



Possible Solution for Successful TTNS Therapy

Published TTNS materials from international sources show various positions for TTNS electrodes. The PTNS protocol specifies electrode locations. To be consistent with PTNS anatomical targeting concepts, we developed a placement template that aligns with PTNS practice by centering the upper electrode at the needle entry site and the lower electrode at its PTNS location. We intend the template to aid placement and improve location consistency.

Following their own research, individuals may choose other electrode locations. Use of the template is voluntary.

Placing the Upper Electrode With the Template

Before you begin, clean and dry the skin and have the template and electrode ready. Attach one corner of the electrode to the template before positioning the template.

Step 1 — Position the Template

Place the **circular** opening of the template over the ankle bone with the "UP" direction pointing toward the knee.

Step 2 — Apply the Electrode

While holding the template in position, press the exposed adhesive portion of the electrode onto the skin.

Step 3 — Remove the Template

Peel the template away while leaving the electrode attached to the skin. After you remove the template, complete the upper electrode installation by pressing the corner onto the skin.

Note: You May Use the Template on Either Leg

If you need to change legs for a later treatment, you may use the same template by turning it over for use on the opposite leg. The photo shows the patient lifting and peeling away the template from the electrode installed on the patient's **Right** leg. The upper electrode is **always** above and behind the ankle bone.

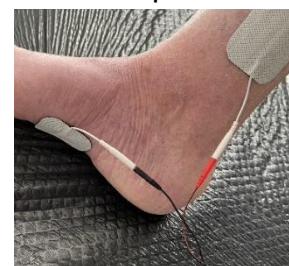
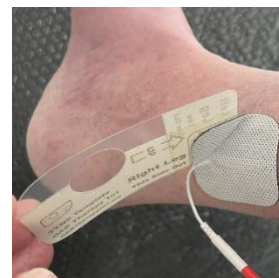
Since the inner leg surfaces are mirror images, turning the template over is all you need to do for either leg.

The final photo shows the upper and lower electrodes.

During Your Therapy Session -- Important

As stimulation continues during a TTNS session, some patients report that the sensation becomes more tolerable. Some respond by gradually increasing intensity during the session to maintain a clearly noticeable but tolerable level of stimulation. I believe this contributes to an effective treatment. This project's working hypothesis is that stimulation intensity, patient tolerance, and electrode positioning consistency influence individual treatment response and duration of benefit.

However, responses vary among individuals, optimal stimulation parameters have **NOT** been fully standardized, and additional study is needed. Patients exploring TTNS should proceed cautiously and discuss treatment considerations fully with their physician.





Session Tracking and Feedback

Clinical studies often evaluate PTNS over approximately 6–12 weeks, although individual responses vary. We encourage patients to use the accompanying Tracking Sheet and Concluding Questionnaire (TSCQ). The purpose is to encourage structured observation and improve understanding of the range of user experiences, including explorations with no meaningful benefit. Submitted feedback may help improve understanding of the range of user experiences and may ultimately benefit others exploring TNS.

Both tracking participation and submitting feedback are entirely voluntary ways you could help, rather than a handout, which, in some instances, may only exacerbate the problem you are trying to solve.

Instructions for Making a TTNS Electrode Positioning Template

1. You will need:
 - a) Tools:
 - i) Scissors
 - ii) An exacto knife **NOTE: IF YOU ARE NOT CONFIDENT IN YOUR ABILITY TO EXECUTE THIS PROCESS SAFELY, GET SOMEONE TO HELP YOU.**
 - iii) Ruler
 - iv) Two Boston Paper Clips (or the equivalent – conventional paper clips may not hold the pattern firmly in place. You do not want the pattern to move relative to the plastic while you are trimming the edges.
 - v) Two quarters (i.e., 2 X 25-cent pieces, U.S. currency)
 - vi) A ballpoint pen
 - b) Materials:
 - i) A roll of masking tape
 - ii) A printed copy of this file on 8.5" x 11" paper at 100%
 - iii) A flat, translucent, or clear piece of plastic or other flat material measuring at least 2.5" X 4.5". (You could cut a piece of flat plastic from a gallon milk jug or a restaurant food container. We will refer to the base template material¹ as "plastic" in these instructions.)
 - iv) A piece of cardboard (to cover your working surface – to avoid marks or cuts when using the Xacto knife)
2. Follow these steps to cut a hole in the plastic¹ that will be placed over the medial malleolus (inside ankle bone) when using the template to position the upper electrode pad.
 - a) First, we will set a limit on the portion of the Xacto knife blade you will be using to cut a hole in the plastic:

¹ You do not have to make your template with plastic. You can make it with construction paper, light cardboard, or a cover from a discarded paperback book. If you choose these materials, your template will not last as long, but you can retain your pattern and make another template when your first template wears out (i.e., becomes unusable). Masking tape works on the template base material because it adheres to the base material better than the electrode adheres to it, facilitating peeling the template away from the electrode after the electrode is positioned on the lower leg.



