

# Plotting Normal Data

## Before starting:

Please complete the [Report Builder Tutorial](#)

This tutorial uses the same sample files used in the report tutorial, but you can download the files [here](#).

To begin the tutorial, open the *CreatingReport\_Tutorial.cmo*.

On page 2 of the report, knee flexion is being graphed. Instructions for creating this graph are in the [Report Builder Tutorial](#).

The *NormalData.vnd* is the average data file.

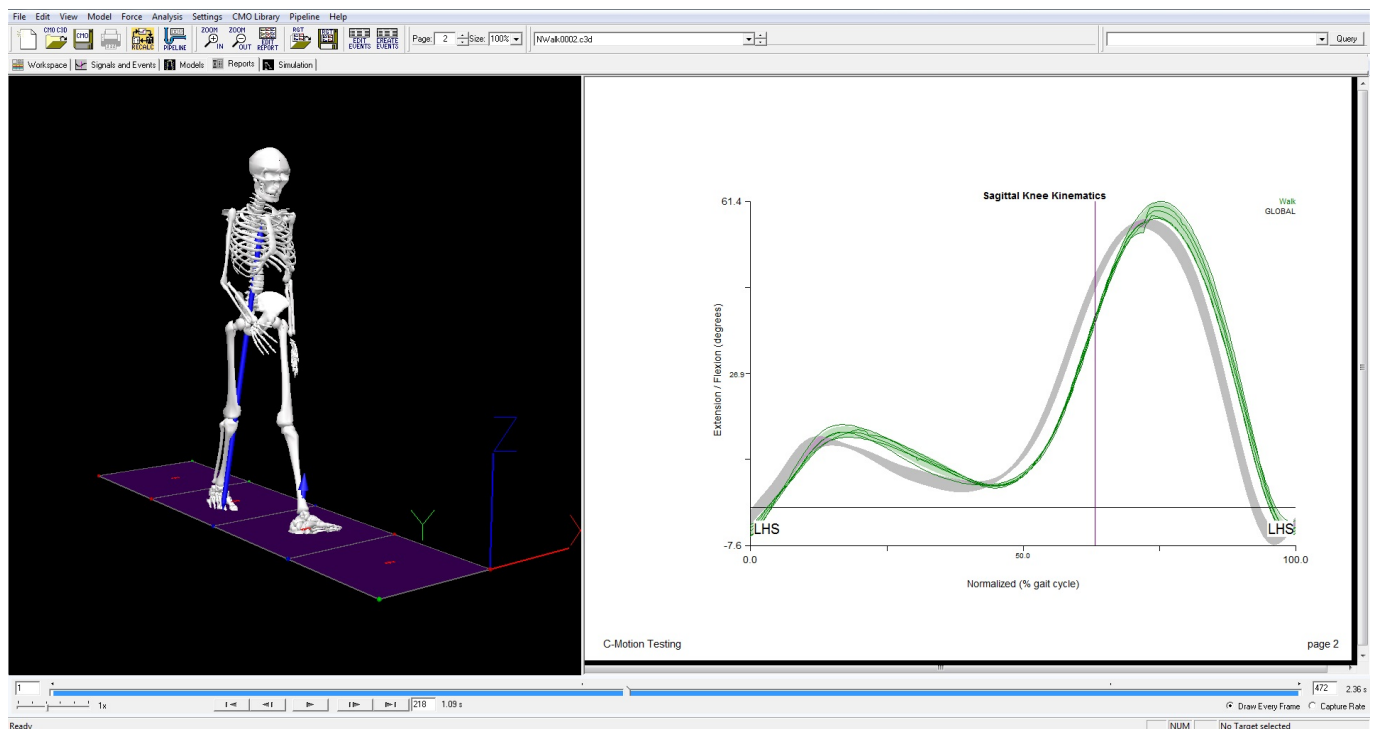
The *CreatingReport\_Tutorial\_withNormalData.cmo* is the completed cmo file with the plotted normal data.

## Plotting Normative Data

[See You Tube Video\]](#)

This tutorial describes how to graph normative data. The gray band on the report below shows the average knee flexion for several subjects. Before graphing normative data, the normal database file must be created using the CMO Library. For more information about creating a normal data base file see the [Normative Data From CMO Library](#) instructions.

For more information about graphing signals, please see the [Report Builder Tutorial](#).



## Load Normative Data

Load the normative data into the workspace:

1. **Open** the .cmo file  
*CreatingReport\_Tutorial.cmo*

On page 2 of the report, knee flexion/extension should be graphed in green.

The files being graphed are the files that are currently loaded into the Workspace.

2. Select **Open/Add** files into the workspace and select *Insert new files into your currently open workspace*

### Files Already Open...

There is already a file open in the Visual3D workspace.

