GAITRite Manual

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Orthotic Resident Legacy Project

14 June 2006

In partial fulfillment of the Orthotic Residency at the University of Michigan Orthotics and Prosthetics Center.
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**ROLLING UP THE MAT** .................................................................................................................. 38
Getting started

Setting up the mat and computer

1. Open the mat carrying case, which contains the mat, power cord, and connection box.

2. Unroll the mat. (Put the blue tube close by so you won’t forget about it. When it is time to roll up the mat, you need to use the tube as a guide.)

3. The white connection box has 2 cords coming out of it. One connects to the computer, and the other connects to the mat.
4. The white connection box has a place to connect the power cord. Be careful because this connection is loose and can easily disconnect.

5. The GAITRite computer bag contains a power cord and USB mouse in the front zipper pocket. Connect these to the ports in the back of the laptop and turn on the computer.
Opening GAITRite on the computer

1. To open the program, double click on the GAITRite icon located on the desktop.

2. You will be prompted for a user id. Type “setup.”

3. To create a new subject, go to page 6.

4. To open an existing subject, go to page 8.
Create a New Subject

1. Click on “New Subject” in upper left corner.

2. A message box will appear. Click “Yes.”
3. Enter subject information.

Name, date of birth, gender, and leg length are required.

Leg length = distance from the greater trochanter to the floor
If the subject is walking with shoes, measure with shoes. If the subject is walking without shoes, measure without shoes. If you are measuring both conditions, take both measurements and there is a place to change the leg length data later on.

4. Click “Save.”

5. Go to page 9 to start taking data.
Open an existing subject

1. Click on the male or female icon (right of “New Subject” button.)

2. A list will appear on the left. Click on the subject to open.

3. Go to page 9 to start taking data.
Capturing Data

1. Click on “New Test” in the upper middle screen.

2. Subject name, gender, age, and leg length appears in the upper left.

3. To start the walk, click “Start Walk.”
   The subject should begin walking a few paces before reaching the mat.
4. When you click “Start Walk,” a new window will appear. As the patient walks on the mat, the footfalls are displayed on the screen.

5. At the completion of the walk, the computer will bring up a new screen. If this does not happen automatically, click “Done.”
Verify Footfalls

When the walk is complete, a new window will open. The footfalls at the top of the screen will change color:

- Left feet are colored cyan.
- Right feet are colored magenta.
- Partial footfalls are colored red and will be deleted in the analysis.

1. If the footfalls are correctly identified, click “Accept as Shown” and go to page 16.
2. If the footfalls are not correctly identified, click “Retry Identification” and go to page 12.
Retry Identification

At this point, you need to edit the data so that the computer will distinguish left and right footfalls, and/or eliminate excess marks. You can do this now or at a later time.

1. To edit the data now, click “Footfall Editor” and go to page 13.

2. To edit the data later, click “Suspend Walk for processing later” and go to page 18.
   - This will save the walk and allow you to edit footfalls at a later time.
   - This is useful if subject is doing multiple walks and you don’t want to make them wait while you edit data.

3. The “Reprocess” button will make the computer try to identify the footfalls again. This will be used later, when you return to this page from the Footfall Editor.
   - Click “Reprocess.”
   - If the footfalls are colored correctly, go to page 16.

The “Cancel” button can be used to exit without editing. If you click cancel, be sure to click “No” in the message box that appears.
Footfall Editor

This page allows you to erase unwanted marks as well as tell the computer how to separate the left and right footfalls.

1. To erase extra marks and clean data, use the erasing tools. All of these use the right mouse button to erase.
   - Walker: right click removes a horizontal line.
   - Wide Walker: in the upper half of the screen, removes every mark above the mouse click. (in the lower half, removes every mark below the mouse click.)
   - Erase Left Side: removes every mark to the left of the mouse click.
   - Cane/Crutch: right click removes a cluster of pixels.

2. If the computer needs to be told which feet are left or right, or you need finer erasing tools, click “Advanced Foot Separation” and go to page 14.

