idiag

SPINALMOUSE®

Software User Guide

EN

Overview of changes			
Date Document	Software version	Originator	Approved by Name / date
18.9.13	G6 6.4.2X	bz	AT 16.10.13
19.10.12	6.3.6	bz	AT 19.10.12
16.11.11	G6 6.3.1	bz	CM 16.11.11
18.3.11	G6 6.3.0X	bz	PE / 18.3.11
26.1.11	G6 6.3.0X	bz	PE / 26.1.11

1 Information about the Software User Guide

Read this Software User Guide before using the SpinalMouse® PC software and before installing the Bluetooth connection or using the device.
The Software User Guide describes how to install the SpinalMouse® PC software and the Bluetooth connection, how to use the device and how to avoid potential hazards. Preparing the device for operation and maintenance of the device are described in the Hardware User Guide.
The SpinalMouse® PC software is under continuous development. Illustrative and graphical representations in this Software User Guide may deviate from the equipment supplied.

1.1 Storage

The Software User Guide is part of the device and should be kept accessible for all users. Upon resale of the device, the Software User Guide and all further applicable documents should be included.

1.2 User

It is recommended that the use of the SpinalMouse® device and the SpinalMouse® PC-Software be restricted to trained patients, who are completely familiar with the SpinalMouse® software and hardware and both "User Guides."
The system was designed for use by doctors, physiotherapists and other healthcare professionals such as chiropractors and qualified specialists in medical training therapy (e.g. sports scientists).
Use of the SpinalMouse® medical device and evaluation of the data generated in a manner sensitive to the needs of the patient requires several years of training in the medical sector.

1.3 Further applicable documents

All chapters of the SpinalMouse® User Guide.
- SpinalMouse® Hardware User Guide.
- Interpretation Guide
- Print template designer (see Help and documentation)

1.4 Used symbols

1.4.1 Symbols in this User Guide

Danger!
...refers to a situation representing an immediate danger, which will result in serious injuries (or death) if it is not avoided.

Warning!
Specifies a potentially dangerous situation. If not avoided, death or serious injury may result.

Caution!
...refers to a situation representing a possible danger, which could result in minor injuries or damage to property if it is not avoided.

Hints
Highlights useful tips and recommendations and the information needed to operate the device efficiently and without problems.

At this point, the options described below are available.

Next steps

Detailed and background information

1.5 User information

The Software User Guide is also available in PDF format. Hyperlinks and bookmarks allow a fast and effective retrieval of links. The search function allows a fast retrieval of keywords. The section **Overview of the SpinalMouse® Software Setup Procedure** (page 10) will provide assistance during set-up.

1.5.1 Conventions

Click…	In this guide “click” always means click with the left mouse button. It will be explicitly stated when the right mouse button is require.
Select…	Where nothing else is stated instructions such as “select …” always refer to the SpinalMouse® PC software

Throughout this guide the term “program” is used in place of “SpinalMouse® software”

Example	Meaning
Program > **Language**	Menu names, functions, buttons and commands are printed in bold text
Patient > **Patient data**	Paths are represented by “>”

2 Important Security Advice

- Before using the SpinalMouse® software read this Software User Guide and the SpinalMouse® Hardware User Guide.
- Use the SpinalMouse® and the SpinalMouse® software after you have read and understood the Hardware and Software User Guide.
- Observe and act upon the warnings and safety instructions.
- Avoid the risk situations that are marked with “WARNING”.
- Use up-to-date antivirus software.
- Follow the instructions shown on your PC screen.

- Further safety instructions: See the SpinalMouse® **Hardware User Guide** chapter **Important Safety Instructions**.

2.1 Intended use

- The SpinalMouse® is intended to be used for the purpose of investigation, and clinical assessment, of function, shape and range of movement of the spine.
- The utilization of this device is restricted to the predefined purposes and applications as stated in this Hardware User Guide. See also Hardware User Guide **Operating, Storage and Transporting Conditions**.

- The SpinalMouse® supplies geometrical data of the spine and hip tilt. The SpinalMouse® DOES NOT PROVIDE DIAGNOSES, it can only supply references.
- Idiag does not take any responsibility for diagnoses derived from SpinalMouse® data. The evaluation and interpretation of the SpinalMouse® data is to the sole responsibility of the qualified person conducting the examination.
- Never induce medical or therapeutic treatments based only on SpinalMouse® data.
- Never use the SpinalMouse® on or over injured, broken, wounded or irritated skin.
- The SpinalMouse® may not be used near flammable gases or liquids (i.e., anesthetic agents).
- A combination with other devices is not allowed

3 System Requirements

3.1 Hardware requirements

- Hardware requirements
- Windows compatible PC
- CPU with a speed of at least 2 GHz
- At least 1 GB RAM (2 GB recommended)
- CD-ROM drive for installation of the software (if not available the software can be installed from another medium).
- Display: At least XGA (1024x768)
- Hard disk: At least 2 GB free space
- USB interface

3.2 PC operating system requirements

Recommended Operating Systems the SpinalMouse® software:

- MS Windows 8 (8.1 not yet released)
- MS Windows 7 (SP1 recommended)
- MS Vista™ (SP2 with Platform Update)
- MS Windows XP™ 32-bit SP4
- Internet access for remote maintenance

The operating system in use must be functioning properly and be maintained.

3.3 PC program-requirements

- PDF reader (e.g. Adobe Acrobat Reader)
  For opening and printing the records and the guides that are supplied in PDF format

3.4 Rights required to run the application

- Installation and initial launch of the software require administrator rights (right click on MM60.exe: Run as Administrator)
- Launch of the software requires administrator rights to enter license details (right click on MM60.exe: Run as Administrator)
- The software can be run from the user level “Power user”
- Each time the software is launched full access rights are required to the program directory (normally \ MM60) together with its subdirectories. The same requirement applies should the data directory be differently configured.
- Each time the software is launched full access rights are required to the system directory “Program data”, the subdirectory BTG (normally \ProgramData\BTG\) and to its subdirectories.

3.5 Other requirements

- Use of the original Windows BT Stack (Windows XP SP2 to Windows 7 > Generic Bluetooth Radio)

4 Overview of the SpinalMouse® Software Setup Procedure

This chapter describes the procedure for setting up the SpinalMouse® software up to the point of making the first recording.

Complete the following instructions in the order they appear here.
Once you have completed each instruction return to this overview. In the PDF click on the following hyperlink: Back to setup overview (page 10)

1. Install the SpinalMouse® software (**Installation of the SpinalMouse® software** chapter, page 11).

2. Start the SpinalMouse® software (**Initial Start and Registration of the SpinalMouse® Software** chapter, page 13)

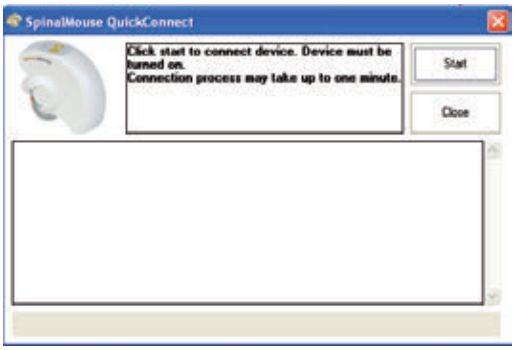
3. Complete the registration form in full and send it to idiag (page 13).

4. Select your desired language (page 57).

5. Enter the patient data for one patient (**Entering and changing patient data** chapter, page 19).

6. Start using the SpinalMouse®. See **SpinalMouse® Hardware User Guide**.

7. Once you have selected a posture, commence a trial measurement (see “Using the SpinalMouse®” on page 22). The Bluetooth connection is established automatically and may take several minutes. (see “Bluetooth-QuickConnect” on page 69:



- Click **Start**.
- Once the connection has been established click **Close**.

Follow the instructions in section “Bluetooth Installation and Configuration” on page 58 if the Bluetooth connection cannot be established automatically.

8. Carry out an initial recording and save the data. See chapter “Using the SpinalMouse®” on page 22).

5 Installing and Uninstalling the SpinalMouse® Software

5.1 Preparation

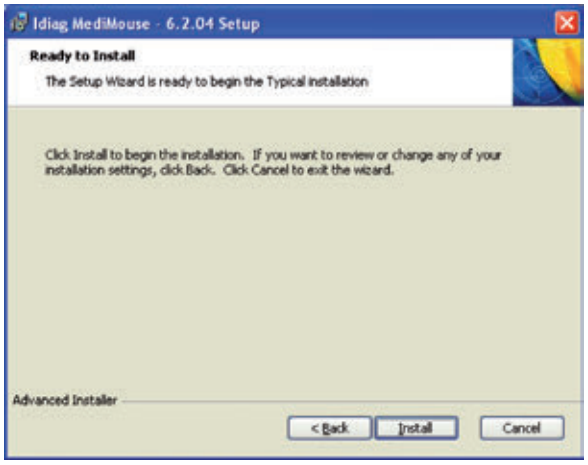
- When starting the computer (PC) log on using the same user account with which the SpinalMouse® software will later be used. During the installation process you will need full administrator rights for this account.
- Close all other currently running applications.
- Deactivate your virus scanner and firewall during installation.

> **CAUTION**
>
> Before installing updates backup all patient data and SpinalMouse® records.
> See **Data Backup** on page 56.

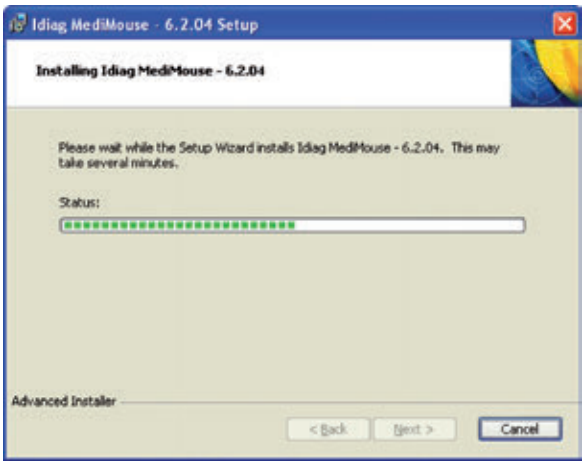
- After installation has been completed you can change the permissions to user rights.

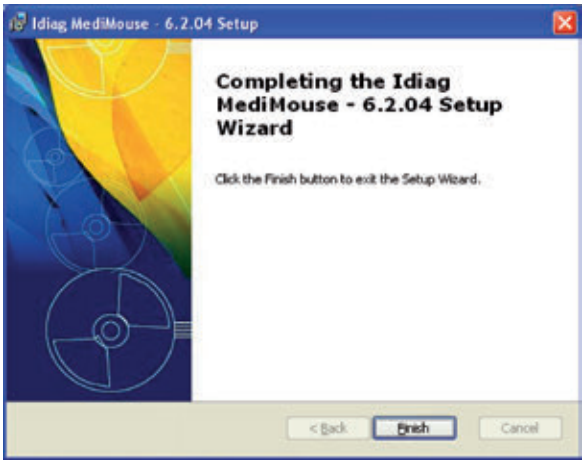
5.2 Installation process

- Insert the SpinalMouse® software CD in your CD drive. The installation launches automatically.



- Select **Install**.





- Click Finish

Back to setup overview (page 10)

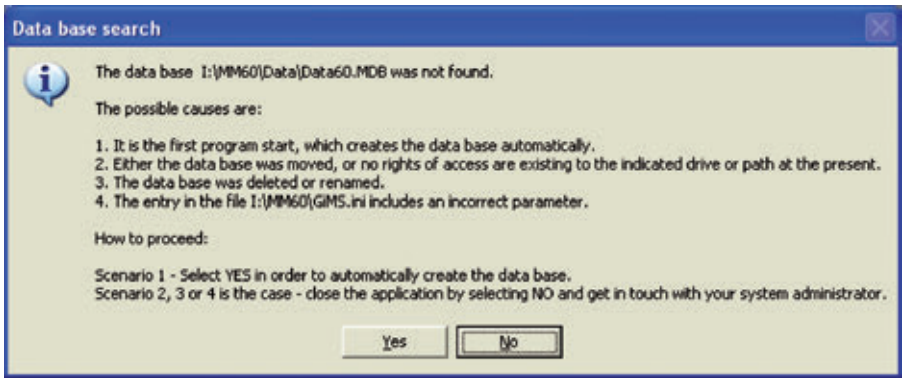
5.3 Uninstalling

1. Open **Control Panel** (Windows **Start** menu (> **Settings**) > **Control Panel**).
2. Double click **Software** (Windows Vista: **Programs and Functions**). A list of all the installed programs will appear.
3. Click **idiag SpinalMouse X.X.XX** and then **Remove**.
4. Wait until the program has been completely removed.
5. Restart the computer once the uninstall is complete.

6 Initial Start and Registration of the SpinalMouse® Software

Once the **SpinalMouse® software** has been successfully installed start the program via **Start** > **Program** > **idiag SpinalMouse** > **SpinalMouse®** or double click on the SpinalMouse® icon  on your desktop.

The SpinalMouse® software uses a patient database. It is created the first time the program is run. The following dialog appears:



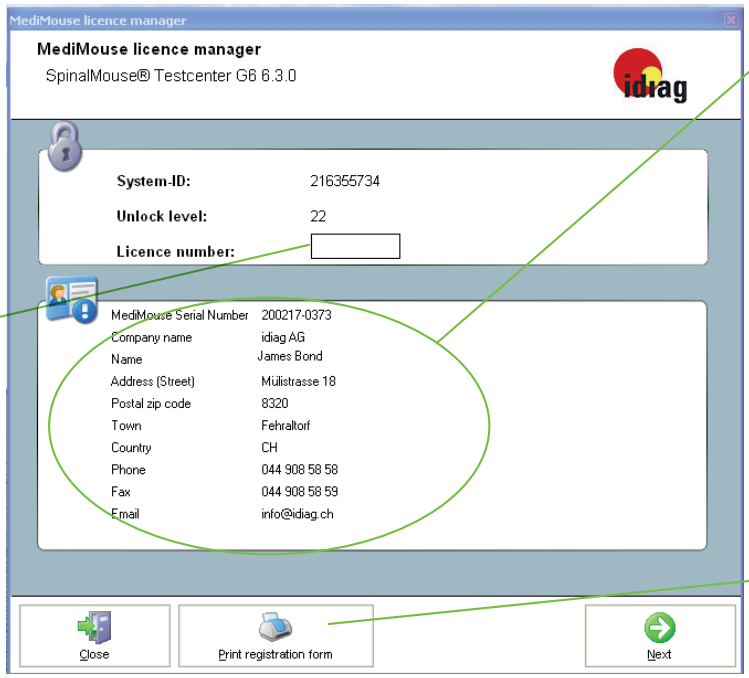
Click **Yes**. The program will begin to configure the database.

The **Licence Manager** will then appear for the activation of the program.

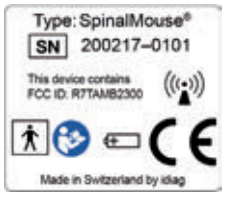
6.1 Activating the SpinalMouse® software

The SpinalMouse® software is copy protected and must be activated by entering a licence number. The program will run for 30 days following installation without activation. The licence number must be entered during this period.

You can obtain your personal licence number from idiag.



Complete the registration form in full. The serial number of your SpinalMouse® can be found on the underside of the device and takes the following format:
SN: XXXXXX_YYYY.



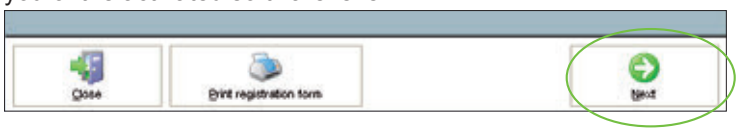
Check your entries

Print the registration form.

Send the registration form by fax, post or e-mail to idiag:
idiag AG
Mülistrasse 18
CH-8320 Fehraltorf
Switzerland
Fax: +41 (0)44 908 58 59
support@idiag.ch

idiag will send you your licence number – after it has received your registration form your licence number.

Enter the 9-digit licence number and confirm the entry with Enter.
Then click the **Register** button. A message will now appear to confirm successful registration and inform you of the activated software level.



In the licence manager click on **Next**.

Back to setup overview (page 10)

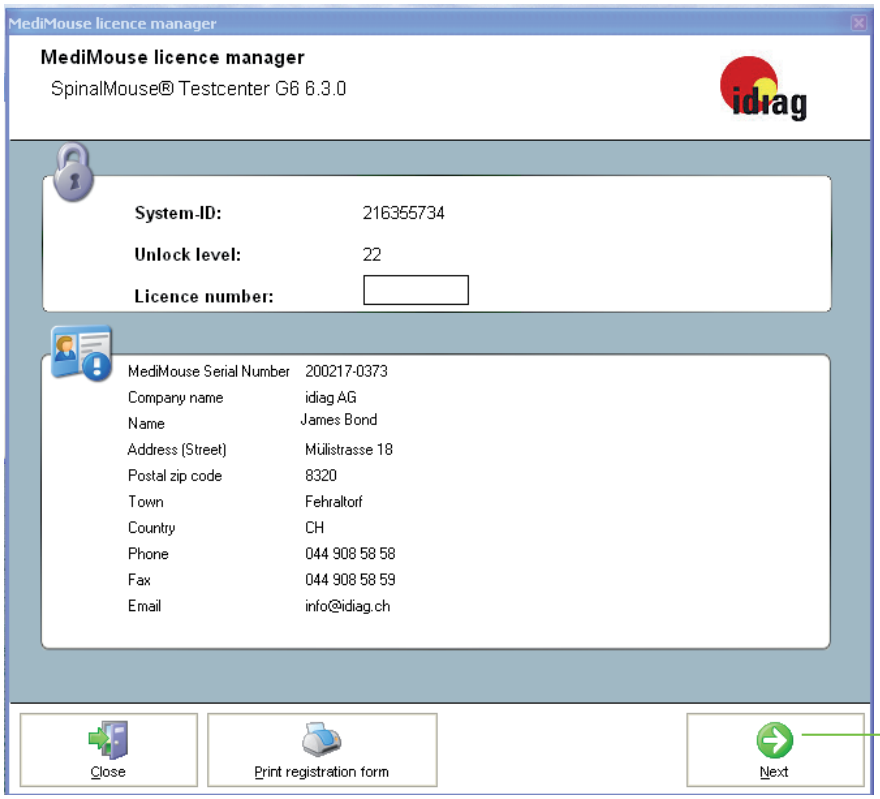
Forward any question about the SpinalMouse® and its accessories or equipment to the address on the last page of this User Guide. Please have the device serial number, the software version and your support contract ready. This will allow us to rapidly answer your query.