How would you like to handle the new file(s):

- ☐ Close all open files before loading the new files.  
(Unsaved information will be lost)
- ☐ Merge currently open workspace with the new files to create a new workspace (Current workspace becomes Untitled)
- ☒ Insert new files into your currently open workspace

OK

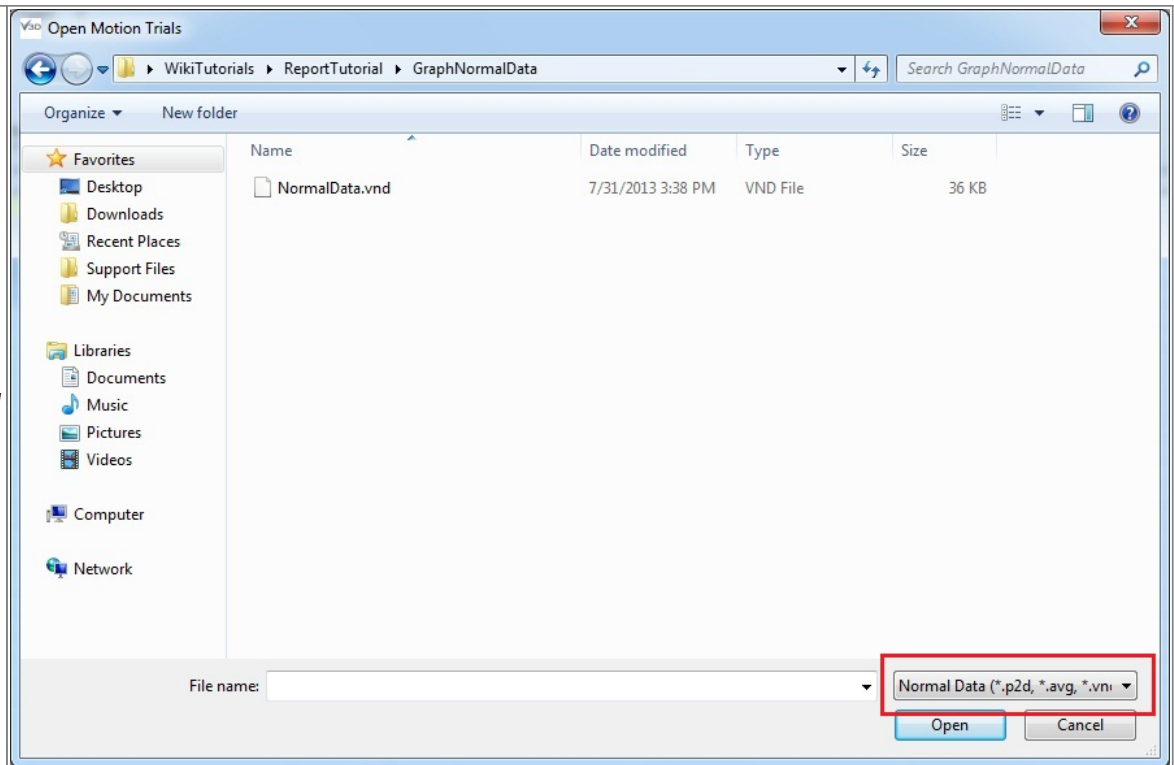
3. In the **Open Motion Trials** dialog window:

1. Set the **data type** is set to *Normal Data*

2. **Select** *NormalData.vnd*

3. **Click Open**

**NOTE:** Normal data can be saved as .vnd, .p2d, or .avg files.



The normal data file should now be loaded into the workspace. To see the normal data:

1. Set the **Active File** to *GLOBAL*

2. **Expand** the *P2D* folder

3. **Expand** the *PROCESSED* folder

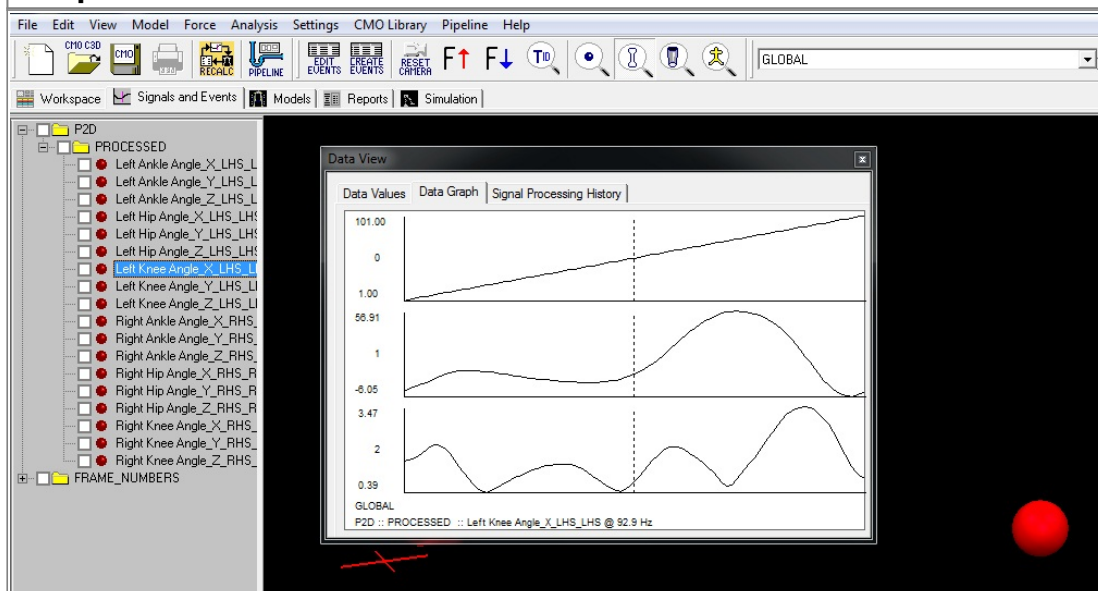
4. **Select** the *Left Knee Angle\_X\_LHS\_LHS* signal