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- i) Stack the two quarters on the cardboard. Using the quarters as a guide, place the knife, point down, alongside the quarters. You will be using a very small portion of the knife blade. The length of that portion will be equal to the thickness of two quarters.
- ii) Use two pieces of masking tape to cover both sides of the portion of the Xacto knife blade that is above the surface of the top quarter. Allow the tape to extend past the blade edges so it serves as a guide for how far to insert it while cutting around the quarters (see step iii below to understand why you are doing this).
- b) Place the plastic on the cardboard, with the short side at the top (see pattern 1, page 4).
 - i) Using a piece of masking tape at least 1.5" long, cover one quarter and tape it to the plastic in the lower left corner, 0.5 "from the left edge and 0.75" from the bottom edge of the plastic.

Note: After you cut the hole, you will trim the right and top edges of the plastic to locate the hole precisely relative to those edges. If your quarters are close to properly placed, your finished template will be fine.

- ii) Turn the plastic over and tape the second quarter to the plastic exactly behind the first quarter. (You now have a "sandwich," plastic between the quarters, with the tape holding the "sandwich" in place.
 - iii) Cut a dashed circle in the plastic around both quarters by putting the point of the Xacto knife through the masking tape and plastic, keeping the Xacto knife alongside the quarters. **DO NOT CUT DEEPER THAN THE MASKING TAPE GUIDE YOU PLACED ON THE BLADE.** We want a smooth, circular hole, exactly the size of a quarter, once you have completed cutting. We do not want damage to your work surface or the knife point. Continue cutting your dashed line around the quarters once.
 - iv) Continue cutting around the quarters, then remove the quarters, with the plastic center of the hole sandwiched between them. Remove the remaining tape from the plastic. You now have a piece of plastic with a hole similar to the one shown in Pattern 1 (see p. 4).
3. Cut Pattern 1 from Page 4 and clip it to the plastic with the printed circle aligned with the hole you just cut. Cut the top edge of the plastic 2.25" from the top edge of the hole and the right edge of the plastic 0.75" from the right edge of the hole.
- a) Cut the plastic with the scissors to match the right and top edges of the plastic as shown in Pattern 1. **Note: The hole's relationship to the template's right and top edges is critical.** The hole's relationship to the bottom and left edges is not important.
 - b) Put a piece of masking tape along the right edge of the plastic. Use your Xacto knife to remove the tape that is covering part of the hole.
 - c) Use a ballpoint pen to draw the line shown on the masking tape in Pattern 4. Notice that the **lower-left** corner of a 2" X 2" electrode fits as shown in Pattern 4. Confirm that you are sticking only the area 1" up the side and 1" across the bottom of the pad to the template. About three-fourths of the pad's adhesive will be exposed and ready to stick to your **RIGHT** leg.
 - d) After drawing the line for the pad's future positioning, place the second electrode under your foot on the soft skin of the arch 1/2 "forward of your tough heel skin. The left edge of the electrode will not be visible if you were sanding, looking down at your foot on the floor. You are ready to proceed with your therapy.



