



LOMONOSOV MOSCOW STATE UNIVERSITY

Specificity in Perception of Familiar and Unfamiliar Faces in Humans

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Face perception has been defined as the ability to perceive the face as a gestalt, along with all of its parts and the relations between them. This face specific strategy has been called **configural processing**. At the same time, there are debates about the influence of configural processing on **perception of familiar and perception of unfamiliar faces**. It is possible to assume more concise processing of familiar faces because early reconciliation with long-term memory codes, activation of semantic information, name codes. Unfamiliar faces can be perceived as the physical object relating with the analytical strategy.

The focus of the present study:

- address the question of **influence of configural processing on perception of familiar and perception of unfamiliar faces**;
- description of configural face processing in **brain damaged patients**

Methods

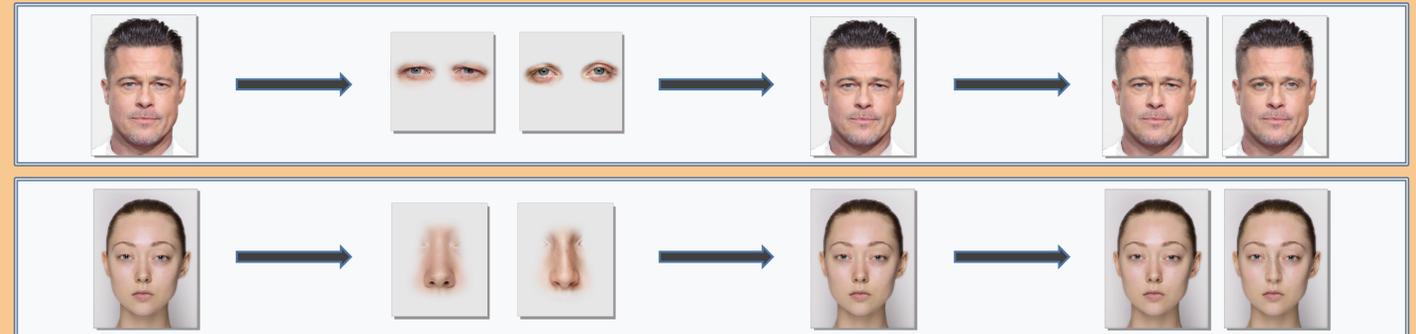
Participants:

- **30** healthy persons and **12** patients with tumors in the posterior right or left hemispheres of the brain.

Procedure:

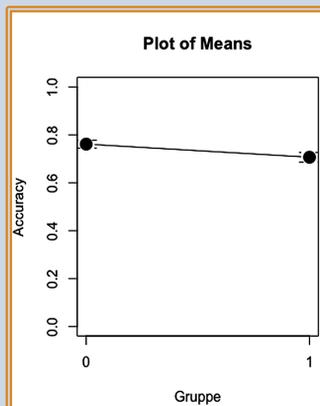
- **pre experimental series** – included assessment of lateral organization profile in healthy persons and neuropsychological assessment of patients according to the classical scheme of Luria A.R.
- **experimental session** included tasks the Sequential matching of part-whole unfamiliar/familiar faces

Sequential matching of part-whole familiar/unfamiliar faces



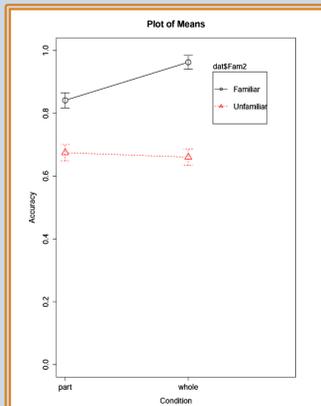
Results

Groups difference



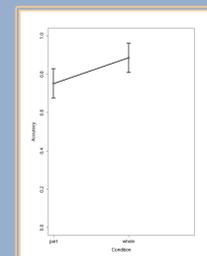
In general, both the control and experimental groups completed the task at a sufficiently high level (around 80%).

Interaction between condition "part"/"whole" × familiarity

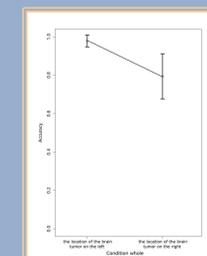
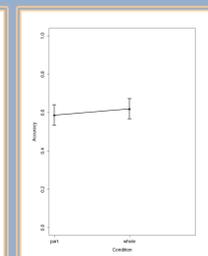


On the whole sample (including both groups of participants) the following effect was found: there is a **significant holistic effect for famous faces**, measured as the superiority in performance accuracy during presentations of face details within the context of the whole face in comparison to isolated presentations of face details; in contrast, during perception of unfamiliar faces details of faces were recognized better, when they were presented isolated from the context of the whole face.

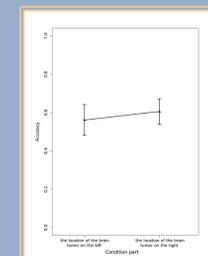
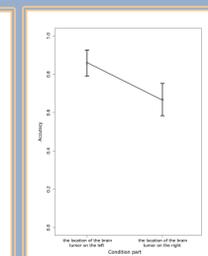
Some trends, which may be important for neuropsychological assessment



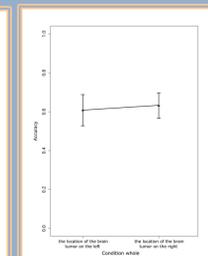
Separate presentation of strategies in perception of familiar faces (left), unfamiliar faces (right) in patients: part-whole recognition effect (holistic effect) for faces of famous persons, no holistic effect for unfamiliar faces.



Patients with tumors in the posterior left hemisphere of the brain have demonstrated higher performance accuracy in task with faces of famous persons.



No substantial difference in performance accuracy in task with unfamiliar faces was found in both groups of patients



Summary & Conclusion:

- There is provided evidence for configural processing within perception of familiar faces but not unfamiliar face
- The brain damage as such does not seem to modulate this effect: patients with tumors in the posterior right or left hemispheres of the brain demonstrate part-whole recognition effect (holistic effect) in perception of faces of famous persons but not in perception of unfamiliar faces
- Furthermore, on the tendency level was found the difference in perception of familiar and unfamiliar faces in patients with brain damage: patients with tumor in the posterior left hemisphere of the brain were generally better in task with familiar faces, however, task with unfamiliar faces was difficult for both groups of patients
- The present study demonstrates a successful combination of quantitative and qualitative analysis within assessment of face perception and shows new perspectives in neuropsychological research and practice