



**USER MANUAL**  
EasyEMG Software  
for aktos

## History of changes

Version	Author	Date	Comments
1.0	KaAb	02.05.2017	Initial release.
1.1	KaAb	07.08.2017	Functional improvements.

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## 1 Important information

In this manual you will find important information, needed for the commissioning and operation of the device.


Always adhere to the safety instructions in the manual of your computer or other systems involved and the ones in this handbook. If you experience any problems, please contact your local sales agency or the manufacturer.

### 1.1 Conventions used in this text

Throughout this manual the following conventions are used.

	<p>Indicates important information that may damage your health, the functioning of the device or the safety of your data if not adhered to.</p>
	<p>Indicates additional information and tips.</p>

### 1.2 Important information

	<p>Please follow these safety instructions to ensure your safety and the optimal functioning of the device.</p>
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The product may be used only as intended (see section 2.1) and in compliance with the instructions in this user manual, by appropriately trained and qualified personnel.

## 2 Introduction

myon EasyEMG is designed to work in parallel with the aktos range of products. The software provides the functionality required to capture and graphically display data in real time, to save it and to create reports on trials. EasyEMG aims to provide these empowering capabilities in a way suitable for time pressured scenarios and as such features a streamlined interface and requires limited setup time.

The main application areas for this software are wide ranging clinical, sports science, ergonomics and research related concerns. The software however is intended to be tailored to insure the streamlined work flow necessary for efficient use in a portable, none fixed location. The functionality of the EasyEMG software is flexible in a similar way to the aktos. The applications' functions depend on the sensor configuration of your sensor system. The result of this is a software package tailored to your particular needs.

### 2.1 Intended use

The software aims to assist with data gathering, analysis and reporting. The intended subsequent use is to assist in decision making by providing objective measurement methods. The hardware and software can be used to accurately devise and measure rather than having reliance on visual impressions, notes or memory, only.

### 2.2 Contraindications

The medical practitioner and/or user always has to decide on the basis of the general condition of the patient or subject whether or not the intended application is reasonable. Further information is accessible in current scientific literature.

The software is not intended for use in life- or safety-critical environments.

### 2.3 Possible combinations

In addition to these instructions, the instructions of those products used in combination (e.g. analog-to-digital converter, video motion capture system, EMG system) must also be observed.

Potential electromagnetic or other interference that occurs between the product running the software and other products may lead to disturbances or malfunctions.

### 3 Software overview

The main window of EasyEMG consists of four main areas as illustrated in Image 1 below.

1. Graph panel - Central to the window graph panes are displayed based on the current application selection and sensor configuration.
2. Function panels - Down the right side and top of the window the panels provides access to the patient database, graph manipulation, data capture, saving of data, report generation and system settings functionality.
3. Subject info bar - The top bar provides information on the current subject selection.
4. Trial info bar - The bottom bar provides information on the current file selection.
5. Playback panel - Provides data and video playback functionality.

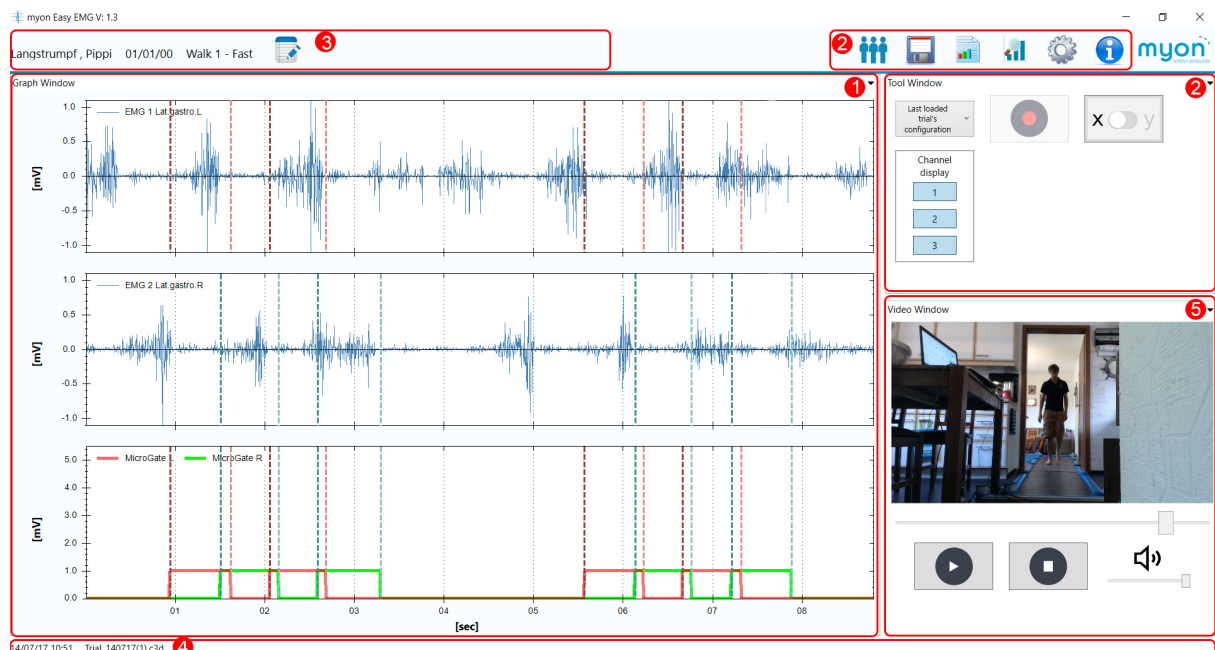


Image 1: Software's main window

### 3.1 Graph panel

Buttons to the bottom and left of the panes allow graph X and Y ranges to be set respectively. These buttons quickly allow the user to cycle through pre-set ranges.

