

## Study Overview

**Why does this study matter?** Many people experience problems with their thinking and mood as they age. A treatment that could be easily done at home to reduce these symptoms might improve daily function and quality of life.

**What is the treatment?** *Transcutaneous auricular vagus nerve stimulation (taVNS)* delivers gentle, non-invasive electrical stimulation to the vagus nerve through the ear. The vagus nerve connects to brain networks involved in thinking and emotion, helping to regulate mood, stress, and heart-rate balance (autonomic function). In this study, we're pairing taVNS with two types of brain training: computerized brain games and mindfulness practices. We think that taVNS will "warm up" the brain networks, while the brain trainings will activate them. Together, they may support thinking and mood.

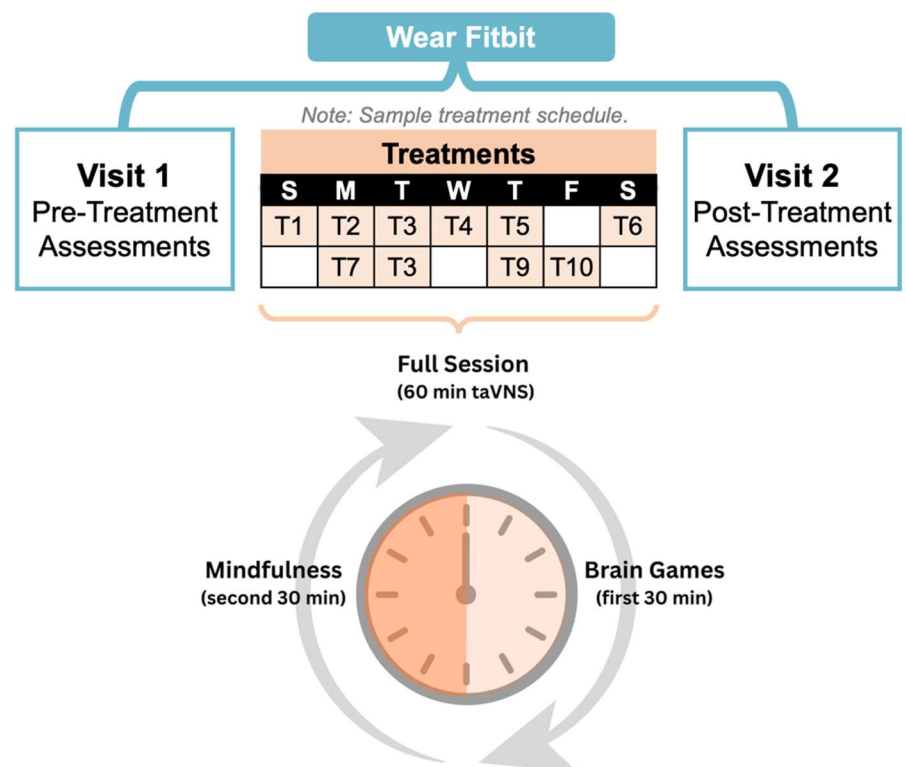
**How does my participation make a difference?** By completing this at-home program and sharing your experience, you help us learn whether combining self-administered taVNS + brain training is feasible, acceptable, and potentially helpful. Results will guide a future randomized, sham-controlled trial.

## Treatment Plan

**Schedule:** 1 session per day for 10 days (over 2 weeks) = 10 sessions total. Each session involves 60 min taVNS with 30 min brain games and 30 min mindfulness.

**Supervision:** The study coordinator will join you virtually for your first 3 sessions (or more if needed), then you will continue independently. You may have a care partner assist you, if needed.

