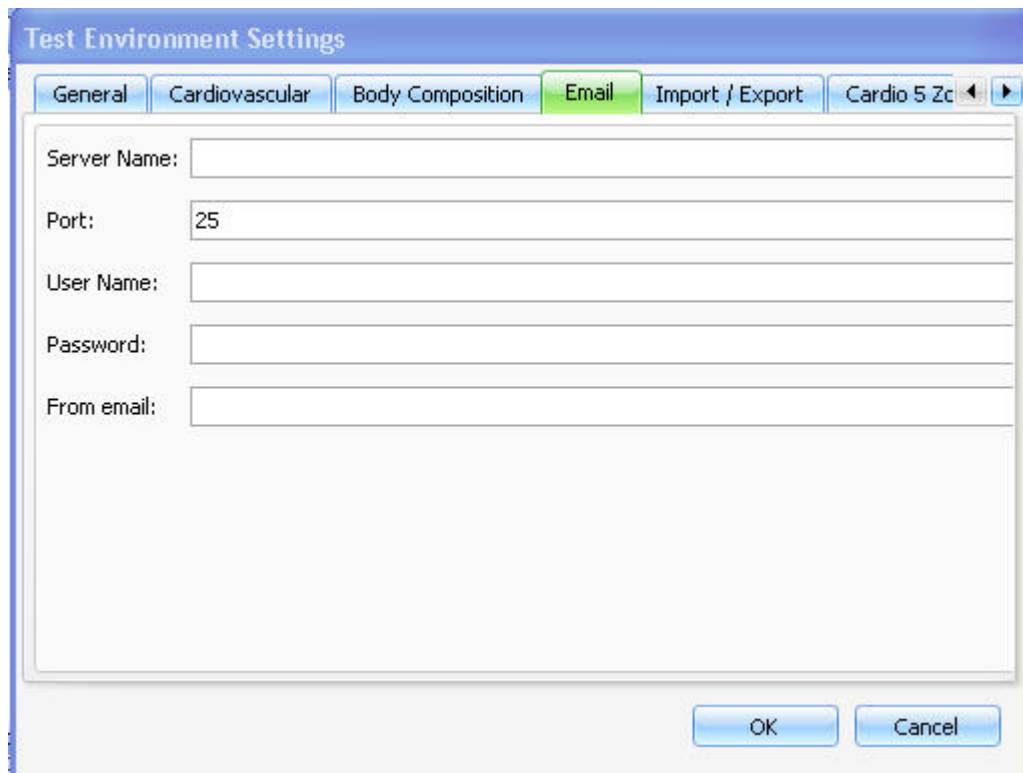By highlighting the question and selecting **Edit**, you can change the question.

By clicking **Close**, the question field will appear on the **Additional Information** tab of **Client Information**:

Email settings

Select **Test Environment** > **System Settings**. Choose **Email** from the **Test Environment Settings** view.

In **Email** view, you can enter the email account settings for emailing directly from the software to the customers. Check your details with e-mail service provider.

General Settings

Select **System Settings** > **Test Environment**. Choose **General** from the **Test Environment Settings** view.

In **General** you can enter the following information:

1. **Company/Club** name.

2. **Facility** name: The facility name will appear on the lower right hand corner of the reports.

3. **Default Gender**: Select **Male** or **Female**.

4. **Polar Interface Port**: This is the port that you have the 700iu box plugged into. The port will be automatically detected if you click on **Detect**.

5. **Language**

6. **Application Options**

- Display the last person tested when the program starts: This check box allows you to protect the privacy of your clients by displaying a blank screen (rather than the last record

visited) each time you open the program. To activate the privacy feature, uncheck this box.

- Include BMI in reports: You can include or exclude the Body Mass Index (BMI) from the reports if you check the box or leave it unchecked.

- Require login: If you want login to be required, check this box.

7. **Units**

- Measurement Units: Select **Imperial** or **Metric**

- Blood Chemistry Units: Select **mg/dl** or **mmol/l**

8. **Displayed Client Information**

Each time you add a new client to the BodyAge System database, a client information box will appear. Include or exclude the following information from the client information by checking the box or leaving it unchecked.

- Show Middle Name Field

- Show Race Field

- Show Country Field

- Show City Field

- Show State Field

- Show Postal/zip Code Field

Girth

Click on **Girth** link from the **Biometrics** section of **Fitness Assessments** to view the screen for entering the client's girth measurements.

Enter the girth measurements manually and press **OK** to save.

Guidelines for Cardiovascular Testing

It is the tester's responsibility to administer a safe test.

***CAUTION: An exercise test should be immediately TERMINATED if any of the following indications occur:

• Onset of angina or angina-like symptoms

• Significant drop (20mm Hg) in systolic blood pressure

• Failure of systolic blood pressure to rise with increasing intensity

• Excessive rise in blood pressure: Systolic >260 or Diastolic >115

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• Signs of poor perfusion: Dizziness, cyanosis, nausea, cold skin

• Failure of heart rate to increase with increasing intensity

• Noticeable change in heart rhythm

• Client requests to stop

• Physical or verbal manifestations of severe fatigue

• Failure of the testing equipment

Heart Disease Risk Factors

Age

Men > 45 years; women > 55 or premature menopause without estrogen replacement therapy.

Family History

Myocardial Infarction or sudden death before 55 years of age in father or other male first-degree relative, or before 65 years of age in mother or other female first-degree relative.

Cigarette Smoking

Currently a smoker

Hypertension

Blood Pressure > or = 140/90 mm Hg, confirmed by measurements on at least two separate occasions, or on antihypertensive medication.

Cholesterol

Total serum cholesterol > 200 mg/dL or HDL <35 mg/dL

Diabetes Mellitus

Persons with insulin dependent diabetes mellitus (IDDM) who are > 30 years of age, or have had IDDM for more than 15 years, and persons with non-insulin dependent diabetes mellitus (NIDDM) who are > 35 years of age should be classified as patients with disease.

Sedentary Lifestyle/Physical Inactivity

Persons comprising the least active 25% of the physical inactivity population as defined by the combination of sedentary jobs involving sitting for a large part of the day and no regular exercise or active recreational pursuits. Obesity is not listed as an independent positive risk factor because its effects are exerted through other risk factors.

Height/Weight

Click on **Height/Weight** link from the **Biometrics** section of **Fitness Assessments** to view the screen for entering the client's height and weight. The cursor will be first blinking within the blank height field.

How to Measure Height

You can enter height in two ways:

1. You can enter the exact height in centimeters or inches (depending on the measurement unit setting) using the number keys on your keyboard. If you want to change the measurement unit, see General Settings for instructions.

2. Use the mouse to point to the height scale's slider needle. Holding down the mouse button, drag the slider up or down to the client's height.

How to Measure Weight

To ensure accuracy of measuring the weight of a client, you should make sure that their shoes are off and they are in light clothing. If they are being retested for weight, then have them wear similar clothing as they did last time they got measured.

NOTE: If you are using bioimpedance to measure weight, see Body Composition Bioimpedance for more information.

To measure weight online, click on the **Measure** button, tell the client to step on the scale and wait until the green progress bar is complete. After weight has been measured, the results are automatically displayed on the weight dial and within the weight text box.

To manually enter a client's weight, use the mouse to point and click within the weight input box and use the number keys on your keyboard to enter the client's known weight.

To show the results for body mass index, press **Show BMI**. See Body Mass Index (BMI) for more information.

To exit **Height/Weight**, use the mouse to point and click on the **OK** button in the lower right of the screen. The data will be saved.

Import/Export

The Import/Export feature is designed for mass import and export of data.

Import

The data can be imported in two different ways.

1. You can import demographic information and organizational level information in an XML file following a strict format (see the xml schema and/or xml import example that were included in the installation). When importing multiple files or importing often, this is the optimal method. Select **System Settings** > **Test Environment**. Choose **Import / Export** from the **Test Environment Settings** view.
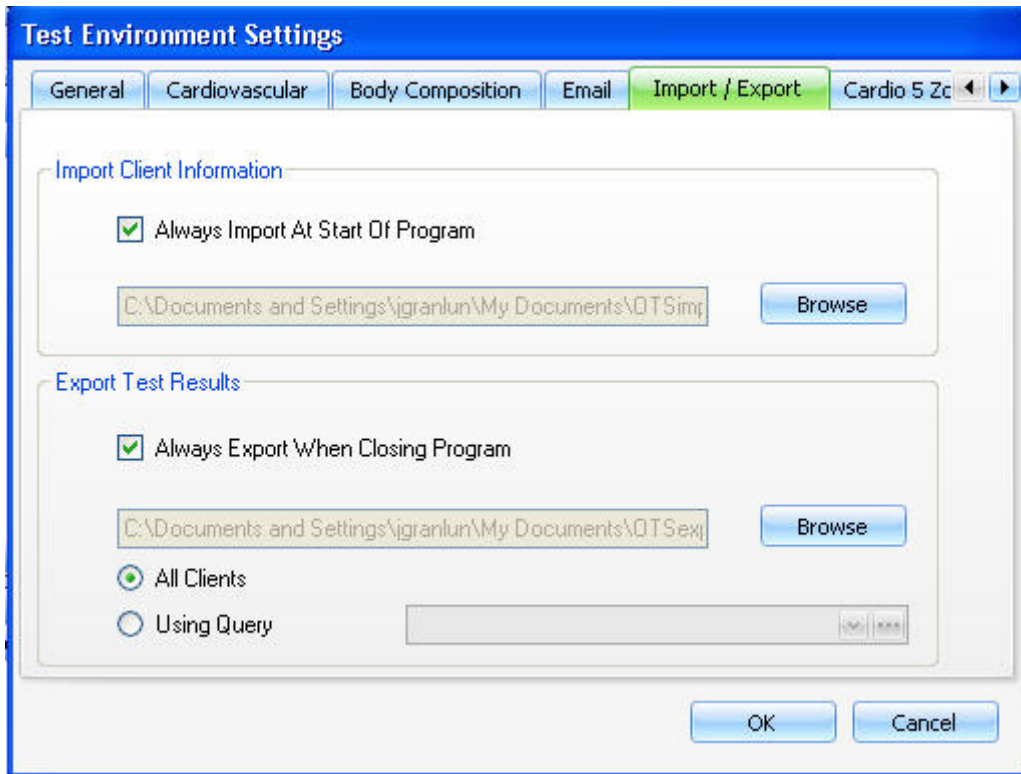
Checking the check box that says **Always Import Demographic Information At Start Of Program** and selecting a folder to browse to will force the program to check the chosen folder to import each file in the folder. After each file is imported a folder called **Imported** will be created in this folder. All files imported will be placed in this folder. At the application start the client tree will be updated with the information imported.