7 Opening and Closing the Program

7.1 Opening the program

Once the SpinalMouse® software has been successfully installed open the program via **Start** > **Program** > **idiag SpinalMouse** > **SpinalMouse®** or double click on the SpinalMouse® icon on your desktop.

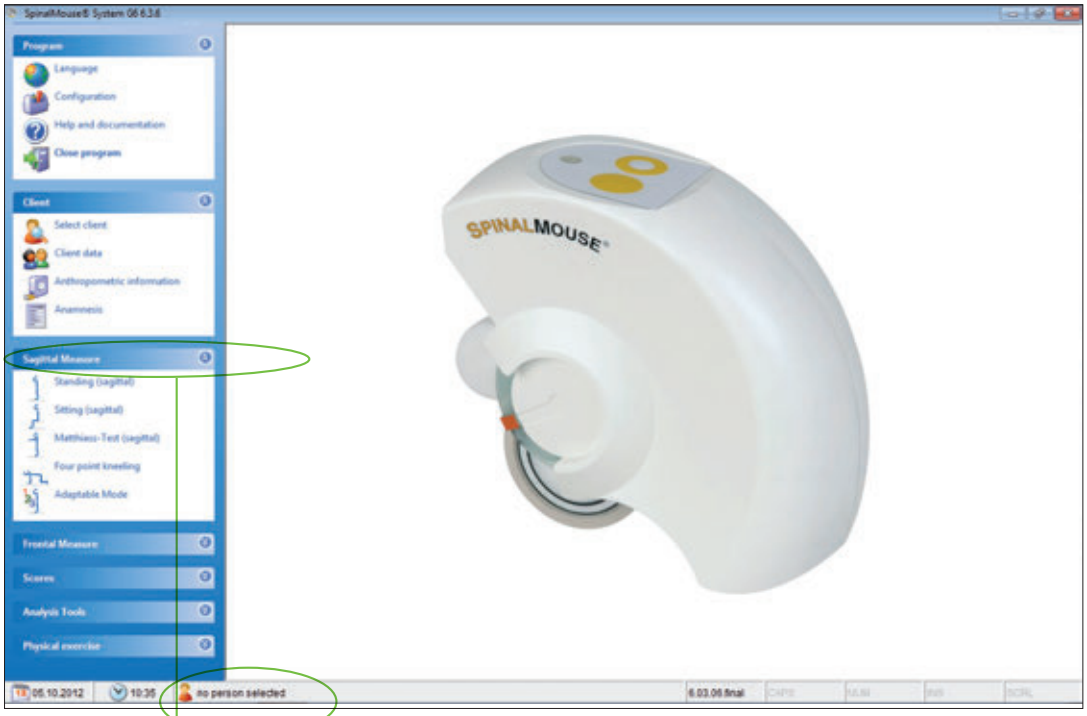
After a brief delay the SpinalMouse® licence manager appears:



After clicking on **Next** the main window will open

If you would like to skip the licence manager screen when you next start the program or should you wish to see the licence manager each time the program starts, navigate to SpinalMouse® **Program** > **Configuration** > **Program Settings** > **General Settings**. Click on **F4** (editing mode) and activate or deactivate **Hide licence manager after registration**. Save the entry (**F6**) and close the input window (**F10**).

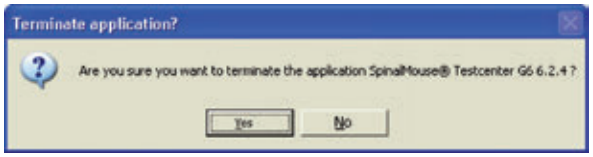
The main window is the central point for managing program settings, administration of patient data and records, and evaluation of the records.



With a click on the blue header you can open or close a menu. In addition to the posture the number of records already carried out for the selected patient is also displayed.

Selected patient

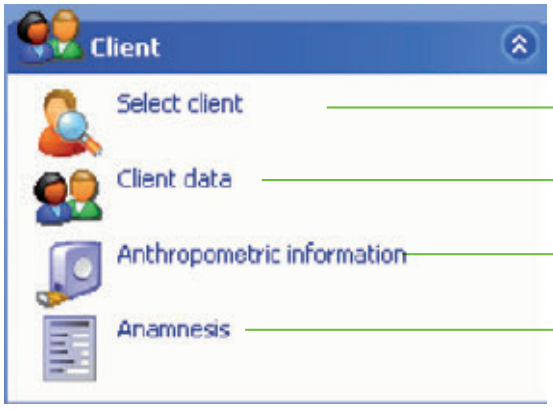
7.2 Closing the program



Select Program > Terminate application.

Click Yes.

8 Patient Data



You will find further information on the following pages:

17

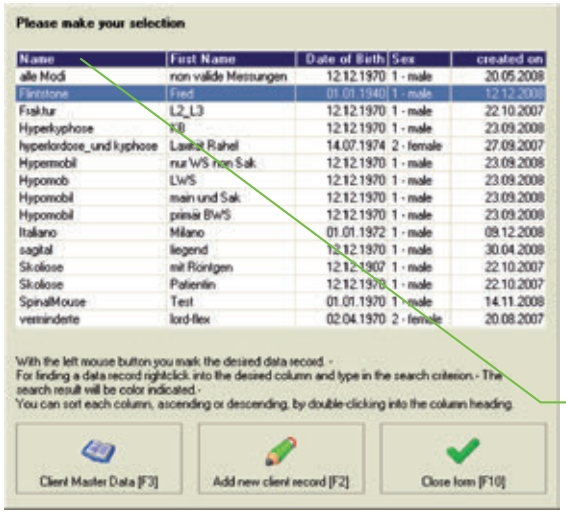
19

41

44

8.1 Patient selection / add patient

The selected patient is shown in the main window footer (page 16).
You can activate another patient via **Client** > Select client.
Select **Close form** (**F10**) to close the window.



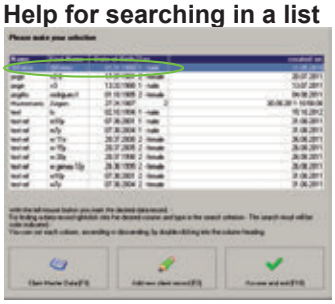
Window for selecting the patient

If an index card does not yet exist for the selected patient click on **Add new client** record (**F2**). The screen for entering patient data will open (page 19).

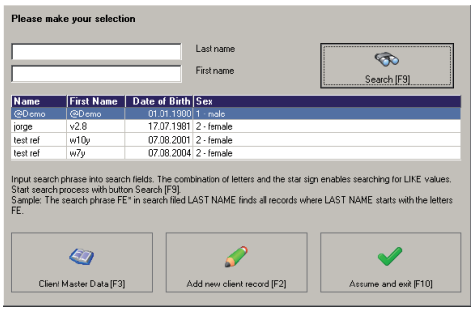
Tip
The contents of the table can displayed in ascending or descending order by clicking on the column heading.

8.2 Search help

Help for searching in a list



Example: Search for names beginning with “Mu”. First click with the left, then the right mouse button on any name in the Name column. The selected name will be highlighted in blue. Enter the first letter of the search term. The list automatically jumps to the desired name and highlights it in blue



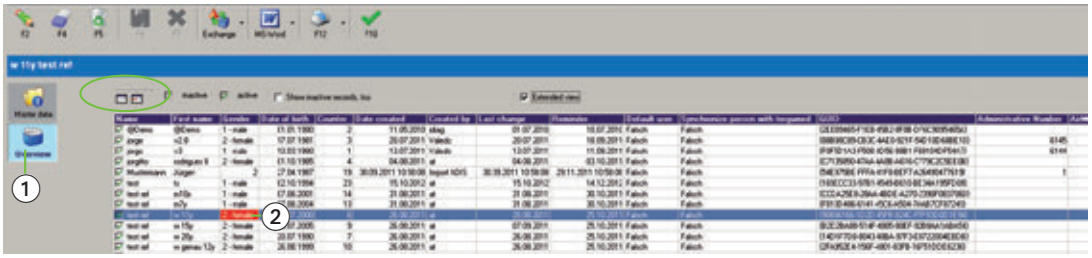
If more records exist than the number selected under **Configuration** > **Program settings** > **Number of displayable records**, then the window shown on the left opens.
Enter your search criteria and then click **Search** (**F9**).
If no search criteria are entered, a list will appear after clicking **Search** that shows all records. Select the desired person, and then click **Assume and exit**.

Filters

Example: Create a table showing only female patients.

Select **Client Master data** > **Overview** ①. The complete list is displayed (see below).

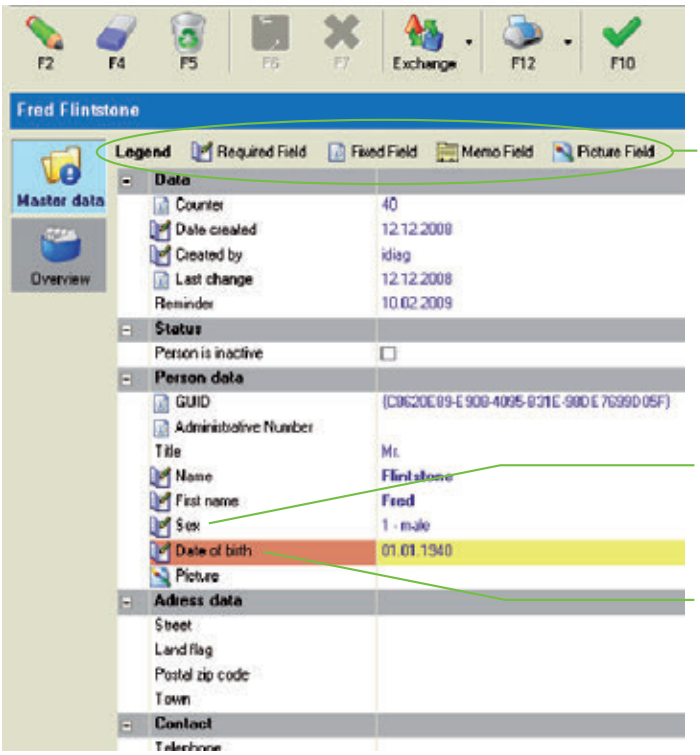
Double-click on any “2-Female” entry ② with the left mouse button. The entry will now be highlighted in red ②.
You can use the  and  buttons to switch between the filtered  and unfiltered complete list  .
If required, you may add further search criteria.



8.3 Entering and changing patient data

If the required patient is not yet selected do so now via **Client** > **Select client** (see page 17).

Via Client > **Client data** open the window for entering patient data. To change an existing entry click **F4** .
Enter the patient's data.
The fields marked are mandatory entries.



Self-explanatory annotation of the symbols

Sex
For male enter "1" and for female enter "2"

Date of birth
Enter in the format DD.MM.YYYY (with points) e.g. 07.04.1970

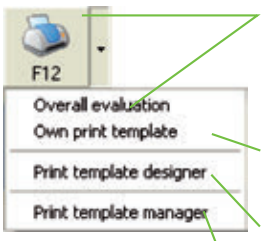
Window for entering the patient data

When you have finished making entries press the Enter key on your PC.
Save the entry (**F6**) and close the input window (**F10**).

Back to setup overview (page 10)

Further options available to you at this stage

Overview	Displays a list of all patients. See below for more details.
F2	Create an index card for a new patient
F4	Change an existing index card (**F4**)
F5	Delete the active index card
F7	Cancel the entry without saving data
Exchange	Import or export the index card



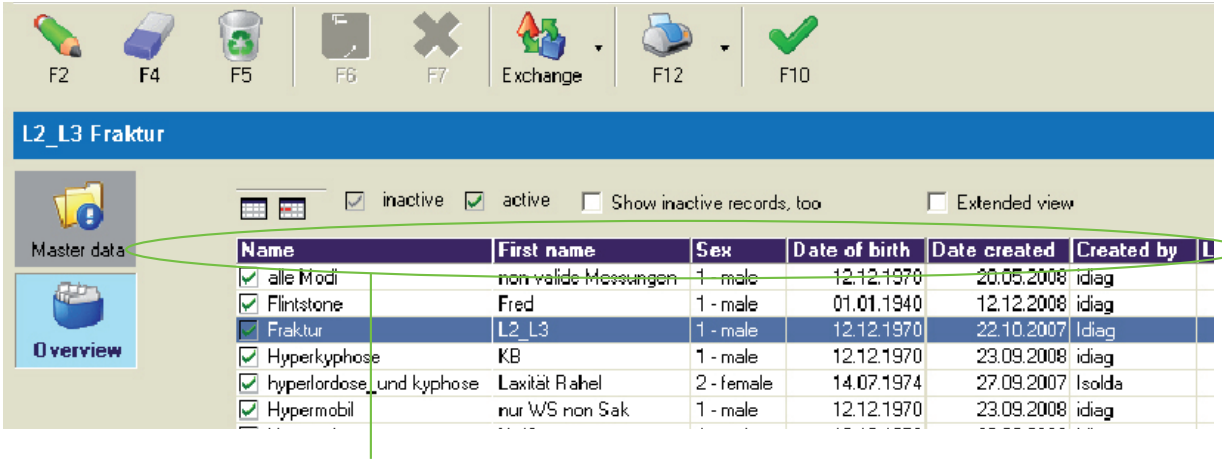
Print the active index card (using the standard print template)

Print blank index card

Use your own print template in place of the standard print template

Print template designer (for individual customisation and modification of your print templates)

F10 — Quit data entry (without saving) and return to main window.



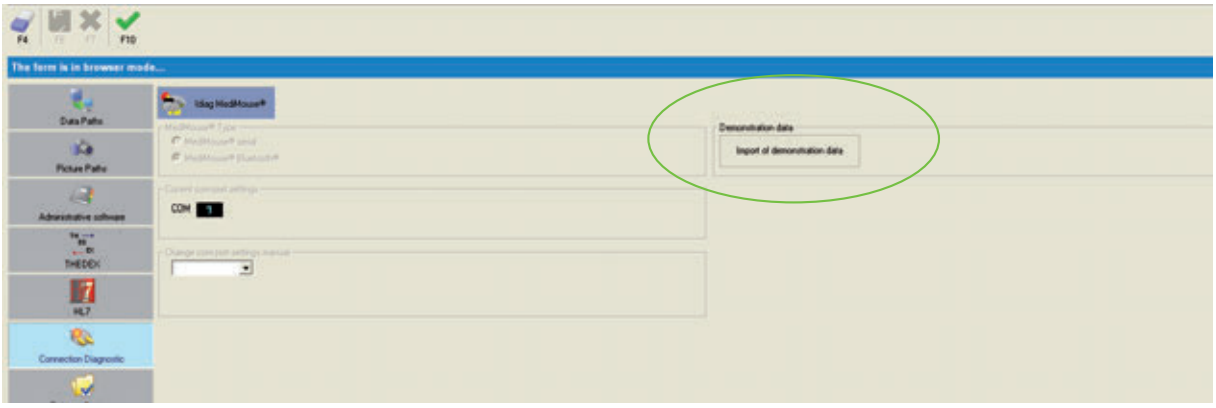
The overview list view can be resorted by clicking on the column heading (e.g. click on **date of birth** to sort the list into date order). Clicking the column heading once again changes between ascending and descending sort order.

8.4 Importing demonstration data

Two sets of demonstration data can be created for each posture.

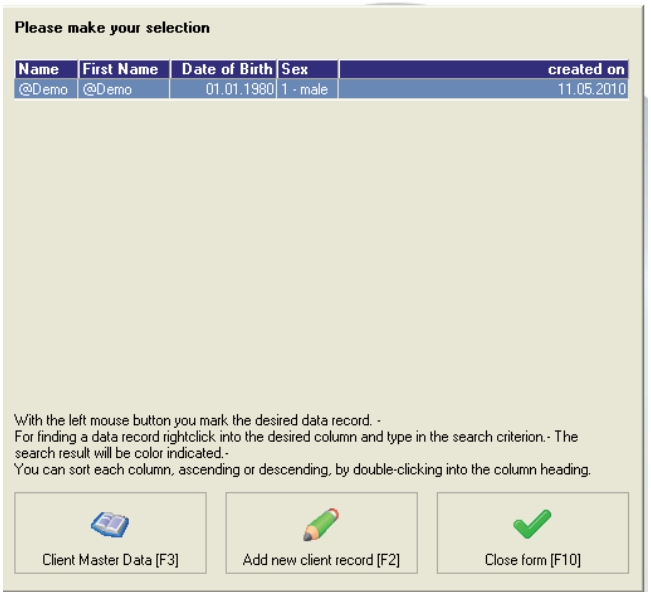
Procedure:

- Open the configuration window via **Program** > **Configuration** > **Program Settings** > **Connection Diagnostic**.
- Click **Import of demonstration data**.



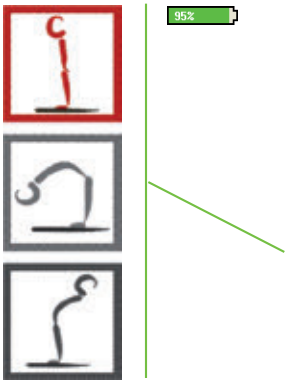
- Confirm the subsequent message by clicking on **OK**.
- To close the window click **F10**.

The dataset will appear under Select patient as @Demo @Demo.

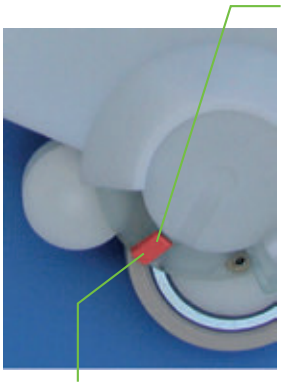


Opening demonstration records is described in the section “9 Using the SpinalMouse®” on page 22).