Mouse and keyboard combinations allow the graph display to be manipulated:

- Ctrl + left mouse button drag: enable panning
- Left click and drag: creates a cropping rectangle
- Mouse wheel: X or Y range manipulation based on the toggle button setting

Further functionality (show point value, undo zoom, RMS on/off, manual and automatic events, delete events / graph objects) can be accessed through the use of the right mouse button menu system.



Image 2: Overview of graph panel



### 3.2 Function panels

The function panels feature a number of standard actions. These actions are always possible throughout the software's operation. Others are dependent on a particular workflow or application and can be greyed out or invisible during this time.



- Patient database  
The topmost icon opens the patient database window. This window described in section 6 allows saving, loading of trials and reports.
- Save  
Only available after capture or loading of data.
- Report and event generation  
Only available after saving of data.
- System setup  
Allows the hardware setup and language to be changed.
- Program information  
Help and update functionality.
- Application selection  
Select chart and sensor setup from this drop down box.
- Start/Stop capture  
Once a system is connected facilitates capture.
- Playback active take
- Graph X/Y scale toggle  
Sets the mouse wheel to change either the X or the Y scale.

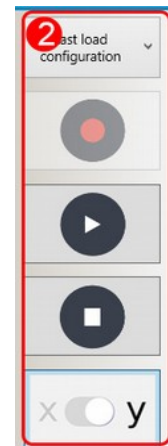


Image 3:  
Function panels

A number of other icons can appear in this menu depending on the current application. These options are discussed in section 5.2.

### 3.3 Subject info bar

With a patient selected in the database, name and birth date will automatically be displayed. Notes can also be added through the use of the notes popup. This can be opened and closed using the toggle button. The notes will automatically be saved if the trial has been saved previously.

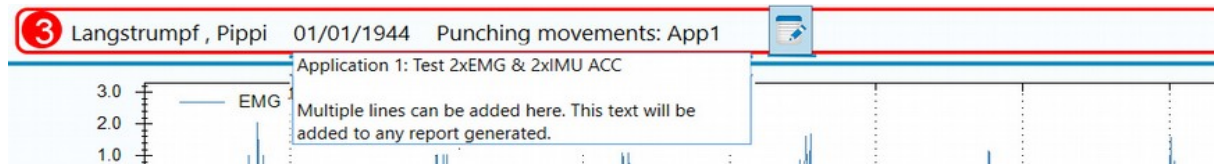


Image 4: Subject info bar

## 4 Driver and program installation

### 4.1 Hardware driver

Please follow the instructions in the aktos/-t hardware manual.

### 4.2 EasyEMG software

The EasyEMG software installer includes installation of the software package and any required windows components. EasyEMG requires installation of the Microsoft .NET 4.5 framework and the installer will attempt to install it as part of installation if it is not already installed. EasyEMG also requires installation of the Microsoft Expression codec for use in video and audio capture.

On the first run of the software, a default hardware profile will be used. You may alter this and create additional profiles through the setup icon located in the upper tools menu.

It is also possible to set the software language as well as video capture settings in this window (Image 5). With video capture on and input devices set, video will be recorded during data capture automatically.

Please note that it is also necessary to follow your hardware setup instructions in the aktos/-t hardware manual before use of the EasyEMG software. The aktos drivers need to be installed before use of the hardware or the EasyEMG software.

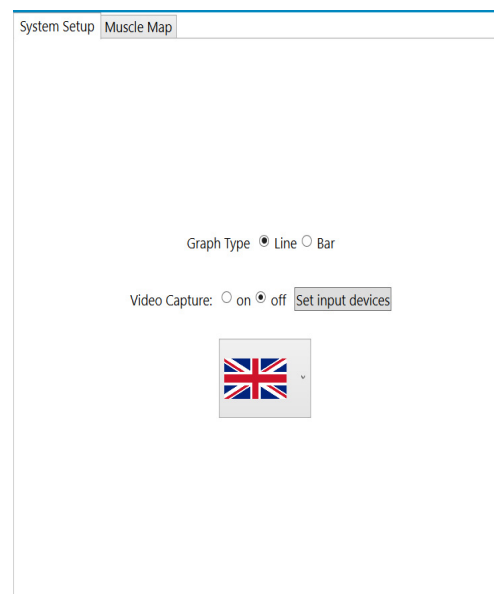


Image 5: Setup window

Through the setup window (Image 6) it is possible to activate transmitters, set their components and map them to various muscles. Mappings can be achieved through activating and selecting a sensor before clicking the desired radio button on the muscle map. Muscle names and left / right assignment can be achieved through the use of the muscle map or through manual selection.

Once complete mappings can be saved and will be available for use through the capture windows function drop-down box. Mappings can be loaded, altered and deleted although saved capture data will retain its associated profile settings with changes and deletions having no effect.

EMG and foot switch transmitter configuration data is saved in individual capture configuration profiles allowing for quick and precise data gathering. Changes to graph type, video capture and

language settings are global in nature and are not profile specific. It is possible to capture with line graph type for instance and then re-load saved data with bar type selected.

