



Multisensoriality in the autistic personality: study of depth movement

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INTRODUCTION ❖ As a **spectrum disorder**, **autistic traits** associated with ASD extend in the general population [1].

❖ **Sensory specificities** are a **key component** of ASD diagnosis [2].

❖ **Depth movement (looming/receding)** informs us about **essential non-social** (e.g., avoid a danger) and **social information** (e.g., approaching to interact).

❖ According to the **temporospatial processing hypothesis** [3], there is a **speed effect on the movement processing** of ASD people.

❖ **Multisensory (e.g., audiovisual)** integration in ASD has only been studied with static stimuli [4].

➡ **Aim : Study the integration of audiovisual depth movement in the autistic traits spectrum.**

METHOD

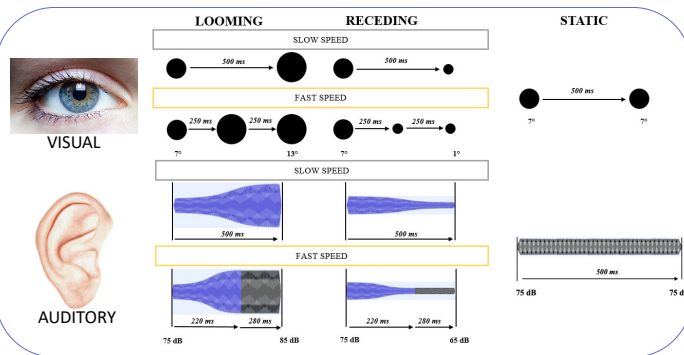
38 healthy young adults (M = 22,23 yo, SD = 1,95 yo).

❖ **Personality questionnaires :**

AQ [1] (autistic quotient) and AASP [5] (sensory profile).

Stimuli and paradigm came from the study of Cappe et al. (2009).

❖ **Stimuli :**



Sensory modalities

Visual, auditory, audiovisual

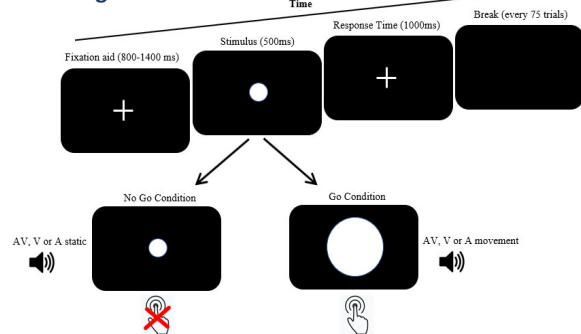
Movements

Looming, receding, static

Speeds

Fast, slow

❖ **Paradigm :**



- **No Go condition :**

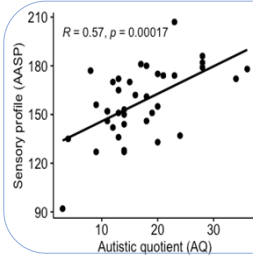
Static stimulus.
Participants did not have to press a response button.

- **Go condition :**

Looming/Receding stimulus.
Participants had to press a response button.

RESULTS

❖ **Personality questionnaires :**



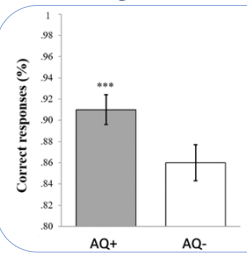
Positive correlation between the autistic quotient and the sensory profile.

Median split (AQ)

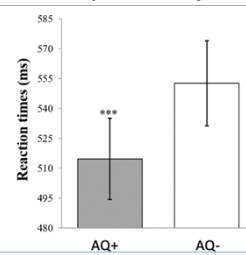
AQ+ (> 14)

AQ- (≤ 14)

❖ **Integration of depth movement and autistic personality :**

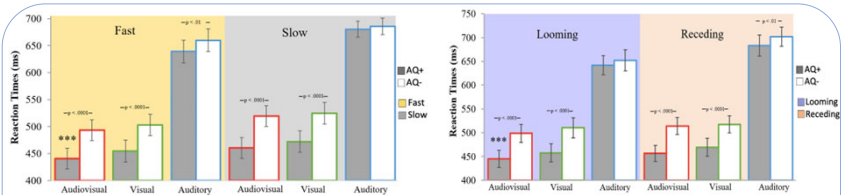
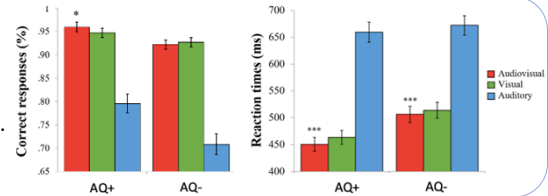


Higher % of correct responses (%RC) in AQ+



Shorter reaction times (RT) in AQ+

Multisensory benefit in %RC for AQ+ only and in RT for both AQ groups.



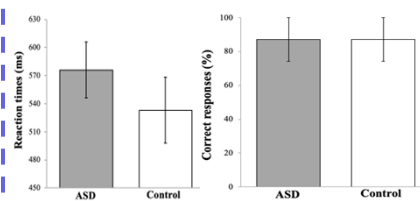
AQ+ was particularly faster to detect **audiovisual fast** stimuli and **audiovisual looming** stimuli

PRELIMINARY RESULTS IN THE AUTISM (ASD)

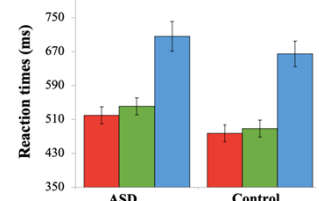
ASD participants = 8

Control participants = 38

➡ No statistic was applied



Tendency in the ASD to be slower in detecting moving stimuli



Multisensory benefit for ASD and Control participants

TAKE HOME MESSAGE

❖ There was a relationship between the sensory profile (AASP) and the autistic profile (AQ).

❖ AQ+ presented reduced detection times and enhanced discrimination of depth movement. While a tendency in the ASD to be slower was found.

These results question the linear expression of autistic specificities in the continuum.

❖ Selective integration of audiovisual looming and audiovisual fast movements in AQ+, as well as a tendency in the ASD to present multisensory benefits were found.

These results suggest the implication of a distinct multisensory process in the autistic spectrum.

❖ We are developing a study to characterize the neural correlates of such multisensory movement processing in the autistic spectrum

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