9 Using the SpinalMouse®



1. Select the required patient (**Client** > **Select client,** see page 17). Close the window by pressing **F10**.
2. In the main window select a assessment protocol (e.g. **Sagittal Plane** > **Standing (sagittal)**).
3. Click (create new records, **F2**).
4. Follow the on-screen instructions “switch the SpinalMouse® on” (short press of the left or right button on the SpinalMouse®) and then click **OK**.
5. Select the required posture by clicking the right SpinalMouse® button.
6. Instruct the patient to adopt the posture described in the chapter “The Standard postures” on page 48.



Position/location marker

7. Position the SpinalMouse® on the spine such that the mark corresponds exactly with the spinous process of the cervical vertebra (C7). See the chapter “Spinal assessment with the SpinalMouse®” on page 46.
8. Briefly press the left SpinalMouse® button. Then wait until a short tone sounds before progressing with the recording. The LED on the Spinal-Mouse® flashes.
9. Guide the SpinalMouse® slowly along the spine (from C7 to the anal flap or S3). Both of the SpinalMouse® wheels must remain in contact with the skin throughout the recording.
10. Before lifting the SpinalMouse® off the skin stop the recording by pressing the left SpinalMouse® button. A short tone will sound to confirm that data has been fully transferred to the PC.
11. By pressing the right SpinalMouse® button select the next posture and then repeat steps 6 to 10.

Repeating the recording

Each individual record that has not been saved by clicking **F6** can be repeated as necessary. Only the final recording is saved by pressing **F6**.

Saving the records

Once a valid record has been carried out for each posture you can save the series of records by pressing **F6**. Now the record is available to the Results module (page 24).

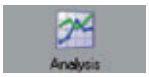
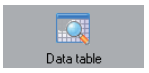
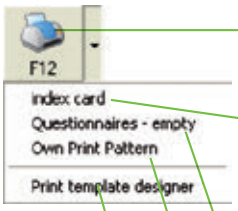
Back to setup overview (page 10)

A detailed description of the recording procedure begins in the chapter “Spinal assessment with the SpinalMouse®” on page 46

Only those assessments that are properly carried out will deliver valid results. If you are in any way uncertain in the proper use of the SpinalMouse® please consult your customer adviser.

95% Remaining battery capacity.

Further options available to you at this stage

	Delete the active index card		Start window for recordings and evaluations
	Cancel the recording without saving data		Evaluation as contour line, inclination and non-animated 3D mode (page 24)
	Import or export the active records (page 40)		Evaluation in graph form and text evaluation via the expert mode (page 25)
	Options, see p. 52) • Data table, see p. 26 • Standard deviation, see p. 25, 28, 33 • Countdown time, see p. 52		Data table (page 26)
	Recording over clothes (not recommended)		Notes on the records (page 27)
	3D or animated view of the active records		Displays a list of all records for this patient (page 31)
	Print using the standard print template Printing the overall evaluation (using the standard print template) Use your own print template in place of the standard print template Print template designer (for individual customisation and modification of your print template) Print template manager (set the default printer file that is automatically used when the print button (**F12**) is clicked). See also page 38		**F3** exports a PDF file of the data record to the **e-Record** directory. This function uses the standard print template. The path to the e-Record directory can be found under **Configuration** > **Data Paths** > **Data Path Client Data** (for standard installations at C:\MM60\Data\).
	Close the current window		

10 Analysis Tools

Once you have completed a series of records the following options for presentation modi, comparison and analysis tools are available to you. These tools will be introduced in the following chapters. In Comparison mode you can compare records that were made consecutively (see page 37).

Preparation (if the records are not already shown)

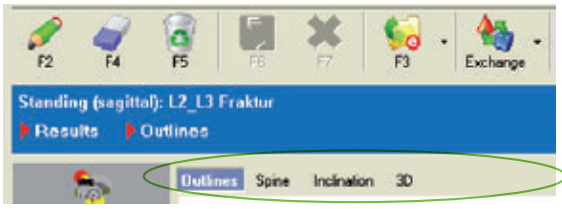
- Select the desired patient (**Client** > **Select client,** see page 17).
- Select a assessment protocol in the main window (e.g. **Sagittal Plane > Standing (sagittal)**).
- Click **Overview**. All of the records that belong to the currently selected assessment protocol will appear. In the list double click on the required record.
- Select the analysis tool you require (e.g. **Results**)

You will find the further options available to you at this stage on page 23.

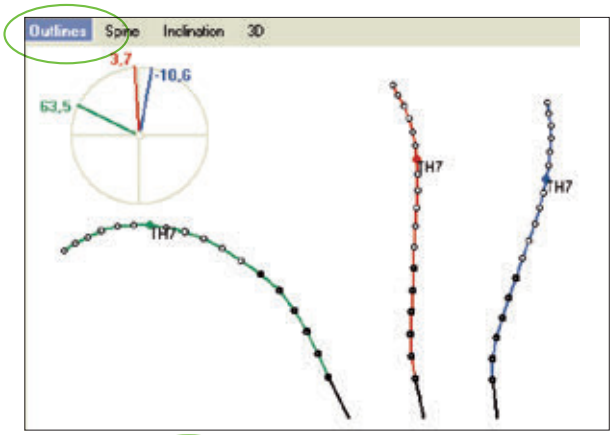
10.1 Analysis tools for the sagittal assessment protocol

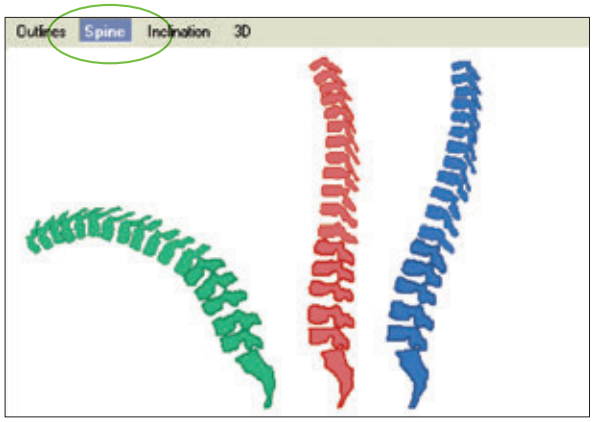
If the records are not already shown carry out the preparations described on page 24.

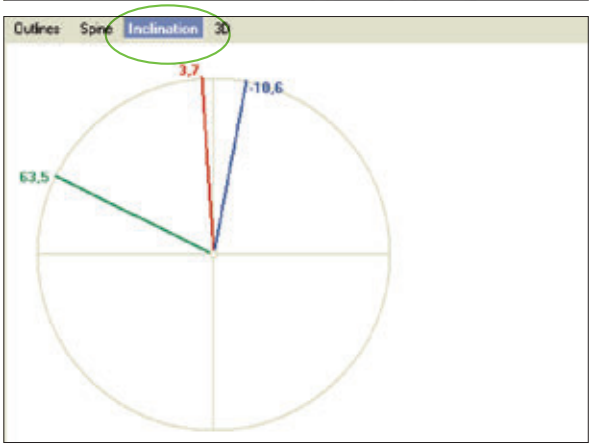
10.1.1 Results

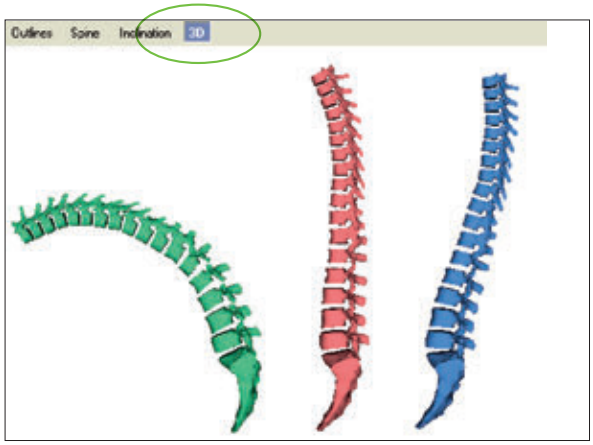


Select the required view









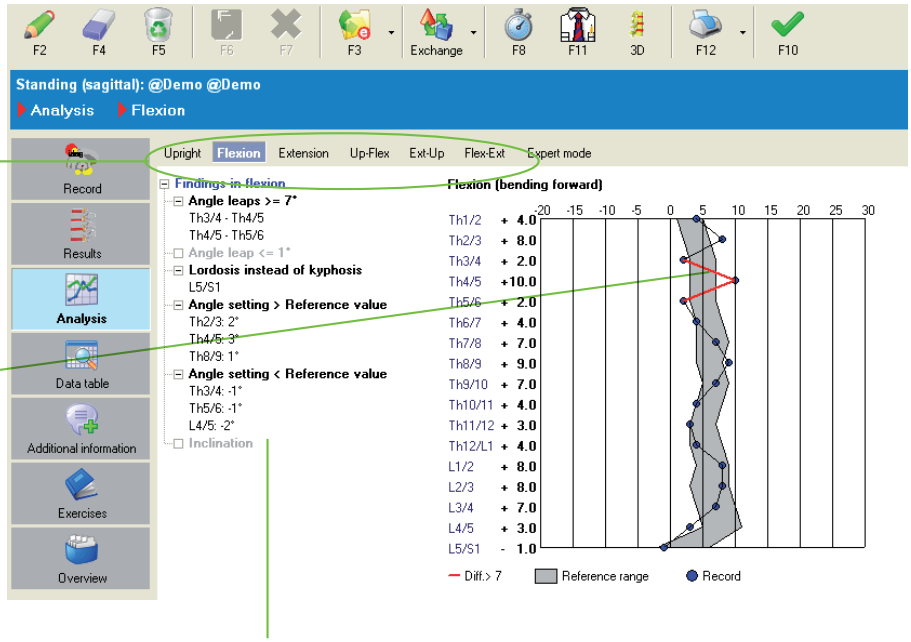
10.1.2 Analysis

The standard deviation for the reference values selected under **Options** (page 52)) will be used for the following analyses and presentations.

Analysis compares the results of the individual postures (upright, flexion, extension) and mobility with the reference values.
Up-Flex = Flexion movement;
Up-Ext= Extension movement;
Flex-Ext = Overall mobility.

Select the required posture.

The red lines symbolise angular fluctuations greater than 7 degrees from one segment to the next

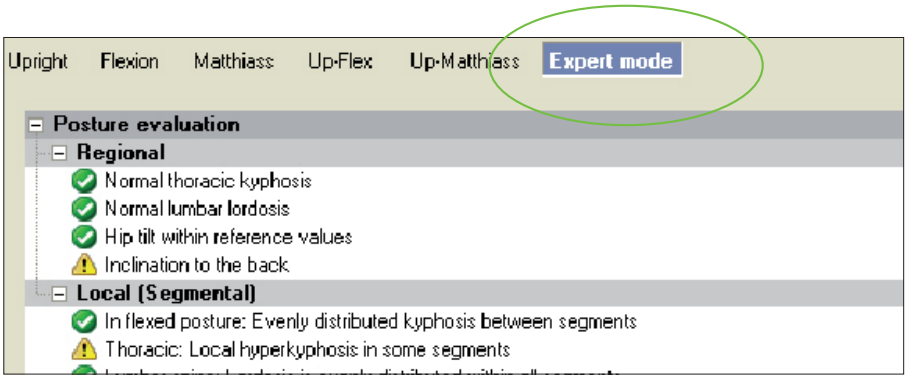


Abnormalities of the selected posture are listed in the left part of the overview. The following are considered as abnormalities:

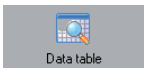
- Angle fluctuations greater than 7 degrees
- Angle fluctuations smaller than 1 degree
- Lordosis instead of kyphosis and vice versa
- Angle greater or smaller than the reference value

Expert mode

The expert mode displays all postural and mobility abnormalities, both regional and local, as a text summary.



10.1.3 Data table

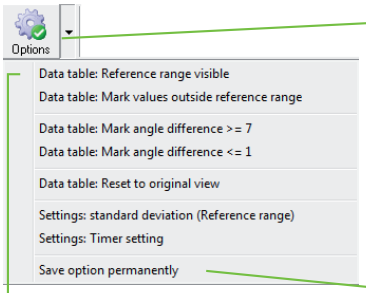


Under the **Data table** menu item, the individual recorded values are represented in tabular form.
The recorded values for each posture are listed in a single column.

In the columns **Upright**, **Flexion**, **Extension** are the posture values

In columns
U-F (Upright Flexion=Flexion movement),
U-E (Upright Extension=Extension movement),
F-E (Flexion Extension=Overall mobility) the values for the mobility are displayed.

Segment	Upr	Flex	Ext	U-F	U-E	E-F
Th1/2	2	4	3	3	1	2
Th2/3	7	8	5	1	-2	3
Th3/4	8	2	5	-6	-2	-3
Th4/5	3	10	6	7	2	4
Th5/6	4	2	3	-1	-1	-1
Th6/7	6	4	4	-2	-2	0
Th7/8	6	7	5	1	-1	2
Th8/9	4	9	4	4	0	4
Th9/10	2	7	2	5	-1	6
Th10/11	1	4	-3	3	-5	8
Th11/12	-3	3	-1	5	1	4
Th12/L1	2	4	-2	2	-4	5
L1/2	-1	8	-4	9	-3	12
L2/3	-6	8	-7	14	-1	14
L3/4	-11	7	-12	17	-2	19
L4/5	-10	3	-13	13	-2	16
L5/S1	-6	-1	-7	5	-1	6
Sac/Hip J.	18	68	2	50	-16	65
Thoracic spine	41	60	32	20	-9	29
Lumbar spine	-32	28	-45	60	-13	73
Incl.	-2	104	-32	107	-29	136
Length	501	578	465	77	-36	113

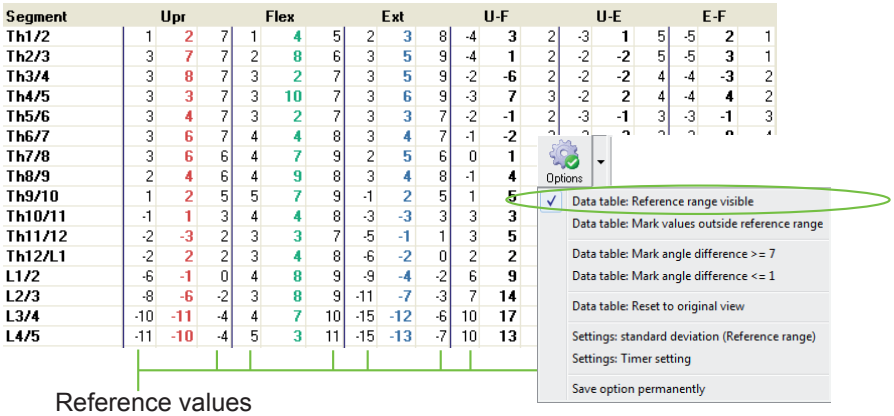


Click **Options** to select your desired display options for the data table. Another click deactivates this function.

Clicking **Save option permanently** options saves your desired display options for the data table as the default settings.

Displaying reference values

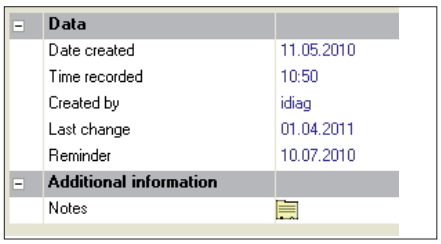
The collected recorded data can be compared with standardised reference values. Reference values exist for the posture standing sagittal (6-11 yrs., 18-83 yrs.), sitting sagittal (18-83 yrs.) and Matthiass (18-83 yrs.).



Reference values

10.1.4 Additional information

In the **Additional Information** menu you can add information pertaining to the selected records.
You can incorporate this additional information in the print template designer.

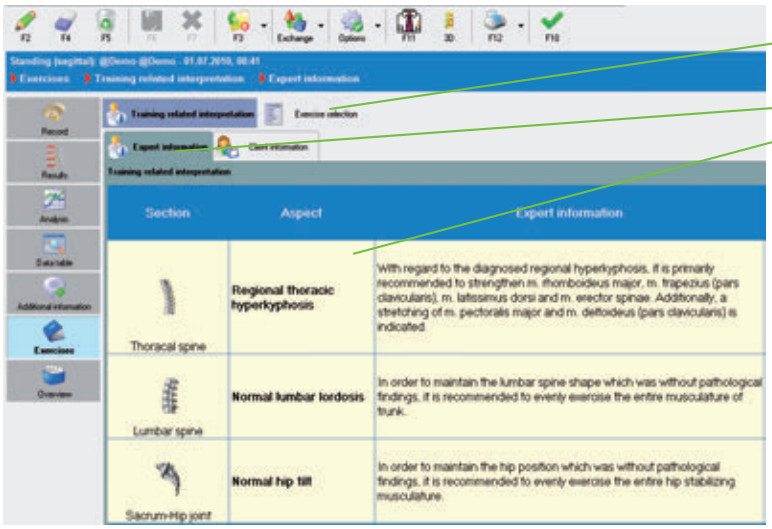


10.1.5 Exercises

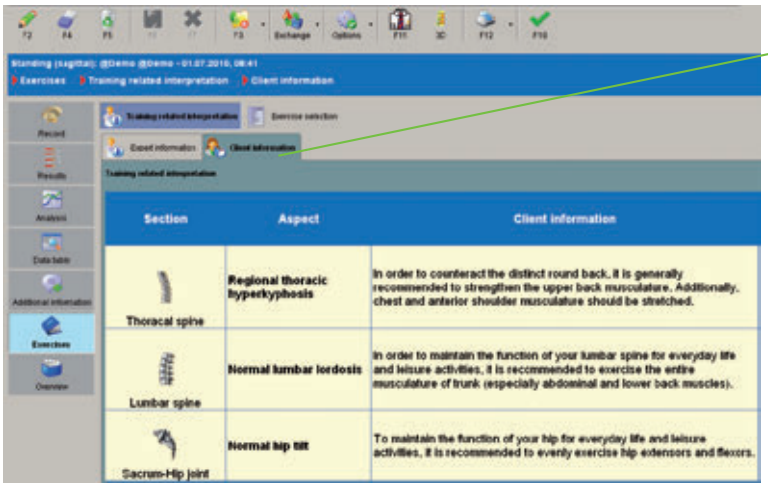
Clicking **Exercises** displays tips on the training related interpretation of the SpinalMouse® data for the selected dataset.

