

MODULE: SIT-TO-STAND

BRIEF DESCRIPTION:

Sit-to-Stand is a clinical test where the subject needs to rise from a seated to a standing position. This is associated with the ability to perform lifestyle tasks such as climbing stairs, getting in and out of a vehicle or bath. The test is specifically useful for elderly population or movement impaired people. All the parameters are calculated based on the ground reaction force.

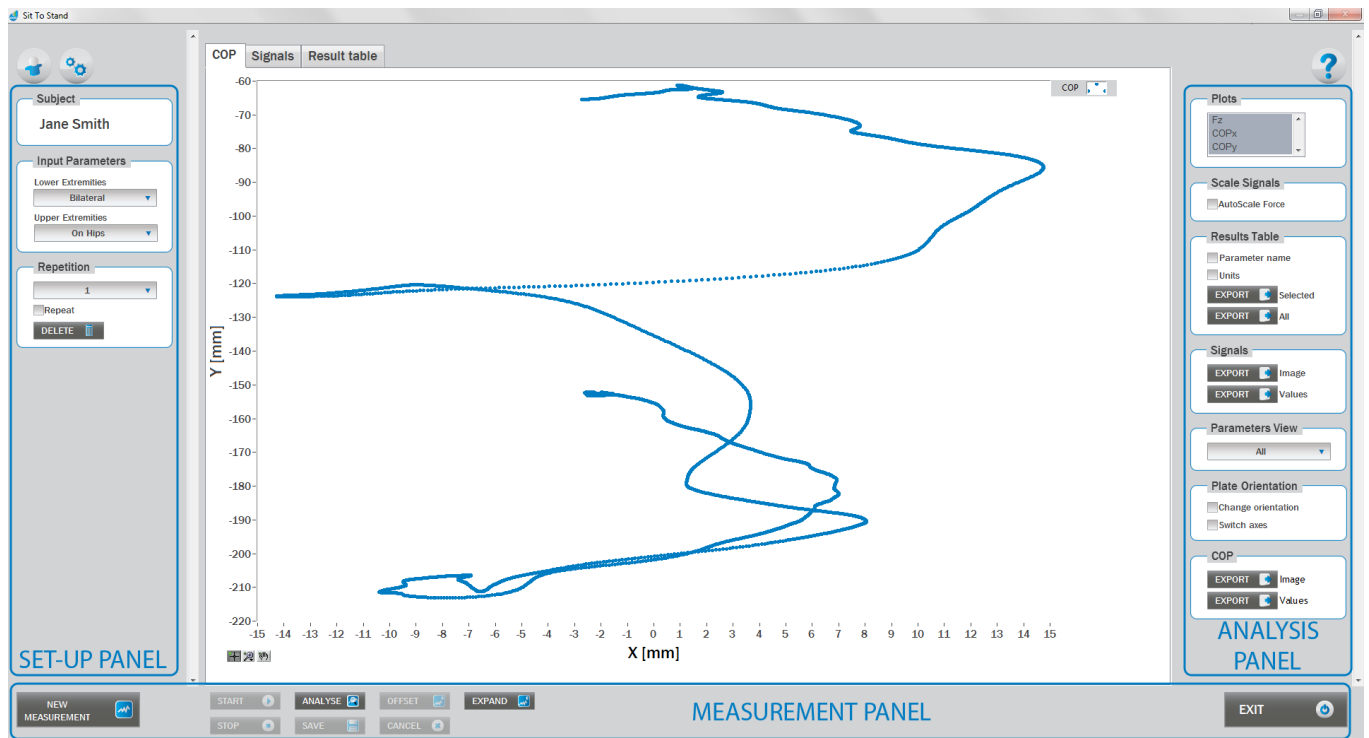
The initial position of the subject is a sitting position on a chair with feet placed on a force plate. The chair is placed next to the force plate and not on it. From this position the subject performs a vertical upward movement into a standing position without moving the feet. The test is finished when the subject stands still on a force plate. The subject is not allowed to use hands as a support.



When the Sit-to-Stand module opens, the existing measurements of the selected subject inside the current Visit are displayed and the user can review them (see section Analysis for details). If no measurements have yet been done for this subject, then only the option to start a new measurement is enabled. In order to begin a new measurement, click New Measurement button and select the Input Parameters to exactly define the measurement task.

When the New Measurement button is selected for the first time after entering the Sit-to-Stand module, the force plate is initialized. After the automatic initialization process is finished, the zero offset must be done (follow the instructions on the pop-up message). The plate must be unloaded during the entire initialization and zero offset procedure. This procedure is performed every time you enter the Sit-to-Stand measurement module. Zero offset can be repeated any time manually by pressing the Offset button, otherwise the automatic zero offset is done every 30 minutes.