**Fitbit:** Wear your Fitbit all day between Visit 1 and Visit 2.



# 5 Simple Steps - taVNS Stimulation

1

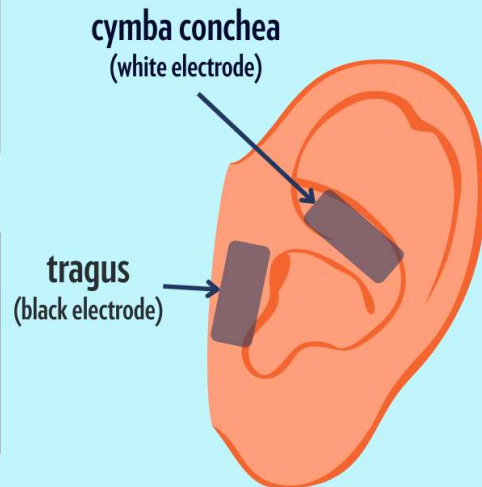
## PREPARE YOUR LEFT EAR

- Clean with an alcohol pad:
  - Tragus (small flap in front of ear canal)
  - Inside the outer ear canal
- Wipe with damp cloth.
- Allow skin to fully dry.

2

## PLACE ELECTRODES

- Warm electrodes by holding them between your palms for ~60 seconds.
  - White electrode → On the cymba concha.
  - Black electrode → On the tragus.
  - Green electrode → Discard
- Press electrodes firmly to your ear for good contact.



