

## **PARIETAL LOBE ACTIVATION IN RAPID, AUTOMATIZED NAMING BY ADULTS**

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### **Abstract**

Three automatic naming tasks (Wiig & Nielsen, 1999) were administered to 60 normally functioning adults. The mean time required for naming 40 single-dimension (colors, forms, numbers, and letters) and 40 dual-dimension stimuli (color-form, color-number, and color-letter combinations) were compared in young (17-38 yr.) and older (40-68 yr.) men and women. ANOVA for the combined groups indicated significant naming-time differences for age, but not for sex. There were no significant interaction effects. For men there was a significant naming time difference between age groups for forms, and for women for colors and forms. The sex-specific analyses indicated no significant differences in naming time based on age groups for color-form, color-number or color-letter combinations.

In a second study of adult subjects (n=13), functional brain activity was measured with regional cerebral blood flow during the performance of the color, form, and color-form naming tasks. One subject was repeatedly measured during the performance of each task, whereas 13 subjects were measured during the performance of color-form naming. In comparison to normal reference values for rest and FAS verbal fluency, blood flow measurements showed consistent parietal-lobe activation during form and color-form naming, but only a slight activation during color naming. During all naming tasks, a significant frontal and fronto-temporal flow decrease was seen in comparison to both rest and verbal fluency reference values. This functional brain activation pattern of a parietal increase and a fronto-temporal decrease was consistently confirmed across subjects during the color-form naming task.