2. For importing a single file occasionally, select **Import Clients** from the **File** menu. The following screen appears:
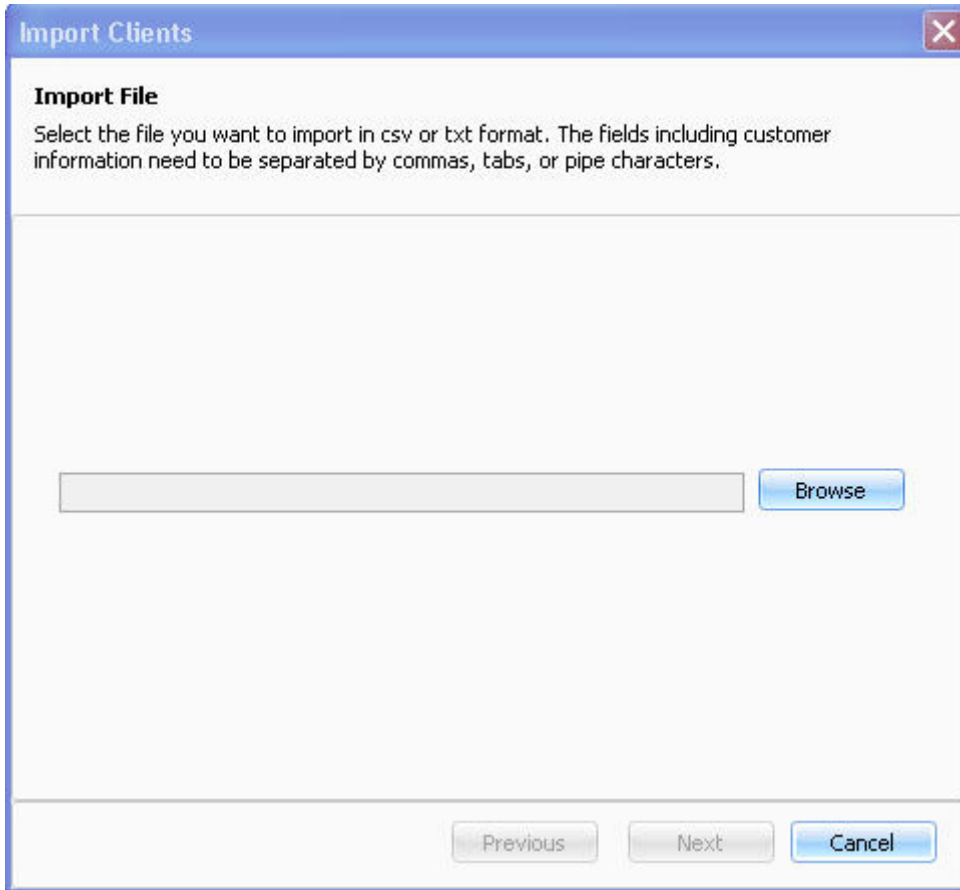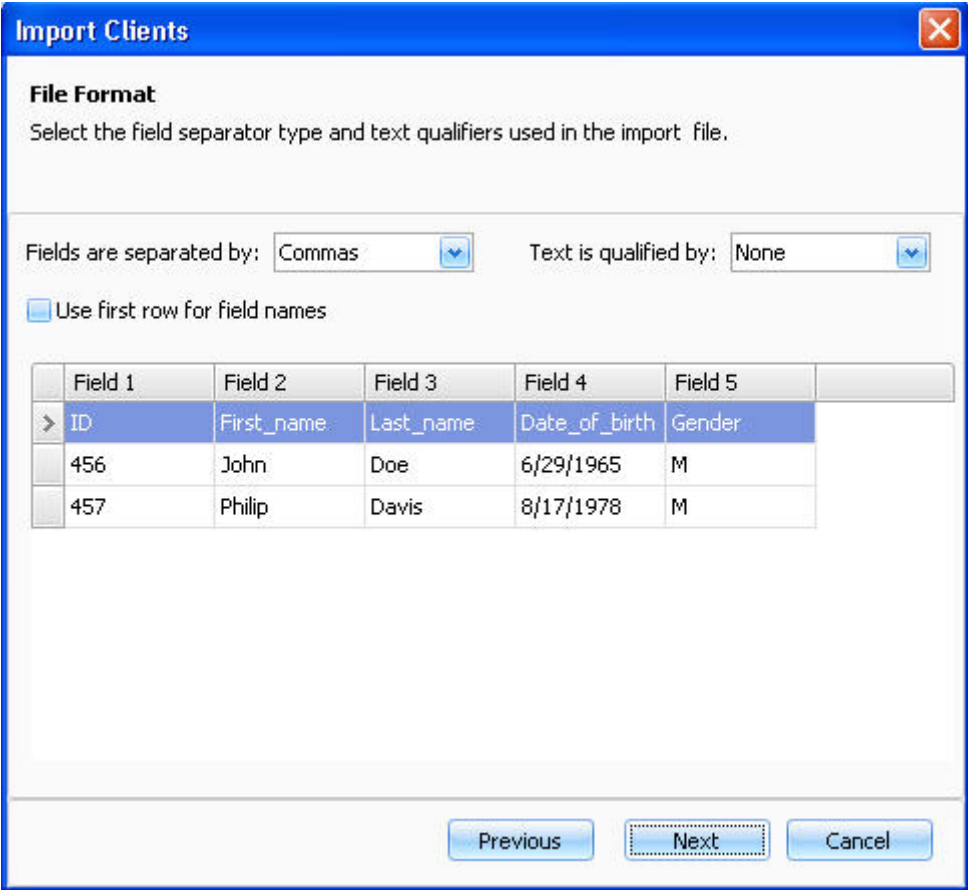
Browse to, and select the file (.txt or .csv) to be imported. See an example of an import file in a txt format below:
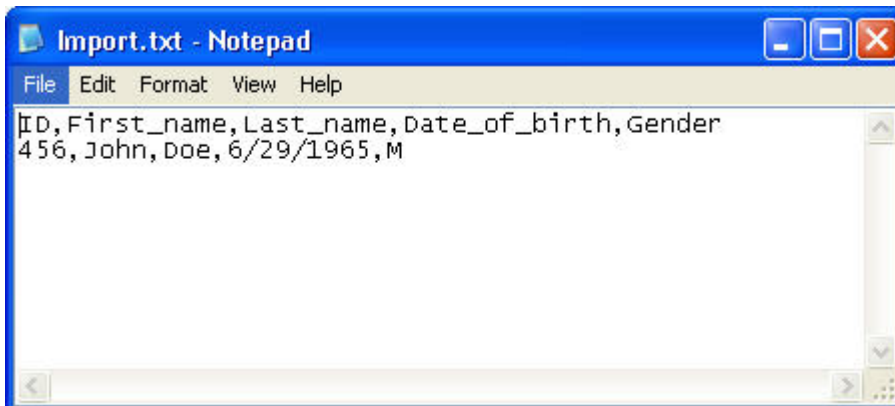
Note: Write the date of birth in the mm/dd/yyyy format.

Click **Next**. The following screen appears:

Select the filed separator type and the text qualifiers used in the import file from the drop-down lists.

To use the first row data for field names, check the box next to **Use first row for field names**. If you check this box, the first row data will not be imported.

Click **Next** to continue.
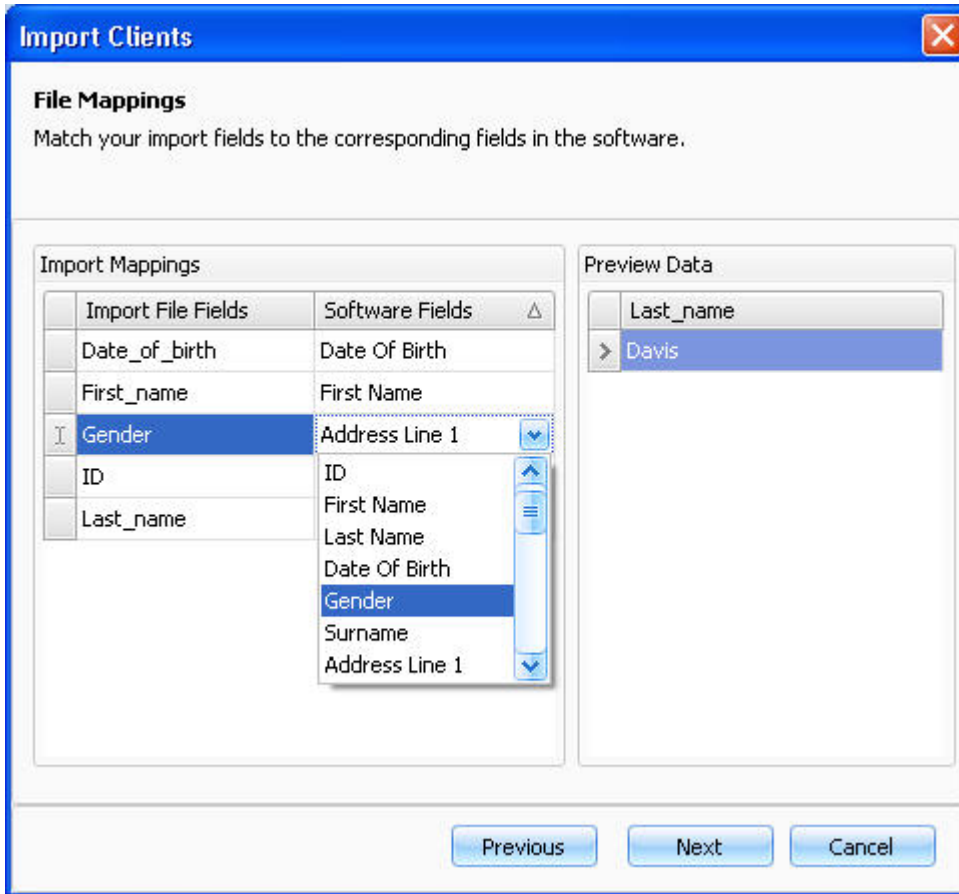
Match the import fields to corresponding fields in the software, if required. Click on the software field and select the correct field from the drop-down list. Click **Next** to continue.
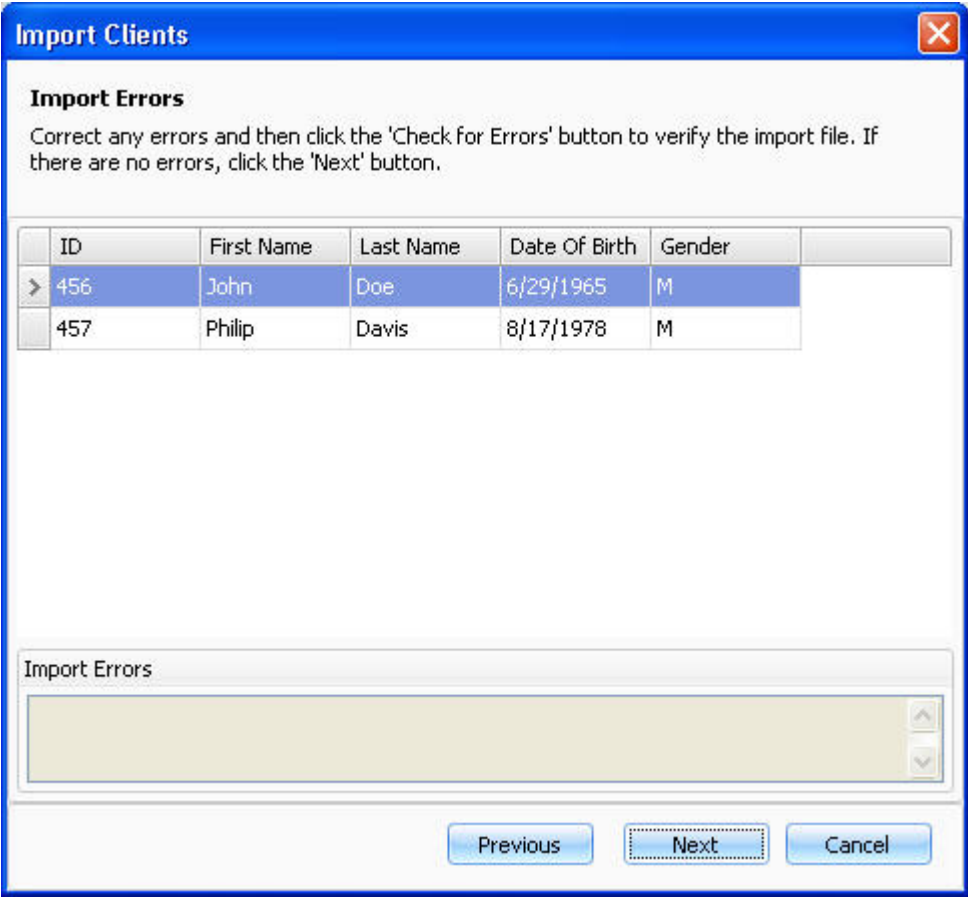
If there is an error in the imported data, the incorrect data is written in red. Click on the text field to activate the field and type in the valid data.