3

## CONNECT TO THE DEVICE

- Plug into top ports:
  - Black lead → black port
  - White lead → red port

4

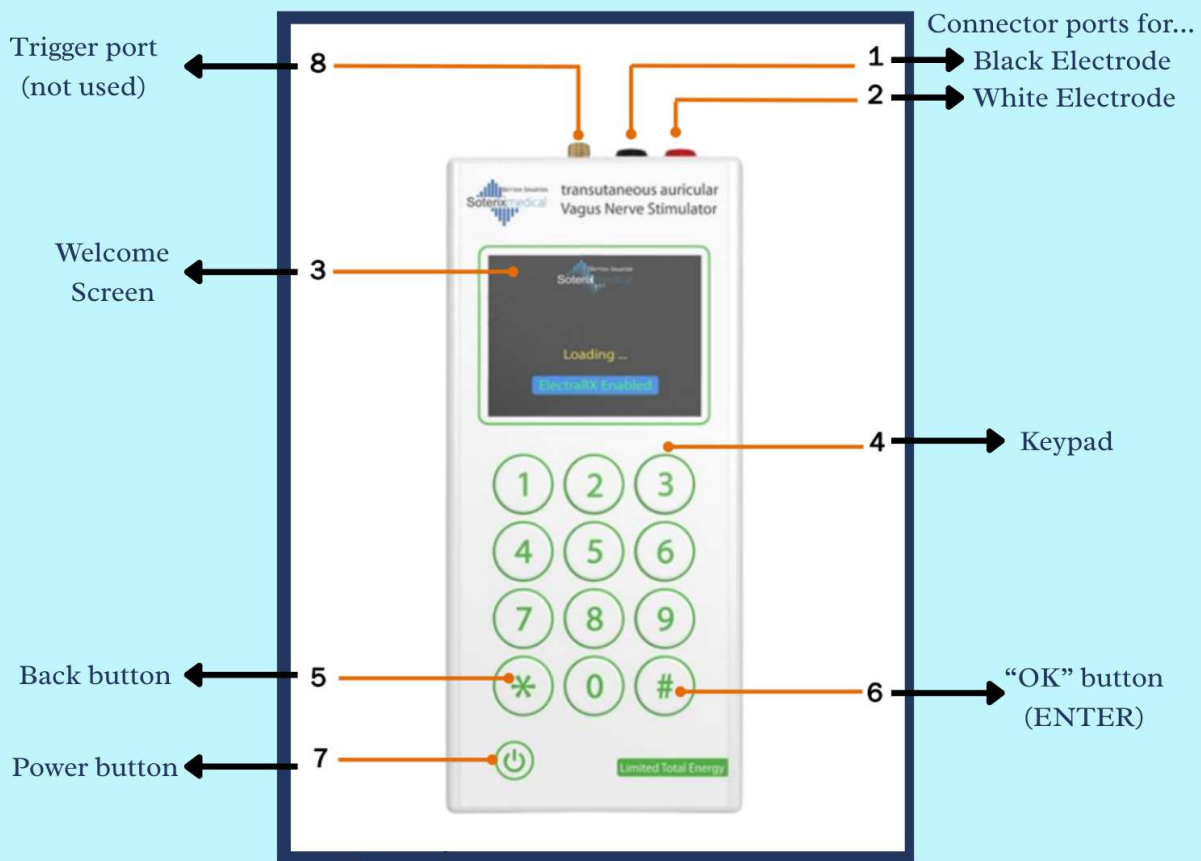
## POWER ON/START STIMULATION

- Press the power button.
- When the caution message appears → press any key to continue to the main menu.
- Press Option 2 - Stimulation
- Enter stimulation code (provided in email), and press any key to start stimulation for 60 min.
  - First 30 min- Log into BrainHQ and complete exercises.
  - Second 30 min- Use link in email to start mindfulness practice.

5

## POST STIMULATION

- Screen will say "Stimulation Ended"
- Remove electrodes from your ear, and dispose.
- Turn off machine; device will auto-shutdown after 10 min.

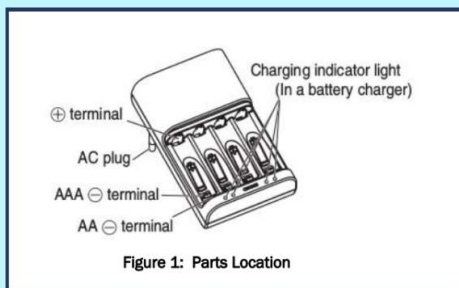


### Troubleshooting

- If device beeps = POOR connection
- Press electrodes firmly to ear to maintain good contact.
  - If contact remains poor, remove electrodes, re-clean skin with alcohol wipe, re-apply electrodes, and press Resume.

### Safety Information

- Do NOT use if:
  - Skin is irritated, burned, or damaged.
  - You have metal implants above the neck, recent ear injury, or facial/ear pain.
  - You have heart problems or other contraindications (alert study staff).
- Keep device dry. Do not use near water or in damp areas.
- Do not drop or open the device.
- Only use the provided electrodes and cables.
- Stop and contact study staff if you notice persistent redness or irritation.
- Stop stimulation anytime by pressing 0.



## Charging your taVNS System



- Remove batteries from the back of the taVNS machine, and insert them into the battery charging station.
- Charge batteries after every 3 Stimulation Sessions.
- When inserting the batteries into the charging station, the (+) should be facing the the top, and the (-) should be facing the bottom.

Once batteries are inserted, plug the charger into a working outlet.

Light will turn off once the charging is complete.

- Charging time can take approximately 6 hours.
- An Auto-Off feature will shut charger off automatically.

Once charging is complete, unplug the charger from the outlet, remove the batteries, and insert them back into the taVNS machine, with (+) and (-) facing the correct way, as seen on the device.

# NeuroHUB: FITBIT USER MANUAL

## GENERAL INSTRUCTIONS

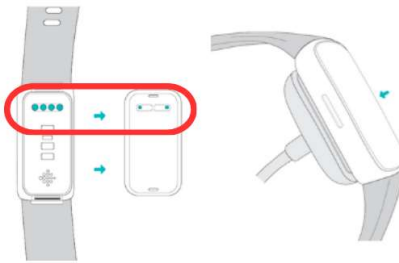
- Wear the Fitbit on your non-dominant wrist
- Wear it 24/7 for the duration of the study
- Fitbit is waterproof up to 50 meters, so you can wear it while showering and swimming
- Charge Fitbit for 1-2 hours once a week