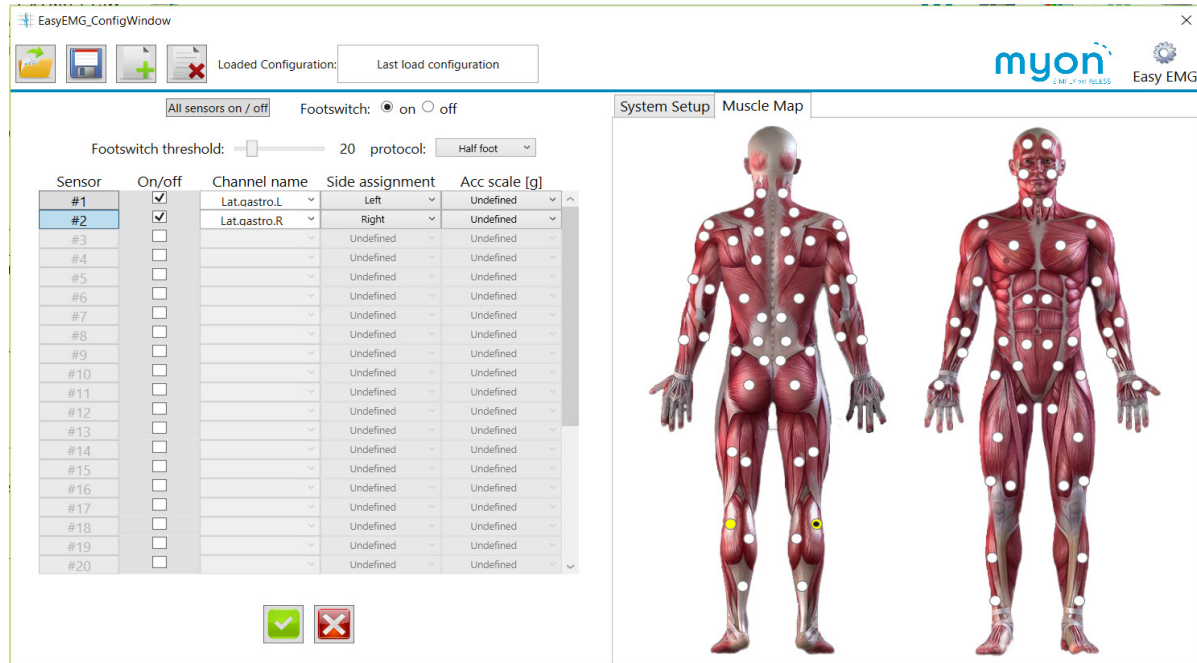


Image 6: Setup window

## 5 Workflow

A typical workflow for using the software is described in the following. This workflow involves selecting a patient first, followed by setting up the application, capturing and lastly saving data.

### 5.1 Selecting a subject

To select a subject, click on the data window icon found in the functions menu. In the opening data window (Image 7) double click on a patient as shown below.

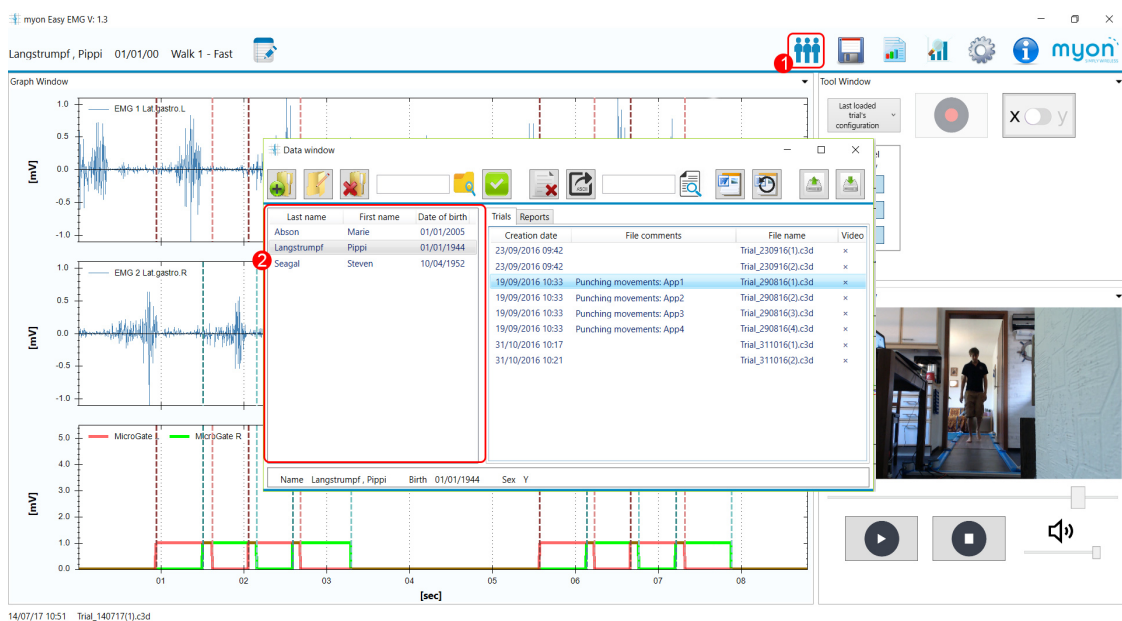


Image 7: Selecting a subject

## 5.2 Selecting an application

To select an application, click on the application dropdown icon (Image 8, (1)). From the resultant dropdown list (Image 8, (2)), please make your choice.

The choices available will depend on those created. “8 x EMG with footswitch” is provided with the software as an example but can be removed or replaced.

“Last load configuration” is an automatically generated profile used when loading saved data. The configuration will change as different saved files are loaded. The profile is not created with the intention of being used for capture, to be edited or saved as a new profile. It can however be used for such if convenient. If deleted, a new “last load configuration” will be created the next time a file is loaded. Any changes made to the configuration by the user will be lost unless these are saved as a profile with a different name.