Click **Next** to start importing the file. The next screen shows the number of imported and updated clients.
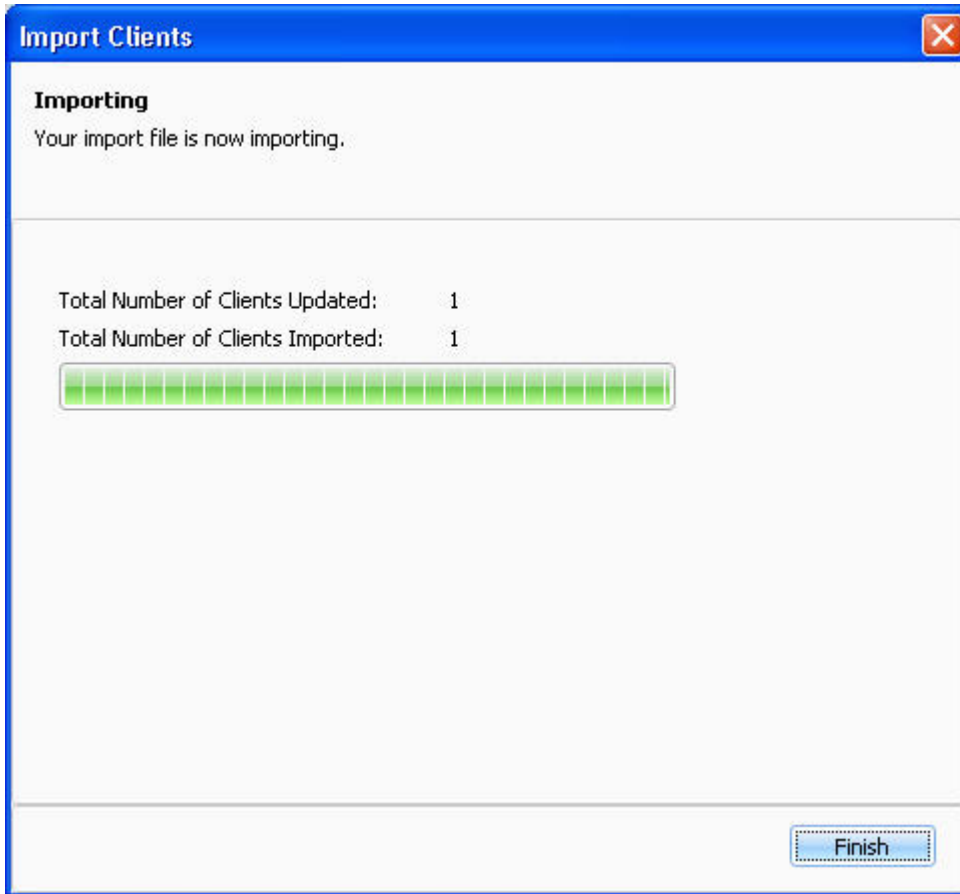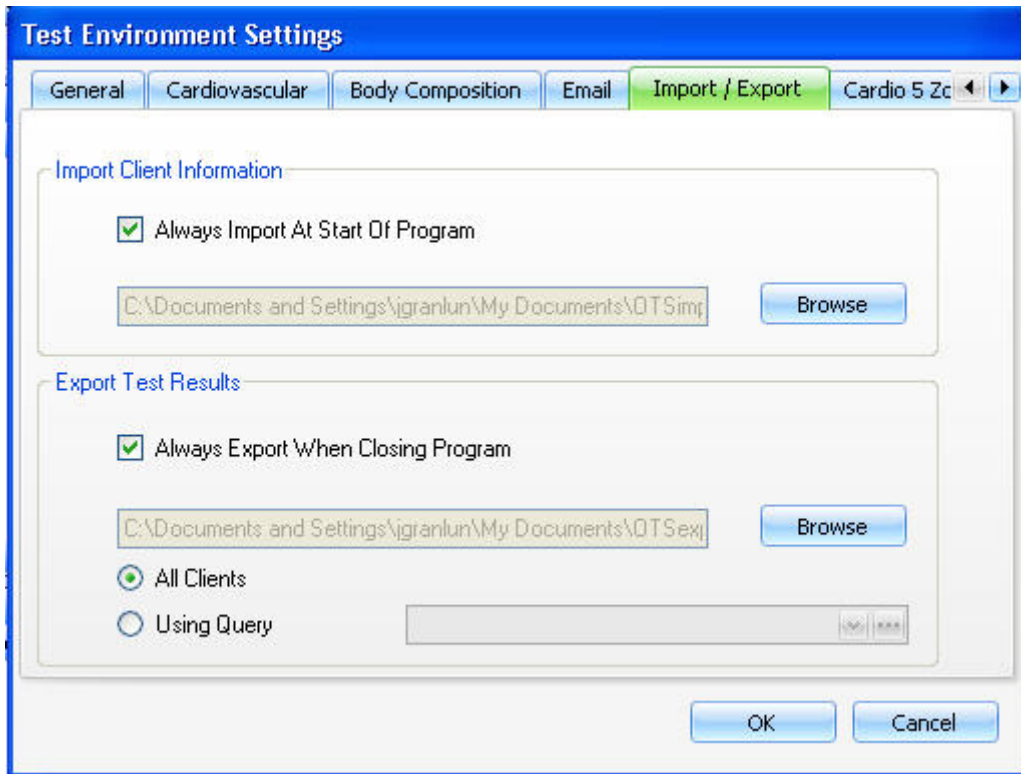
Export

You can export assessment information for each client. If the client has multiple assessments, all will show up in the XML file.

The data can be exported in two different ways.

1. To export every time the application closes, select **System Settings** > **Test Environment**. Choose **Import / Export** from the **Test Environment Settings** view.

Checking the check box that says **Always Export Assessment Information At Close Of Program** will force the program to export an XML document at close. If you check the box, browse to the folder you want the data to be exported to

Choose whether you want to export the test results of **All Clients**, or of a specific group by **Using Query**. If you choose to use the query, select an existing query from the drop-down box, or click to create a query. For instructions on creating the query, see Query Builder.

2. To export occasionally, select **Preferences** > **Advanced**. Choose **Export Records** .
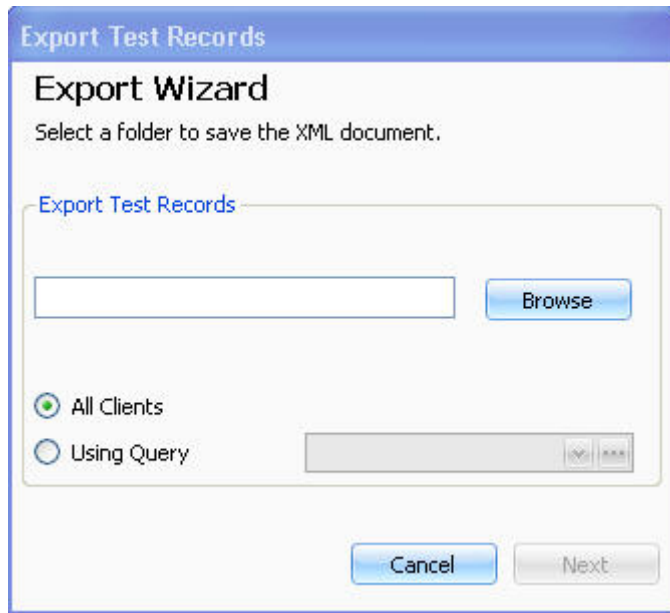
Browse to the folder you want the data to be exported to. Give the file a name.

Choose whether you want to export the test results of **All Clients**, or of a specific group of population by **Using Query**. If you choose to use the query, select an existing query from the drop-down box, or click ⬚ to create a query. For instructions on creating the query, see Query Builder.

Click **Next**. The number of assessments exported will be given. Click **OK** to close the form.

Importance of Body Composition

Body composition refers to the lean body weight plus the fat weight, which together make up the total body weight. The measurement of body composition is important, as obesity is a known health hazard.

Obesity is related to a higher incidence of numerous diseases, including coronary heart disease, diabetes, cirrhosis of the liver, hernia, and intestinal obstruction. Obesity is also of considerable concern from an aesthetic standpoint and may be one of the primary reasons an individual decides to begin an exercise program. Therefore, it is important to be able to identify an individual's initial body composition before exercising and also to quantify any change that may occur with exercising and/or diet. A desirable weight should be determined for the individual, but reducing weight alone should not be the only goal.

