Listen carefully! The importance of auditory cues in anticipating volleyball serves

Fabrizio Sors¹, Mauro Murgia¹, Franziska Lath¹,², Alexandra Bader¹,³, Tiziano Agostini¹

¹ Psychology Unit “Gaetano Kanizsa”, Department of Life Sciences, University of Trieste, Italy; ² Department of Psychology, University of Erfurt, Germany; ³ Department of Psychology, University of Innsbruck, Austria.

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Previous research highlighted that early visual information has a key role in ball sports, as its correct interpretation fosters accurate predictions concerning the ball motion [1,2]. Other studies revealed that auditory information can provide important cues in various sport situations [3,4]. The present study combines these two lines of research with the aim to investigate the role of early auditory and visual information in anticipating volleyball serves.

To this purpose, several overhand serves were audio- and video-recorded from the perspective of a defence player. The recordings were edited to create two kinds of stimuli – auditory and visual – lasting 1250 ms (1000 ms before the hand-ball impact and 250 ms after it). 36 participants were recruited for the experiment: 22 were novices to volleyball, while 14 were amateur volleyball players. Their task was to predict the landing zone of the serves – i.e. near the net, in the middle of the court, or near its end – relying either on the auditory information (Audio condition) or on the visual information (Video condition). A within subjects design was used, with the two conditions carried out in a counterbalanced order among participants.

As concerns response accuracy, an independent samples t-test revealed no significant difference between the two groups of participants. As a consequence, the comparison between the two experimental conditions was conducted without making a distinction between novices and experts; in this regard, a one sample t-test highlighted that participants were significantly more accurate in the Audio condition than in the Video condition. As concerns response times, no significant difference was observed neither between groups, nor between conditions.

These outcomes suggest that the early auditory information associated with volleyball serves would provide more salient cues than the respective visual information for predicting the landing zone of the serves themselves. Future studies should further investigate in this direction, considering also other sport situations, to better understand the contribution of auditory and visual information in anticipating the ball motion; future developments in this field would be useful from both a research perspective and an applied one.

In conclusion, the anatomical findings support the hypothesis of a shared neural subsystem for natural food and living things, and transformed food and non-living things. In turn, these results provide evidence that food concepts may be organized according to sensory/functional properties.

