

# OrthoMouse™

*Dr. Segalle*

The new paradigm in Shape, Design and Use for computer mice



**Perfect fit to the shape, size and function of your hand and fingers**

## User's Guide

The ORTHOMOUSE was nominated for the "ERGOCUP" Award during the 7th Applied Ergonomic Conference, hosted by the Institute of Industrial Engineers (IIE) in Orlando, Florida – USA.

The ORTHOMOUSE won the "Excellence in R&D" Award, by Plano Editorial, São Paulo – Brasil.

Selected to IDEABrasil Award of the Associacao Objeto Brasil

Won the FINEP 2010 Award of TECHNOLOGIC INNOVATION

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**NOTE:** It is very important to read this User's Guide carefully before you start using your **ORTHOMOUSE**.

## ORTHOMOUSE – Simplicity and Comfort

ORTHOVIA thanks and congratulates you for choosing one of the most comfortable and healthy computer mice in the world market.

Developed with scientific background, and in full compliance with ergonomic and orthopedic norms, this product attests to ORTHOVIA's concern with the well-being and safety of its clients.

This product is a revolution in terms of fundamentals, shape and comfort. Its characteristics are exclusive, and are protected by our international patents.

The **ORTHOMOUSE** is the logical way to reduce complaints related to mice use (Repetitive Strain Injuries – RSI).

**THE ORTHOMOUSE WORKS, YOU RELAX AND YOUR HAND RESTS!**



## Health Precautions

The use of any keyboard or mouse may cause serious injuries and illnesses.

If you experience unexplainable fatigue, weakness of your hands and forearms, problems to open and close your hands, cold and sore hands, and coordination problems while using your computer or during other activities, do not ignore these symptoms. See a doctor immediately.

Psychological factors, such as stress and emotional disturbances, may precede such symptoms and are responsible for their continuation. There are also other factors that can cause these complaints: genetic, organizational, professional, etc.

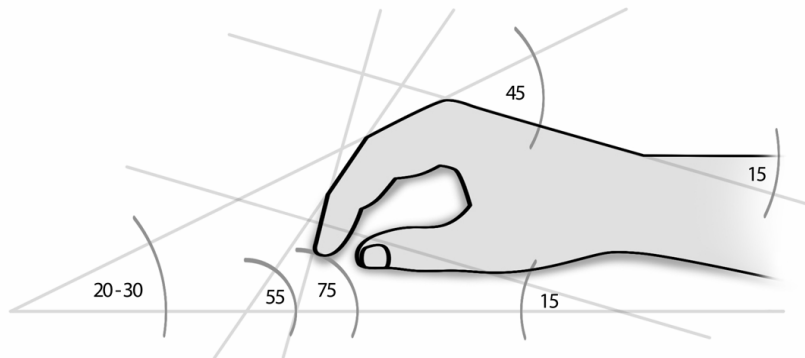
As there are various causes for those problems, their accurate diagnosis is necessary to determine the actions needed to minimize your symptoms and complaints.

Do not ignore unexplainable symptoms: see a doctor

**You should know that, all over the world, medical immobilization of the hand out of the “position of function” is considered “medical malpractice”.**

**ORTHOMOUSE: Ask your Orthopaedic Practitioner**

## ORTHOMOUSE: The right shape for your hand



### Unique Characteristics that make the difference

Some unique characteristics do make a difference:

- Its form imitates the shape and proportions of the hand that uses it, while the hand and fingers copy the attitude of writing with the same natural configuration.
- Great sensibility and maximum control, due to the complete support provided to the palm of the hand and to the fingers, providing total rest for all anatomical structures involved.
- It has four different grips, for maximum control, sensitivity and safety.
- It makes your hand, forearm and fingers remain in full muscular equilibrium – also known as “passive adaptation” – allowing for prolonged use without straining. In contrast, with conventional mice the hand and fingers have to work in “active compensation”.
- It preserves the main characteristic of the human hand, where the thumb is opposed to the other fingers, resulting in a precision grip in the pincer position, which allows amazing sensitivity.
- Each click requires only instant flexion and relaxation movements. Conventional mice require multiple coordination efforts.
- The use of switches with lower mechanical resistance results in minimum effort, even during extended tasks.
- Involuntary clicks have been eliminated, and the fingers rest on the buttons.
- It does not present sharp edges and/or relieves on the support surface.
- Precision tasks are performed with ease, due to the improved location of the optic sensor.
- Perspiration-resistant, anti-sliding textured coating.
- Ultra-flexible cord offers less resistance to displacement;
- Scroll buttons (up-down) with direct actuation;
- All the buttons are in functional position, avoiding awkward positions during work and/or rest.
- It has “upper adapters” of different sizes, allowing thumb and index fingers of different lengths to find their best positioning within their specific areas.

The **ORTHOMOUSE** offers 6 different configurations in a do-it-yourself method of assembly, so you can select the combination that provides the best fit for your right hand!

- 3 prolongers for adjustment to different hand sizes.
- 2 upper adapters for adjustment to the thumb and forefinger.

You choose the combination that best fits your right hand!

## Connecting the ORTHOMOUSE to your computer

### USB Connection (Windows, Macintosh or Linux)

With your computer turned on, fit the USB connector to its respective port.



Fig. 1 - Connections

This equipment is plug-and-play, and does not require the installation of any additional software.

Due to the product's high accuracy, we recommend you configure the pointer movement speed, in the operating system's control panel, to at least 80% of the maximum.

You are now ready to start using your ORTHOMOUSE.

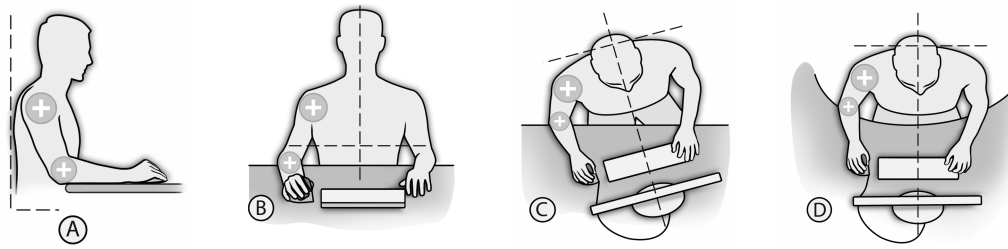
## Recommendations to the User

This product aims specifically at protecting your comfort and your health during the use of a computer. For optimum results, please pay attention to a few details:

1. The ORTHOMOUSE has been designed to comply with the concept of "passive adaptation" or total rest. Thus, during the use of ORTHOMOUSE your hand will remain at rest, assuming the so-called "position of function". This is the only position known and accepted by medical/ergonomic science in which the whole hand, the fingers and the forearm muscles and joints are in perfect balance. It is also the only position allowed by orthopedics for any immobilization of the hand and forearm – and immobilization is what happens to your hand when you are using a computer mouse.

Then, remember: the main idea is to RELAX!!!

2. Using the ORTHOMOUSE is simple. However, you may need a few days to get completely adapted. That is necessary for the change of bad habits induced by the use of unsuitably designed conventional mice. Just as with the use of a new writing or designing tool, it takes time to achieve dexterity. On the other hand, those who have never used a mouse will adapt faster.



**Fig. 2 – Recommended Posture.**

1. Make sure your forearm rests on the same surface where the **ORTHOMOUSE** is used. Your elbow must be at an angle of approximately 90° and your arm must descend from your shoulder at an angle of up to 45° from a vertical axis. This way, the hand, the wrist and the forearm will automatically assume the “position of function”, resting on top of the **ORTHOMOUSE**. (See Fig.

2. The work desk must always have an adequate size for supporting the keyboard and a mouse. It must also support at least the lower third of the forearms, as well as any other work-related items, without disturbing the aforementioned elements.