BASIC FUNCTIONS:



SET-UP PANEL:

SUBJECT

Name

The selected subject.

INPUT PARAMETERS

See Selecting Input Parameters section for details.

REPETITION

Repetition

Number of repetitions for the selected Input parameters.

Repeat

If checked, the selected repetition is replaced when the new measurement is performed.

Delete

Delete the selected repetition.



ANALYSIS PANEL:

PLOTS

Plots

The list of all channels. The selected channels are shown on the graph.

SCALE

AutoScale Force

If checked, the vertical scale of the graph is adapted to the maximum and minimum value of all force signals.

RESULTS TABLE

In the Result Table panel, result parameters from Result table tab can be exported into clipboard, CSV or TXT format. Format of the file can be set in settings window under export section. For details about setting the parameters refer to Settings Section.

Parameter Name

Parameter name will be included.

Units

Units of the parameters will be included.

Export Selected

By clicking on Export Selected button only the parameters that are selected in the table will be included.

Export All

By clicking on Export All button all parameters from the table will be included.

SIGNALS

In the Signals panel, image or values (row data) of acquired signal can be exported. Image and values can be exported with different parameters, which can be set in Settings window under export section. For details about setting the parameters refer to Settings Section.

Export Image

Export the image of signals (as visible on the graph on the Signals tab) into the clipboard. Image can be paste in any image editor.

Export Values

Export values (raw data) of signals (as visible on the graph on the Signals tab) into CSV or TXT format. Format of the file can be set in settings window under export section. For details about setting the parameters refer to Settings Section.



PARAMETERS VIEW

In the Parameters View panel, calculated parameters which are displayed in the result table can be set. By default, all and basic view are available. Basic view contains preset parameters and cannot be changed. Custom view can be defined, by clicking »Manage...« button.

To create a new view click on add button and enter the name of the view. Parameters included in the view are selected by checking the checkboxes next to them. To confirm the changes click save.

COP

In the COP panel, image or values (row data) of acquired signal can be exported. Image and values can be exported with different parameters, which can be set in Settings window under export section. For details about setting the parameters refer to Settings Section.

Export Image

Export the image of signals (as visible on the graph on the Signals tab) into the clipboard. Image can be paste in any image editor.

Export Values

Export values (raw data) of signals (as visible on the graph on the Signals tab) into CSV or TXT format. Format of the file can be set in settings window under export section. For details about setting the parameters refer to Settings Section.

PLATE ORIENTATION

Change orientation

Plate orientation is changed for 180°.

Switch axes

Switches the X and Y axes without moving the force platform.

MEASUREMENT PANEL

New Measurement

Starts with a new measurement.

Start

Starts the measurement.

Stop

Stops the measurement.

Save

Saves the measurement.

Cancel

Cancel the last measurement.

Offset

Makes zero offset. Note that the force platform must be unloaded during the process.

Analyse

Performs the analysis.

Collapse

Collapses the graph and the side panels are shown.

Expand

Expands the graph and the side panels are hidden.

Exit

Closes the measurement module.

SELECTING INPUT PARAMETERS:

Before the measurement can start, the user has to choose some input parameters with which the measured motor task is specifically defined. These parameters are important for further analysis, comparisons and reporting. The task's characteristics are defined by the following parameters:

LOWER EXTREMITIES:

Bilateral

The subject is sitting on a chair with the feet placed parallel in the centre of the plate. Feet should be shoulder-width apart.



Unilateral-Left / Unilateral-Right

The subject is sitting on a chair with the foot (left or right) in the centre of the plate.

UPPER EXTREMITIES:

On Hips

The subject places his/her hands on his/her hips.



Free

The subject is free to use his/her arms as he/she wants. Specifically useful when observing how subjects differ in using arms as a biomechanical advantage. The subject is not allowed to use hands as a support.



Other user defined

In case of any other position of the upper extremities, the user can select this option and can define another function/placement of the upper extremities (see Settings Section for details). After doing so, the newly defined input parameter will from then on appear as an optional choice under the Upper extremities in the Sit-to-Stand measurement module.





