

(Del Percio et al., 2009); (viii) finally, cortical activity during the judgment of sporting observed actions was lower in elite karate athletes and rhythmic gymnasts than in non-athletes (Babiloni et al., 2009, 2010). These results indicate that the analysis of EEG is a powerful approach to study cognitive-motor processes in elite athletes when compared to amateur athletes and non-athletes. Furthermore, they indicate that in elite athletes, the task-related involvement of cognitive-motor cortical systems is more complex than that predicted by the “neural efficiency” hypothesis, namely the idea of spatially selective event-related cortical activation in experts. In reality, some nodes of cortical systems might reflect the “neural efficiency” as a function of task features, kind of athletes, and side of movements. In contrast, other nodes of these systems might reflect other mechanisms underlying an intensive activation. Future longitudinal studies should address crucial issues about cortical plasticity in elite athletes and to training procedures able to strengthen it.

Neurocognitive Basis of Schizophrenia

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Schizophrenia is a debilitating mental disease that affects about 1% of adult population worldwide. While best known for and primarily diagnosed based on positive symptoms, such as hallucinations and delusions, schizophrenia also significantly affects cognitive abilities including cognitive control and working memory, dysfunctions that prove resistant to currently available medication and significantly predict long-term outcome of the disease. Recent findings employing neuroimaging, pharmacological challenge, and computational modelling provide novel insights into dysfunctional integration of brain function and suggest possible mechanisms underlying the disease. These insights will hopefully lead to better understanding of the disease and its progress, support diagnosis, and enable more focused search for and testing of novel drugs.

Dr. Google, what is wrong with me? – the effect of health-related internet use on users’ mental health

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The beliefs people hold about their symptoms, which are at least partly formed by information found on-line, affect their emotions and health related behaviors. In the general population, between 40 and 70 percent of us search for health information via the internet. Access to the internet costs little; online information is easy to access and quick to obtain; there are no bureaucratic hurdles, referral letters or waiting lists; and

the anonymity of the internet allows us to make any kind of inquiry without feeling embarrassed. This shift from relying on physicians, medical textbooks, encyclopedias or popular health journals for health information to the use of a medium as simple and ubiquitous as the internet is likely to have a variety of consequences, both positive and negative. For many individuals, this searching behavior is driven by a desire to better understand their, or someone else’s, medical experience and often leads to a sense of relief. On the other hand, for more than one third of people searching for medical information on the internet, it leads to increased health anxiety. Health anxiety can be defined as “a persistent fear of illness or disease that often involves the misinterpretation of bodily symptoms as signs of serious illness”. Regrettably, numerous studies have indicated that, for the most part, the quality of the content (evidence-based health information) on health, mental health and addiction websites targeted towards laypersons is poor. Using a combination of theoretical models, empirical data and clinical experience, this address will attempt to demonstrate the positive and negative influences that new information technology have on health-related behavior, with particular emphasis on the type and quality of mental health information available on the internet. The influence of the internet on behavior will be discussed using cognitive models of health behavior.

Cognitive enhancement with cognitive training

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In the context of the rapid increase in longevity and considerable expansion of the share of elderly in the general population, it is essential not only to understand but also to prevent age-related cognitive decline. Cognitive decline and impairment are amongst the most feared and costly aspects of aging. Thus, slowing cognitive decline can provide considerable health care cost savings as the population ages at state, regional and personal level. In response to this growing interest in cognitive performance and/or prevention of cognitive decline, there has been a surge in research on cognitive enhancement, primarily via cognitive training. Intense interest has therefore focused on the potential of cognition-based interventions in older adults, especially computerized cognitive training (CCT). CCT involves structured practice on standardized and cognitively challenging tasks, and has several advantages over traditional drill and practice methods, including visually appealing interfaces, efficient and scalable delivery, and the ability to constantly adapt training content and difficulty to individual performance. In this presentation I will describe basic principles of cognitive training, demonstrate the utility of CCT using virtual maze navigation task in our study with older adult men (e.g., efficacy, durability, generalizability), and discuss future directions of our CCT with virtual maze navigation.