

visual areas, were suppressed. This uncoupling between anterior and posterior preparatory attentional processes was matched with lesion in the frontal operculum and in the arcuate/superior longitudinal fasciculi. N+ showed enhancement of the P3a in response to invalid targets in the right side of space and a drop of the P3a to invalid targets in the left side. This shows exaggerated and reduced novelty reaction to ipsilesional and contralesional sensory events, respectively. The P3b was reduced for targets in the left side of space though not enhanced for those in the right side. These findings show that in N+ preserved voluntary orienting of attention neither helps defective reflexive orienting nor the perception of the novelty or motivational relevance of events in the left side of space.

11 **Age-related influences of distractor processing on visual working memory content**

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Ageing is characterized by a lack of efficient selection, which causes reduced performance in different cognitive domains. Here we tested how the numerical symmetry/asymmetry between relevant and distracting information can influence efficient/inefficient selection in a visual working-memory task.

We used a change detection paradigm with relevant and irrelevant salient stimuli presented simultaneously in opposite hemifields. Two groups of participants (Young vs Old) were asked to remember the items in the relevant (target) hemifield, while ignoring those in the irrelevant (distractor) hemifield. Crucially, the number of targets and distractors was manipulated orthogonally, such that in some trials the number of targets and distractors was the same (symmetrical), while in other trials it was different (asymmetrical). At behavioral level, older adults performed worse than younger adults with large target numerosity. The Contralateral Delay Activity (CDA) of the EEG signal, a neural signature of working memory, was computed for each target load by subtracting ipsilateral to contralateral activity over the retention interval (300-900ms after array onset). Results showed that when targets and distractors share the same numerosity (symmetrical condition), the amplitude of the CDA was modulated by target numerosity in both age groups. However, when there was a numerosity asymmetry, only young individuals still exhibited a modulation related to target numerosity. The data reveal that younger adults are capable of retaining only relevant information, independent of the numerosity symmetry. Conversely, older adults seem to retain the elements present in the whole visual field (attended/targets + unattended/distractors), in line with the inhibitory deficit hypothesis.

12 **Neural Representation of games and strategies in repeated stochastic games**

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Most of real life interactions are repeated, rather than isolated, encounters. Such repeated strategic interactions are modeled in game theory (GT) as stochastic games, where the players play a sequence of different single-shot game. GT assumes that players choose actions in a game according to strategies. The aim of this study is to identify neural representations of both game and strategy information during strategic playing, where either the game or the opponent player may change during the interaction. Forty-one participants played a stochastic game while undergoing functional magnetic resonance imaging (fMRI). They played with six virtual players (following different strategies) two different stage games:

the Prisoner's Dilemma and the Battle of the Sexes. At the beginning of each trial, information about the opponent player (or the game to be performed) was shown on the screen, followed by a delay in which the participant had to represent the provided information. Afterwards, information about the current game (or the opponent player) was shown, together with the choices of the player and the participant in the previous trials. Participants had to make their choice considering all provided information. fMRI data from the delay phase were analyzed to identify neural representations of either game or strategy information. Preliminary results show that game information is encoded by a confined network comprising parietal and prefrontal areas, while strategy information is represented in a much wider frontoparietal network. These findings suggest that different game variables of the same stochastic game are represented by different neural networks.

13 Preference for facial configuration in newly-hatched tortoises

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In neonates of social species, such as chicks of the domestic fowl and human new-borns a preference to attend or orient towards to face-like stimuli have been observed (Di Giorgio et al. 2016). Here we test whether the same preference is present in tortoises too, that are non-social vertebrates. We tested newly-hatched tortoises of four species (*Testudo graeca*, *Testudo marginata*, *Testudo horsfieldi*, *Testudo hermanni*) that were isolated in individual compartments from birth, and therefore were naïve for face-like configuration. As experimental apparatus, we used a rectangular arena, and located two pair of face-like and control stimuli on the sides of the apparatus. We left the subject free of moving around and measured the time spent close to both stimuli. In Experiment 1 we used a face-like stimulus formed with three blobs and a control stimulus where the three blobs were aligned. We observed that the subjects of all species spent a significantly greater amount of time near the face-like stimulus. In Experiment 2 we tested a face-like stimulus vs. a control top-heavy stimulus. Preliminary results show a preference for face-like stimuli in this experiment too, suggesting an ancient origin of preferences for face-like stimuli.

14 Change your mind before you choose! Brain signature of changing food information to improve food choice: An ERP study.

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In the food-rich society, food and food choice are intensively processed. Food preference and choice are predominantly learned and are strongly determined by associations between certain food and food-related information. Thus, strengthening associations between minimally-processed food and the concept of healthiness/sustainability may benefit the promotion of food choice with more minimally-processed food. This study investigated the underlying cognitive processing and neural correlates of changes in food choice. Seventeen healthy Italian adults went through a within-subject experiment. In the evaluative conditioning (EC) condition, pictures of minimally-processed food (both low- and high-calorie food) were paired with words representing healthiness/sustainability. In the control condition, pictures of foods were randomly paired with words representing (un)healthiness/(un)sustainability. After each condition, participants went through a series of tasks: semantic congruency task with Electroencephalography measurement, Implicit Association Test (IAT), explicit ratings of food pictures, and a task meant to emulate food choice in real life.