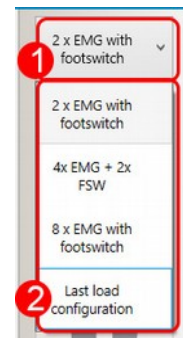


Image 8:  
Application selection

## 5.3 Capture

The capture button (Image 9, (1)) can be used to commence and to stop capture once the system is connected. If the aktos hardware is not recognised the button will be disabled. Capture can be paused and restarted by pressing the space bar on the keyboard. Please note that capture pausing is currently only possible with video capture being disabled.

If the graph already contains data, a dialogue will be presented in order to save the last captured data before continuing to prevent data loss.

Once a take has been captured or loaded into the graph, the playback button (Image 9, (2)) becomes active. Data and video can be played back through this feature.

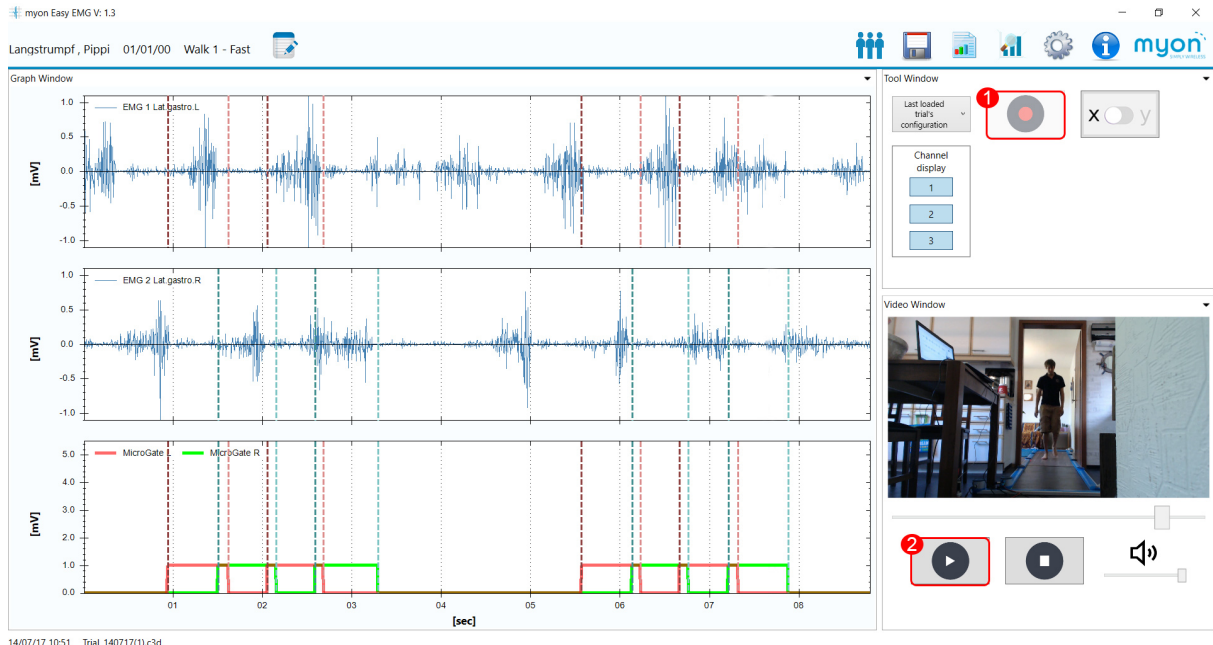


Image 9: Capture button

## 5.4 Comments and saving

### 5.4.1 Comments

Once capture is complete the comments toggle will become active. Any comments will be viewable in the data window and in generated reports (Image 10, (1)).

### 5.4.2 Saving

Saving is only possible when the graph contains data, otherwise this button (Image 10, (2)) will be disabled. If a new trial is loaded into the graph, saving will create a new file. If the trial has been previously saved changes will be applied to that previous file.

If no subject is selected, the data window will be displayed at this stage. A subject must be selected in order to be able to save the data.

## 5.5 Reports and events

### 5.5.1 Reports

Once saved, the reporting file is made available. The reporting button (Image 10, (3)) will always produce a report for the active trial. Once created, the report is opened and displayed using Microsoft Word or LibreOffice Writer.

A report of existing trials can also be created by first loading the trial of interest in the data window.



Image 10: Post processing features



## 5.5.2 Report template

The reporting template can be edited through clicking the following button located in the data window (Image 11, (1)). Clicking the button will open the template by launching Microsoft Word or LibreOffice Writer. Once changes have been made, the file should simply be saved in the same location through the save option.



Image 11: Edit template

The template can be edited easily and successfully as long as a simple rule is taken on board: The logo, address and text styles and so on can be changed as long as the indicated tags are not deleted or altered (Image 12).