Extremely low body fat can have a negative effect on the body also, which can impair health status or alter normal physiological functions. The body requires an essential percentage of body fat to function properly. The lower limit of essential body fat for males is approximately 3% and for females it is approximately 12%. Encroachment into this essential body fat reserve may impair

optimal health and capacity for vigorous exercise. In addition, it is recommended that some females (those that have low body fat induced irregular menstrual cycles) maintain a critical body fat level of at least 17% to maintain normal menstrual cycles.
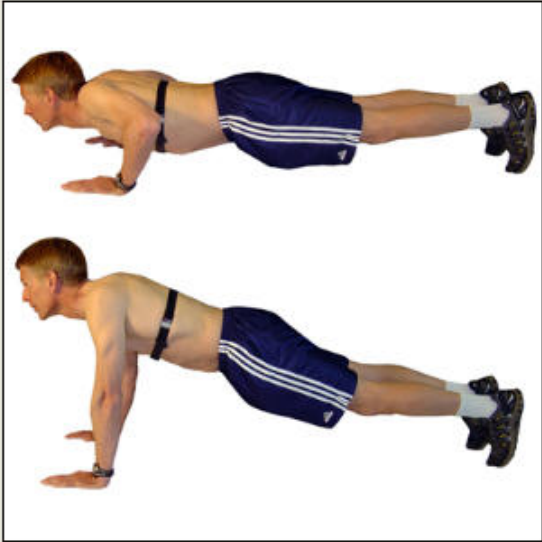
Major Symptoms or Signs of Heart Disease

• Pain, discomfort (or other anginal equivalent) in the chest, neck, jaw, arms, or other areas that may be ischemic in nature.

• Shortness of breath at rest or with mild exercise

• Dizziness or syncope

• Orthopnea or paroxysmal nocturnal dyspnea

• Ankle edema

• Palpitation or tachycardia

• Intermittent claudication

• Known heart murmur

• Unusual fatigue or shortness of breath with usual activities

Max Push Up

In max push up test the client repeats as many push-ups as she/he can.

Click on **Max Push-Up** link from the **Strength & Flexibility** section of **Fitness Assessments** to view the instructions for performing the test.

Polar BodyAge System

Instructions-Max Push Up

Push Ups Instructions

Place hands just outside the line of the shoulders. Keeping the back straight, the client should lower himself (herself) until the upper arm is parallel with the floor. Return to the starting position. Do as many repetitions as possible.
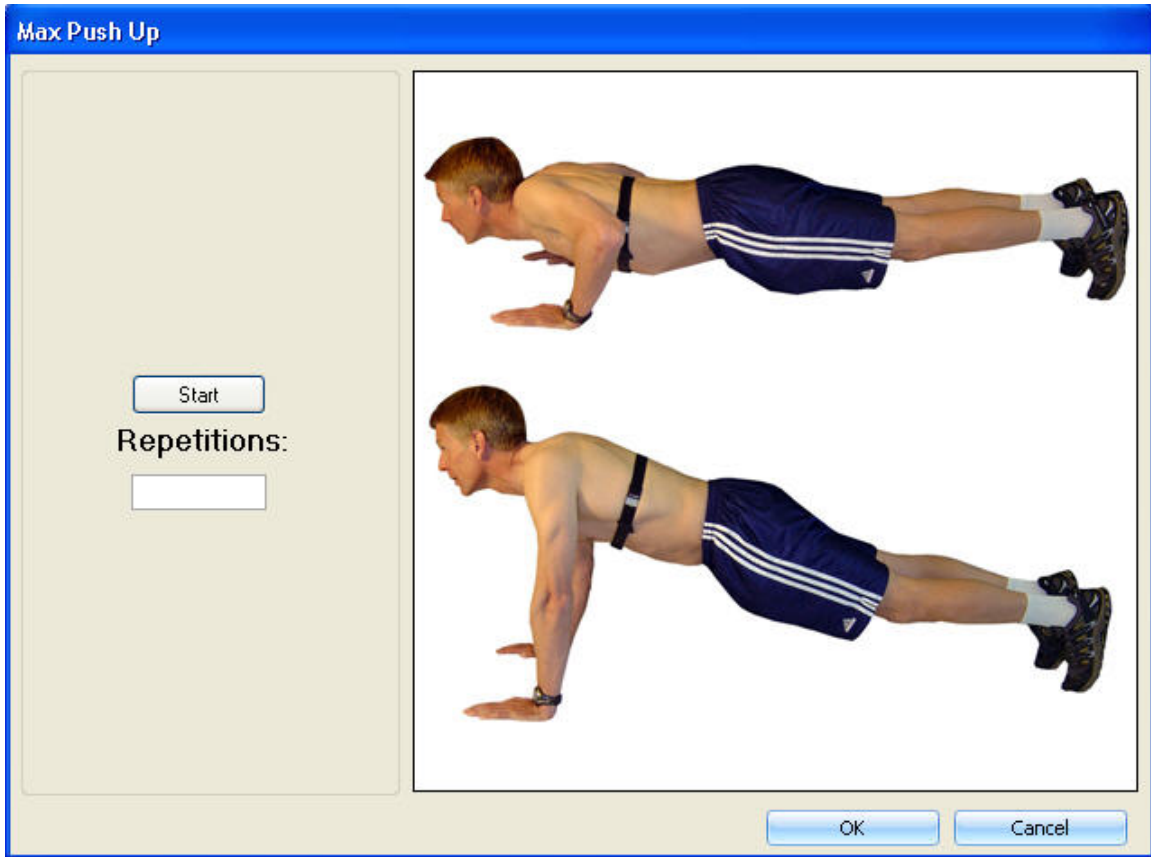
Women should use the modified push up, with knees flexed on the floor ensuring the back remains straight.

Note: To count the number of repetitions, click the spacebar during the test.

Continue >   Cancel

After reading the instructions, click **Continue**. The following screen appears:

When the client is ready to begin the test, click **Start**.

To count the number of full repetitions, click an alphanumeric key on the keyboard each time a repetition is completed.

Click **OK** to save the data and return to the main screen.

Medical History

Click on **Medical History** link from the **Biometrics** section of **Fitness Assessments** to bring up the medical history questionnaire.

Polar BodyAge System

Entering medical history information is easy. When the medical history screen appears, the cursor will be positioned on the response line for the first question. Begin typing the client's response to this question. To move to the response line for the second question and so on, either press the enter key, the tab key or use the mouse to position the cursor where you want it and click.

Click **Print** to print the medical history. The printed version of the medical history has the name, date and a line for the client to sign.

Click OK to exit and save the data.

Importance of Medical History

The Medical History questionnaire is designed to identify if the client has any pre-existing injuries or ailments that should be brought to the attention of the tester. It is also used to identify if the client is taking medications such as beta-blockers, vasodilators or diuretics that may affect the normal physiologic responses during exercise. It is recommended that the dosage of medication is recorded along with a physician's contact number. The medical history provides important information to assist the tester and safeguard the client during testing.

Follow your countries guidelines for exercising with certain diseases or conditions.

One Mile Walk

One Mile Walk test is designed for men and women 20-69 years of age. The client walks 1.0 mile as quickly as possible and takes his/her heart rate immediately at the end of the test by counting the pulse for 15 seconds. The walking course should be a measured mile that is flat and uninterrupted. Most individuals can walk a mile in 12-17 minutes. The required information in this test is post-exercise heart rate and one mile time (min:sec).

Click on **One Mile Walk** link from the **Cardiovascular** section of **Fitness Assessments** to view the screen for entering the client's test result. The test's input box will appear.

Enter the required information and press **OK** to save.

Other Programs settings

Select **System Settings** > **Test Environment.** Select **Other Programs** from the **Test Environment Settings** view.

Polar BodyAge System
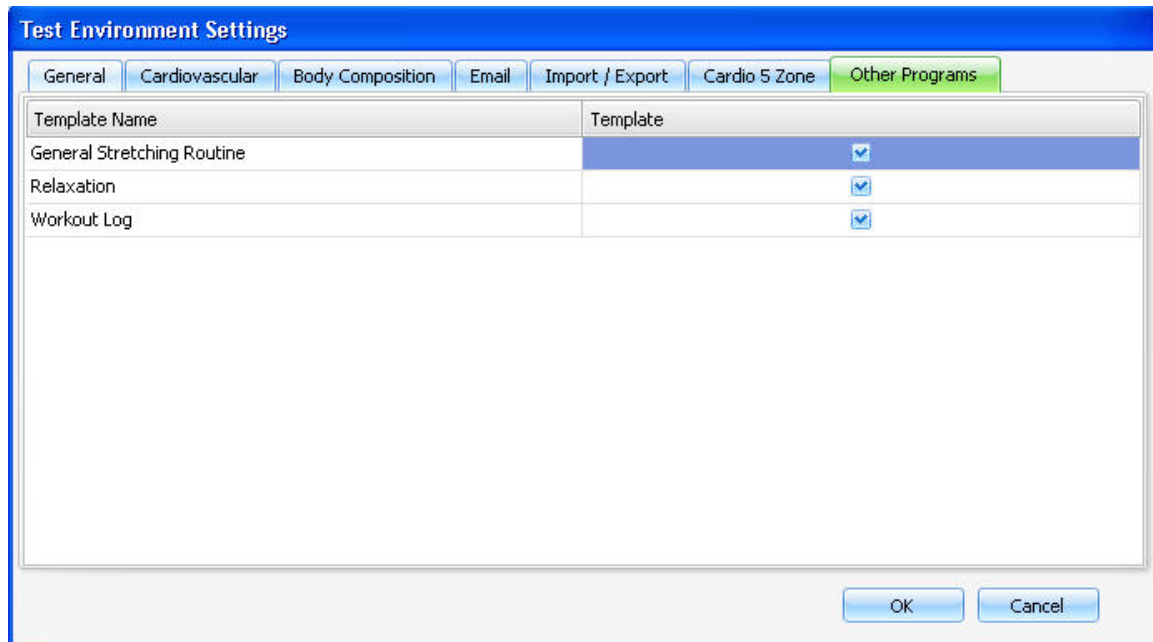
Check the box next to a program template that you want to include in Other Programs. Click **OK** to save.

OwnIndex

About OwnIndex®

OwnIndex is a score that is comparable to VO_{2max}, a commonly used descriptor of aerobic fitness. OwnIndex is the result of the Polar Fitness Test, which is an easy, safe and quick way to estimate maximal aerobic power. The OwnIndex is based on heart rate, heart rate variability at rest, body structure and self-assessed physical activity.

To follow a client's fitness progress with OwnIndex, start with an initial reading and check the value every month. It takes a minimum of six weeks of regular training to see a noticeable change. Less fit individuals see progress more rapidly than more active individuals.

To get reliable test results, take into account the following basic requirements:

• Client should be relaxed and calm

• The testing environment should be peaceful. No disturbing noises (e.g. television, radio or telephone), no other people talking to the client.

• Keep the testing place, time of day and environment the same every time the test is repeated.

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• Tell your client to avoid eating a heavy meal or smoking 2-3 hours prior to testing.

• Tell your client to avoid heavy physical effort, alcoholic beverages or pharmacological stimulants on the test day and the day before.

• Allow the client to sit/lay down for 1-3 minutes prior to test, so they can relax their muscles and mind.

Carrying out the OwnIndex® Test

After creating a new record or opening an existing record for a client, their height and weight must be recorded before the OwnIndex test can be performed. For instructions, see Height/Weight.

Click on **OwnIndex** link from the **Cardiovascular** section of **Fitness Assessments** to bring up the OwnIndex test screen.

1. Select **Activity Level** from the drop-down box on the upper left corner.

     OwnIndex Activity Classifications

Assess the client's long-term physical activity level based on regular exercise habits during six months.