OAB Therapy 101

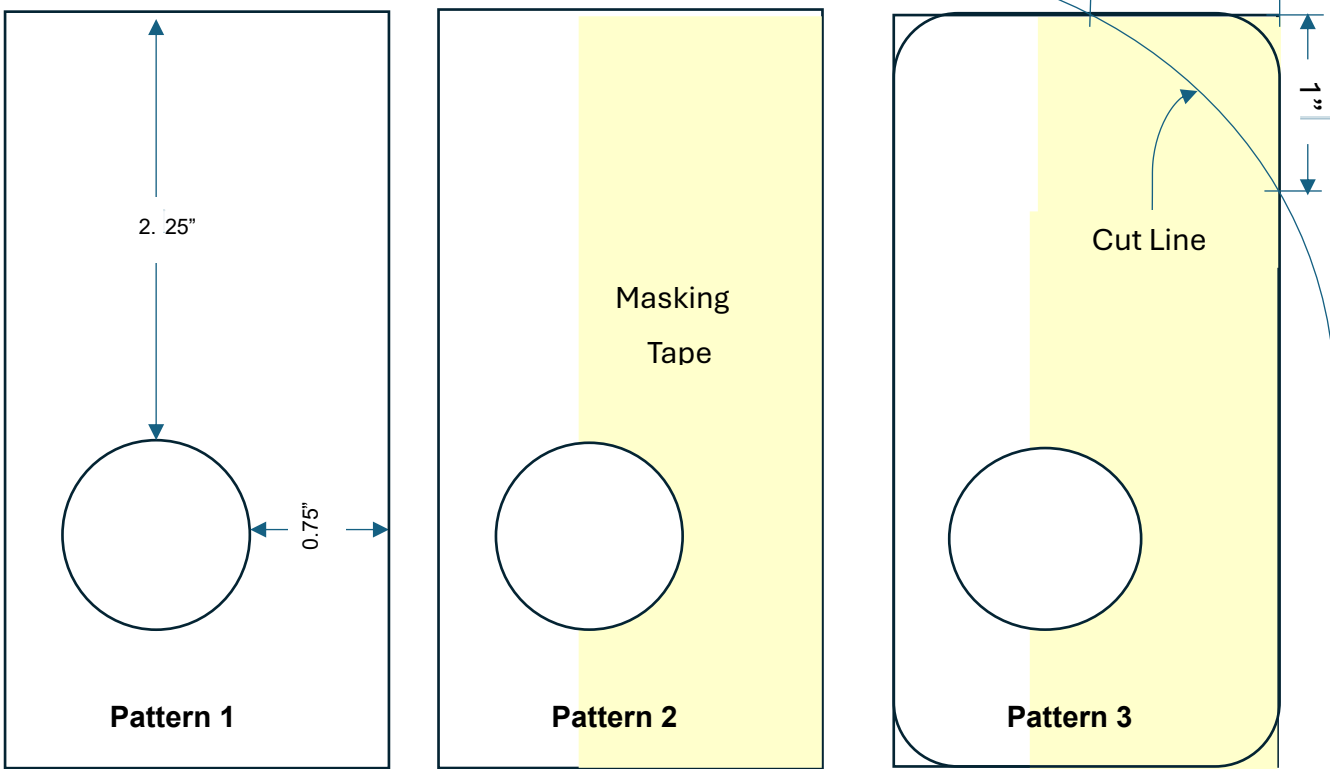
4. You have now created a template to aid TTNS electrode placement on your RIGHT leg. If you decide to try TTNS, we would appreciate learning about your experience. OAB symptoms are a real challenge, and we wish we could do more.

NOTE: Clinical studies often evaluate PTNS over periods of approximately 12 weeks. Some report improvement by week 6 or 7, although individual responses vary.

5. Please confirm that you have labeled the template for **RIGHT LEG** TREATMENT. You can use the REVERSE SIDE for **LEFT LEG** treatments. Stick the lower-**right** corner of the pad to the back of the plastic template, exactly behind the mark on the reverse. If the line for the electrode pad corner does not show through the masking tape, use masking tape along the **left** edge of the reversed template. Mark the line for the corner. You must **not** confuse which side of the template you are using to install the electrode. Reversing the template works because your legs are mirror images of each other. The electrode will always be above your ankle bone and toward the back of your leg.
6. Two last points:
- If you decide to try TTNS and do not want to make your own template, send a #10 self-addressed, stamped envelope to the address below, and I will mail you a template.
 - I would appreciate knowing the results of your TNS therapy. Download the TNS Results Recording form and use it for your trial. Mail a copy without identifying information to OAB Therapy 101, P.O. Box 211, Novi, MI, 48376.

FINALLY: AFTER READING AND UNDERSTANDING THIS PROCESS, IF YOU ARE NOT CONFIDENT IN YOUR ABILITY TO EXECUTE THIS PROCESS SAFELY, GET SOMEONE TO HELP YOU, OR SEND THE SELF-ADDRESSED ENVELOPE TO THE ADDRESS ABOVE.

Patterns are below and on the following page.





Mark the 2" X 2" Electrode Pad Position on the Template

Place the electrode-pad corner on the template as shown, with its lower left corner on the template, 1", halfway up its side and 1", halfway across its bottom. Trace the outline of the pad onto the template with a ball point pen. Use this location when installing an electrode on the right leg. For the left leg, turn the template over. Put a strip of masking tape down the left edge of the template. Use our Xacfto knife to cut the tape that extends over the hole. Put the lower right corner of the electrode pad into position and trace a line that will be exactly behind the electrode-pad-corner line that is on the reverse.