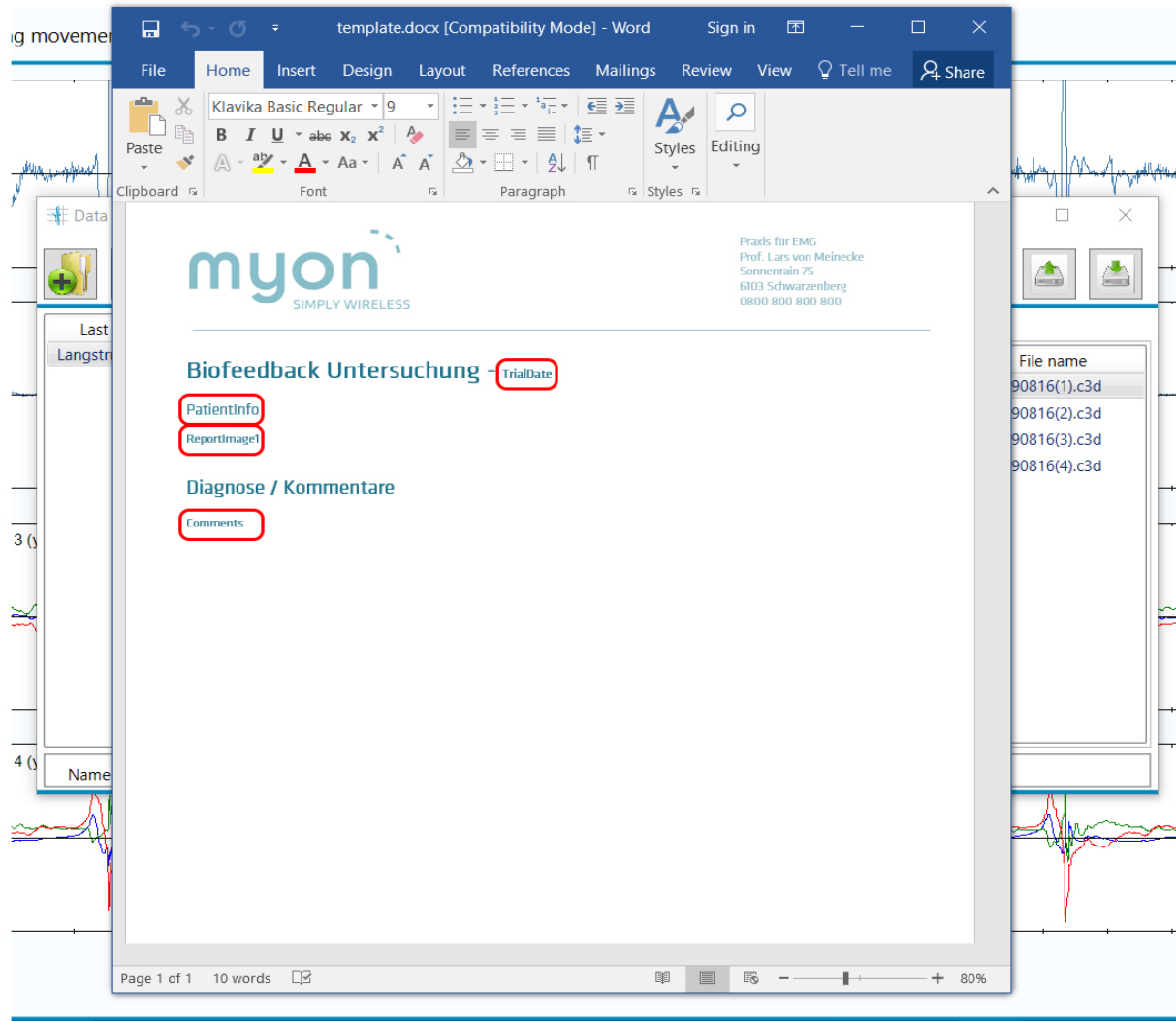


Image 12: Edit template

The tags can be edited in terms of font style, size and other qualities. They must not, however, lose their tag status as they are necessary to load content. Content will be loaded as shown in the following Image 13.