Low: Exercise is not a regular part of client's life. He/she walks only for pleasure or occasionally exercises sufficiently to cause heavy breathing or perspiration.

Moderate: The client participates regularly in recreational sports. For example, he/she runs 5 miles/ 8km a week or spends 30-60 minutes a week in comparable physical activity. Or, his/her work requires modest physical activity.

High: Exercise is an inseparable part of the client's life. He/she exercises regularly at least 3 times a week with heavy paced intensity. Exercise causes clear breathlessness and sweating. For example, he/she runs regularly more than 5 miles/ 8 km a week or spend more than 1.5-2 hours in comparable physical activity.

Top: The client participates regularly in heavy physical exercise at least 5 times a week (i.e. he/she exercises to improve performance for competitive purposes).

2. Verify that the heart rate is being transmitted correctly by looking at value next to the line graph on the top.

3. Click **Start** to start the test. When it is finished (~1-5 min.), a VO_{2max} value will be displayed in the lower left corner.

4. Click **OK** to save the value and return to the main screen.

Technical Notes for the OwnIndex® Test

• The test lasts for 5 minutes

• The test is based on R-R values that are collected via the heart rate receiver

• The ticks on the progress bar indicate real time collection of R-R values

• If a minimum number of R-R values are not collected within the first two minutes, then the test will end with a message telling you to check the heart rate cable and try again

OwnZone

An OwnZone Test is able to determine the individual training heart rate zone. This training zone is called your OwnZone. It guides you through an appropriate warm-up routine and automatically determines a safe and effective exercise heart rate zone - your OwnZone - while taking into account your current physical condition.

For most adults, OwnZone corresponds to 65-85% of the maximum heart rate. OwnZone is suitable for cardiovascular training either for health-related or fitness improvement purposes.

OwnZone works well for those whose goal is weight control via physical activity and training, because the OwnZone corresponds to intensity from "light to moderate" to "moderate". Training at this intensity level can be conducted even for extended periods safely and often yields the best results for weight loss.

The OwnZone protocol uses your estimated VO_{2max} to calculate the watts for each minute of the test. If the client already has a VO_{2max} score from one of the cardiovascular tests in the BodyAge System, then that VO_{2max} score is used. If the client does not have VO_{2max} estimated, a physical activity questionnaire appears and the a non-exercise VO_{2max} score will be estimated based on age, gender, weight and activity level.

How to Use OwnZone

If you have connected a compatible ergometer to the BodyAge System, go to **System Settings > Test Environment > Cardiovascular**, and select the cardio device that you are using for this test as well as the serial port that it is connected to. See <u>Cardiovascular Settings</u> for more information.

After creating a new record or opening an existing record for a client, their height and weight must be recorded before the OwnZone test can be performed. For instructions, see <u>Height/Weight</u>.

Click on **OwnZone** link from the **Biometrics** section of **Fitness Assessments** to bring up the OwnZone test screen.

1. If the client has not taken a $VO2_{max}$ test on the BodyAge System, clicking on the **OwnZone** button will bring up the **Physical Activity Rating Questionnaire** box. Select the choice that best represents the client. Click **Next**.

Physical Activity Questionnaire

Select the item below that best describes your current training program.

I don't participate regularly in programmed recreation, sports, or heavy physical activity.

- I avoid walking or exertion (e.g., I use an elevator instead of stairs; I drive when possible instead of walking.
- I walk for pleasure, routinely use stairs and occasionally train hard enough to perspire or breathe heavily.

I participate regularly in recreation or work requiring modest physical activity (such as golf, horseback riding, calisthenics, gymnastics, table tennis, bowling, weight lifting, yard work).

- This activity takes 10 to 60 minutes per week.
- This activity takes more than 60 minutes per week.

I participate regularly in heavy physical exercise (such as running or jogging, swimming, cycling, rowing, skipping rope, or engaging in vigorous aerobic activity such as playing tennis, basketball or racquetball).

- I run less than 1 mile per week or spend less than 30 minutes per week in comparable activity.
- I run 1 to 5 miles per week or spend 30 to 60 minutes per week in comparable physical activity.
- I run 6 to 10 miles per week or spend 1 to 3 hours per week in comparable physical activity.
- I run over 10 miles per week or spend over 3 hours per week in comparable physical activity.

Previous   Next   Cancel

2. Verify heart rate and RPM (Revolutions Per Minute). The heart rate of the client should appear in the top box. Instruct the client to begin pedaling. The RPM's will show up in the lower box (they will only appear if the cardio device is connected to the BodyAge system). **Next** will become activated when a heart rate is transmitted. Click **Next**.

3. The test will begin. Instruct the client to maintain the RPM's between 60 and 80. Verify that the heart rate is being transmitted correctly by looking at value next to the line graph on the top.

4. Click **Start** to start the test. To cancel the test and to return to the main screen, click **Cancel.**
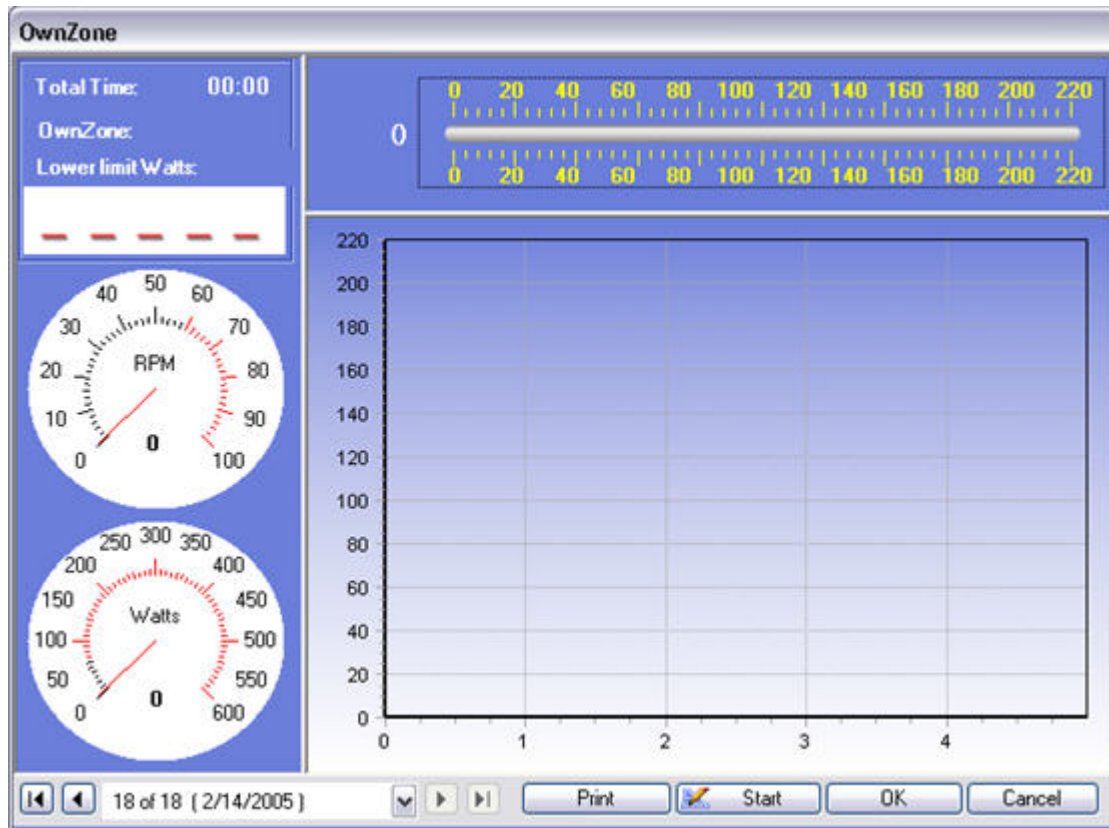
The test follows a protocol where the watts are set to a percentage of the client's estimated VO_{2max}, but the watts can be adjusted. If you are using a cardio device that is not connected to the BodyAge system, you will have to manually set the watts on the cardio device that you are using to match the test screen in order to get accurate results.

When the test is completed (~1-6 minutes), the data will be displayed.

Select **Print** to print the data and the graph.

Select **OK** to save the data and return to the main screen.

PAR-Q

Physical Activity Readiness Questionnaire (PAR-Q)

The PAR-Q (Physical Activity Readiness Questionnaire) was developed by the British Columbia Department of Health. Its purpose is to identify the small number of individuals for whom physical activity might be inappropriate. All individuals should answer the questions on the PAR-Q prior to testing.

Click on **PAR-Q** link from the **Biometrics** section of **Fitness Assessments** to bring up the complete PAR-Q questionnaire.

To record the client's answer to each of the PAR-Q questions, use the mouse to point and click on the appropriate answer (**Yes** or **No**) for each question.

Click **Print** to print the completed PAR-Q. The printed version of the PAR-Q has the name, date and a line for the client to sign.

Click **OK** to exit and save the data.

After clicking **OK**, a check mark will appear in the box next to PAR-Q on the **Biometrics** screen. It will be green if the client answered **No** to all the questions and red if the client answered **Yes** to any of the questions.

Physical Activity Plan

If the client answers **Yes** to one or more questions the **Results** button will be red. Advise the client to talk with the doctor by phone or in person before starting becoming more physically active or before they have a fitness appraisal. Have them tell their doctor about the PAR-Q and which questions they answered **Yes** to.

Polar BodyAge System

If the client answered **No** honestly to all PAR-Q questions, the **Results** button will be green and you can be reasonably sure that the client can:

- Start becoming much more physically active - begin slowly and build up gradually. This is the safest and easiest way to go.

- Take part in a fitness appraisal - this is an excellent way to determine the client's basic fitness so that the client can plan the best way for them to live actively.

- Note: If the client's health changes so that they answer **Yes** to any of the questions, have them tell their health professional.

DELAY THE CLIENT BECOMING MUCH MORE ACTIVE:

- If the client is not feeling well because of a temporary illness such as a cold or a fever - wait until they feel better; or

- If the client is or may be pregnant – have them talk to their doctor before they start becoming more active.

Polar Energy Pointer Program

A Polar Energy Pointer Program can be created for the following training computers: FT40, FT7.

Select the start date and the number of weeks that the program will last.	Start Date: 2/22/2010 Weeks: 10
Enter the following information: - The number of days per week that the client will be exercising (the recommended amount of days is given based on the VO2$_{max}$ score). - The sports that the client will be doing while exercising. - All the other information can	Training Computer: FT40 Days/Week: 3 VO2max: 39 HRmax: 176 Sitting Heart Rate: 60 Sport:

be adjusted as well.	
Adjust the program targets to fit client's training targets: • Define intensity zones according to training targets (click the field to activate the text screen). • Sessions can be re-named. You can view and print the Energy Pointer Program by clicking on **Program Report**.	

Note: You can download the training files from the client's training computer to create a training progress report. See Training Progress for instructions on downloading training files.

Polar Keeps U Fit Program

A Polar Keeps U Fit Program can be created for the following training computers: F4, F6/F7, F11, F55.

