

Respiratory Training Device

Please read this entire document to learn and gain the most from your device.

Introduction

This document and the tutorial online are meant to inform and instruct consumers, clinicians, and scientists about the use of the Respiratory Training Device. This device could be used for in-home health maintenance, in the clinical setting, or for medical research. The Respiratory Training Device is used to strengthen the muscles we use to breathe and cough. Similar to other resistance training exercise programs, this respiratory specific exercise will challenge your chest, back, and abdomen muscles to improve muscle strength, endurance, and overall respiratory function over time.

Before beginning any training, please refer to the tutorial online with detailed information and videos about the device and its use at:

https://www.neurorecoverylearning.org/product?catalog=RT_Device

Scientific Background

With over 15 years of studies, we believe that Respiratory Training could be useful to improve pulmonary function by strengthening the lungs and breathing muscles, affected by spinal cord injury.

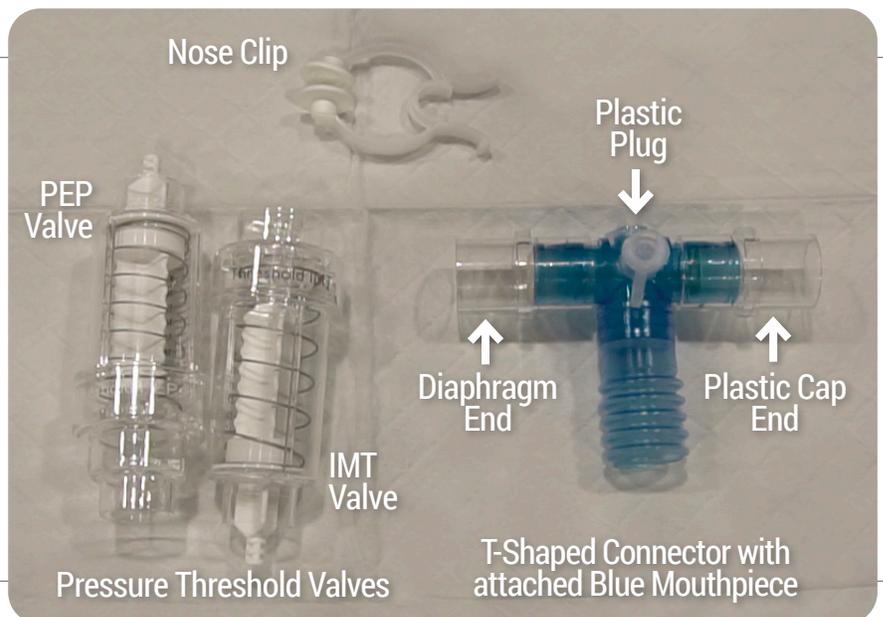
After a spinal cord injury, the nerves that supply the lungs, heart, and the muscles we use to breathe could be damaged. This damage can cause difficulties in breathing, coughing, and the regulation of blood pressure. Therefore, these issues have been shown to make people with spinal cord injury more susceptible to disease and infection, which can lead to more serious, long-term health complications.

Device Parts

Your Respiratory Training Device consists of 4 main parts.

- 1 Pressure Threshold IMT Valve.
- 1 Pressure Threshold PEP Valve.
- 1 T-Shaped Connector with attached blue mouthpiece.
- 1 Nose Clip.

Both Pressure Threshold Valves will attach to the ends of the T-Shaped Connector, while the Nose Clip is used separate from the device.



Assembly

To benefit from using the Respiratory Training Device, you should first correctly assemble the pieces together so the air flow during Inspiration (breathing in) and Expiration (breathing out) is not impeded. Please follow these steps:

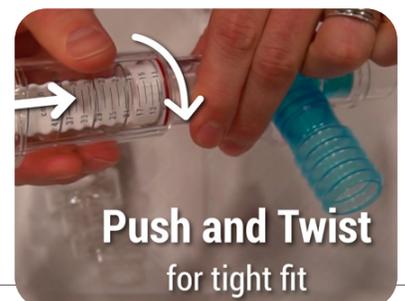
1) To begin attaching the pieces to the ends of the T-Shaped Connector, first locate the end of the T-Shaped Connector with the **Recessed Plastic Cap End*** - it is the end that is to the right of the White Plastic Plug. Now locate the **Pressure Threshold IMT Valve****. Take the end of that IMT Valve with the White Adjustment Knob and insert it fully into the end with the Recessed Plastic Cap. Push in and Twist slightly to assure a tight fit.

