

Session 267 - Perceptual and Motor Decision Making

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## 267.13 / KKK10 - Age effects on visual perceptual decisions of ambiguous stimuli

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 Halls B-H

### Presenter at Poster

Sun, Nov. 13, 2016, 1:00 PM  
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### Session Type

Poster

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### Disclosures

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### Abstract

The brain is constantly making choices while interpreting the environment. To understand how age affects visual decision-making, we investigated age-related changes in spontaneous percept switches and percept choices during intermittent presentations of ambiguous stimuli. Spontaneous switches can be triggered by different visual stimuli, such as monocular ambiguous visual stimuli or binocular rivalry images. An ambiguous visual stimulus has multiple and equally plausible interpretations, such as the bi-stable rotating sphere. In such a sphere two transparently moving dots are moving in opposite directions and due to structure-from-motion the stimulus is perceived as a 3-dimensional rotating sphere moving in one or the opposite direction. During binocular rivalry experiments, the left and the right eye receive different input simultaneously. During stimulus-presentation only one of the two presented images is perceived, and the other image is suppressed. Dominance durations (the time a percept remains dominant) are typically in the order of several seconds. In this study, 52 observers ranging from 17 to 72 years old, viewed bi-stable rotating spheres and binocular rivalry stimuli and were forced to make a choice between two percepts. Stimuli were presented continuously for 2 minutes or intermittently for 1 second, with a range of inter-stimulus intervals (0.125 - 2 seconds). The results show that dominance durations during continuous viewing are longer for older subjects for the binocular rivalry stimulus but not for the bi-stable rotating spheres. For the intermittent stimulus presentation, perceptual alternations decrease at an older age in binocular rivalry, while for the bi-stable rotating sphere there are only differences in perceptual alternations among different age groups at a short off-duration. Based on these results, we conclude that the effect of age is not a general phenomenon for ambiguous stimuli. Visual decisions are more stimulus dependent, rather than experience dependent.