Select the start date and the number of weeks that the program will last	

Enter the following information:

The goal of the program (Maintain, Improve, or Maximize fitness level).

Training Computer:	F11	
Your goal:	Maintain	
OwnIndex/VO2max	38.0	
Days/Week:	3	
Sitting Heart Rate:	60	
HRmax:	176	
Sport:		

- MAXIMIZE: the Client has been exercising regularly for at least 10-12 weeks and is able to train nearly every day. The program recommends about 5 h/week in 4-6 sessions.

- IMPROVE: You are able to exercise regularly. The program recommends about 3 h/week, in 3-5 sessions.

- MAINTAIN: If the client has not exercised recently, this is a good place to start. The

program recommends about 1½ h/week in 2-3 sessions.

The number of days per week that the client will be exercising (the recommended amount of days is given based on the VO2max score and the Client's goal).

The sports that the client will be doing while exercising.

The program targets are adjusted according to the above information. The following information is shown:

	Light 60-70% 106-122 BPM	Moderate 70-80% 123-140 BPM	Hard 80-90% 141-158 BPM	Duration	Burned Calories
Short1	00:00	00:30	00:15	00:45	550 kcal
Normal1	00:00	00:55	00:00	00:55	600 kcal
Long1	00:55	00:35	00:00	01:30	850 kcal
Totals	00:55	02:00	00:15	03:10	2000 kcal

- Weekly exercises and the time that should be spent in each exercise intensity zone.

- Total exercise duration

- Total

calories to expend For example, the total exercise duration of **Short1** is 45 minutes, from which 30 minutes should be spent in moderate, and 15 minutes in **Hard** heart rate intensity zone. The number of calories to expend is 550 kcal. You can view and print a detailed Keeps U Fit Program by clicking on **Program Report**. Click **Send to Training Computer** to upload the following data to the client's training computer: User Information, Heart Rate Limits, Cardiovascular Program, and Time/Date.	

Note: You can download the training files from the client's training computer to create a training progress report. See Training Progress for instructions on downloading training files.

See About the Polar Keeps U Fit Cardiovascular Program for general information on the Polar Keeps U Fit Program.

Polar STAR Training Program

A Polar STAR Training Program can be created for the following training computers: FT60, FT80.

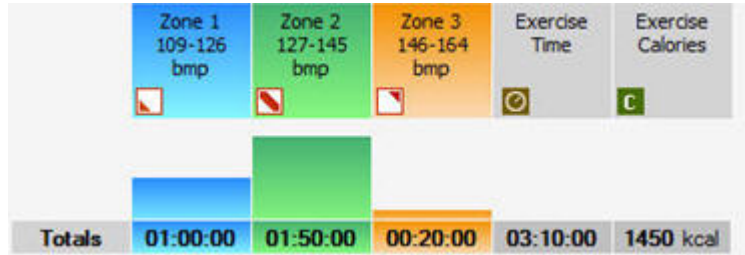|	
Select the start date and the number of weeks that the program will last.	
The following information is needed to create a Polar STAR Training Program: OwnIndex/VO2$_{max}$, Sitting heart rate, HR$_{max}$ and the goal of the cardiovascular program. If these values are not available for the client, you can manually enter the values here. Goal options: • **Improve**: if the client's target is to improve their current cardiovascular fitness level and they are able to train regularly. • **Maximize**: if the client's target is to maximize their current cardiovascular fitness level, and if they have been training regularly for at least 10-12 weeks and training nearly every day is not a problem for them. • **Weight**: if the client's target is to	

lose some weight.

To transfer the above information to the client's training computer, place the training computer on the FlowLink and click on **Send to Training Computer...** After placing the training computer on the flowlink, a message appears on the screen to inform that the client's program is being updated.

Once the transfer is complete, the client's STAR Training Program appears on the screen. The following information is shown:

- Target exercise time in three different heart rate zones (intensity targets)

- Total exercise duration

- Total calories to expend

You can print the STAR Training Program by clicking on **Program Report**.

Zone 1 109-126 bmp	Zone 2 127-145 bmp	Zone 3 146-164 bmp	Exercise Time	Exercise Calories
Totals 01:00:00	01:50:00	00:20:00	03:10:00	1450 kcal

Note: You can download the training files from the client's training computer to create a training progress report. See Training Progress for instructions on downloading training files.

Query Builder

Query Builder is a feature that provides you with the flexibility to create specific groups of your clients, which you can utilize in group reports, batch report and client lists. A group can consist of nearly any combination of criteria you wish to specify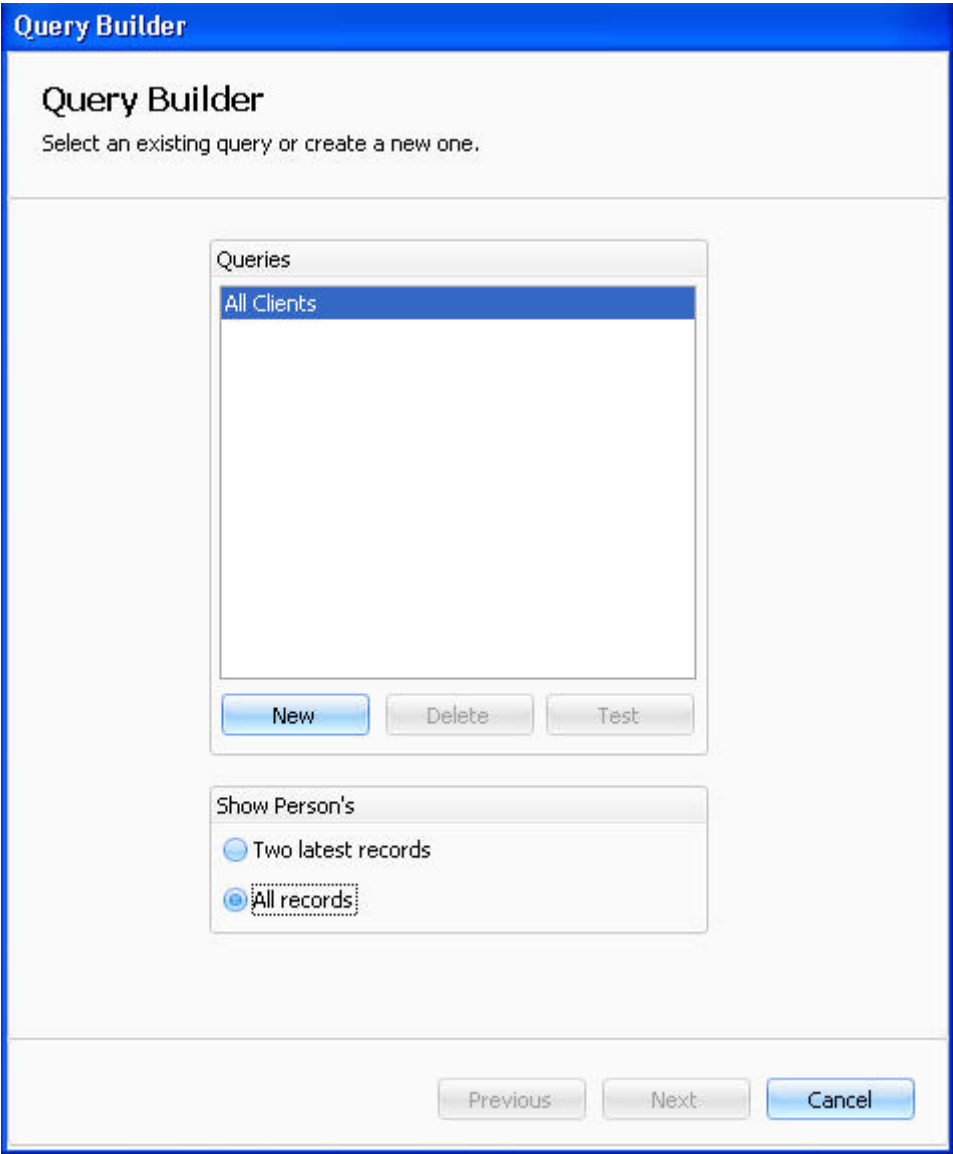. For example, you can choose all clients whose weight is more than 250 pounds and/or whose blood pressure is less than 120/80.

1. To enter the query builder, click on the [...] button next to the query field within the **Group Reports**, **Batch Report** or **Client List** windows. The following window appears:

2. To build a new query, click **New**. Enter a name for the query and click **OK**. The following window appears:

3. Start creating a criteria for you query by clicking the link **Click here to add a new condition**.

4. Click on **Select Item** to select **New Condition** or a **New set of Conditions**.

A condition is a filter or set of filters used to create a desired group of clients. You must have a minimum of one condition. However, the total number of conditions is unlimited.

Sit and Reach

The BodyAge System provides the unique On-Line Modified Sit & Reach testing unit. The handle is attached to a measuring gauge that will record the distance moved and will be automatically saved by the computer.

The tester can choose to record the results of the sit & reach manually (where the tester manually measures the modified sit & reach and then enters the results into the text field on the main screen) or on-line (which means the sit & reach results are read directly into the computer).

Before starting this test, be sure the individual has had a proper warm-up and stretched prior to the first trial.

NOTE: Have the client pull and release the cable slowly. Fast motion can damage the measuring gauge.
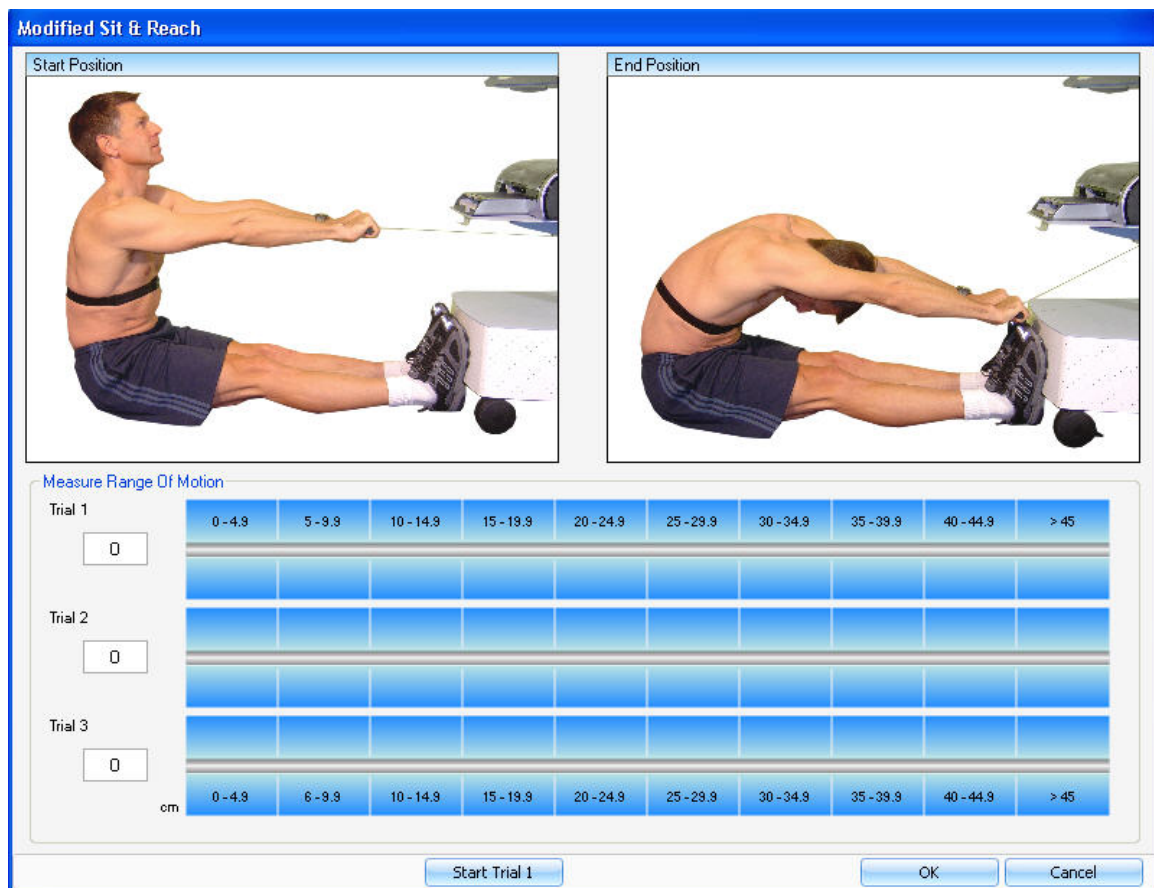
How to Use the Sit & Reach Test

