



Department of Veterans Affairs
VA Boston Healthcare System

Information for adult stroke patients with aphasia (any type of aphasia) who may want to participate in this research project.

Transcranial Magnetic Stimulation (TMS) to Improve Speech and Naming in Aphasia

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Purpose

The purpose of our research is to study whether Transcranial Magnetic Stimulation (TMS) may be used to improve speech and naming ability in patients who have aphasia.

Stroke Patients who are eligible to enter the study:

Age 45 - 80 years; single stroke on left side of the brain (no previous strokes or stroke on the right side of the brain); at least 6 months after stroke onset; patient is right-handed and a native speaker of English.

Process for referral and participation:

1. MEETING

After being referred by a Speech/Language Pathologist, or Neurologist who is familiar with the patient, Dr. Naeser or someone from her lab, meets with the patient (and a family member) for about an hour, to explain the procedures involved.



2. LANGUAGE TESTING AND MRI SCAN

If the patient agrees, and he/she signs the Informed Consent Form, a few appointments are made including 1) Baseline testing for ability to name pictures 2) Baseline Language Evaluation with a Speech/Language Pathologist; and 3) a MRI brain scan.

3. TRANSCRANIAL MAGNETIC STIMULATION

Phase 1. Transcranial Magnetic Stimulation

The patient makes 3 visits to the Transcranial Magnetic Brain Stimulation (TMS) Laboratory, at the Beth Israel Deaconess Medical Center, 330 Brookline Avenue, Boston. The TMS treatment consists of the placement of a hand-held figure-of-eight shaped coil over the side of the head. The coil is about the size of a telephone receiver. See Figure 1.

With this *painless, non-invasive method*, the small magnetic coil (about the size of a telephone receiver) is held over the scalp of the aphasia patient for 10 minutes. It feels like a small, quick tap on the head. Our patients have not complained of any discomfort. The area of the brain cortex that is treated is about a one-half inch square (1cm x 1cm).

4. NAMING TESTS

The patient's ability to name 20 pictures is *tested immediately before, and immediately after* the TMS treatment using the same laptop computer that was used in Dr. Naeser's office at the V.A. Boston Healthcare System during the initial Baseline testing for ability to name pictures.

If there is a positive change in naming ability, the patient may enter Phase 2.

5. **Phase 2. Transcranial Magnetic Stimulation**



The brain region that produced the most improvement in naming pictures after Transcranial Magnetic Stimulation during Phase 1, is then treated 20 minutes a day, for 5 days a week, for two weeks, during Phase 2.

Follow-up language testing is again performed 2 months later, and at 6 months later.

Please contact Ethan Treglia, M.S., CCC-SLP. or Dr. Naeser at the above-listed telephone numbers and/or emails for referral of a aphasia patient to this project.



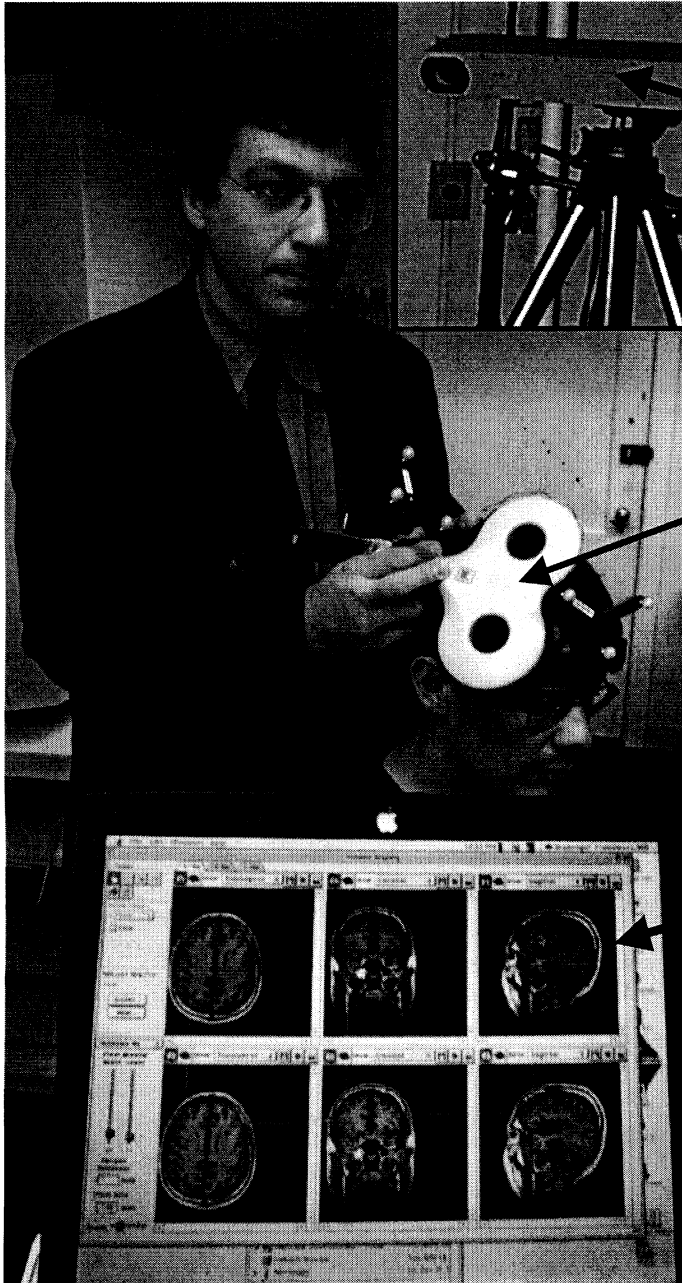


Figure 1:

Infra-red camera:
detects the position of
subject's head.

**Transcranial Magnetic
Stimulation (TMS) coil:**
treats the brain cortex and
is *painless and
non-invasive*

Brain MRI: helps to
position the TMS coil.