Before using the Exercises function for the first time you must import the exercise from the exercise catalogues (see section “Import exercise library” on page 70).

The “standard deviation for the reference values” selected under **Options** (page 52) will have an influence on the exercises.

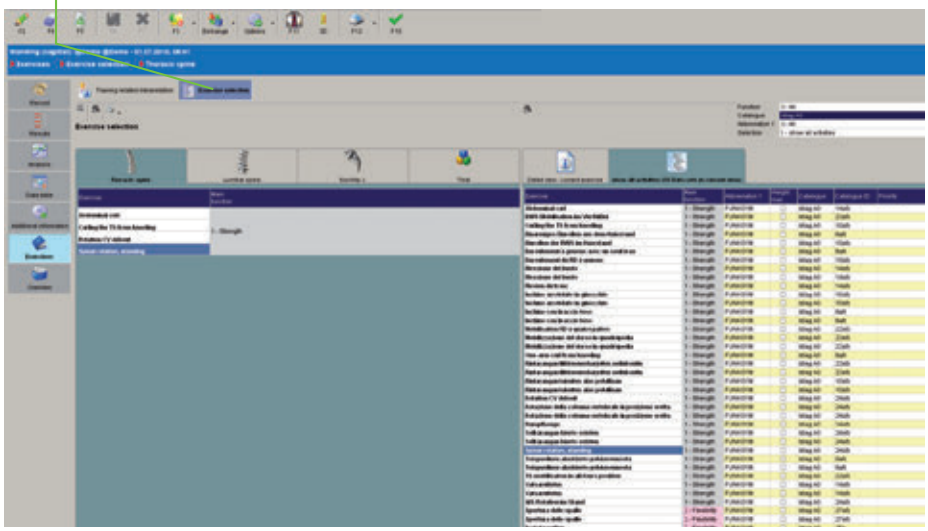


Select **Training related interpretation** followed by **Expert information**. Important expert tips will be shown for the displayed dataset.

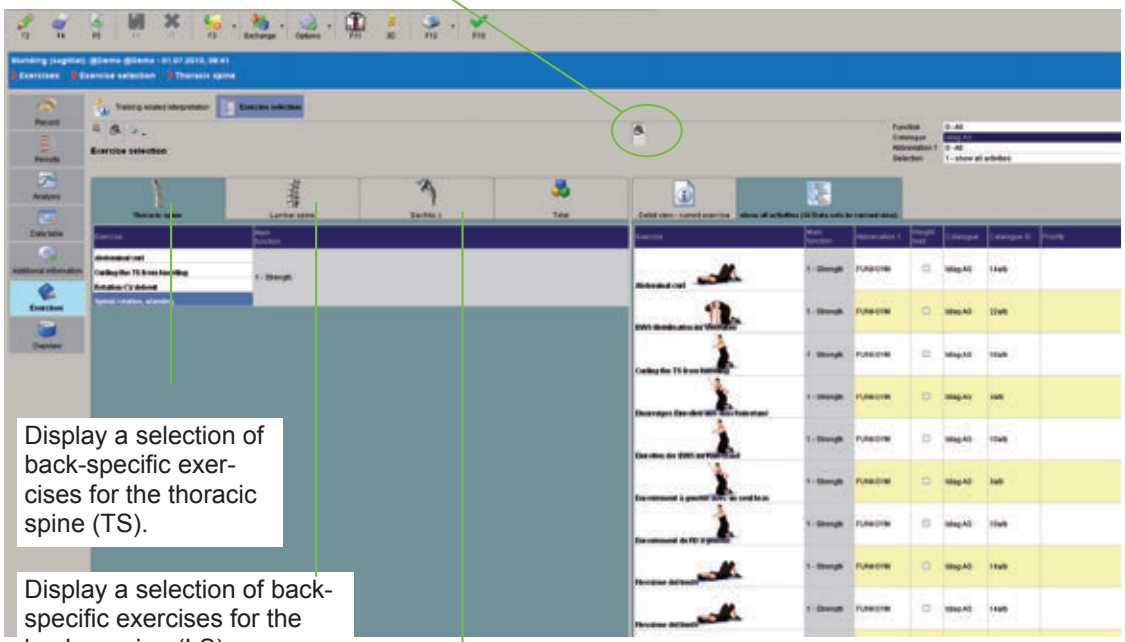


Select **Client information**. Training-related tips will be shown for the displayed dataset.

Click **Exercise selection**. A list of the exercises indexed for the results will appear.



Show a pictorial representation of the exercises.



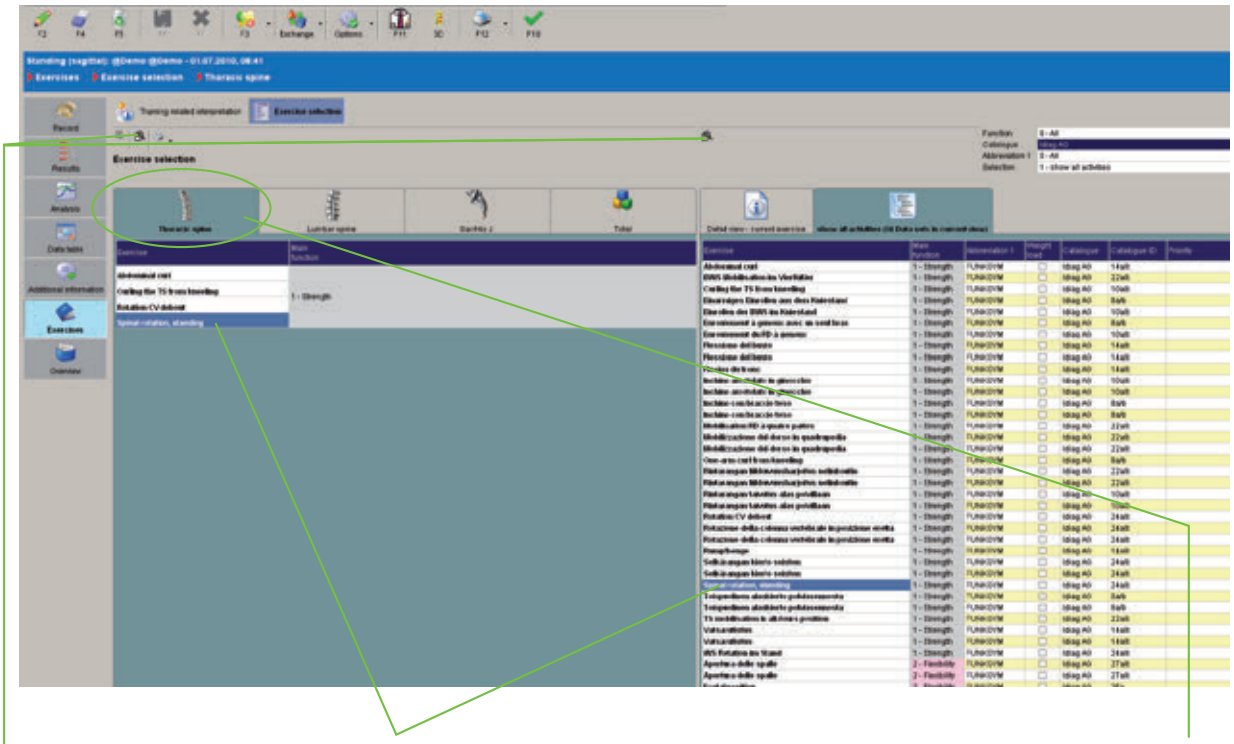
Display a selection of back-specific exercises for the thoracic spine (TS).

Display a selection of back-specific exercises for the lumbar spine (LS).

Display a selection of back-specific exercises for the sacrum/hip joint (sac/HJ).

Create a custom exercise plan.

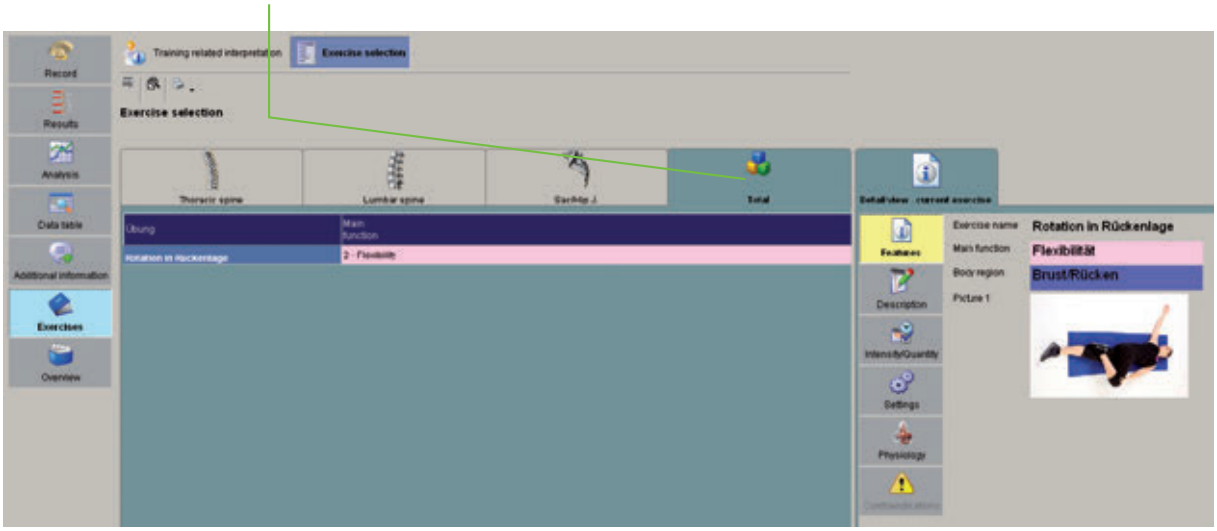
Click **F4** (editing mode) to create your own custom exercise plan.

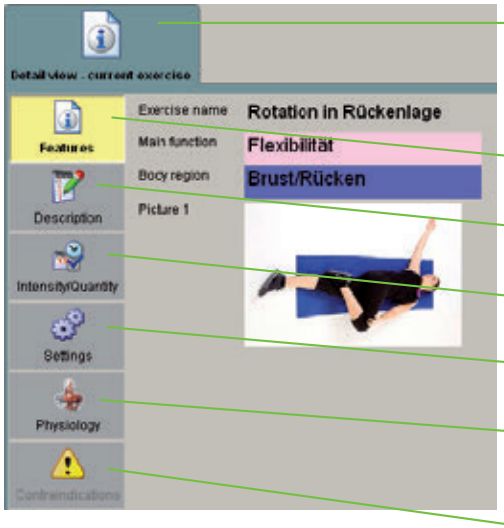


To create your own custom exercise plan: Select **TS**, **LS** or **sac/HJ.** On the right, select the exercise that you would like to include in your exercise plan. Drag this – with the left mouse button depressed – to the left.

Show a pictorial representation of the exercises.

Clicking **Total** displays all of the exercises in the custom exercise plan (TS, LS and sac/HJ).





You can display details on the exercises in the custom exercise plan by clicking **Detail view – current exercise**.

Brief description of the exercise.

Supplement or amend the default texts.

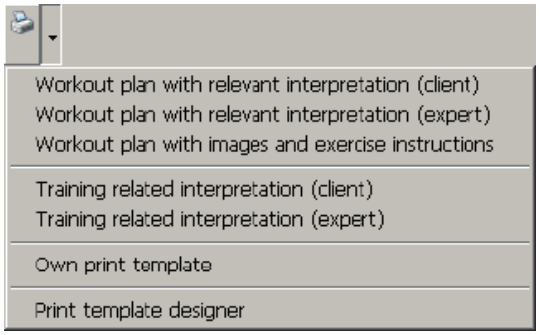
Enter the intensity and extent of the exercise.

Enter the intensity and extent of the exercise.

Additional physiological information on the displayed exercise.

Contraindications taken into consideration during selection of the exercises. The information contained in the anamnesis (see page 44) is taken into consideration.

Click **F6** to save the exercise plan you created.



There are several options available to you for printing the exercise plan.

10.1.6 Overview

Overview displays a list containing all of the records related to the activated patient. The list only displays the records for the currently selected assessment protocol.
Click the required assessment protocol to select it.

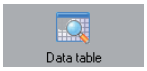
10.2 Rating of the frontal levels

If the records are not already shown carry out the preparations described on page 24.

10.2.1 Results

See **Results** page 24.

10.2.2 Data table



The individual recorded values are depicted in table form in the **Data table** menu.

In columns **Left**, **Upright**, **Right** are the values for the posture. The bracket before or after the angle value shows the convexity of the segment or of the spinal column section.

In columns
S-L (Straight-Left = Side inclination to the left),
S-R (Straight-Right = Side inclination to the right),
L-R (Left-Right = Over-all mobility)
the values for the mobility are shown. An arrow points toward the respective direction of movement.

Segment	Left	Upright	Right	S-L	S-R	L-R
Th1/2	0	0	1	0	0	1
Th2/3	2	1	3	3	2	5
Th3/4	3	1	1	2	2	4
Th4/5	4	1	3	3	4	7
Th5/6	4	0	3	4	4	7
Th6/7	4	1	2	4	1	5
Th7/8	5	1	2	4	3	8
Th8/9	5	0	1	6	1	6
Th9/10	4	1	1	3	2	6
Th10/11	0	1	3	1	4	4
Th11/12	1	2	7	2	5	7
Th12/L1	1	3	8	4	4	9
L1/2	2	2	7	4	5	8
L2/3	2	0	5	2	5	7
L3/4	1	0	5	1	5	6
L4/5	2	1	2	1	3	4
L5/S1	1	0	2	1	1	3
Sac./Hip J.	7	0	9	7	10	17
Thoracic spine	32	2	25	31	27	58
Lumbar spine	9	4	28	14	24	37
Incl.	23	2	39	25	37	62
Length	516	541	530	-25	-11	14

10.2.3 Additional information

See **Additional information** page 27

10.2.4 Overview

See **Overview** page 31

10.3 Analysis of the Spine-check Score©

The “standard deviation for the reference values” selected under **Options** (page 52) will have no influence on the following Spine-check-Score© analyses and presentations.

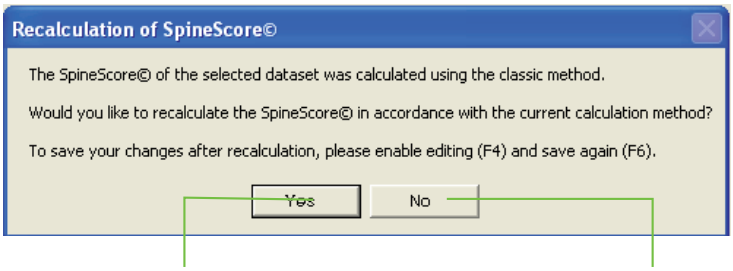
If the records are not already shown carry out the preparations described on page 24.

10.3.1 Spine-check Score©

Spine-check-Score© provides a weighted score for the spinal functions posture, mobility and postural competence – in the form of a traffic light chart.

Select an evaluation criterion. The evaluation is displayed in graphical (–, ––, Ø, +, ++), numerical (0-100) and text form.

If the Spine-check Score© assessment was carried out using older versions of the PC software (before 6.3.01), you may select whether the evaluation should be displayed purely in graphical form (classic display) or whether it should be displayed graphically and numerically together with an expanded recalculation of the score.



CAUTION

Clicking **Yes** saves the new display and the recalculated score. It will subsequently be impossible to restore the old values.

Click **No** for the purely graphical (classic) display.

10.3.2 Results

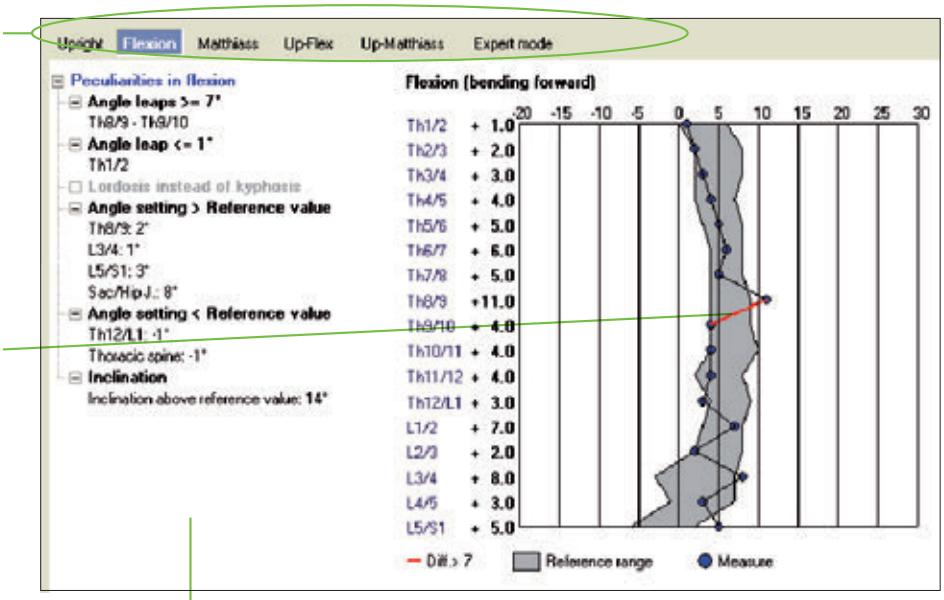
See **Results** page 24.

10.3.3 Analysis

Analysis displays the following data for the individual postures (Upright, Flexion, Matthiass Test) in graph form:

- Upright (posture)
- Flexion (posture)
- Matthiass (posture)
- Upright-Flexion (mobility)
- Upright-Matthiass (postural competence)

Select the required evaluation.



