


Behavioural and functional neuroanatomy studies demonstrate that mental rotation of body parts is carried out through a sort of inner motor simulation. Here we examined whether changes of hands posture influence the mental rotation of hands and feet. Twenty healthy subjects were asked to verbally judge the laterality of hands and feet pictures in two different postural conditions. In one condition, subjects kept hands on their knees in anatomical position; in the other, their hands were kept in an unusual posture with intertwined fingers, behind the back. Results show that mental rotation of hands but not of feet was influenced by changes in hands posture. Indeed, while mental rotation of hands was faster in the front than in the back hands position, no similar effect was found when mentally rotating feet. Thus, sensory-motor and postural information coming from the body may influence mental rotation of body parts according to specific, somatotopic rules;

Longhi M., Rizzo P., Nicolato A., Foroni R., Reggio M., Gerosa M. (2007) Gamma knife radiosurgery for trigeminal neuralgia: results and potentially predictive parameters. Neurosurgery (accepted for publication);


Neglect patients, when asked to bisect a horizontal line, typically show large rightward errors with long lines and a decreased error with medium length lines. With very short lines the bisection bias reverses from the right to left side of the line physical centre (the so-called crossover effect). It is commonly pointed out that such a leftward bias is difficult to explain by traditional theories of neglect. Several accounts propose two distinct mechanisms, one that works for short lines and one that works for long. In the present study we demonstrated that the crossover effect can be explained by means of a unitary mechanism that derives from the space anisometry hypothesis. This hypothesis postulates that in neglect patients representational space is progressively ‘relaxed’ contralesionally and progressively ‘compressed’ ipsilesionally. In a series of five experiments, we investigated the crossover effect in 26 right-brain damaged patients: 17 with neglect without hemianopia, 4 with neglect and hemianopia and 6 without neglect or hemianopia. Patients were to bisect or extend lines of objectively and subjectively different lengths. The modulation of subjective length was created by an Oppel-Kundt illusion that is thought to resemble the distortion of representational space that occurs with neglect. All groups, except for the patients with neglect and hemianopia, were prone to the illusion. The rightward bias was reduced when the illusion induced a perceptual distortion opposite to that thought to underlie neglect. Importantly, the strength of the illusion decreased with reducing the physical line length and reversed with very short lines. These results argue for a simple and unitary explanation of the crossover effect in spatial neglect within the framework of the space anisometry hypothesis;
It is now common knowledge that the total surgical section of the corpus callosum (CC) and of the other forebrain commissures prevents interhemispheric transfer (IT) of a host of mental functions. By contrast, IT of simple sensorimotor functions, although severely delayed, is not abolished, and an important question concerns the pathways subserving this residual IT. To answer this question we assessed visuomotor IT in split-brain patients using the Poffenberger paradigm (PP), that is, a behavioral paradigm in which simple reaction time (RT) to visual stimuli presented to the hemifield ipsilateral to the responding hand is compared to stimuli presented to the contralateral hemifield, a condition requiring an IT. We tested the possibility that the residual IT is mediated by the collicular commissure interconnecting the two sides of the superior colliculus (SC). To this purpose, we used short-wavelength visual stimuli, which in neurophysiological studies in non-human primates have been shown to be undetectable by collicular neurons. We found that, in both totally and partially callosotomised patients, IT was considerably longer with S-cone input than with L-cone input or with achromatic stimuli. This was not the case in healthy participants in whom IT was not affected by color. These data clearly show that the SC plays an important role in IT of sensorimotor information in the absence of the corpus callosum;


- Bishop D. (2007) Improving repeated-sprint ability. 6th World Congress on Science & Football 16-20/1, Antalya;

- Bishop D. (2007) Muscular buffer capacity as a limiting factor during repeated sprints. German Physiological Society 86th Meeting 25-28/3, Hannover (invited communication);


- Bishop D., Suriano R. (2007) Effects of variable and constant power output on glycogen depletion patterns and subsequent running economy. ACSM 54th Meeting 30/5-2/6, New Orleans;


INIZIO DI ATTIVITÀ DI EDITOR PER RIVISTE INDICIZZATE

- Journal of Science and Medicine in Sport, assistant editor (Bishop D.).
- Il progetto dal titolo ‘Determinants of bed rest induced deterioration of neural cardiovascular regulation and implications for countermeasures: role of arterial and cardioventilatory components of the baroreflex, of muscular afferents and of arterial modifications’ inviato in risposta al bando dell’European Space Agency # AO-06-BR-33 dal Prof. Carlo Capelli in collaborazione con il Prof. Massimo Pagani della Facoltà di Medicina e Chirurgia di Milano, dei Proff. Giuseppe Baselli ed Antonio Pedotti del Politecnico di Milano, del Prof. Carlo Palombo della Facoltà di Medicina e Chirurgia dell’Università di Pisa e del Dr. Ferdinando Iellamo della Facoltà di Medicina e Chirurgia dell’Università di Roma Tor Vergata, è stato selezionato con una valutazione di merito di ‘very good’ tra gli studi candidati ad essere realizzati nel corso della prossima campagna di bed rest che sarà realizzata nel 2008 presso il MEDES di Tolosa (Francia).
APPARTENENZA A COMITATI DI VARIA NATURA

- Australian Association for Exercise & Sport Science, Fellow (Bishop D.);
- American College of Sports Medicine, Fellow (Bishop D.).