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Visual Attention Differences Across the Lifespan: A Study in Inhibition

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VISUAL ATTENTION DIFFERENCES ACROSS THE LIFESPAN:
A STUDY IN INHIBITION

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In 1980, Treisman and Gelade proposed a two stage process of attention. According to the Feature Integration Theory, information is first processed automatically through feature extraction while integration of these features occurs later. Feature extraction is a parallel process and therefore automatic while feature integration is a serial process and thus requires attention. Because of the attentional nature of Treisman's theory, it has often been used as a paradigm for studies on attention and inhibition. The theory has also been used to highlight differences in cognitive abilities at various levels of development. In particular, it has been used to demonstrate developing attention in children as well as slowing cognitive abilities in older adults. Significantly, the frontal lobe, which has been linked to inhibition and attention, is the last area of the brain to develop and the first to decline in adults. However, no cross sectional study has been done in which children, teenagers, adults, and older individuals have been tested on a standardized task. The ages of the participants were chosen based on developmental stages of the frontal lobe. Six year olds, ten year olds, thirteen year olds, college age students and people over the age of 55 all received the visual attention task. Each participant was given an individually administered standardized intelligence test and a computer task. This computer task required the use of feature extraction, feature integration, or a combination of both. Average reaction times (RT) for each age group were calculated. It was expected that no change in RT slope would be found for screens requiring parallel searches (regardless of age or display size) while those requiring serial processing were expected to produce a bitonic function. It is predicted that young children will have the longest RT with a steady decrease in RT through college age students and a sharp increase with the older age participants.