Click on **Sit & Reach** link from the **Strength & Flexibility** section of **Fitness Assessments** to bring up the on-line sit & reach test screen:
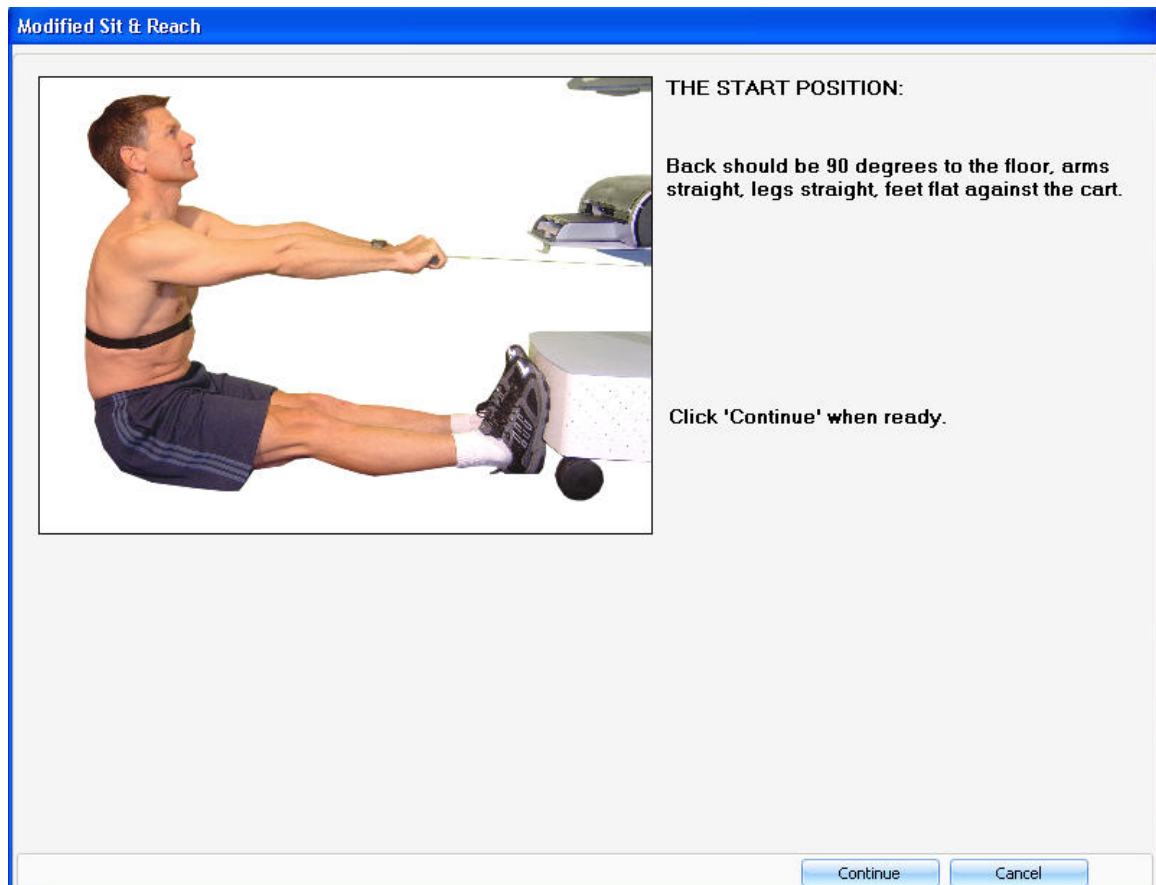
1. Once the client is in a start position with the handle held snugly, click **Continue**. The following screen appears:

2. Click **Start Trial 1** to begin the test. Instruct the client to move forward slowly. The blue line graph, in the lower portion of the protocol screen, will graph the client's sit & reach movement. The client needs to hold the final position for two seconds. Ensure that the client's grip on the handle does not changed through the course of the extension. After the test is completed, the results will be automatically displayed as a blue bar graph at the bottom of the screen.

3. After reviewing the result, you can choose to re-measure the client on the sit & reach. Point and click **Start Trial 2** and follow the exact instructions as above. If you re-measure, the result of the furthest sit & reach measurement will be recorded.

4. Click **OK** to save the data and to return to the main screen.

Treadmill

How to Take a Treadmill VO$_{2max}$ Test

After creating a new record or opening an existing record for a client, their height and weight must be recorded before the VO2$_{max}$ test can be performed.

1. Click on the link of the chosen treadmill VO$_{2max}$ test from the **Cardiovascular** section of **Fitness Assessments.**
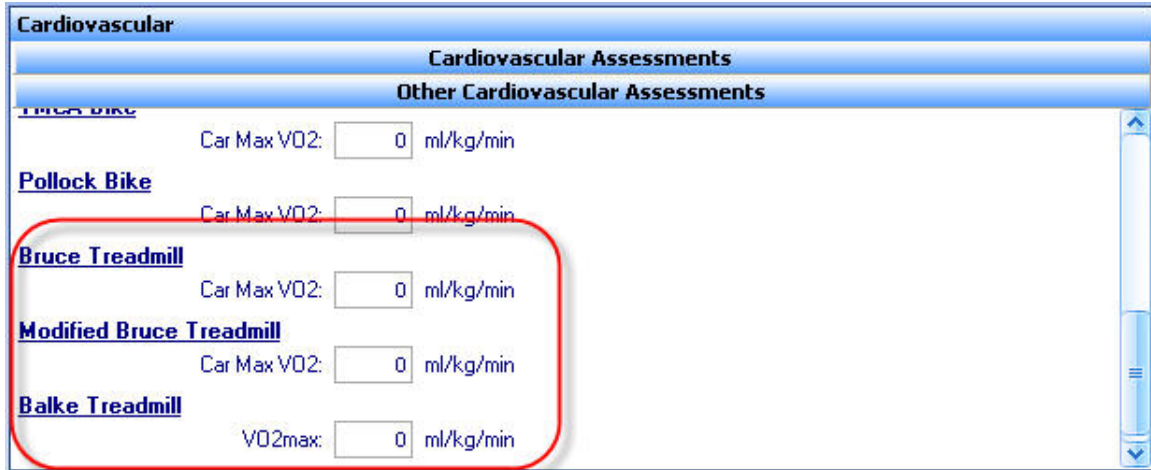
2. The VO$_{2max}$ test screen appears. Verify that the heart rate is being transmitted correctly by looking at value next to the line graph on the top.

Polar BodyAge System
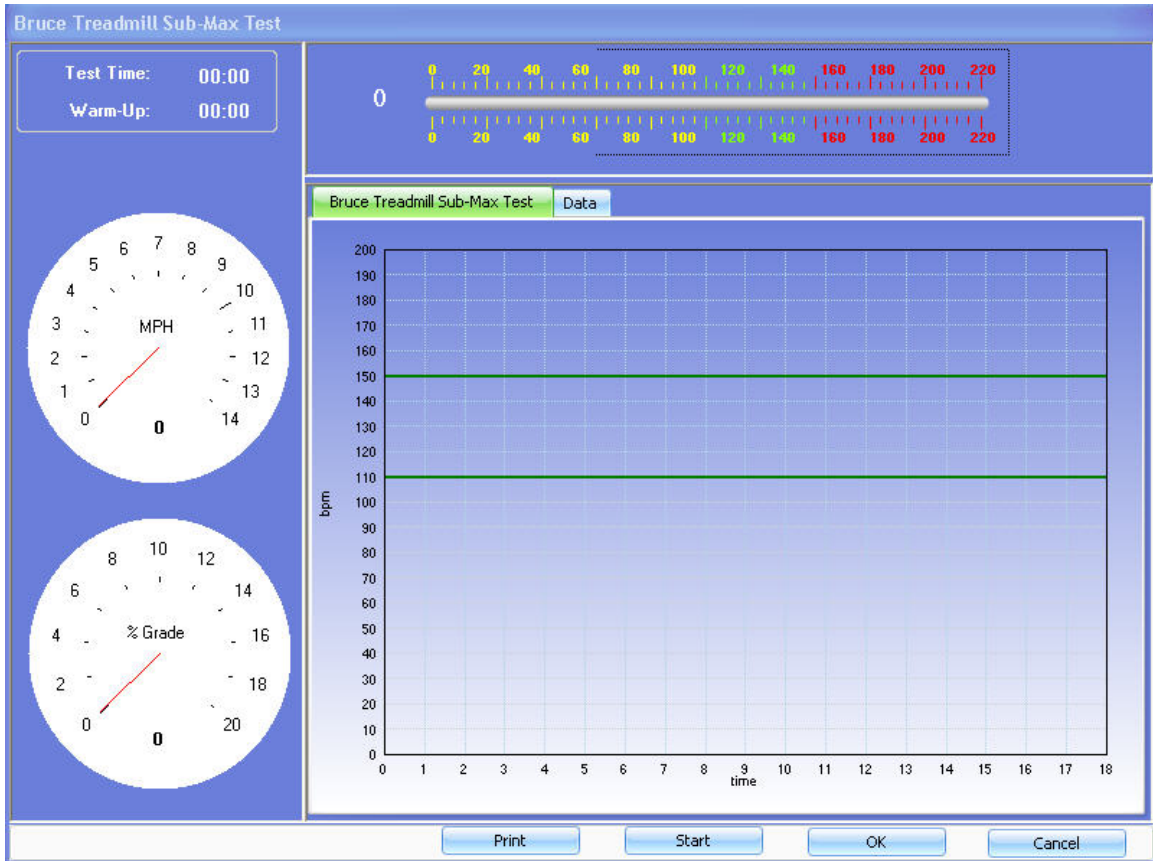
3. Click on **Start** to activate the test. A Physical Activity Rating Questionnaire appears.