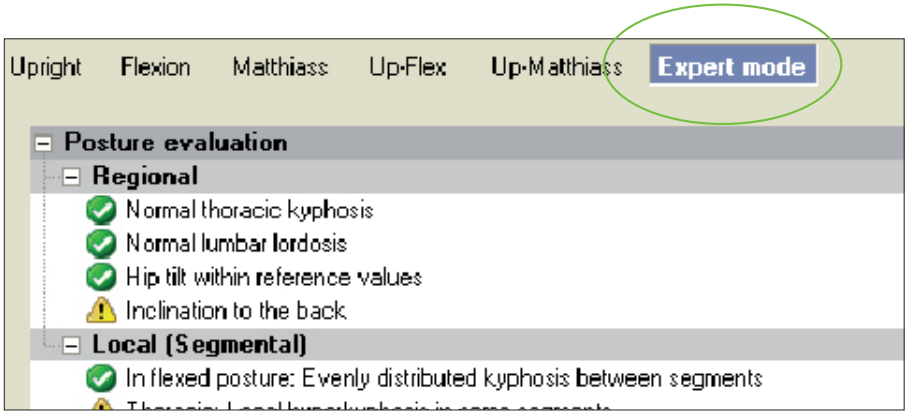
The red lines symbolise angular fluctuations greater than 7 degrees from one segment to the next.

Abnormalities of the selected posture are listed in the left part of the overview.
The following are considered as abnormalities:

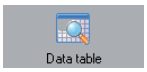
- Angle fluctuations greater than 7 degrees
- Angle fluctuations smaller than 1 degree
- Lordosis instead of kyphosis and vice versa
- Angle position greater or smaller than the reference value

Expert mode

The expert mode displays all postural and mobility abnormalities, both regional and local, as a text summary.



10.3.4 Data table



See “Data table” on page 26.

The **Upright Flexion** column represents the posture.

The **Matthiass** column represents the erect posture under stress.

Column **U-F** (difference between **Upright** posture and **Flexion**) represents the mobility.

Column **U-M** (difference between **Upright** posture and Matthiass posture) represents the postural competence.

Segment	Upr	Flex	Matt	U-F	U-M
Th1/2	4	7	4	3	-1
Th2/3	7	4	7	-3	1
Th3/4	7	8	8	2	1
Th4/5	3	7	6	4	2
Th5/6	4	7	4	4	0
Th6/7	-1	8	0	9	2
Th7/8	4	-1	7	-5	4
Th8/9	6	10	5	3	-1
Th9/10	2	6	2	4	0
Th10/11	-3	7	-4	9	-2
Th11/12	-2	0	-2	3	0
Th12/L1	4	10	2	7	-2
L1/2	0	10	-1	9	-1
L2/3	-2	12	-2	13	0
L3/4	-5	4	-8	10	-3
L4/5	-7	6	-7	13	-1
L5/S1	-5	3	-4	8	0
Sac/Hip J.	13	44	7	30	-6
Thoracic spine	31	63	36	33	5
Lumbar spine	-14	45	-21	59	-7
Incl.	4	93	-6	89	-10
Length	522	622	534	100	12

Clicking the right PC mouse key opens a sub-menu which offers additional help in interpreting the results (see page 26).

10.3.5 Additional information

See **Additional information** page 27

10.3.6 Exercises

Overview on page 28

10.3.7 Overview

See **Overview** page 31

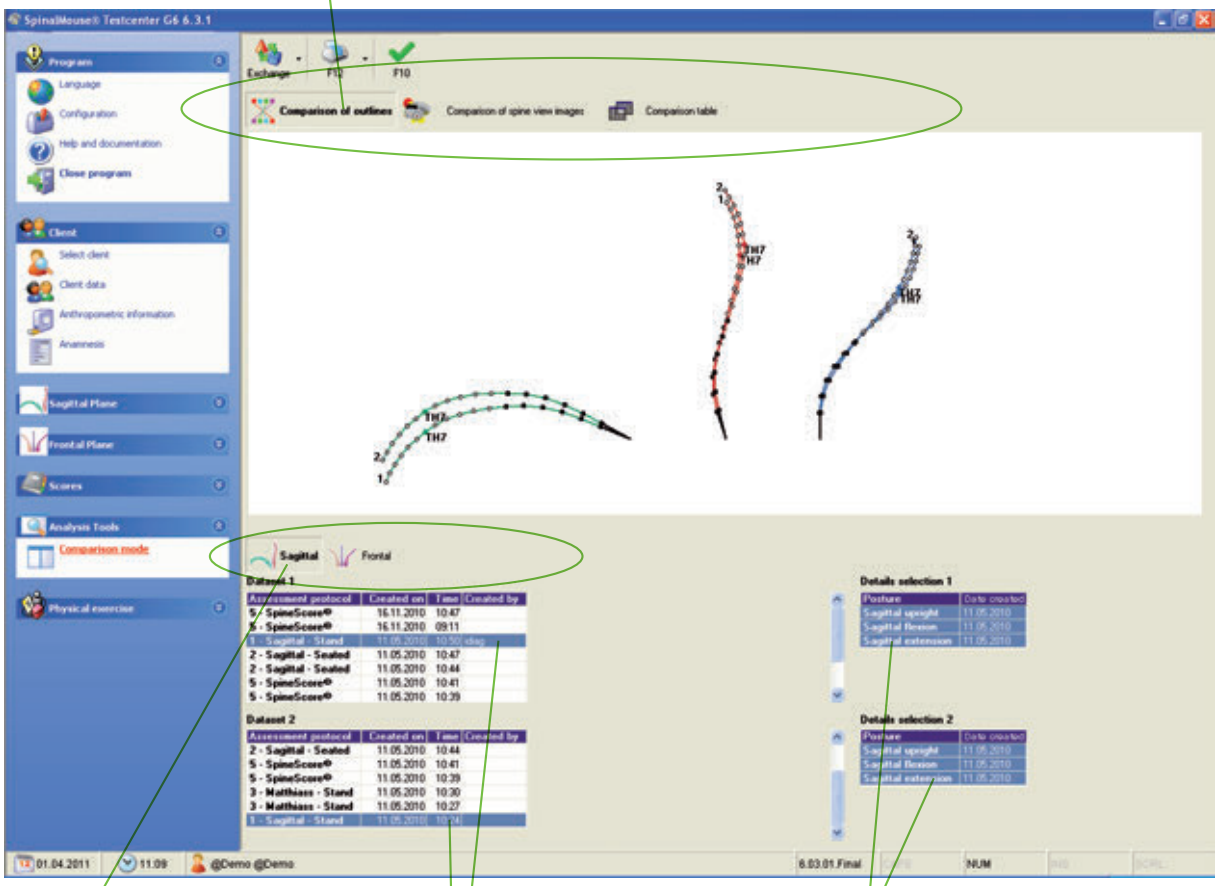
11 Comparison Mode

In **Comparison mode** you can compare records that were made consecutively.

Select the desired patient (**Client** > **Select client**, see page 17).

In the main window click **Analysis Tools** and then **Comparison mode**.

1. Select the required view.



2. Select the assessment protocol (e.g. sagittal).

Two identical tables appear which display all of the records for the currently selected assessment protocol.

3. Select the first record in the top table and a different record from the bottom table.

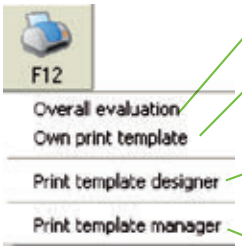
A single click on the assessment protocol shows or hides the individual records.

12 Printing recorded data

12.1 Introduction

Open the required records.
The following options are available for printing recorded data:

1. Pressing **F12** or clicking the button starts printing using the standard print template.
2. Opening the drop-down menu alongside **F12** provides the following options:



Print the overall evaluation

Use your own print template in place of the standard print template

Print template designer (for individual customisation and modification of your print templates) (see chapter Print template designer, page 38)

Select a standard print template (this can be retrieved later by pressing F12) (see chapter Print template manager, page 38)

12.2 Print template designer

Among other tasks, the Print template designer allows you to insert your company logo into a print template and you can design documents according to your requirements.

* For further information see (SpinalMouse®) **Program** > **Help and documentation** > **Designer User Guide**.

12.3 Print template manager

A standard print template is assigned to each assessment protocol.
In order to use a template you have created yourself or another print template as the standard print template (default printer file), open the drop-down menu alongside and then the **Print Template Manager**.

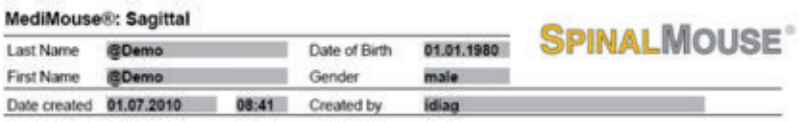
* For further information see (SpinalMouse®) **Program** > **Help and documentation** > **Designer User Guide**.

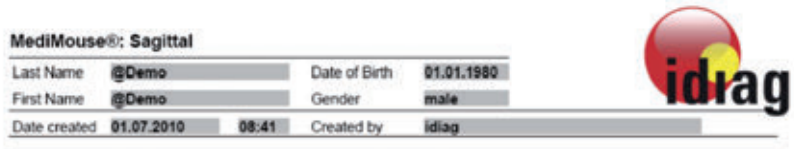
12.4 Defining the standard print template

Open the drop down menu next to and then select the **print template manager**. Press the **F4** key and then click on . Select your desired print template and then click **Open**. The name of the selected print template will appear in the black window. Select Primary print file . Press the **F6** key to save it. Press the **F10** key to close the print template manager.

12.5 Placing your own logo on print templates

Copy your company logo in .jpg format to the top level of the C:\MM60 directory and rename it “print_logo.jpg”. Your company logo will now automatically appear on the supplied print templates. (Only applies to print templates: N_NAMEXYZ).

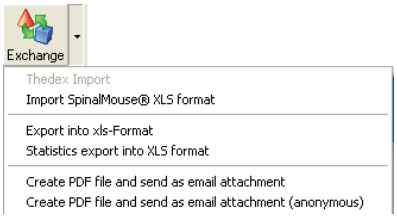




13 Importing or exporting the displayed records

13.1 Introduction

Open the desired records.
The following options are available for importing or exporting recorded data:



The functions are described in the following sections.

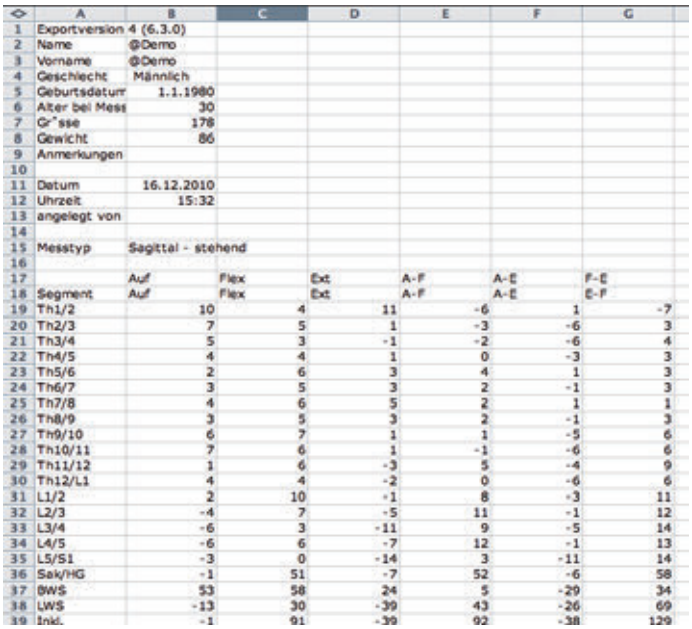
Changing the import and export paths
All import and export paths can be changed under **Program** > **Configuration** > **Data paths**.
Click on **Editing mode** (**F4**). Then double-click on the data path that is to be changed. Enter the new data path and save this entry with **F6**.

13.2 Import SpinalMouse® XLS format

With **Import SpinalMouse® XLS format** an individual record can be imported from an XLS file. The postures that can be imported are: standing sagittal, sitting sagittal and Matthiass.

13.3 Export XLS format

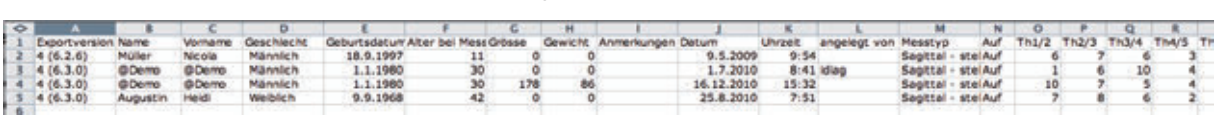
With **Export into xls-format** an individual record can be exported to an XLS file.



	A	B	C	D	E	F	G
1	Exportversion	4 (6.3.0)					
2	Name	@Demo					
3	Vorname	@Demo					
4	Geschlecht	Männlich					
5	Geburtsdatum	1.1.1980					
6	Alter bei Mess	30					
7	Gr"sse	178					
8	Gewicht	86					
9	Anmerkungen						
10							
11	Datum	16.12.2010					
12	Uhrzeit	15:32					
13	angelegt von						
14							
15	Messtyp	Sagittal - stehend					
16							
17		Auf	Flex	Ext	A-F	A-E	F-E
18	Segment	Auf	Flex	Ext	A-F	A-E	E-F
19	Th1/2	10	4	11	-6	1	-7
20	Th2/3	7	5	1	-3	-6	3
21	Th3/4	5	3	-1	-2	-6	4
22	Th4/5	4	4	1	0	-3	3
23	Th5/6	2	6	3	4	1	3
24	Th6/7	3	5	3	2	-1	3
25	Th7/8	4	6	5	2	1	1
26	Th8/9	3	5	3	2	-1	3
27	Th9/10	6	7	1	1	-5	6
28	Th10/11	7	6	1	-1	-6	6
29	Th11/12	1	6	-3	5	-4	9
30	Th12/L1	4	4	-2	0	-6	6
31	L1/2	2	10	-1	8	-3	11
32	L2/3	-4	7	-5	11	-1	12
33	L3/4	-6	3	-11	9	-5	14
34	L4/5	-6	6	-7	12	-1	13
35	L5/S1	-3	0	-14	3	-11	14
36	Sak/HG	-1	51	-7	52	-6	58
37	BWS	53	58	24	5	-29	34
38	LWS	-13	30	-39	43	-26	69
39	Inkl.	-1	91	-39	92	-38	129

13.4 Statistics export into XLS format

With **Statistics export into XLS format** several records can be exported row-by-row to a collective XLS file. The collective XLS file allows statistical comparisons of several records to be carried out.



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Exportversion	Name	Vorname	Geschlecht	Geburtsdatum	Alter bei Mess	Grösse	Gewicht	Anmerkungen	Datum	Uhrzeit	angelegt von	Messtyp	Auf	Th1/2	Th2/3	Th3/4	Th4/5
2	4 (6.2.6)	Müller	Nicola	Männlich	18.9.1997	11	0	0		9.5.2009	9:54		Sagittal - ste	Auf	6	7	6	3
3	4 (6.3.0)	@Demo	@Demo	Männlich	1.1.1980	30	0	0		1.7.2010	8:41	idag	Sagittal - ste	Auf	1	6	10	4
4	4 (6.3.0)	@Demo	@Demo	Männlich	1.1.1980	30	178	86		16.12.2010	15:32		Sagittal - ste	Auf	10	7	5	4
5	4 (6.3.0)	Augustin	Heidi	Weiblich	9.9.1968	42	0	0		25.8.2010	7:51		Sagittal - ste	Auf	7	8	6	2
6																		

14 Anthropometric Information

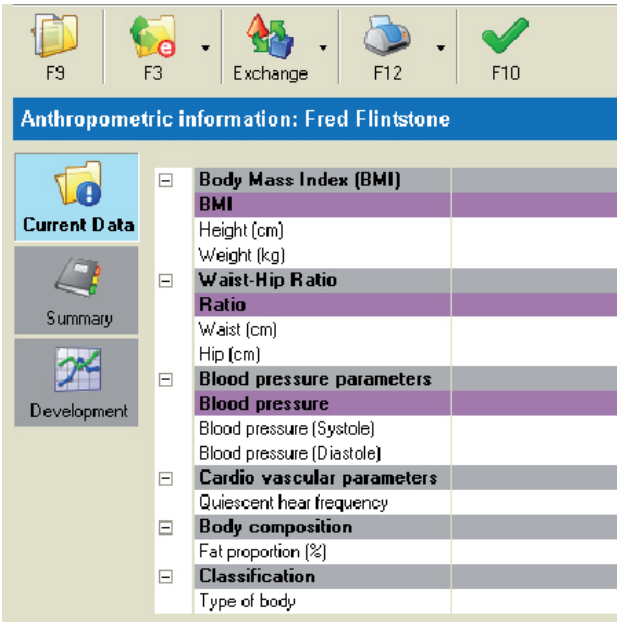
The following anthropometric data can be recorded and evaluated over time:

- Body Mass Index (weight and height)
- Waist-hip ratio
- Blood pressure parameters (diastolic and systolic)
- Cardio vascular parameters
- Body composition (fat proportion)
- Classification body type

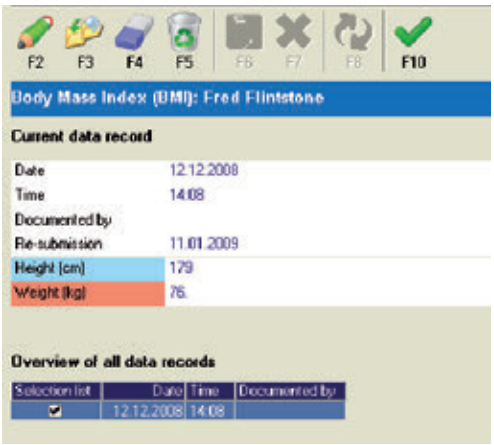
The Body Mass Index (BMI) is computed from the height and weight parameters. The factor for the Waist-hip ratio is determined by the waist and hip recording parameters.

Preparation

1. Select the required patient (**Client** > **Select client,** see page 17).
2. Click **Anthropometric information**. The following window appears.



Double click in the row where you want to enter data (e.g. Weight) or click **F9**. A new window will open (see below).



Enter the data and click **F6** (save). Close the window by pressing **F10**.

Changing existing entries

Press **F4** to switch to the editing mode. Once you have finished editing click **F6** (save). Close the window by pressing F10.

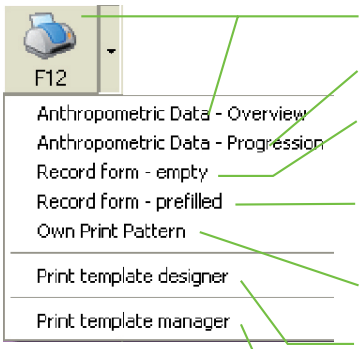
14.1 Summary

The menu item Summary allows a straightforward risk analysis using the current anthropometric data together with the most recent available reference values from the WHO.

