
PROCEDURAL LEARNING IN STABLE SCHIZOPHRENIA PATIENTS COMPARED TO HEALTHY YOUNG AND ELDERLY CONTROLS IN TWO VARIATIONS OF THE ROTARY PURSUIT.

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Objective: To compare sensorimotor learning in stable schizophrenia patients, healthy age- and sex-matched controls and elderly controls in two variations of the classic Rotary Pursuit.

Method: In **Circle Pursuit** (true motor learning), a target circle, rotating along a predictable circular path on the computer screen, must be followed by manipulating the pen on the writing tablet. The task consists of two trials of six rotations each, with target speed gradually increasing. In the eight-trial **Figure Pursuit** (motor and sequence learning), subjects learn to draw a complex figure by following a target circle that moves at a fixed speed along an invisible trajectory around several goals. Tasks were administered thrice (interval 2-7days) to 32 stable schizophrenia patients (S), 16 healthy age- and sex-matched controls (Y) and 16 elderly controls (>65y; E) and recorded with a digitizing tablet and pressure-sensitive pen (200Hz frequency; 0.2mm spatial accuracy). Learning speed was assessed in a repeated-measures ANOVA of outcome variable accuracy (% of time cursor is within target).

Results: All groups exhibited learning effects and significant group differences in accuracy existed ($E < S < Y$, $p < 0.01$) in both tasks. However, within-subject analyses revealed a significant effect of group*trial number ($p < 0.01$) and group*session ($p < 0.02$) only in Figure Pursuit, indicating a significant difference in learning between groups in this task.

Conclusion: In our Pursuit continuous sensorimotor task, group differences exist between schizophrenia patients and elderly and young healthy controls. When a sequence learning component is added (Figure Pursuit), there is also significant difference in the amount of learning.