The desk height may vary, always depending on its relationship to the chair's height. This means that a low desk should be used with a low chair, as long as the user does not have to bend too much his or her knees. A higher desk should be used with a higher chair, as long as the user's feet are not left hanging.

Regarding those elements, what should be considered is that the difference between their heights must be such that, when the user is correctly seated – with the vertebral column against a backboard, feet and arms supported – the forearms are automatically accommodated in a relaxed and fully supported position by the desk, at an angle of approximately 90° from the elbows. This way, the hand will rest on top of the mouse in the “position of function” (See Fig. 2). Fig. 2-D shows the best shape for the table border. Fig. 2-A highlights the rounded borders; acute angles cause peripheral circulation interruption, attrition in the superficial nervous branches and skin irritation.

The main point in checking whether the user reaches relaxation is the inspection of the index and middle fingers. They must remain supported by the mouse buttons at all times, in a resting and relaxed position. If they stay raised, it means the user is keeping the bad posture learned while using a conventional computer mouse. Conventional mice require this straining position in order to avoid accidental clicking, a problem that is non-existing in ORTHOMOUSE, because all fingers remain in total equilibrium. This fact has allowed the use of switches with the lowest mechanical resistance in the market. After a full workday, this means **LESS KILOGRAMS/POUNDS IN TOTAL EFFORT USED**.

If the tendons of the fingers extensors are in evidence, there is still effort. Usually there will be an evolution leading to the relaxation, as the user continuously works with the Dr. Segalle ORTHOMOUSE. **FULL ELIMINATION OF THE AFOREMENTIONED SIGNS OF EFFORT SHOULD BE ACHIEVED BEFORE EVALUATION OF THE COMFORT LEVEL AND USABILITY.**

This is the logical way to avoid RSI disorders and to work with comfort and safety.

**ORTHOMOUSE: Forces your hand to rest**

**ORTHOMOUSE: Designed by specialists**

Product designed for the use with the right hand, at least 16 cm long.

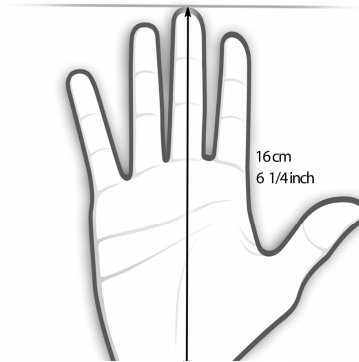


Fig 2.1.

**Accessories**

The accessories accompanying the ORTHOMOUSE (three prolongers and two upper adapters) make it possible to assemble six different combinations of shape and size in a do-it-yourself manner, so that it adapts perfectly to the shape, size and function of your hand.

**The prolongers**

Generally speaking, the prolongers (short, medium and long) adapt themselves to small, medium and large hands, respectively. Note that the short proloner, unlike the other two, allows the hand's hypothenar eminence (see Fig. 3) to be supported by the work desk. This is a characteristic preferred by many designers and/or users who perform precision tasks. Thus, even among users with large hands, some will prefer to use the shorter proloner. Users that wish to suppress the lateral displacements of the forearm and/or reduce the hand displacement as much as possible should use the smaller extensor in order to achieve support of the hypothenar eminence on the work surface, which is then used as a pivot during lateral movements with minimum displacement (see Fig. 4).



Fig. 3.

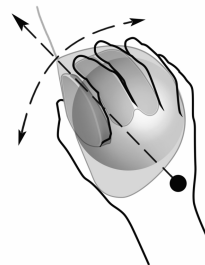


Fig. 4.

**ORTHOMOUSE: Maximum precision**

However, there are users with small hands who will prefer the longer prolonger, due to the different posture angle that this shape provides to the hand.



Fig. 5. – To change prolongers, press and push forward as indicated.

### The Upper Adapters

The upper adapters allow the users (through the connection existing between feeling and movement) to fit their thumbs and forefingers (which constitute the “tweezers” of highest sensibility in their hands) on the most comfortable places. The result: more control and accuracy.