Click **Summary** to display the risk analysis for the current dataset:

Choose one of the following views: **BMI**, **Waist-Hip Ratio**, **Blood Pressure Parameter**, **Quiescent-Heart Frequency** and **Body Formation**.

14.2 Printing options



Print an overview of the anthropometric information

Print anthropometric data as a progression graph

Print a blank record form

Print a pre-filled record form (record form for entering new anthropometric data for an existing patient)

Use your own print template in place of the standard print template

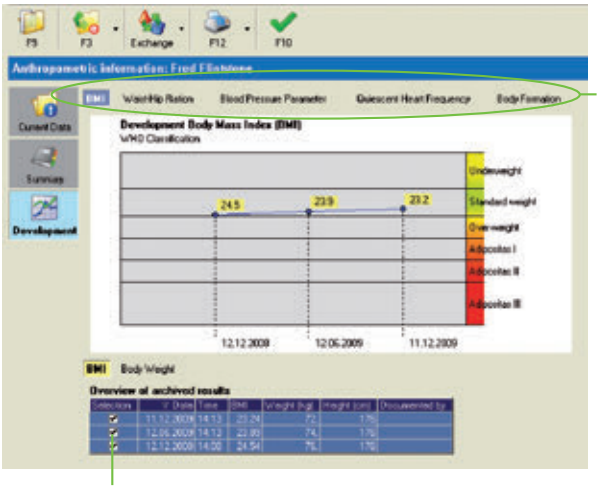
Print template designer* (for individual customisation and modification of your print templates)

Print template manager* (set the default printer file that is automatically used when the print button (**F12**) is clicked.

* For further information see (SpinalMouse®) **Program** > **Help and documentation** > **Designer User Guide**.

14.3 Development

Click **Development** to display the chronological development:



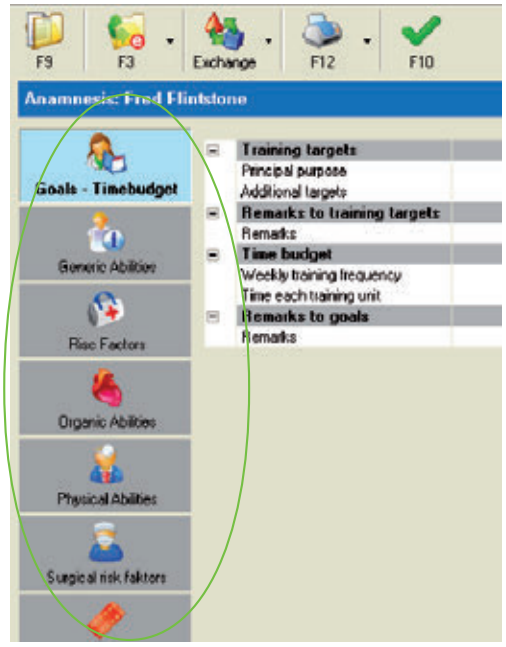
Choose one of the following views: **BMI**, **Waist-Hip Ratio**, **Blood Pressure Parameter**, **Quiescent Heart Frequency** and **Body Formation**.

Use the check boxes to show or hide the archived results.

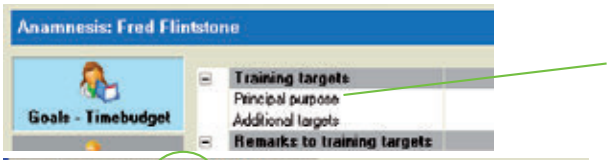
15 Anamnesis

Preparation

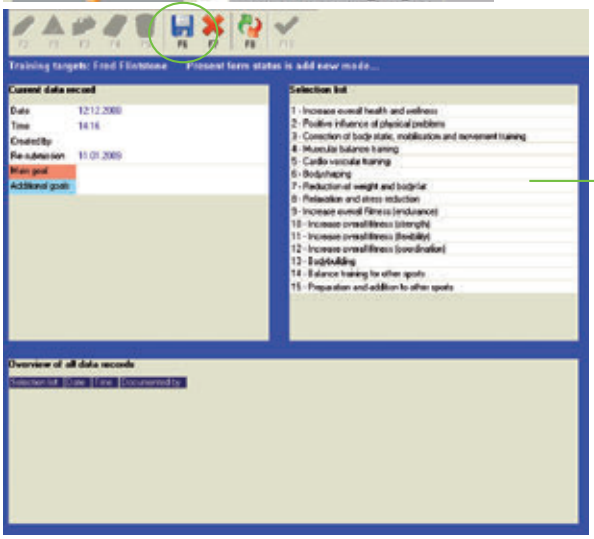
1. Select the required patient (**Client** > **Select client,** see page 17).
2. Click **Anamnesis**. The following window appears.



Select the required subject button (e.g. **Goals - Timebudget**)



Double click in the row where you want to enter data (e.g. **Principal purpose**). An input form opens.



If a picklist is available click on the pertinent statement(s). If there is no picklist use freeform text entry in the text field.

Save the entries by pressing **F6** and quit the input form with **F10**.

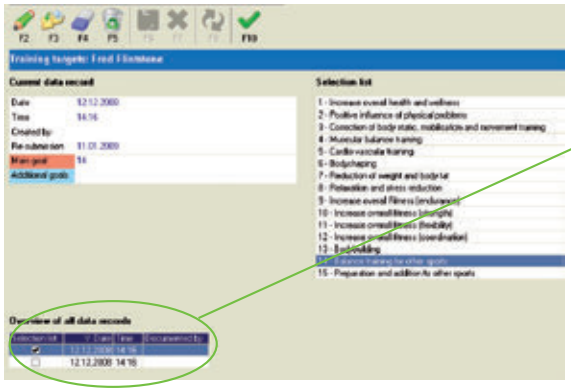
15.3.1 Change entry

Select the required subject button (e.g. **Goals - Timebudget**). Double click in the row you want to change (e.g. **Principal purpose**).
To change the active input form press **F4** to enter the editing mode. Once you have finished amending the data save the entries by pressing **F6** and quit the input form with **F10**.

15.3.2 Create new entry

A new **entry** will be saved under the current date.

Procedure:
Select the required subject button (e.g. **Goals - Timebudget**).
Double click in the row for which you want to create a new entry (e.g. **Principal purpose**). Create a new entry by pressing **F2** or create a copy of an existing entry by pressing **F3** (the copied entry will be saved under the current date).



Once data entry is complete save them by pressing **F6**.

In the lower part of the window an overview of the entries saved for this criterion appears, together with the time and date.

Quit the input form by pressing **F10**.

16 Spinal assessment with the SpinalMouse®

16.1 SpinalMouse® principle

The SpinalMouse® records the length between the C7 and the 3rd sacral vertebrae (S3) using the large wheel. In the body of the SpinalMouse® is the movable green “vessel”. The electronic sensors contained within record the angle to the vertical plane.
Employing a complex algorithm, the SpinalMouse® software uses the resulting data to compute the spinal shape and provide a wide range of evaluation options.

16.2 Fundamentals for using the SpinalMouse®

- Ask the patient to undress their upper body.
- Ensure unhindered access to the entire spinal column from C7 to the coccyx. Should underwear or articles of clothing come between the SpinalMouse® and the skin, correct recording will be impossible.
- Ask the patient to take off his/her shoes because they affect the patients’ posture and can falsify the recording.
- The SpinalMouse® must not lose contact with the skin.
- Guide the external SpinalMouse® housing (with the housing in the longitudinal plane) keeping it as parallel as possible with the body’s surface.
- Hold the external SpinalMouse® housing (with the housing in the longitudinal plane) as perpendicular as possible to the body’s surface.
- The internal light green plastic component should not come into contact with the outer housing during recording.
- During the recording both wheels must remain in full, uniform contact with the spinous processes.
- The SpinalMouse® must not be moved too quickly. Pay special attention to this point in the case of particularly prominent spinous processes.
- Move the SpinalMouse® always from the top to bottom.

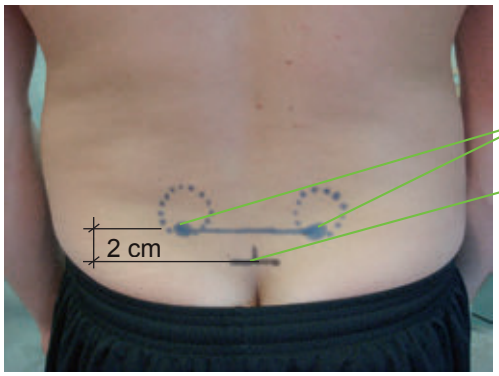
Tip: In some people the course of the spinous processes along the centre of the spine is not easily visible over its whole length. In such cases at least some of the spinous processes should be palpated and marked regionally.
For women, affix the bra to the body using adhesive tape and then open the catch.
In the case of very adipose patients the segmental accuracy can be reduced if the subcutaneous tissue has become excessively fat.

16.3 Working section

The working section of the SpinalMouse® extends from the spinous process of the 7th cervical vertebrae (C7) to the spinous process of the 3rd sacral vertebrae (S3).

16.4 Procedure

Use a marker to mark the centre of the spinous process of the 7th cervical vertebrae (C7).



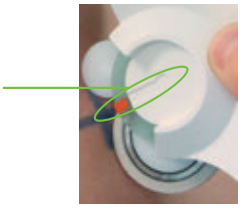
Use a marker to mark the centre of the spinous process of the 3rd sacral vertebrae (S3). S3 forms the beginning of the anal crest. Alternative locations of S3:

1. Mark the PSIS on both sides of the lower, usually upturned end.
2. Draw a line connecting the PSIS markings.
3. Measure a distance of 2 centimetres below this line and mark the position.
4. Using a second vertical line mark the centre.
   In this way a cross is created over the S3 vertebra.

Before commencing a record the orange mark on the SpinalMouse® must be placed exactly over the spinous process of the 7th cervical vertebrae (C7). C7 will therefore be located exactly between the two wheels of the SpinalMouse®.

Orange mark

Hold the SpinalMouse® such that the orange mark and the mark on the housing are lined up.



Move the SpinalMouse® from top to bottom. Stop the recording with the left SpinalMouse® button when the orange mark on the SpinalMouse® is exactly over the spinous process of the 3rd sacral vertebrae (S3).

The marking on the skin over the spinous process of the 7th cervical vertebrae (C7) is displaced by around 2.0 cm upwards in the bent-over position (flexion)! This means that, for this initial position, the 7th cervical vertebra (C7) will lie beneath the marked position and must therefore be re-palpated! (This is a common cause of recording errors in relation to the recorded section).

17 The Standard postures

This chapter describes the positions that the patient must adopt for the recording sessions. You will find detailed information on the topic “Using the SpinalMouse®” on page 22.

- Ask the patient to take off his/her shoes because they affect the patients’ posture and can falsify the recording. Ask the patient to keep his/her feet completely still whilst the recording is being carried out.
- The recordings must always be made to the same standard.
- Ensure that the patient does not make any compensatory movements that could distort the results.

Described postures

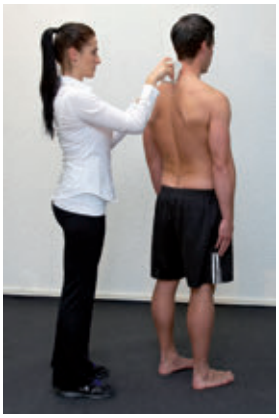
- “Standing sagittal” on page 48
- “Assessment protocol modelled on the Matthiass Test” on page 50)
- “Standing Frontal” on page 53)
- “Spine-check Score© analyses” on page 54)

17.1 Standing sagittal

CAUTION

Before commencing a recording, clarify whether the patient may, for health reasons, carry out a flexion–extension movement to the maximum angle for approximately one minute. If pain is experienced then the patient must not be allowed to bend further forwards or backwards.

17.1.1 Upright posture



- Stand with feet about hip-width apart.
- Distribute bodyweight evenly on both feet.
- The knees should be straight.
- The patient should adopt his habitual posture.
- The arms should be allowed to hang freely at the sides of the body.
- Look straight ahead (horizontally).

17.1.2 Flexion

CAUTION

Before commencing records clarify with the patient whether, for health reasons, he/she is able to or is allowed to adopt the fully bent-over position for approximately one minute. If the patient experiences pain then he/she may not bend further forwards.

- Knees/legs remain straight.
- The upper body is bent as far as possible forward and downward (“roll the body gently down” from top to bottom).
- The head and arms are relaxed and hanging down.

The marking over the 7th cervical vertebra (C7) is displaced by around 2.0 cm upward in the initial position in relation to the spinous process. Therefore the spinous process of the 7th cervical vertebrae (C7) must be redefined as the starting point for the recording (see page 46).

17.1.3 Extension posture

CAUTION

Before commencing records clarify with the patient whether, for health reasons, he/she is able to or is allowed to adopt the fully bent-over position for approximately one minute. If the patient experiences pain then he/she may not bend further forwards.

- Cross the arms over the chest (right hand on left shoulder, left hand on right shoulder).
- Bend the upper body backward as far as possible.
- The head should be in the neutral position (look straight ahead).
- No forward compensating movements of the hips.
- Feet should remain about hip-width apart.
- The knees should remain straight

Records must always be carried out to the same standard.

17.2 Assessment protocol modelled on the Matthiass Test

Postural competence can be examined using the SpinalMouse® with a test modelled on the Matthiass test. During this test, a defined stress is used to provoke a change in the posture of the upper body that can be determined objectively from the SpinalMouse® recording. The assessment of an abnormal posture involves the evaluation of the extent and location of the postural change whilst moving from an upright sitting position to the standing position under stress by raising the arms for 30 seconds.
By raising the arms the centre of gravity of the body is displaced backwards. If the back muscles are weak then this is usually compensated by the backward bending of the upper body axis. The shoulder girdle is displaced backwards, the hips move forward and the lumbolordosis becomes more pronounced.

CAUTION

Before commencing records clarify with the patient whether, for health reasons, he/she is able to or is allowed to hold weights for approximately one minute. If the patient experiences pain then he/she may not be placed under further stress (reduce or remove weights).

Additional weights are used in determining the postural competence. Use the additional weights listed in the table as a guideline.

Bodyweight	Standard additional weights men	Standard additional weights women
< 55 kg	2 x 1.5 kg	2 x 1.0 kg
56 to 70 kg	2 x 2.0 kg	2 x 1.5 kg
71 to 85 kg	2 x 2.5 kg	2 x 2.0 kg
> 86 kg	2 x 3.0 kg	2 x 2.5 kg

If these are too much or too little for the patient then additional weights other than those listed in the table may be used. It is also possible to vary the length of time the stress is applied.
For subsequent tests make a note of the weight used and the time they are applied.

17.2.1 1st Recording

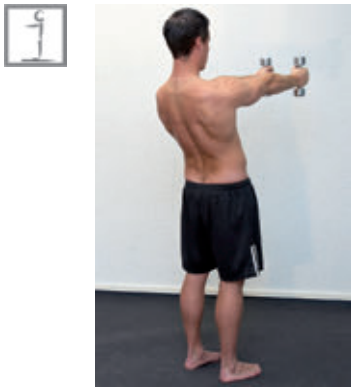
- Determine the appropriate additional weights (see table).
- The patient should adopt his habitual upright posture and take the additional weights in his hands.
- Feet should be about hip-width apart.
- Distribute bodyweight evenly on both feet.
- The knees should remain straight.
- The arms should be allowed to hang freely at the sides of the body.
- Look straight ahead (horizontally).

- Tell the patient that he must maintain the same position even after the arms are raised and until the second recording has been completed.

Timer

- The patient now raises his stretched-out arms to shoulder height (90°). The arms should point forwards horizontally.
- Once this position has been adopted carry out recording 1.
- The patient remains in the same position until recording 2 has been completed.
- As soon as the measurement commences the timer begins to count down. The remaining steps are described in the following section.

17.2.2 2nd recording



- Select the icon that appears on the left.
- Commence the 2nd recording at the exact moment the countdown timer reaches 0 (30 seconds after the 1st recording was commenced).
- The patient may only lower his arms once the second recording has been completed.

17.3 Sagittal in all fours position

Caution!
Before commencing a recording, clarify whether the patient may, for health reasons, carry out a flexion–extension movement to the maximum angle for approximately one minute. If pain is experienced then the patient must not be allowed to bend further forwards or backwards.

17.3.1 Neutral position

- Adopt an all fours position.
- Points of contact = hands, knees, lower legs and insteps.
- Arms are held hip-width apart at 90° to the floor.
- The elbows are straight.
- Thighs are hip-width apart and are at 90° to the floor.
- The patient looks at the floor.
- The neck is held such that it forms an extension of the spine.

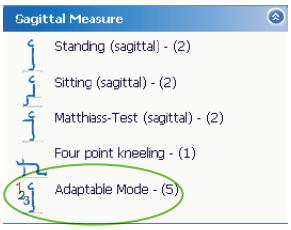
17.3.2 Flexion

- Start from the neutral position.
- The point of contact may not move.
- Bend/round the back as much as possible.
- Pull the pelvis in towards the sternum.
- Actively bend and curl-in the head.
- The elbows are straight

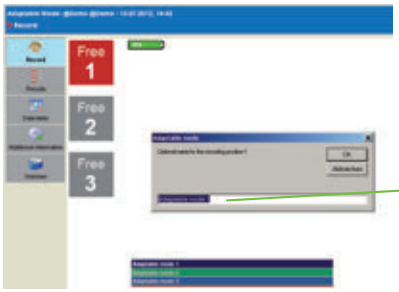
17.3.3 Extension

- Start from the neutral position.
- The point of contact may not move.
- Extend the spine. Move the buttocks backward and upward.
- The hands, elbows and shoulder joints should be aligned.
- Look at the floor (approx. 2 m obliquely forward).
- The neck is held such that it forms an extension of the spine.