## HOW TO CHARGE

**Step 1**  
Gather materials



**Step 2**  
Align metal pins of charger  
with Fitbit and click together



**Step 3**  
Fitbit will vibrate  
once when charging



## SYNCING ISSUES

**Step 1**  
Open the Fitbit  
Mobile App



**Step 2**  
Select the icon of the  
person in the upper  
left hand corner

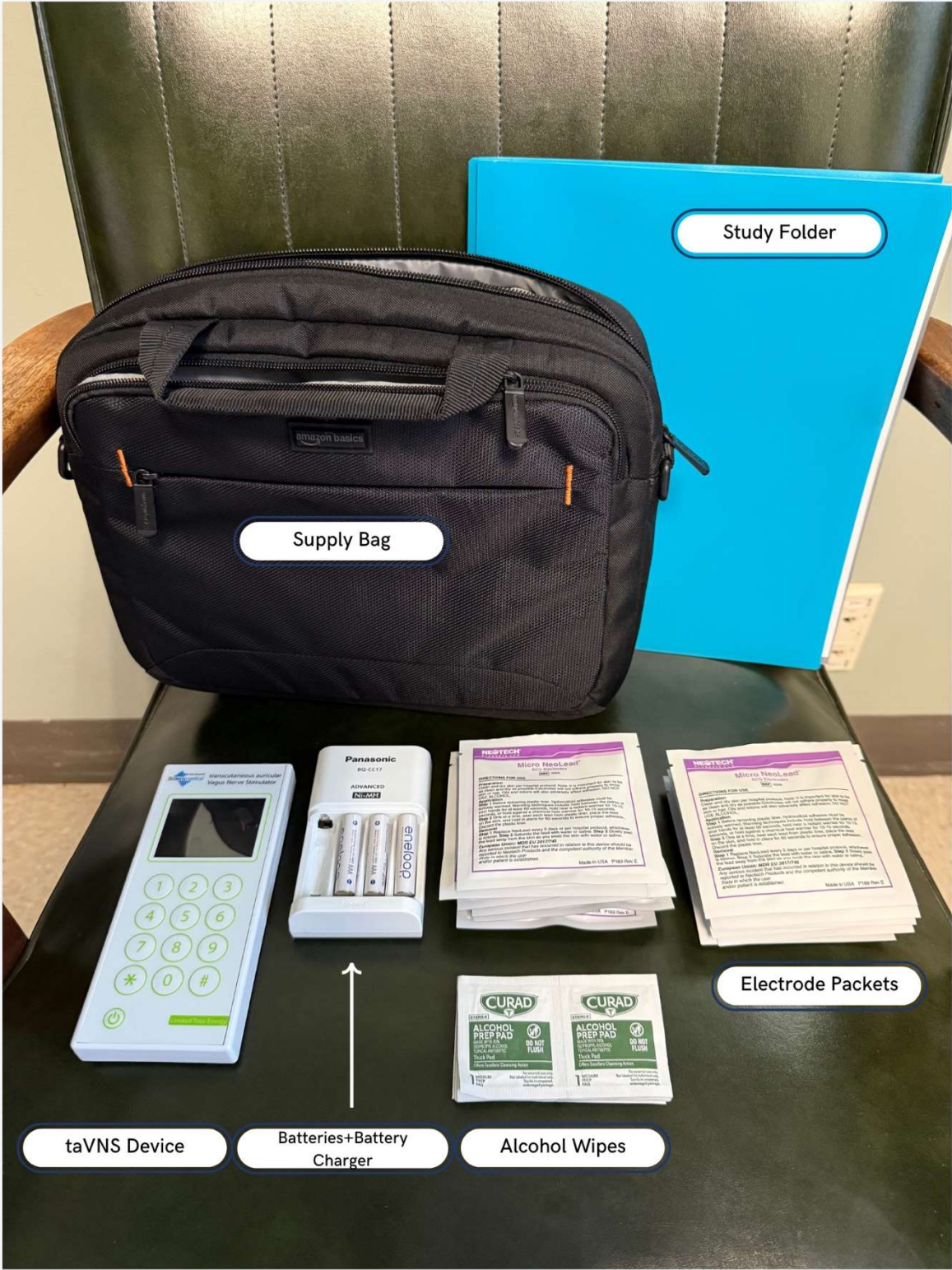


**Step 3**  
Select "Inspire 3" and  
ensure the blue bar  
finishes syncing

Syncing...

OR press "Sync Now"

Sync Now



Study Folder

Supply Bag

Electrode Packets

taVNS Device

Batteries+Battery  
Charger

Alcohol Wipes