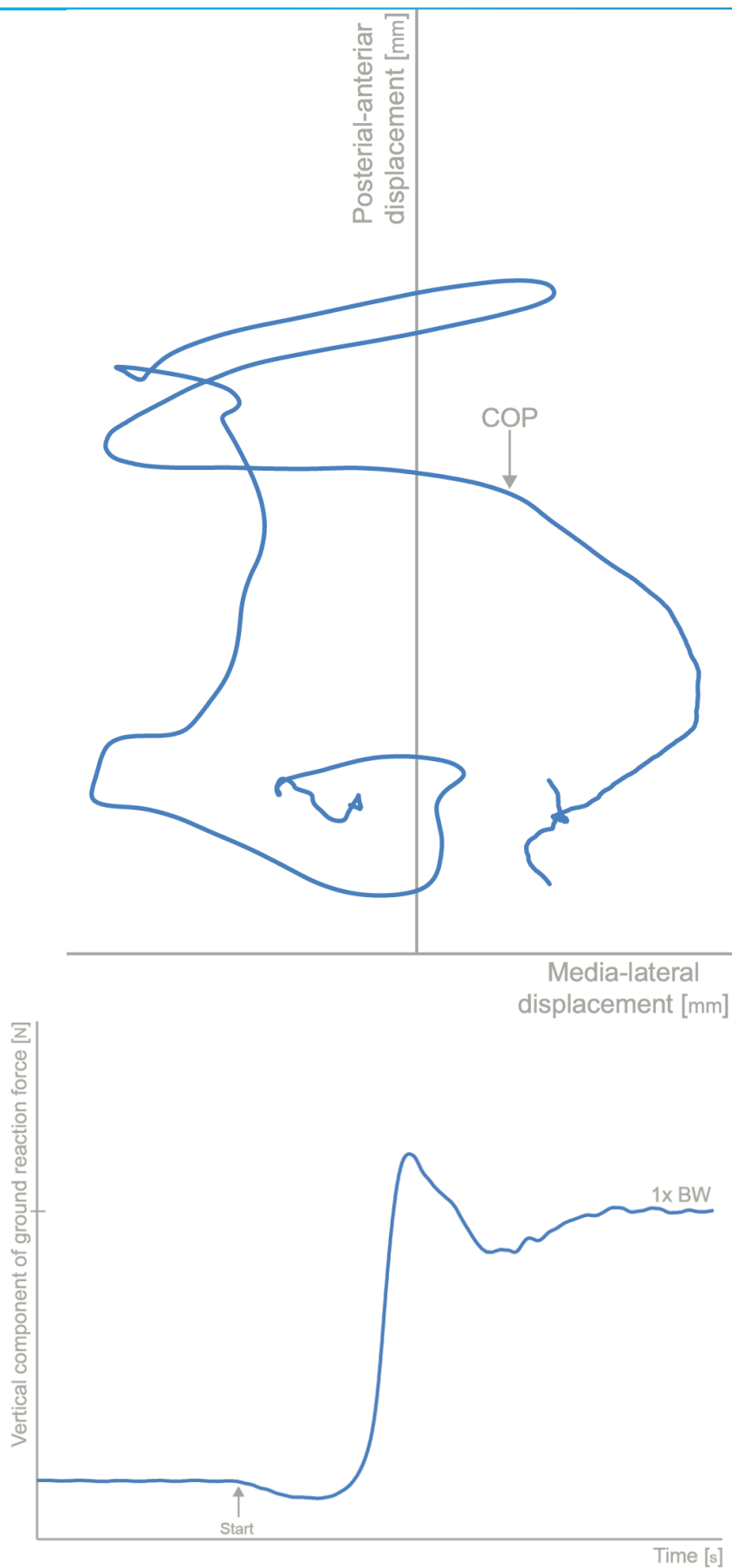
MEASUREMENT:

After selecting input parameters, the subject sits on a chair and places his/her feet on a plate. Ensure that the subject has placed the feet in the centre of the plate as described above. When the subject acquires the required position and is ready to start the movement, click Start. At that time, the subject is free to start the upward movement and the software will automatically recognize the beginning and the end of the test. For details about this automatic acquisition please see Settings Section.

If you want to start a new measurement, click the New Measurement button and repeat the procedure. Before doing so, you can change the Input Parameters; if not, the Input Parameters of the previous measurements will be used. If you want to repeat a certain measurement, click on the drop down menu, select the repetition you want to replace and check the box Repeat. Then click Start and a pop-up window will ask you if you really want to repeat the measurement. Click OK if you want to repeat.

ANALYSIS:

Analysis enables you to check the raw signal of the ground reaction force and the calculated parameters. Under the Signal tab you can see the signal and markers which are placed automatically. You can move all markers if they were placed incorrectly. Under the Results Table tab you can see all the calculated parameters numerically, while the visualisation of the results comparisons can be done under the Results Graphs tab. These two tabs enable you to make quick comparisons of the values of the parameters among different repetitions and/or among different sub-versions of the test. If you would like to export the calculated parameters use Export function in Result Table panel.





CALCULATED PARAMETERS:

PARAMETERS:

Weight Transfer T [s]

Weight Transfer is the time in seconds required to voluntarily shift COG forward beginning in the seated position and ending with full weight bearing on the feet.

Rising Index [%BW]

Rising Index is the amount of force exerted by the legs during the rising phase. The force is expressed as a percentage of the patient's body weight.

COP Sway V [mm/s]

Average COP Sway Velocity over the base of support during the rising phase.