Fig. 6. – With your thumb, press the adapter as shown.

**ORTHOMOUSE:** Technology up to your finger tips



## The Five Buttons

The functions of the 5 buttons may be configured on the operating system's control panel for peripherals. The procedure details will vary according to the operating system in use (Windows, Linux, or Mac OS).

Buttons 1 and 2 perform standard functions. (See Fig. 7).

**Button 1** – Top left: used for basic selections.

**Button 2** – Top right: displays the shortcut menus.



**Fig 7. – Standard buttons.**

Buttons 3, 4 and 5 form a set that replaces the scrolling wheel of conventional mice, with all the advantages and merits of the position of function. (See Fig. 8).

**Button 3** – Center: used for rolling selection in some programs.

*Click once:* an icon appears which, when displaced, moves the screen upwards, downwards, to the left or to the right. The longer the distance traveled, the quicker the rolling. Performs the same function that clicking on the scroll wheel.

*Click a second time:* the icon disappears.

**Button 4** - Top: used for upward vertical rolling.

*Click once:* the screen moves upwards.

*Click twice or more, and hold:* the screen moves upwards, continuously, at a speed proportional to the number of clicks – 5 clicks reaches the fastest scrolling).

*Release:* the movement ceases.

**Button 5** - Bottom: downwards vertical rolling:

*Click once:* the screen moves downwards.

*Click twice or more, and hold:* the screen moves downwards, continuously, at a speed proportional to the number of clicks – Five result in the fastest scrolling).

*Release:* the movement ceases.



**Fig 8. – Scrolling Buttons**

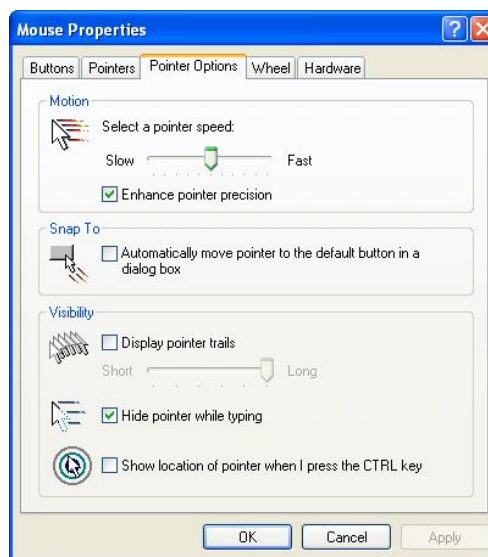
As any optical mouse, the ORTHOUSE needs a minimally reflective surface, in order to work. In other words, it will not function properly over a transparent surface. In this case, we recommend the use of a mouse pad. The lens and optical sensor have no direct contact with the surface, and will keep their original features for a long period. Cleaning of those parts should be performed, when needed.

## Special configurations in Windows

Please, do configure the relationship between mouse and cursor movement, as this is VERY IMPORTANT for the general experience of using the **ORTHOMOUSE**. First, click "Start" / "Control Panel" / "Mouse".

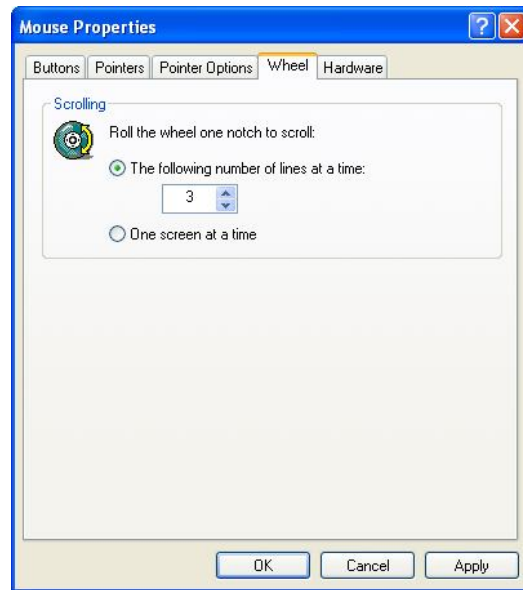


Then, choose "Pointer Options / Motion" and, under the option "Select a pointer speed", move the slider to the right in order to choose the highest speed that you can use without losing precision. Click to mark the checkbox "Enhance pointer precision", and then click "Apply" and "OK". After a few days of practice with the **ORTHOMOUSE**, you may go back to this Control Panel and select an even higher speed, which will drastically reduce the sideways displacements of hand and forearm.