Please continue Assembly Directions on next page »

* Recessed Plastic Cap End



** Pressure Threshold IMT Valve



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Assembly Continued

2) Now locate the **Pressure Threshold PEP Valve**.^{*} Place the end of the PEP Valve Non-Knob End into the remaining opening of the T-Shaped Connector – it should be the **Flat Rubber Diaphragm End**.^{**}

When the valve is inserted, Push in and Twist slightly to assure a tight fit, as was done with the prior side.

*** Pressure Threshold PEP Valve**



**** Flat Rubber Diaphragm End**



Assembly Is Complete

Great! The Respiratory Training Device is now fully assembled. To verify it is assembled correctly, while viewing the device with the **Plastic Cap** visible on top, you should see **Both Pressure Threshold Valves pointing in the same direction**.



Training Regimen

The training schedule is as follows:

- 5-7 days per week.
- Approximately 1-hour training session, each day.
- 6-8 breathing bouts each session.
- Each bout is 3-5 minutes in duration
- Take a 2-3 minute break between each bout.

In the beginning, you may decide to do shorter breathing bouts and/or less bouts per day. However, the goal should be to work your way up to at least 6 bouts per day.

To start training, take your properly assembled Respiratory Training Device and place your mouth over the end of the blue mouth piece. Apply the nose clip so it pinches your nose closed. Breathe in and breathe out fully through the device at a normal breathing pace. You should not hyperventilate or breathe quickly, but rather breathe slowly and deeply. You should hear each valve open and close, as you breathe in and out (please refer to the videos online to hear proper breathing bouts.)

Monitoring Blood Pressure During Training

If you have access to a blood pressure monitor, we recommend taking a reading at the following times:

- Before you start your training (baseline reading).
- After each breathing bout.
- At the end of your training.

If your blood pressure is above or below the normative levels (120/80 mm Hg) or ever rises or falls dramatically from your baseline reading, discontinue the breathing training, until

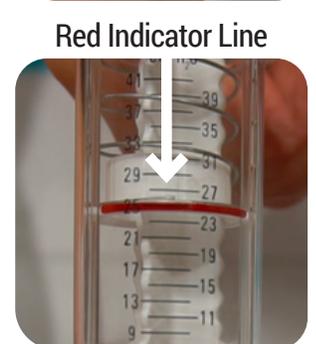
you recover. If your blood pressure does not recover or if you continue having high or low blood pressure symptoms, please contact your primary care physician.

Adjusting the Resistance Load

If this is your first time using the device, you should start on the lowest level on both Pressure Threshold Valves. Once you get used to the device, you can begin increasing the Resistance Load on both or on each valve individually. We recommend you

- increase the resistance only 1 step at a time, and
- limit increases to no more than 3 times per week.

The Resistance Load can be adjusted by turning the small white **Load Adjustment Knob** at the end of each Pressure Threshold Valve. There is a **Red Indicator Line** that shows where the load level is. You should be able to perform 6 bouts comfortably at the lowest setting, before increasing the resistance to the next level. Please remember, the correct resistance load should challenge you, not exhaust you.



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Proper Device Drying

It is also very important that the device be fully dried out before the next use. Once the device is thoroughly cleaned and rinsed you should shake out any excess water remaining anywhere in any piece. Then each piece should be placed in an upright position on a towel to allow moisture to drain out.

As an option, you could also lean each Pressure Threshold Valve on each end of the T-Shaped Connector, as shown in the image to the right.

The drying process can be tedious, but it is important not to use the device if there is noticeable moisture anywhere inside or outside any part of the device.



In Closing

We are pleased you are taking steps to improve the function of both your lungs and heart. There can be positive benefits to your heart, lungs, and overall health status. Before starting any training, we recommend you consult your primary care physician. Also, if at any point during your training your medical status changes or if you begin experiencing respiratory or flu-like symptoms, stop the training immediately and consult your primary care physician.

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Any Questions?

If you or your primary care physician should have any questions about the training device or the training regimen, please refer to this document and/or call Power NeuroRecovery at 502-552-8297.