Use of processing speed measures to assess cognitive impairment. Preliminary study.

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OBJECTIVE

The properties of processing speed measures have been of particular interest to many researchers. Easily described as the **rate at which an individual is capable of performing a simple cognitive task**, their changes associated to increasing age have always been a great challenge.

Several studies have linked age-cognitive impairment with processing speed (Kail, 1986; 1991; Madden, 2001; Salthouse, 1996a; 1996b). However, this study attempts to determine the importance of **processing speed theory** which describes a **slowing of this capacity when age increases in subjects without cognitive impairment**. It also tries to evaluate quantitatively this increase in order to calculate, for each age, a basal processing speed.

PARTICIPANTS AND METHOD

357 subjects with no cognitive impairment (measured with the MMSE), aging between **18 and 85 yr**. were evaluated. All of them were **independent for the ADL** and had **no** clinical or psychological **relevant history**.

All the subjects were informed according to the **WMA Helsinki Declaration.**

The protocol administered was composed by the following tests:
-Mini-Mental State Examination
-Global Deterioration Scale
-**A Quick Test: Assessment of Parietal Function**
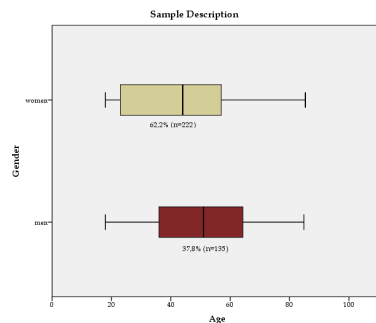
Standard Names for AQT Stimuli

Sample Description

RESULTS

Results show a clear relation between simple tasks and age $F_{(6.21)}=115,861$, $p<0,001$ ($R^2=0,394$) and between dual tasks and age $F_{(5.90)}=99,968$, $p<0,001$ ($R^2=0,358$).
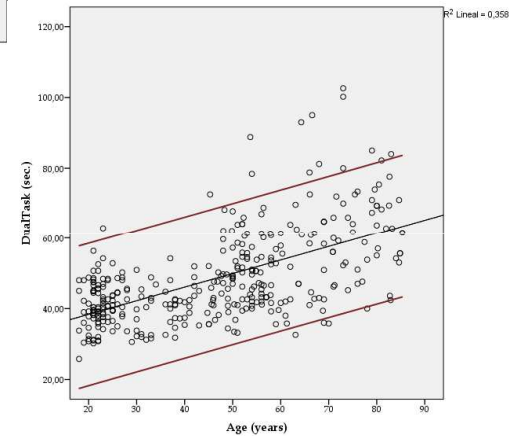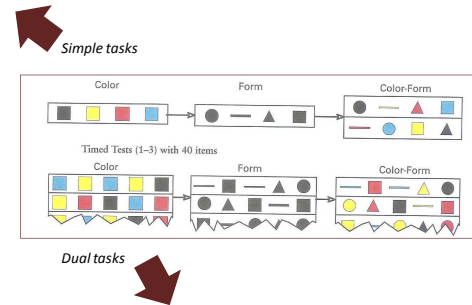
This results demonstrate that processing speed increases **,015 seconds** per year in simple tasks and **,028 seconds** per year in dual tasks.

Simple tasks

Dual tasks
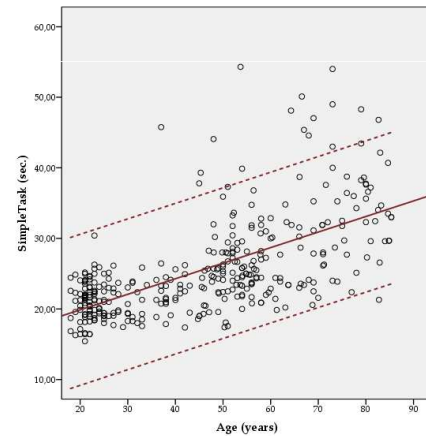
$$Y_{simple} = 15.985 + 0.218 \cdot age$$
$$Y_{dual} = 31.872 + 0.379 \cdot age$$

Measuring age in chronological years

CONCLUSIONS

High significant relation was found between age and both studying variables. Thus, the **decreasing speed of information processing with age may be considered as a consistent measure** of cognitive impairment in the aging process.