3. If you do not need further erasing and the feet are correctly identified, click “Done” and go to page 12, step 3.
Advanced Foot Separation

This page allows you to finely clean the data.
- “Erase single” removes a single pixel.
- “Erase Lg.” removes a 4x4 grouping of pixels.

If you need to identify the right and left footfalls, go to step 1 below. If the feet are properly identified, click “Back” and go to page 13, step 3.

1. Click on “Flex-Midline” to draw a series of lines that separate the right and left footfalls
   - Right click at one end of the mat.
   - Right click to extend the line.
   - Keep clicking until the line reaches the other end of the mat (use the scrollbar because the mat is longer than screen).  

[Diagram showing the process of clicking to draw lines]
2. Click on “Separate Feet” to draw lines between ipsilateral footfalls.
   - Right click in the space between each right footfall.
   - Right click in the space between each left footfall.

3. Click on “Identify Feet.”
   - If the footfalls are different colors, click yes and go to page 12, step 3.
**Saving a walk**

After the footfalls have been correctly identified, the screen will look like this.

1. Click on “Memo” to make a note about the trial (i.e. Trial 1, Trial 2).

2. Click “Save/Back” to exit the memo window and return to the save screen.

3. Click “Save” to save the walk.

4. To complete another trial under the same testing condition, click “Start Walk.”

5. To complete a trial under a new testing condition, go to page 17.

6. If you are done capturing data, go to page 19.
Testing the same subject under a new condition

For example, in the first set of walks the subject was barefoot, and now the subject is wearing shoes.

1. If you are not already in the Start Walk screen shown below, click on “New Test.”
2. Change the leg length data in the upper left.
3. Conduct as many walking trials as necessary.
4. When you are done capturing data, go to page 19.
Edit a suspended walk

If you saved a walk before editing footfalls, the walk is suspended. This is how to edit a walk that was suspended earlier.

1. Click on the “Test ↓” button.

2. Click on the walk that was suspended. The left column of a suspended walk reads “Sus.”

3. A verification box will pop up. Click “OK.”

4. This takes you to the Retry Identification page. Go to page 12.
Combining walks into a test

If the subject walked under the same condition multiple times, you want to group those trials together into one test. This allows you to average the data from multiple trials.

For example, a subject completes two walks while wearing shoes. Group these walks together as Test 1.

1. Click on the “Test ↓” button.
   - Walks are listed in the spreadsheet.
   - Click on the first walk with shoes.

2. A message box will appear. Click “Yes.”

The leftmost column now reads “1” for the test number.
3. Click on the second walk with shoes.

4. A message box will appear. Click “Yes.”

5. A list of tests already created will appear on the right side of the screen. Click on the test number that was created for the first shoe walk.

![Tests (group walk-)](image)

This adds the walk to Test 1. The walk is now located within Test 1.

![Both walks are in Test 1](image)

6. To group another set of walks into a test, go to page 21.

7. If you are done grouping walks into tests, go to page 23.
Combining a second set of walks into another test

Test 1 contains all of the walks with shoes. Now create Test 2, which will contain all of barefoot walks.

1. Click on one of the barefoot walks.
2. A message box will appear. Click “Yes.”
3. Click on “Create new test.”

![Test creation screenshot]

Test 2 is created
4. Click on the next barefoot walk.

5. Select Test 2 from the list.

6. Continue adding walks to tests until everything is organized.

When all of the walks are grouped into tests, go to page 23 to start analyzing data.
Analyzing Data

1. Click on the “Test ↓” button.

2. Click on “All Tests.”

3. The Test History Screen will appear. Click on “Display Test Summaries.”

4. A list of data appears on the right. GAITRite divides data into unilateral and bilateral parameters. Click on “Bilateral Parameters.” You will see different data, and the button will now read “Unilateral Parameters.” You can toggle between data sets.

5. Click on “View in Excel” to export data. This will open Excel.
   - To learn how to create a graph in Excel, go to page 24.
   - To continue analyzing data in GAITRite, go to page 30.
Creating graphs in Excel

1. Excel will automatically open with the screen below. Column B contains the data with shoes and column C contains barefoot data.