The **ORTHOMOUSE** is a very precise instrument, so we recommend that you use the Mouse control panel of your operating system to set the pointer movement speed to 80% of the maximum value. As your control and dexterity improve, you may increase the pointer movement speed.

The configuration of the scrolling buttons is made using the "Wheel" option, in the Mouse control panel. There you can choose the number of lines of displacement per click, or define the displacement of a full page at a time.



Now your **ORTHOMOUSE** is ready to use.

### Care and maintenance

To clean the **ORTHOMOUSE** you need to first to disconnect it from the computer. Then, just swipe a damp cloth over its surface. The area around the sensor must be cleaned with a flexible cotton swab moistened with water and neutral soap.

Be careful not to scratch its surface.

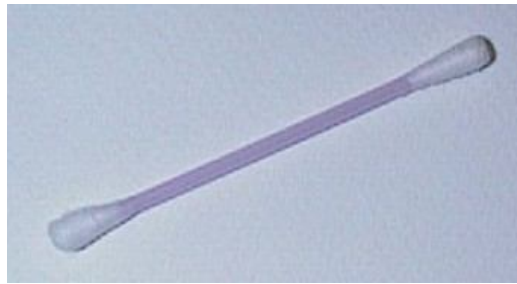


Fig. 9 – Flexible cotton swab

### **ORTHOMOUSE: Your Comfort Connection** Technical Data

#### Technical Data

Height: 65 mm (2.56 inches)

Width: 82 mm (3.23 inches)

Length with short prolonger: 113 mm (4.45 inches) \*

Length with medium prolonger: 121 mm (4.76 inches) \*

Length with long prolonger: 136 mm (5.35 inches) \*

Coating: engineering plastic

Sensor sensitivity: 800 dpi

USB connection

Cable length: 1.80 m (70.86 inches)

Class 1 LED device

This product uses a LED that is rated as Class 1 according to International Standard IEC 825-1:1993.

(\* ) length without cord

<b>Product designed for use with the right hand</b>
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**Minimum requirements:****Microsoft Windows:**

- Windows 7 / Vista / XP / 2000 / Me / 98

**Macintosh:**

- Mac OS 10.1.X – 10.3.X or newer
- Mac OS 8.6 a 9.X

**Linux:**

- Kernel 2.4 or newer with USB connection

**Connectivity:**

- USB (Universal Serial Bus)

**Patents**

This product is innovative, and is protected by the following granted patents:

USA: No. 6,300,941, No. 6,532,002 and 7,755,609.

Canada: No. 2,347,082.

Mexico: No. 226,639.

Brazil: No. 5,901,042-8, No. 7,903,331 and No. 8,400,186-0

Argentina: No. 009,205 B4.

Japan: 4,414,101.

There are patents pending in other countries. (EEC).

Currently, the DR.SEGALLE patent is the only one granted the title "orthopedic computer mouse", indicating the placement of the hand in the "position of function".

**ORTHOMOUSE: Simple and Practical**

**FCC Class B Radio Frequency Interference Statement**

**Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**

**NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.**

**However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:**

**Reorient or relocate the receiving antenna.**

**Increase the separation between the equipment and receiver.**

**Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.**

**Consult the dealer or an experienced radio/TV technician for help.**

**According to Industry Canada Notice ICES – 003 Issue 2.**

**Warranty**

**“1 year warranty”**

**ORTHOPEDICS: State-of-the-art ergonomics**

available at:



800.531.3746

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thehumansolution.com