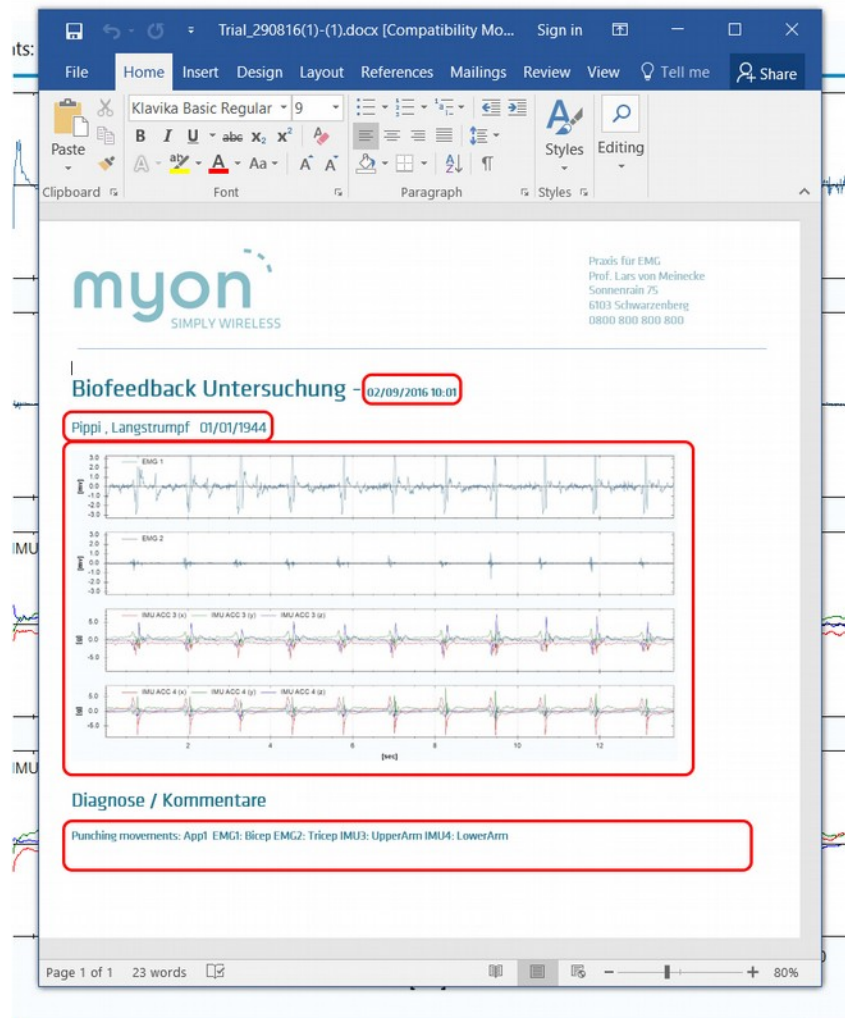


Image 13: Edit template

### 5.5.3 Events

Once a trial has been saved, events can be generated either automatically, manually or as a mixture of both. The right mouse button context menu provides options to either generate events for the whole trial automatically (Image 14, (1)) or to open a small overlaid window (Image 14), (2)) to place events manually. Currently the automatic generation of gait events is only possible when footswitch data has been captured.

Manual events can be created by selecting the required event from the overlay window and by then left clicking on the graph at the desired event position. An event can be moved by hovering the mouse pointer over it and by then clicking and dragging the event to the required location. An event may be deleted by hovering the mouse pointer over it and by then selecting “Delete selected object” from the context menu or all events can be deleted by selecting “Delete all events” (Image 14), (3)).

While manual event generation is turned on, zooming into an individual pane by use of the double click is not possible. To re-enable this feature turn off manual event generation.

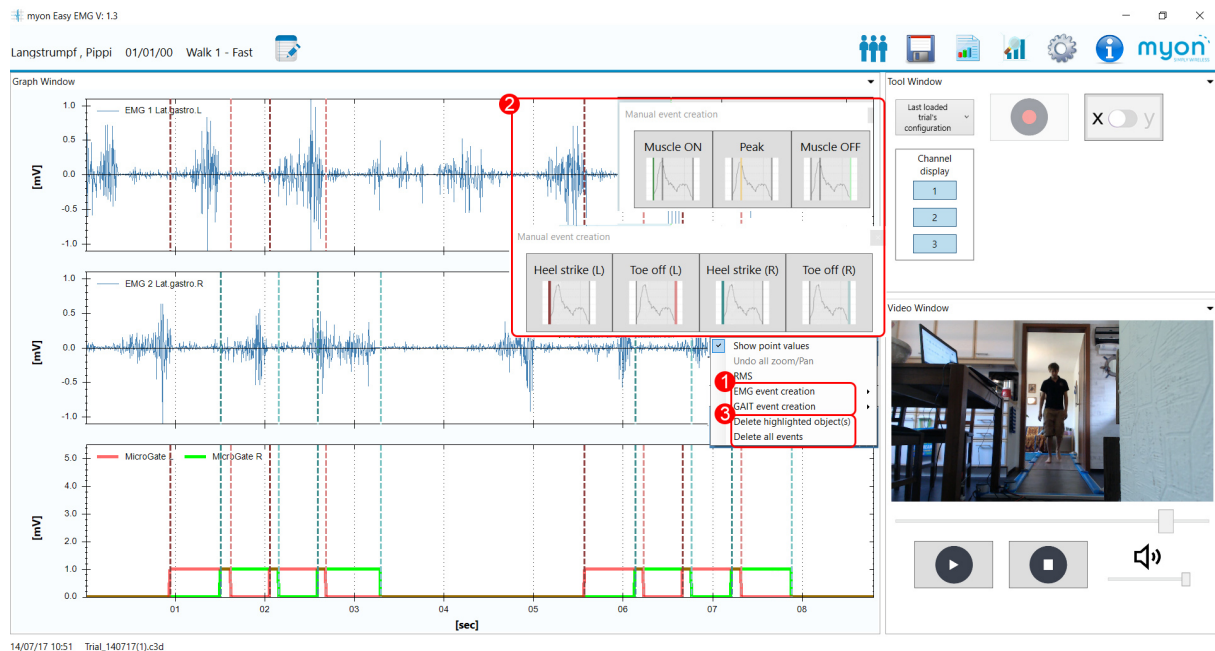


Image 14: Event functionality

### 5.5.4 Event reports

With events in place, event report generation is possible through the event analysis window (Image 15) that will pop up, once the event report generation button (Image 15), (1) has been clicked. All available channels are provided in both event analysis graph along with detailed event information in the resultant table. A report can be generated containing time normalised, original timebase and bar EMG event analysis graphs through ticking the required options and selecting the report button (Image 15), (2)).



Image 15: Event reports and analysis

## 6 Patient data base

The patient database is used to save both trial and report data. It is fully integrated into both the capturing and reporting process. Once a patient is selected future saves are automatically assigned to this patient without a need to select a save location.

The data window can be opened through the button located in the software's main window as illustrated in Image 16.

### 6.1 Functionality in the data window

1. Subject selection list  
Subjects are by default ordered from A-Z but this can be reversed by clicking on the list header. Single clicking selects a subject and by doing so displays records in the list to the right. Single clicking also enables subsequent operations such as re-name and delete. Double clicking both selects the patient and closes the window.
2. Records selection list  
As with subjects by default records are ordered from A-Z. This list can also be reversed by clicking on the list header. This list also has tab functionality which controls the display of trials and reports. Single clicking selects the trial or report and enables subsequent operations such as delete and export.
3. Create folder  
Displays the create folder window.
4. Edit folder  
Displays the edit folder window. This button is only enabled after a subject is selected.
5. Delete folder  
Only enabled after a subject has been selected. A warning message is shown before deletion but once confirmed files are lost.
6. Folder search  
The subject selection list will only show subjects which match the search text (not case sensitive). Clearing the search field will show all subjects.
7. Confirm selection  
The database can be closed following patient selection through double clicking the patient record or through clicking this button.
8. Delete record  
Deletes the selected trial or report corresponding to the selected tab.
9. Export ASCII  
Exports the selected trial.
10. Record search  
As with the folder search, record selection list will only show records which match the selection. Clearing will reset the list to show all.