17.4 Adaptable mode



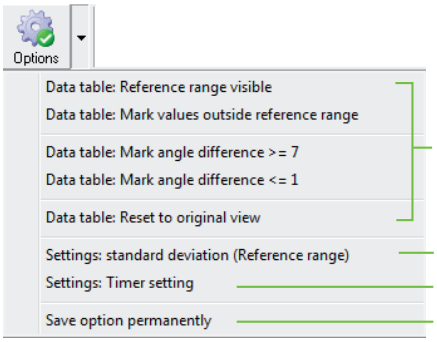
In **Adaptable mode**, up to three freely selectable postures in the sagittal plane can be recorded and individually annotated. In this manner it is possible to record the postures at maximum inhalation and maximum exhalation, for instance. The recordings can be compared with one another. “Comparison Mode” on page 37.



3 positions can be recorded (Free 1, 2 and 3).

Individual annotation

17.5 Options



Data table options: see “12.2 Print template designer” on page 38.

Influence of the selected standard deviation, see pages 25, 28, 33

Selection of the countdown time; factory default: 30 sec.

Clicking **Save option permanently** saves the selected options as the default settings for all patients.

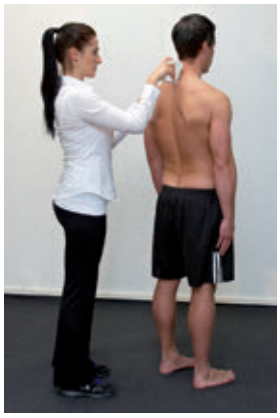
17.6 Standing Frontal

The recordings may also be carried out with the patient standing next to a table or treatment couch so that he cannot rotate his pelvis.

17.6.1 Preparation

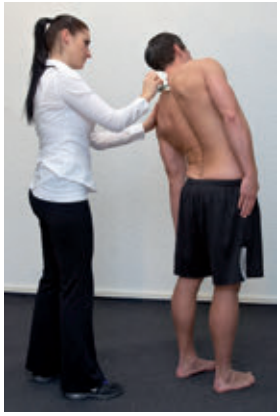
- Mark the centres of all spinous process of the 7th cervical vertebrae (C7) and the 3rd sacral vertebrae (S3) (see page 46ff).
- Guide the SpinalMouse® over the plotted marks.
- Use the same marks for measuring the lateral flexion too.

17.6.2 Upright posture



- Stand with feet about hip-width apart.
- Distribute bodyweight evenly on both feet.
- The knees should be straight.
- The patient should adopt his habitual posture.
- The arms should be allowed to hang relaxed at the sides of the body.
- Look straight ahead (horizontally).

17.6.3 Lateral flexion left (lateral inclination left)



- The initial position is the same as for recording in the upright position.
- The left arm is moved downwards over the left leg as far as possible towards the knee.
- The head is tilted loosely to the left side such that it forms an extension of the spine.
- Do not bend backward or forward.
- Feet should remain about hip-width apart.
- The knees should remain straight.

17.6.4 Lateral flexion right (lateral inclination right)

- The initial position is the same as for recording in the upright position.
- The right arm is moved downwards over the right leg as far as possible towards the knee.
- The head is tilted loosely to the right side such that it forms an extension of the spine.
- Do not bend backward or forward.
- Feet should remain about hip-width apart.
- The knees should remain straight.

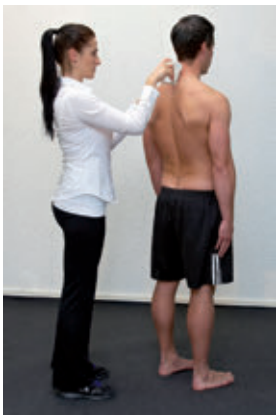
17.7 Spine-check Score© analyses

The Spine-check Score© recording may only be carried out on healthy people.

Additional weights are used for the 3rd recording of the Spine-check Score©. Determine the appropriate additional weights before commencing with the records (see table).

Bodyweight	Additional weights Men	Additional weights Women
< 55 kg	2 x 1.5 kg	2 x 1.0 kg
56 to 70 kg	2 x 2.0 kg	2 x 1.5 kg
71 to 85 kg	2 x 2.5 kg	2 x 2.0 kg
> 86 kg	2 x 3.0 kg	2 x 2.5 kg

17.7.1 Upright Posture



- Stand with feet about hip-width apart.
- Distribute bodyweight evenly on both feet.
- The knees should be straight.
- The patient should adopt his habitual posture.
- The arms should be allowed to hang freely at the sides of the body.
- Look straight ahead (horizontally).

17.7.2 Flexion

CAUTION

Before commencing records clarify with the patient whether, for health reasons, he/she is able to or is allowed to adopt the fully bent-over position for approximately one minute. If the patient experiences pain then he/she may not bend further forwards.

The marking on the skin over the spinous process of the 7th cervical vertebrae (C7) is displaced by around 2.0 cm upwards in the bent-over position (flexion)! This means that, for this initial position, the 7th cervical vertebra (C7) will lie beneath the marked position and must therefore be re-palpated!

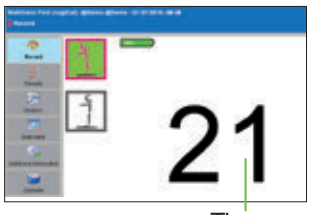
- The subject should adopt his/her habitual posture.
- The upper body is bent as far as possible forwards and downwards.
- The head and arms should be allowed to hang freely
- Knees and legs are kept straight.

17.7.3 Assessment protocol modelled on the Matthiass Test

CAUTION

Before commencing records clarify with the patient whether, for health reasons, he/she is able to or is allowed to adopt the fully bent-over position for approximately one minute. If the patient experiences pain then he/she may not be placed under further stress (reduce or remove weights)

- The subject should adopt his/her habitual posture.
- The subject holds the additional weights in his/her hands.
- The arms should initially be allowed to hang freely at the sides of the body.
- Look straight ahead (horizontally).
- Stand with feet about hip-width apart.
- Distribute bodyweight evenly on both feet.
- Tell the subject that he/she must maintain the same position even after the arms are raised.
- The subject must now raise his/her stretched-out arms to shoulder height. The arms should point forwards horizontally. The subject remains in this position.
- Select the icon. The timer now begins to count down from 30 seconds.
- Commence the recording at the exact moment the countdown timer reaches zero.



Timer

18 Data Backup

Risk of losing data

- It is possible that records and patient data may become lost or damaged. You can be held liable for such losses. idiag accepts no liability for lost or damaged data.
- Back-up your data at regular intervals.
- Use several storage media alternately, e.g. storage medium 1 for one week and storage medium 2 for the next week.
- Store backed-up data in a different building.

Initiating a data backup is not a guarantee for the error-free backup of data.

Procedure

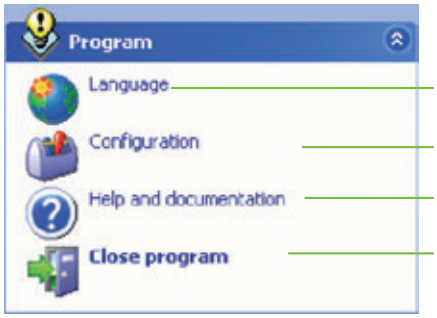
- Open C:\MM60\Data. This directory contains the database **Data60.MDB**.
- Save the database **Data60.MDB** on an external storage medium.
- The data may also be located on a different disk drive if several operating systems are in use

Append the name of the backed-up database with the current date (e.g. Data60_ June2008). This allows you to backup new databases to the external medium without overwriting the previous backup.

19 Appendix

19.1 Program settings

In the **Program** menu the following functions are available:



Select the language

Configure the program

Open User Guides (PDF format).

Close the program

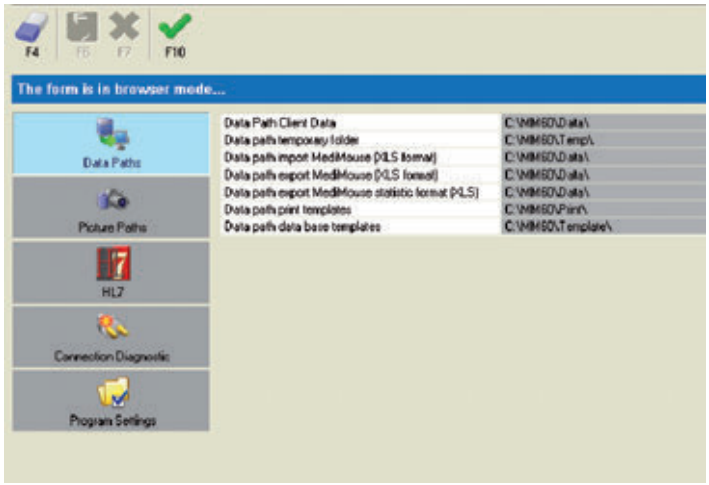
19.2 Languages

Click on your desired language (**Program** > **Language**).

Confirm your entry by clicking on **Apply**.

19.3 Configuration

Open the configuration window via **Program** > **Configuration**.



20 Bluetooth Installation and Configuration

20.1 Bluetooth

Using Bluetooth, devices are connected wirelessly over short distances. This device uses this technology to transmit the recorded data to the PC.

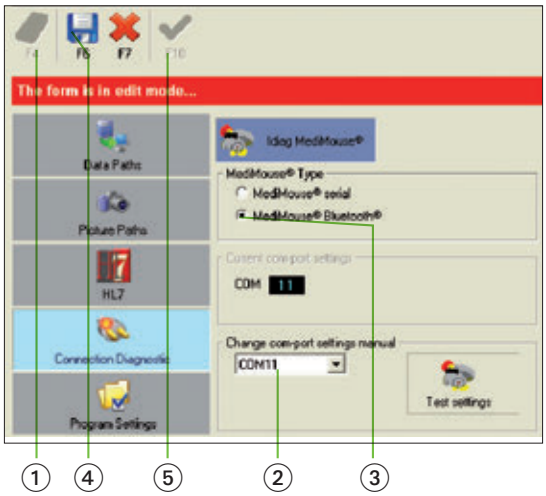
Reestablishment of an interrupted Bluetooth connection: See Section “24 Bluetooth-QuickConnect” on page 69.

If a Bluetooth installation has not already been carried out, then go to Section “20.2 Preparation” on page 58.

20.2 Preparation

Before setting up the Bluetooth wireless connection, please make the following basic settings in the SpinalMouse® software:

- Install the SpinalMouse® PC software (see SpinalMouse® Software User Guide).
- Start the SpinalMouse® software (double click on) and select **Program** > **Configuration** > **Connection Diagnostics**.
- Click on **F4** ① (edit mode).
- For now, choose COM port 4 ②.
- Select **SpinalMouse® Bluetooth** ③.
- **To save changes press F6** ④**.**
- To close the window press **F10** ⑤**.**
- For now, you will not need the SpinalMouse® ap- plication. Click on (minimize)**.**



20.3 Does your PC have integrated Bluetooth, or an external Bluetooth adapter?

Your computer’s instruction manual or your retailer will be able to provide you with an answer to this question.

The Bluetooth activation switch (sliding switch, touchpad, or switch button) is often combined with the W-LAN switch.

If your PC is equipped with Bluetooth (integrated or Bluetooth adapter), activate Bluetooth and continue on page 60.
If your PC is not equipped with Bluetooth, continue on page 59.

20.4 Your PC is not equipped with Bluetooth

Plug the provided Bluetooth-Adapter into your computer's USB port. Wait a few seconds.

Please make sure that you use the same USB port every time.

The Bluetooth installation procedure depends on whether the PC performs the installation automatically.

PC performs installation automatically
If your PC automatically performs the installation of the USB Bluetooth adapter (process can be seen on the bottom right on the taskbar) and then shows a Bluetooth symbol in the taskbar, then continue with the chapter Registering the SpinalMouse® in the Windows Bluetooth Manager (page 61).

PC does not perform installation automatically
If the installation does not happen automatically, plug the enclosed Bluetooth adapter into a different USB port on your PC.

Note for experts
If the device is still not automatically detected, you can find the entry for the adapter in the device manager and initialise it using the Update driver command. If the USB Bluetooth adapter is still not detected, remove it from your PC and do the following:
Place the enclosed Bluetooth CD in the CD drive and follow the instructions of the installation program.
Next, continue with the chapter Registering the SpinalMouse® in the Toshiba Bluetooth Manager (page 64).

20.5 Your PC is equipped with Bluetooth hardware and software

CAUTION

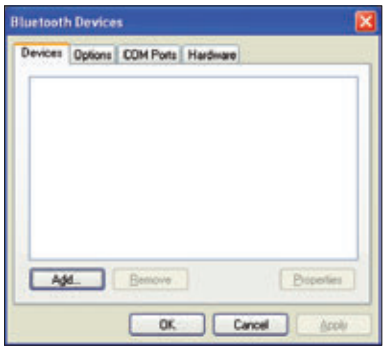
If your PC already has a Bluetooth adapter installed, you must not use the enclosed Bluetooth CD and Bluetooth adapter. In order to prevent damage to the Bluetooth network environment use the already installed Bluetooth adapter to connect the SpinalMouse®.

Activate the integrated Bluetooth device or plug the installed Bluetooth adapter into the USB port previously used. For further information see the PC or Bluetooth adapter instructions.

Open the Bluetooth Manager by double clicking on the Bluetooth symbol . There are several locations where the Bluetooth symbol can be found

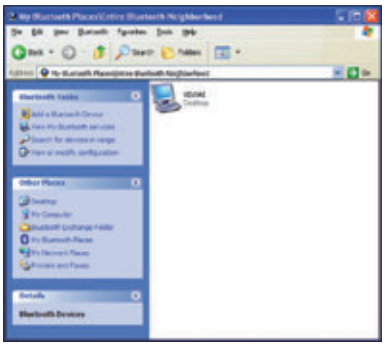
- On the Windows desktop (first screen after the PC boots up)
- In the task bar (lower margin)
- In the **Control Panel** (Windows **Start** menu (> **Settings**) > **Control Panel**)
- In the **Network Settings** section (Windows **Start** menu (> **Settings**) > **Control Panel** > **Network Settings**)

After opening the Bluetooth Manager, one of the following windows opens up. Please follow the instructions provided in those windows.



Windows Manager
Continue with the chapter **Registering the SpinalMouse® in the Windows Bluetooth Manager** (page 61).

Toshiba Manager
Continue with the chapter **Registering the SpinalMouse® in the Toshiba Bluetooth Manager** (page 64).



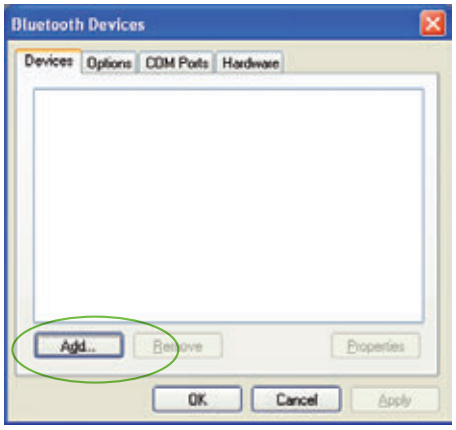
Witcom Manager
Continue with the chapter **Registering the SpinalMouse® in the Witcom Bluetooth Manager** (page 67).

It is rarely the case that Bluetooth managers other than the ones mentioned here are used. In this case, you may have a look at your computer's instruction manual or search for an installation manual on the internet.

21 Registering the SpinalMouse® in the Windows Bluetooth Manager

Open the Bluetooth Manager by double clicking on the Bluetooth symbol .

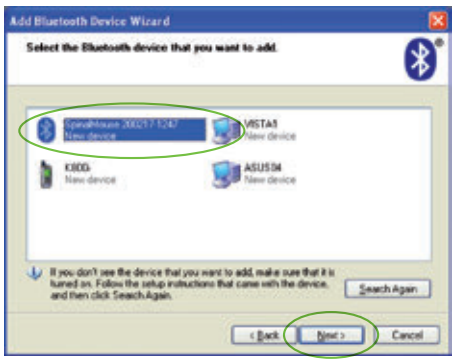
Switch on the SpinalMouse® by briefly pressing one of the two buttons and then click on **Add…** .



Select the option **My device is set up and ready to be found**. Then click on **Next**.

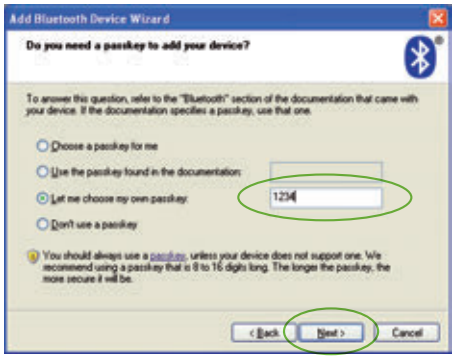
After a few seconds all active Bluetooth devices will be listed.

Select the listed SpinalMouse® (must be highlighted in blue) and then click on **Next**.



After a few seconds all active Bluetooth devices will be listed.

Select the listed SpinalMouse® (must be highlighted in blue) and then click on **Next**.



Make note of the number after Outgoing COM port ① (this number is issued by the assistant). In our example it is “COM4”.

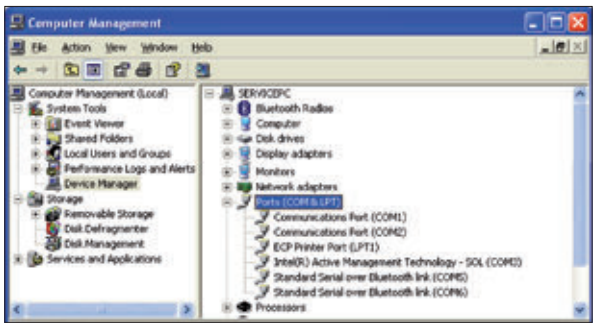
Then click on **Finish**.

Does the number displayed to the right of **Outgoing COM port** ① match the COM port number selected previously in the **Preparation** chapter (page 58, ②) (this can be checked under **Program** >**Configuration** > **Diagnose Connection**)?

Yes: The Bluetooth connection is complete. The SpinalMouse® can now be used.

