

Publication

Age differences in striatal delay sensitivity during intertemporal choice in healthy adults

JournalArticle (Originalarbeit in einer wissenschaftlichen Zeitschrift)

ID 947416

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Year 2011

Title Age differences in striatal delay sensitivity during intertemporal choice in healthy adults

Journal Frontiers in neuroscience

Volume 5

Pages / Article-Number 126

Keywords aging, reward, decision making, discounting, intertemporal choice, ventral striatum, experience

Intertemporal choices are a ubiquitous class of decisions that involve selecting between outcomes available at different times in the future. We investigated the neural systems supporting intertemporal decisions in healthy younger and older adults. Using functional neuroimaging, we find that aging is associated with a shift in the brain areas that respond to delayed rewards. Although we replicate findings that brain regions associated with the mesolimbic dopamine system respond preferentially to immediate rewards, we find a separate region in the ventral striatum with very modest time dependence in older adults. Activation in this striatal region was relatively insensitive to delay in older but not younger adults. Since the dopamine system is believed to support associative learning about future rewards over time, our observed transfer of function may be due to greater experience with delayed rewards as people age. Identifying differences in the neural systems underlying these decisions may contribute to a more comprehensive model of age-related change in intertemporal choice.

Publisher Frontiers Research Foundation

ISSN/ISBN 1662-453X

edoc-URL <http://edoc.unibas.ch/dok/A5848634>

Full Text on edoc No;

Digital Object Identifier DOI 10.3389/fnins.2011.00126

PubMed ID <http://www.ncbi.nlm.nih.gov/pubmed/22110424>

ISI-Number WOS:000209200600122

Document type (ISI) Article