![Microsoft Excel - GaitGrid.txt](image1)

2. Insert a few rows between rows 1 and 2 so that you can label the columns as “Shoes” and “Barefoot.” Right click on the number 2 on the left, and click “Insert.”

![Microsoft Excel - GaitGrid.txt](image2)
3. Label the columns (Shoes, Barefoot).

4. Now you are ready to graph. Click on the chart icon.

5. A window will open. Select “Column” in the Chart Type menu. Click “Next.”
6. The screen below will appear. On the top, select the “Series” tab.

7. The white box at the lower left should be blank.
   - If the box is not blank, that is because Excel automatically created a series for you. Remove this by clicking on “Series1” and clicking “Remove.”
   - Once the box is blank, click on “Add.”

8. For this example, we will graph velocity. Type “Velocity” in the Name field.

9. In the Values field, click on the spreadsheet icon on the right.
10. Find the velocity data. Left click and drag the mouse over the velocity data. Release the mouse and press Enter.

11. Click on the spreadsheet icon at the right of the “Category (X) axis labels” field.
12. Left click on the cell that says “Shoes” and drag it over the cell that says “Barefoot.” Release the mouse and press Enter.

13. When you are finished entering data, click “Next.”

14. This brings up more options. You can add a title and put units on the axes. When you are done, click “Finish.”
15. The finished graph will appear. Right click on the y-axis. Click on “Format Axis.”

![Graph with right-click highlighted]

16. In the “Scale” tab, you can change the minimum and maximum value displayed on the axis (if need be).

![Format Axis dialog box]

This graph can be copied and pasted into a Word document.

To continue analyzing in GAITRite, go to page 30.
Analyzing one test

1. Click on the “Test ↓” button.

2. Click on the test you want to analyze.

   - Right side: lists the walks in the test.
   - Left side: lists the average parameters of the all walks in this test.
   - Bottom left side: memo area to write a note for the test.

4. Click on the “Detail” button.
5. The Detail screen is shown below. This gives you a visual representation of this subject’s gait compared to normal values. The “Test Summary” and “Footfall Detail” buttons present more in-depth data.

6. Click “Back” to exit to the Analyze screen.
Analyzing Walk Data

You can analyze the data of a single walk in the test.

1. Click on the walk you want to analyze.

2. A screen will appear with all of the data for that walk.

3. Click “Replay.”
Replay screen: COP Data


2. Click Start. The “Continuous (play),” “Next Footfall,” and “Next Frame” buttons will light up.

3. Click on “Next Footfall.” Continue clicking “Next Footfall” until all of the footfalls are displayed on the screen.
4. In the upper left screen, you will see a footfall. The white line indicates the center of pressure. The grid over the foot divides the foot into 12 sections.

5. The chart on the right is a grid with 12 sections. Each section gives data for the corresponding section of the footfall. The top line of data (P*t) is useful to compare pressure distribution.

6. Click on “Compare Footfalls.”
Compare Footfalls

1. This screen displays all of the footfalls with the COP line. Right click on a couple of footfalls to save them.

2. Click “Cross Test Comparison.”
Cross Test Comparison

This screen allows you to display the footfalls with COP line that you saved. Say you saved a right and left footfall from a walk with shoes. You also saved footfalls from a barefoot walk. Now you can display all of these footfalls on one screen.

1. On the top of the screen, there is an option to select left or right footfalls.

2. Click on the down arrow.

3. A list of all of the saved left feet will appear. Choose the footfall you want to display.
4. The footfall appears in the box. Click on another down arrow to load another footfall (remember to select Left or Right Footfall on the top on the screen.)

5. You can save footfalls from walks in different tests, and then display them on this page. This allows you to visually compare the COP data between different conditions.

6. Continue analyzing or capturing data. When you are done and ready to put the mat away, go to page 38.
Rolling up the mat

1. Place the blue tube at the end opposite the cord connecting the mat to the white connection box.

2. Roll the mat. You will have to adjust the mat several times as you roll it to keep it straight. The gray boxes on the left cause the mat to roll to the right.