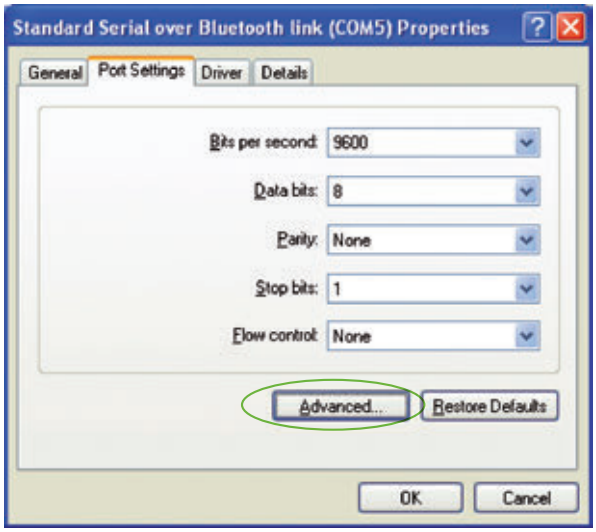
No: Make a note of the number after Outgoing COM port. In our example, “COM5”.

Open the **Windows Device Manager**: **Start** > **Control Panel** > **System** > **Hardware** > **Device Manager** > **Ports (COM/ LPT).**

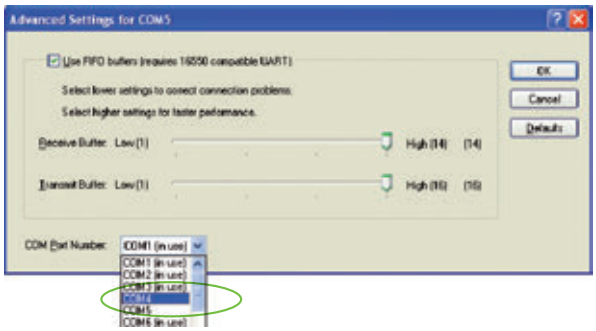


Double-click on the COM port number to be changed. In our example, “COM5”.

Click on **Port Settings** and then on **Advanced**



Choose the COM port number selected in the Preparation chapter (page 58, ②).



Confirm the action - despite the warning about this number being used by another device with Yes.

Close the Device Manager. The SpinalMouse® can now be used.

The use of the SpinalMouse® program is described in the chapter “Using the SpinalMouse®” on page 22.

Back to setup overview (page 10)

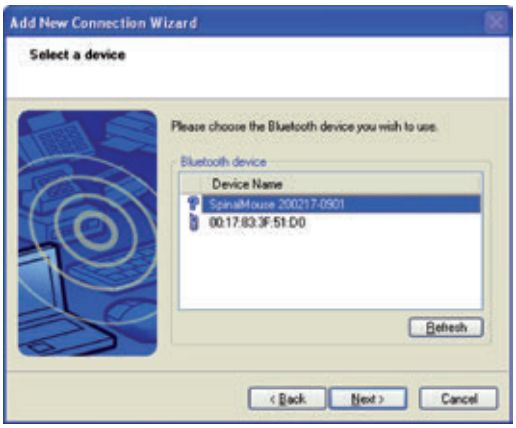
The automatically generated number for the Incoming COM Port can generally be ignored. It may not however, be the same as the number of the Outgoing COM Port (see illustration on previous page).

22 Registering the SpinalMouse® in the Toshiba Bluetooth Manager

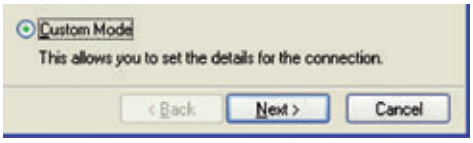
Open the Bluetooth Manager by double clicking on the Bluetooth symbol .

Activate the SpinalMouse® by pressing one of the buttons briefly, and then click on **New Connection**.

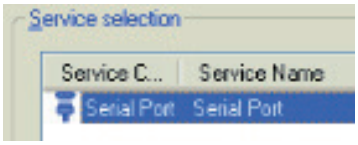
Once the search is complete click on SpinalMouse®, highlighted in blue.



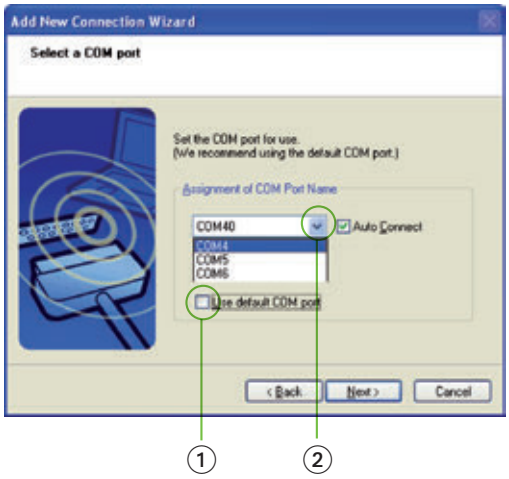
Then click on **Next** and select the option **Custom Mode** in the following window. Click on **Next** again.



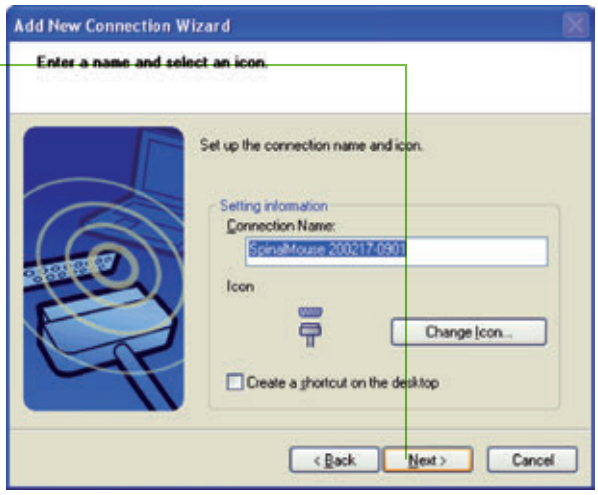
Select the option **Serial Port** and click on **Next** at the bottom.



Remove the check mark next to **Use standard COM Port** ①.
Under ②,select the same COM Port number that you previously selected in the SpinalMouse® software under **Program** > **Configuration** > **Connection** > **Diagnostics** (page 58, ②). This is generally the standard COM Port number 4.



Leave the automatically generated name for the SpinalMouse® and click on **Next**



The next window notifies you that the setup of the selected COM Port number is complete. Click on **Next** at the bottom of the window.

In the last installation window, you are notified that the registration of the connection information has now been completed.
Click on **Finish** at the bottom of the window to close the installation.

After leaving this window, the Bluetooth connection is complete. The SpinalMouse® can now be used.

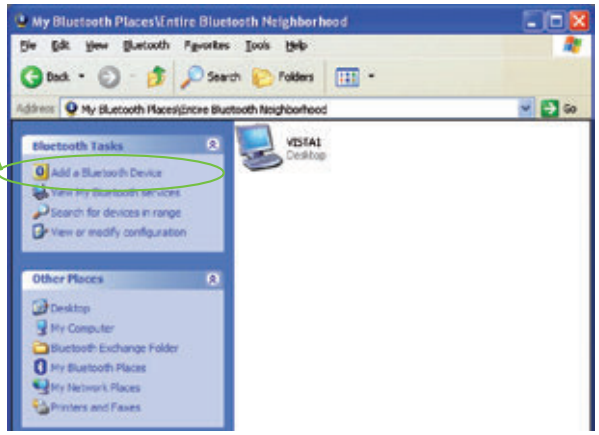
The use of the SpinalMouse® program is described in the chapter “Using the SpinalMouse®” on page 22.

Back to setup overview (page 10)

23 Registering the SpinalMouse® in the Witcom Bluetooth Manager

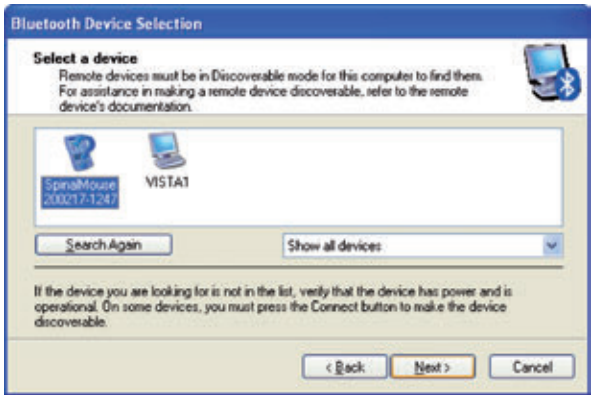
Open the Bluetooth Manager by double clicking on the Bluetooth symbol .

Activate the SpinalMouse® by pressing one of the buttons briefly and then click on **Add a Bluetooth Devices**.

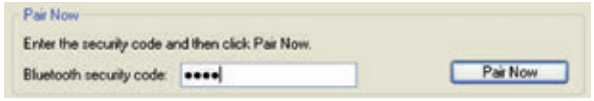


Once the search is complete click on Spinal-Mouse®, highlighted in blue.

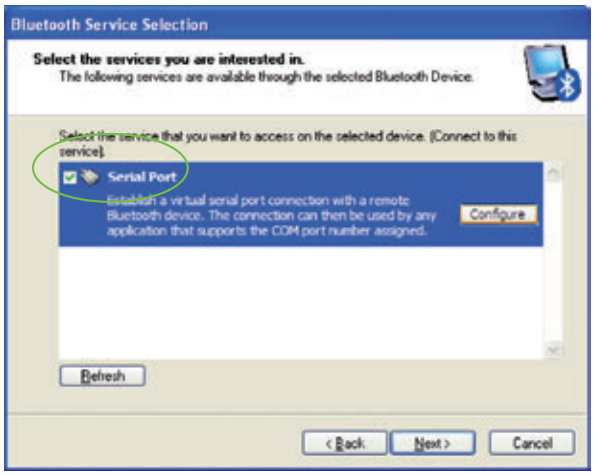
Then click on **Next** at the bottom of the window.



In the next window enter the standard PIN code “1234” and then click on **Pair now**.



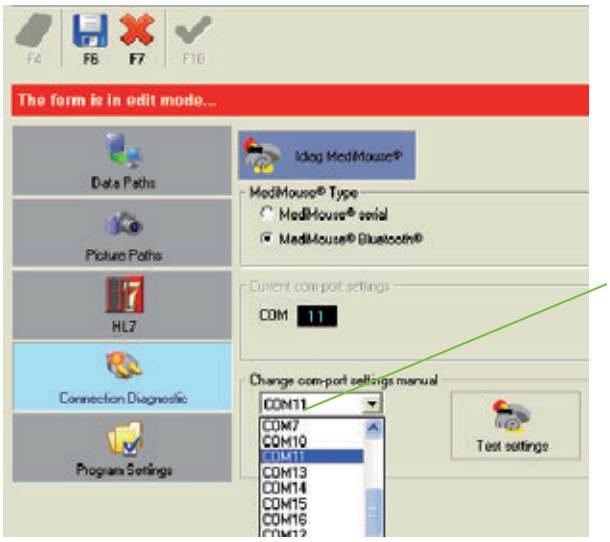
Set a check mark next to **Serial Port** and click on **Configure** at the bottom



Make note of the assigned COM Port number ①.

Remove the check mark for **Secure Connection** and click on **OK**.

Now open the SpinalMouse® software and check whether the same number is selected under **Program >Configuration** > **Port** > **Diagnostics** as ①, above.
If necessary change the number in the SpinalMouse® program to match. To do this, first press **F4**, enter the new number in the white field and save it by pressing **F6**. Close the window with **F10**.
The SpinalMouse® can now be used.
If the COM Port number searched for is not listed, continue reading the text below the following illustration.



If the desired COM Port number is not listed, close all programs, reboot the PC and restart the SpinalMouse® software.
Select the COM Port number displayed under ① in the SpinalMouse® program under **Program** > **Configuration** > **Port Diagnostics** (see Preparation page 58).

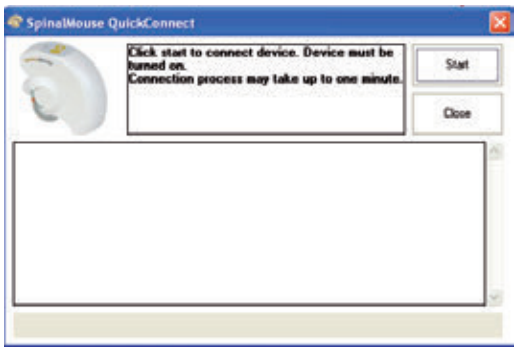
After exiting this window, the SpinalMouse® can be used.

The use of the SpinalMouse® program is described in the chapter “Using the SpinalMouse®” on page 22). Back to setup overview (page 10)

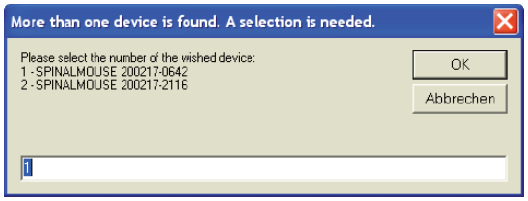
24 Bluetooth-QuickConnect

The Bluetooth connection is established at the start of the first measurement or automatically in the case of an uninterrupted Bluetooth connection (see page 10). If the Bluetooth connection is interrupted the QuickConnect Program described below will start automatically.

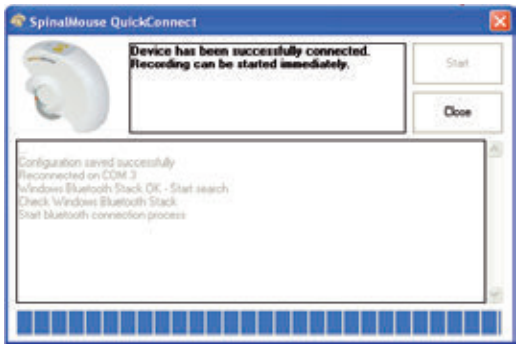
Follow the instructions in section “20 Bluetooth Installation and Configuration” on page 58“ if the Bluetooth connection cannot be established with the QuickConnect Program.



- Click **Start** to start the reconnection routine.
- Once the connection has been established click **Close**.



- The window shown on the left will open if several devices are within range.
- Find the required device using its serial number and enter its number, e.g. “1” into the input field. Click **OK**.



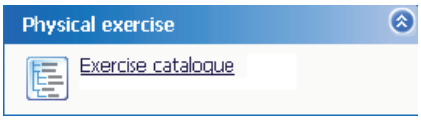
- Upon successful connection the window shown on the left will appear.
- Click **Close**.

25 Import exercise library

Before using **Exercises** for the first time you must import the exercises from the exercise library.

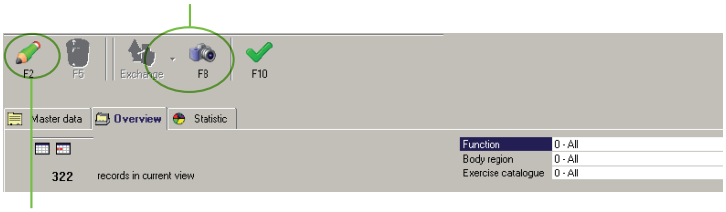
Procedure

1. Start the SpinalMouse® software.

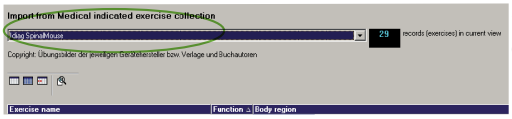
2. 

Open the **Physical exercise** menu and click **Exercise catalogue**. The following window will appear:

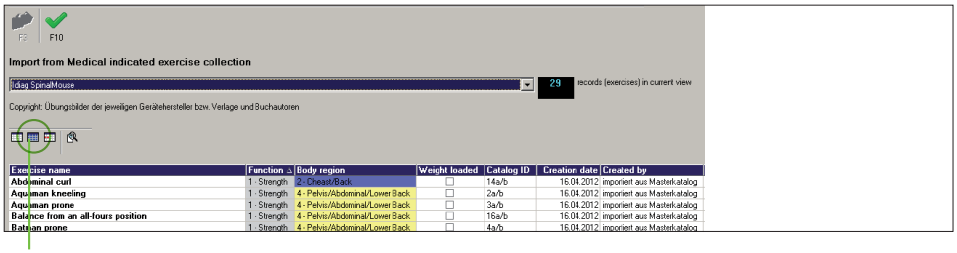
Clicking **F8** will show and hide the exercise pictures.



Click **F2**.

3. 

Select SpinalMouse®. A list of the back-specific exercises will appear:



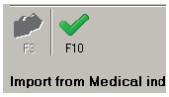
4. Click **Highlight whole selection ready for import**.

5. 

Click **Import F3**. The selected exercises will then be imported.

Following successful import the following window will appear.

Click **OK**.

6. 

Click **F10** (Close window).

26 Software Licence Agreement

In return for acquiring a licence to use the software (“software”) and related documentation, the purchaser agrees to the following terms and conditions:

1. Licence: This Agreement grants you, the licencee, a licence to:
   a. Install and use the software on one computer that is used for carrying out and analysing the records made with the SpinalMouse®.
   b. Make a single machine-readable copy of the software solely for back-up purposes, provided you reproduce idiag’s copyright and trademark notices.
2. Restrictions: The SpinalMouse®-Software was designed for exclusive use with the SpinalMouse® device to record, analyse and store data registered by the SpinalMouse®. You may not distribute copies of the Software to others or electronically transfer the software from one computer to another over a network. You may not use the software from multiple locations of a multi-user or networked system at any one time. The software contains trade secrets and in order to protect these, you may not de-compile, reverse engineer, disassemble, or otherwise convert the source code into a perceptible form. You may not modify, adapt, translate, rent, lease, loan, resell for profit, distribute over a network or create derivative works based upon the software or any part thereof.
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2. The combination, operation and use of the SpinalMouse® PC Software together with software programs, data or devices not originating from idiag.
3. Damage caused by programs not originating from idiag.
4. Data loss or damage.
5. Any claim for damages resulting from claims made by third parties.

Legal Provisions
idiag shall not be held liable for indications and diagnoses and the consequences thereof resulting from recorded data using the SpinalMouse®. Without diagnostic assessment by a medical professional the data shall not be used as a basis for reaching decisions on treatment. The evaluation and interpretation of the SpinalMouse® data is to the sole responsibility of the qualified person conducting the examination.

Data protection
Please note that all patients records are subject to data protection laws. Users must therefore ensure that all stored patient-specific data is not accessible to unauthorised third parties and that the data is adequately protected from misuse. idiag shall not be held liable for the misuse of recorded data and patient data that is recorded by the SpinalMouse® device or the SpinalMouse® software.

27 Notes

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