5. In the **Data View** dialog box:

**Component 1** is the number of points the data was normalized to when exported

**Component 2** is the average value

**Component 3** is the standard deviation



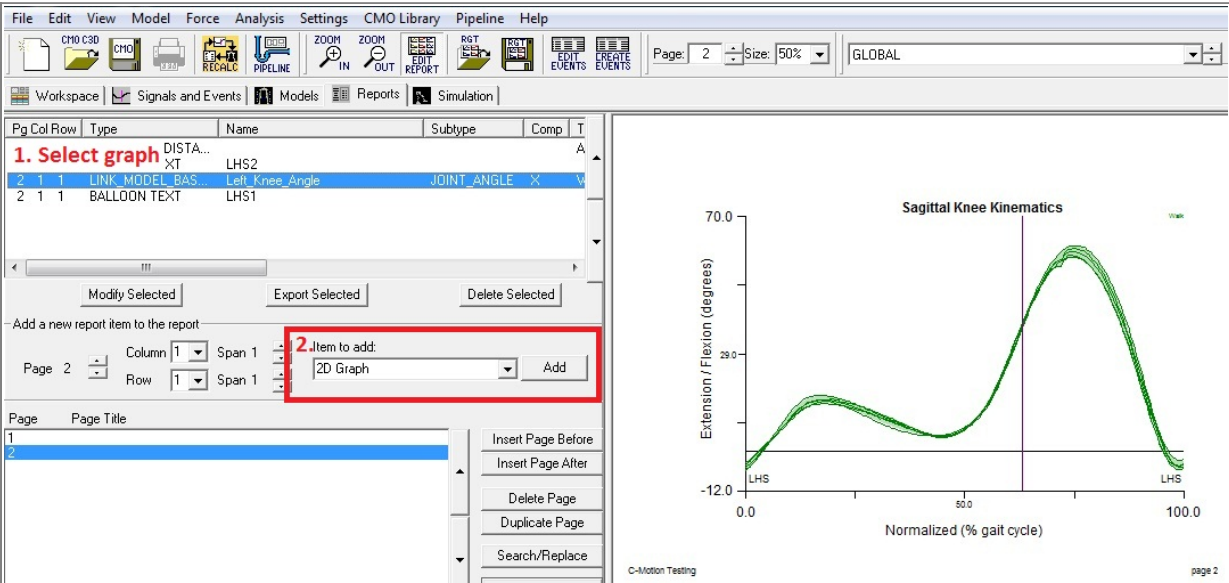
Graph Normative Data

In the **Report Tab**:

1. Select the graph you would like to add normative data to by clicking on it once.

2. Set **Item to add:** to 2D Graph

Click Add



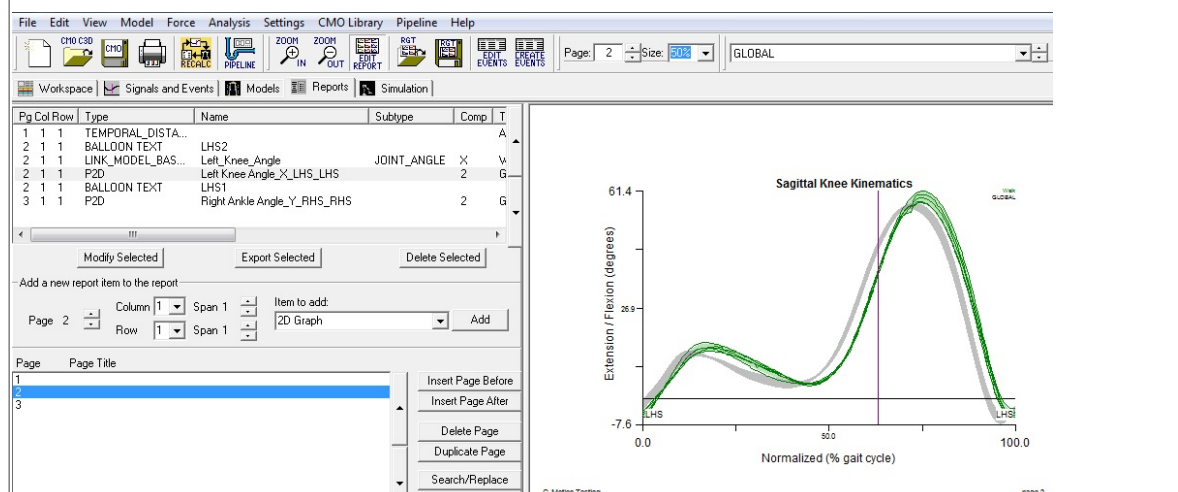
|                                                                                                                                 |                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                                                                                                                                    |                       |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <div>3. In the Add / Modify Graph dialog box enter the following parameters: (See the image below to view the dialog box)</div> | <div><b>Graph Properties:</b></div> <div><b>Files to Graph:</b> GLOBAL</div> <div><b>Line Color:</b> Black</div> <div><b>Line Style:</b> NULL</div> <div>DO NOT check Graph Mean or Graph Standard Deviation,</div> <div>The normal data will not graph if these are checked.</div> | <div><b>X Axis Properties Properties</b></div> <div><b>X Axis Label:</b> Normalized (% gait cycle)</div> <div><b>Data Type:</b> P2D</div> <div><b>Data Name:</b> Left Knee Angle_X_LHS_LHS</div> <div><b>Component:</b> 1</div> <div><b>Folder:</b> PROCESSED</div> <div><b>Select:</b> Normalize 0% to 100%</div> <div>DO NOT check Graph within a range of events.</div> <div>The normative data was normalized when exported from the CMO Library.</div> | <div><b>Y Axis Properties Properties:</b></div> <div><b>Y Axis Label:</b> Extension / Flexion (degrees)</div> <div><b>Data Type:</b> P2D</div> <div><b>Data Name:</b>Left Knee Angle_X_LHS_LHS</div> <div><b>Component:</b> 2</div> <div><b>Folder:</b> FOLDER</div> <div><b>Check Add Standard Deviation</b></div> <div><b>Component:</b> 3</div> | <div>Click Done</div> |
|---------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|

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| Add / Modify Graph |                              |                                                            |                                                   |
|--------------------|------------------------------|------------------------------------------------------------|---------------------------------------------------|
| Graph Title        | Sagittal Knee Kinematics     | Arial                                                      | 14                                                |
|                    |                              | Color                                                      | Black                                             |
| <b>B I U</b>       |                              |                                                            |                                                   |
| Custom             |                              |                                                            |                                                   |
| Graph Properties   |                              |                                                            |                                                   |
| Location           |                              | Files to Graph GLOBAL                                      |                                                   |
| Pos.               | Span                         | Line Color                                                 | Black                                             |
| Column:            | 1                            | Custom                                                     | Line Style                                        |
| Row:               | 1                            | <input type="checkbox"/> Graph Mean                        | NULL                                              |
| Page:              | 2                            | <input type="checkbox"/> Graph Standard Deviation          | <input type="checkbox"/> Bold                     |
|                    |                              |                                                            | Annotations...                                    |
| X Axis Properties  |                              |                                                            |                                                   |
| X Axis Label       | Normalized (% gait cycle)    | Normalize 0% to 100%                                       |                                                   |
| Data Type          | P2D                          | <input type="checkbox"/> Graph within a range of events    |                                                   |
| Data Name          | knee Angle_X_LHS_LHS         |                                                            |                                                   |
| Component          | 1                            |                                                            |                                                   |
| Folder             | PROCESSED                    |                                                            |                                                   |
| Y Axis Properties  |                              |                                                            |                                                   |
| Y Axis Label       | Extension / Flexion (degree) | Global Min to Max                                          |                                                   |
| Data Type          | P2D                          | <input type="checkbox"/> Use scientific notation           | <input type="checkbox"/> Display ON/OFF Bar Graph |
| Data Name          | knee Angle_X_LHS_LHS         | <input type="checkbox"/> Show Points                       |                                                   |
| Component          | 2                            | <input checked="" type="checkbox"/> Add Standard Deviation |                                                   |
| Folder             | PROCESSED                    | Component                                                  | 3                                                 |
| Legend             |                              |                                                            |                                                   |
| Done               | Clear Form                   | Cancel                                                     |                                                   |

4. The normal data should now be plotted in the selected graph. If it is not, check the parameters entered in Step 3.



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