11. Edit report template  
The active report template can be opened, edited and saved using Microsoft Word or LibreOffice Writer. This button launches Word/Writer in preparation for editing. Please consult section 5.5.2 on more details.
12. Reset report template  
The current report template will be reset to factory settings.
13. Backup database  
Create a zipped archive file of all data contained in the database.
14. Restore database  
Restore a database using the zipped archive file previously created through the EasyEMG software. Please note that when restoring a database the current database will be overwritten.
15. Patient details  
Once a subject is selected, the subject's personal details will be shown both in the data window and back in the main window.

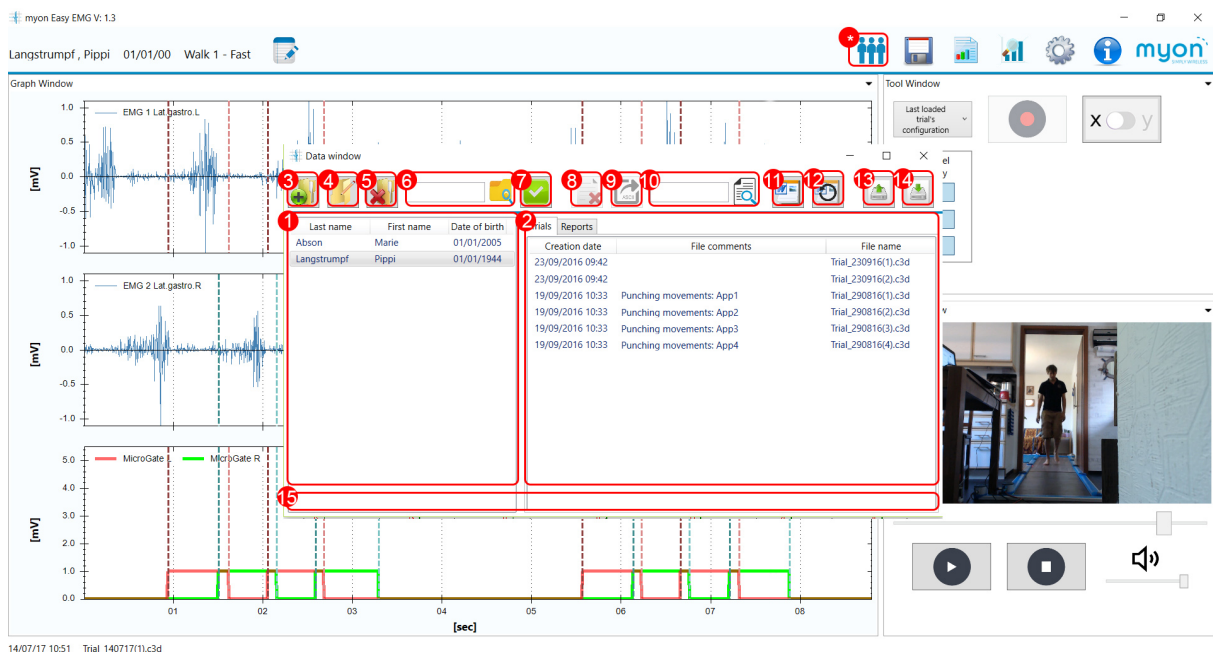


Image 16: Patient data base window

## 6.2 Adding patients

Adding a patient is accomplished through completing the add folder dialogue (Image 17, (\*)). The dialogue must be completed in full. Validation will disallow any entries which are empty or which it finds are unacceptable.