Physical Activity Questionnaire

Select the item below that best describes your current training program.

I don't participate regularly in programmed recreation, sports, or heavy physical activity.

    ⦿ I avoid walking or exertion (e.g., I use an elevator instead of stairs; I drive when possible instead of walking.

    ⦿ I walk for pleasure, routinely use stairs and occasionally train hard enough to perspire or breathe heavily.

I participate regularly in recreation or work requiring modest physical activity (such as golf, horseback riding, calisthenics, gymnastics, table tennis, bowling, weight lifting, yard work).

    ⦿ This activity takes 10 to 60 minutes per week.

    ⦿ This activity takes more than 60 minutes per week.

I participate regularly in heavy physical exercise (such as running or jogging, swimming, cycling, rowing, skipping rope, or engaging in vigorous aerobic activity such as playing tennis, basketball or racquetball).

    ⦿ I run less than 1 mile per week or spend less than 30 minutes per week in comparable activity.

    ⦿ I run 1 to 5 miles per week or spend 30 to 60 minutes per week in comparable physical activity.

    ⦿ I run 6 to 10 miles per week or spend 1 to 3 hours per week in comparable physical activity.

    ⦿ I run over 10 miles per week or spend over 3 hours per week in comparable physical activity.

                                                     [Previous] [Next] [**Cancel**]

4. Select the alternative that best represents the person taking the test. Click **Next**.

5. The heart rate of the client should appear in the top box. Instruct the client to begin running. **Next** will become activated when a heart rate is transmitted. Click **Next** to begin the test. When the test is complete, the data will be displayed.

6. Select **Print** to print the data and the graph. Select **OK** to save the data and return to the main screen.

About the Balke Treadmill Protocol Submax Test

The Balke protocol maintains 3.3 mph throughout the entire test. Grade starts at 1% and increases by 1% every minute.

About the Bruce Treadmill Submax Test

A sub-maximal test takes between 6-12 minutes depending on the client's fitness level. The test involves a change in speed and grade every three minutes, so the incremental increases of exercise intensity are relatively large for each stage (2 to 3 METs).

Stage	MPH	Grade	Min.	MET(M)	MET(W)
1	1.7	10%	1	3.2	3.1
			2	4.0	3.9
			3	4.9	4.7
2	2.5	12%	4	5.7	5.4
			5	6.6	6.2
			6	7.4	7.0
3	3.4	14%	7	8.3	8.0
			8	9.1	8.6
			9	10.0	9.4
4	4.2	16%	10	10.7	10.1
			11	11.6	10.9
			12	12.5	11.7
5	5.0	18%	13	13.3	12.5
			14	14.1	13.2
			15	15.0	14.1

About the Modified Bruce Treadmill Submax Test

A sub-maximal test takes between 6-18 minutes depending on the client's fitness level. The test involves a change in speed and grade every three minutes, so the incremental increases of exercise intensity are relatively large for each stage (2 to 3 METs).

Stage	MPH	Grade	Minutes
1	1.7	0	3
2	1.7	5	3
3	1.7	10	3
4	2.5	12	3
5	3.4	14	3
6	4.2	16	3
7	5.0	18	3
8	5.5	20	3

Wall Sit

The Wall Sit test measures the isometric muscle contractions of the lower body. It presents a strength measurement of the lower body.
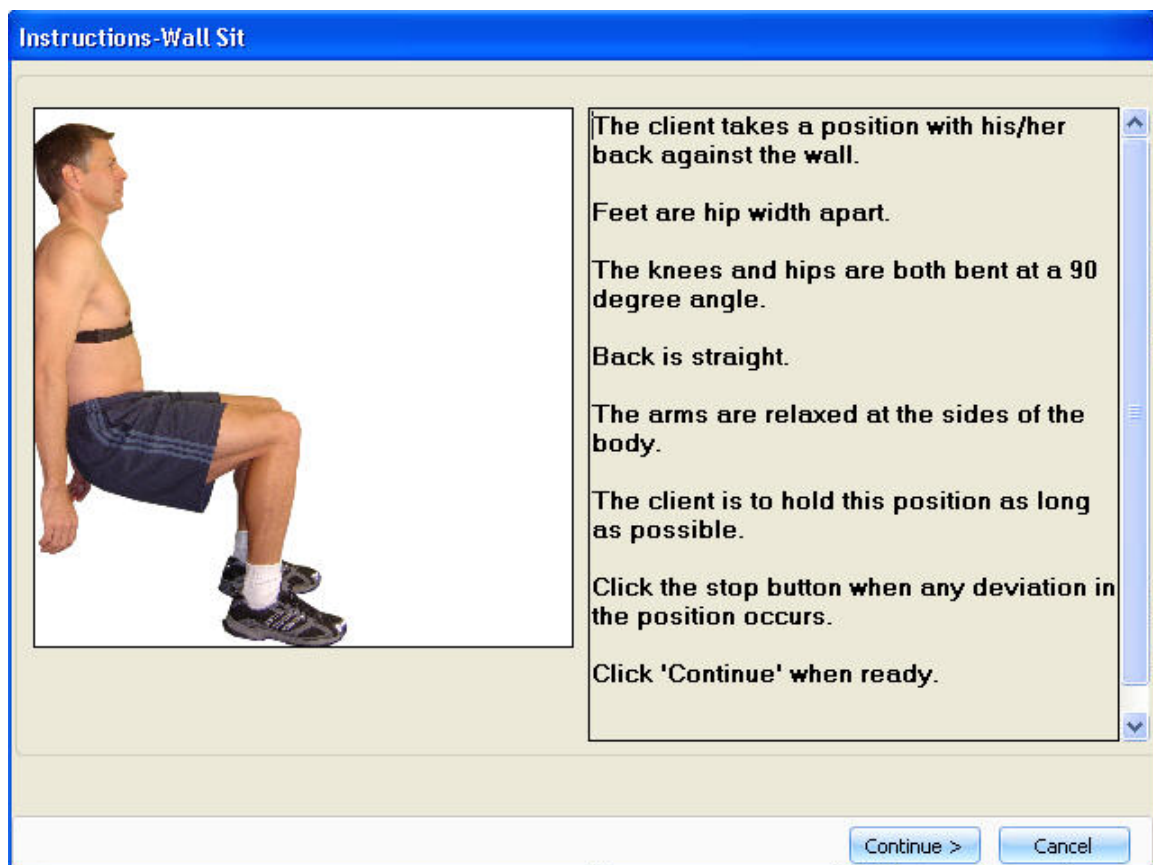
Wall Sit Test

- The client assumes a position with his/her back up against the wall

- Feet are 12 inches (30.48cm) apart

- The knees and hips are both bent at a 90 degree angle

- Back is straight

- The arms are relaxed at the sides of the body

- The subject is asked to hold this position as long as possible and time is measured in seconds

- Timing should be stopped when any deviation in above position occurs during the test

Using the Wall Sit Test

Click on **Wall Sit** link from the **Strength & Flexibility** section of **Fitness Assessments** to bring up the wall sit test screen.

You will be given a set of instructions.

After reading the instructions, click **Continue**. The following window appears:

Polar BodyAge System
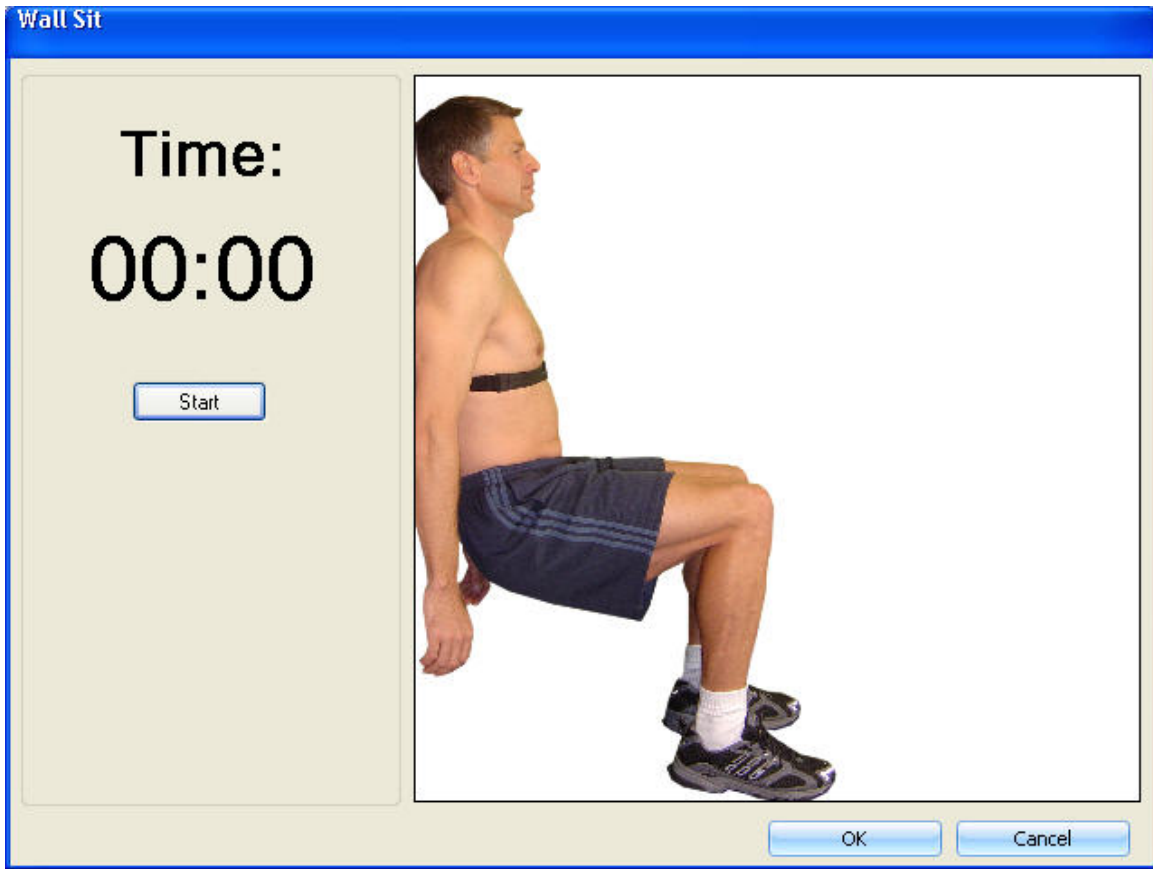
1. When the client is ready to begin the test, click **Start** and the timer will start to count the time.

2. When the client is performing the wall sit test encourage him/her to sit as long as they can.

3. When the client moves from the correct position, click **Stop**.

4. Click **OK** to save the data and return to the main screen.