

## The Effects of Transcranial Direct Current Stimulation on Overt Object Naming in Healthy Younger and Older Adults

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**Purpose:** We evaluated the effects of transcranial direct current stimulation (tDCS) over the left precentral gyrus on overt picture naming in healthy younger and older adults. **Method:** Sixty adults (30 younger = mean age: 26.97 yrs; 30 older = mean age: 66.37 yrs) were randomly assigned to off-line (1mA, 13 minutes, FC5) anodal, cathodal or sham tDCS. Participants overtly named pictures (n=40 pre, 40 post). Speech acoustic measures included vocal response time, word accuracy and vowel duration. Intermuscular coherence (15-60 Hz) was measured using surface EMG and evaluated for: (1) left orbicularis oris (LO)-right orbicularis oris (RO) and (2) intercostal (IC)-oblique (OB). Coherence was assessed for three phases of speech: planning (300ms before speech onset), execution (300ms after speech onset) and production (entire word). **Results:** There was no age effect of stimulation. Cathodal tDCS increased vowel duration and anodal tDCS had mild effects on IC-OB coherence. IC-OB coherence was lowest for the planning and greatest for the production phase. **Conclusion:** Results indicated some mild alteration of behavior with tDCS over the motor cortex but more work should be done to fully understand the impacts of tDCS timing, dosage, and electrode montage before suggesting its use in healthy and clinical populations.