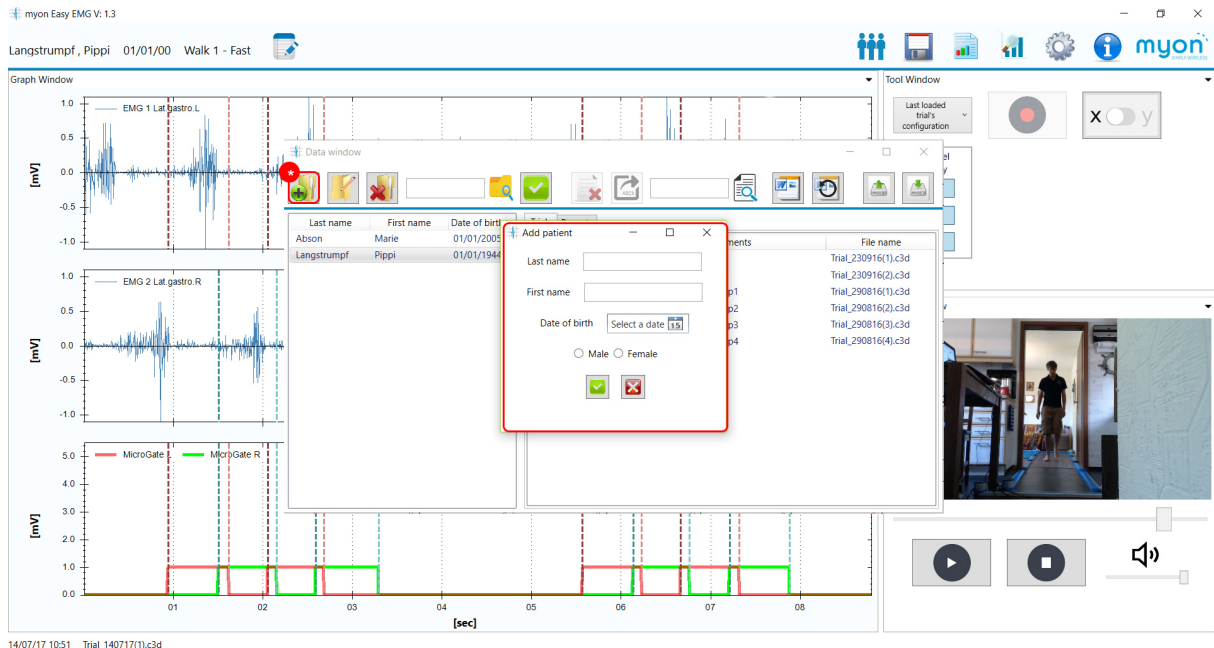


Image 17: Adding a patient



### 6.3 Editing patients

Editing a patient is accomplished through the same process as described above (Image 18, (\*)).

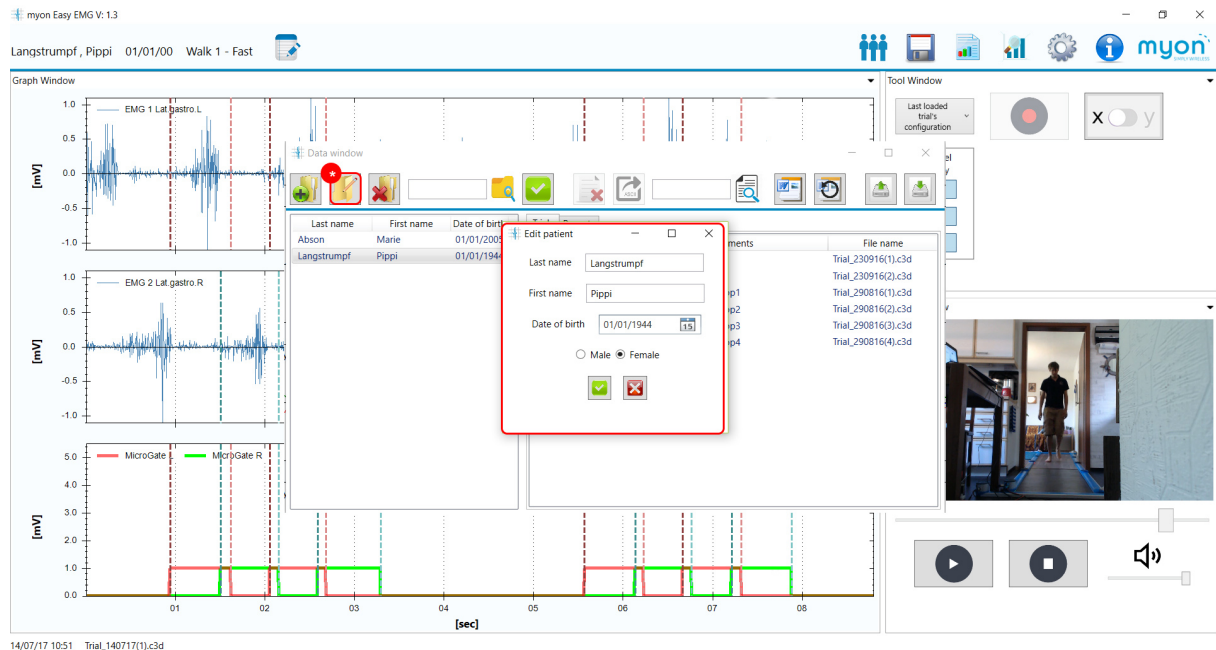



Image 18: Editing a patient

## 7 Data backup and restore

Saved trials and reports can be backed up and restored using zip archives. Simply select backup (Image 19, (1)) or restore (Image 19, (2)) icon in the data window and follow onscreen instructions.



Note that during the restore process existing database including trial data is wiped from the program and is not recoverable.



Image 19: Backup and restore

## 8 Updates and support

By clicking the “i” icon in the upper right corner, the help window can be accessed (Image 20, (\*)). In this window updates and help may be attained.

1. Check for updates
2. Access support

As always, myon very much values your feedback. You are therefore welcome to provide your input on potential bugs, feature requests or your feedback on using the software. Thank you.

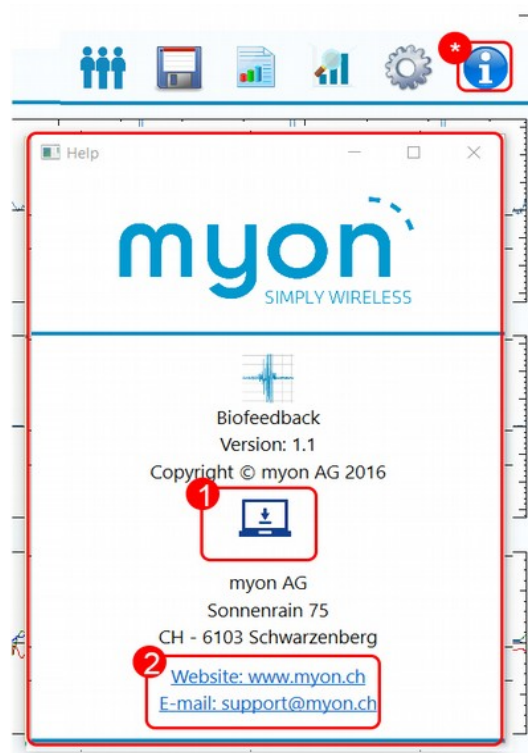


Image 20: Help window

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