

IMPAIRED MULTISENSORY INTEGRATION AND DISRUPTION OF SPATIAL REFERENCES IN ANOREXIA NERVOSA

A. Carey¹, M. Luyat², O. Cottencin³, P. Thomas⁴, D. Guardia³

¹Service d'Addictologie, Hôpital Calmette, CHRU de Lille, Lille, ²Laboratoire de Neurosciences Fonctionnelles et Pathologies, EA-4559 ; Département de Psychologie, Université Lille Nord de France, Villeneuve d'Ascq, ³Service d'Addictologie, Hôpital Calmette, CHRU de Lille, ⁴Service de Psychiatrie, Hôpital Fontan, CHRU de Lille, Lille, France

In anorexia nervosa (AN), body distortions have been associated with right parietal cortex (PC) dysfunction. The PC is the anatomical substrate for a supramodal reference framework involved in spatial orientation constancy. Our aim was to evaluate spatial orientation constancy and the perception of body posture in AN patients.

In this case control study, the population consisted of 25 AN patients and 25 healthy controls. We investigated the effect of passive lateral body inclination on the visual and tactile subjective vertical (SV) and body Z-axis perception in each group. Subjects performed visual- and tactile- spatial judgments of axis orientations in an upright position and tilted 90° clockwise or counterclockwise.

We observed a significant deviation of the tactile and visual SV towards the body (an A-effect) under tilted conditions, suggesting a multisensory spatial orientation deficit. Significant deviation of the Z-axis in the direction of the tilt was also observed in the AN group. The greatest A-effect in AN patients could reflect reduced interoceptive awareness and thus inadequate consideration of gravitational inflow. Furthermore, marked body weight loss could decrease the somatosensory inputs involved for spatial orientation.

Our study results strengthen the role of PC in AN. These suggest that spatial references are impaired in AN, which could be due to disrupted multisensory integration in the PC such as visual, tactile, vestibular and somatosensory information.