

## عنوان مقاله:

Altered Connectivity of Task Related Functional Networks in Healthy Aging

## محل انتشار:

بیستمین کنفرانس مهندسی پزشکی ایران (سال: 1392)

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## خلاصه مقاله:

Although the cognitive deficits due to age-related brain differences have been largely analyzed, the altered connectivity of task related functional networks in aging requires more studies. As the brain of old adults experience some alterations in task performance during cognitive challenges, the related effects on connectivity of functional networks are here evaluated using event-related functional Magnetic Resonance Imaging (fMRI). The fMRI data have been acquired for simple visual and motor tasks from 18 subjects (8 young and 10 elderly). For each subject, several Functional Connectivity (FC) networks including, motor, visual and the default mode networks are firstly calculated using a conventional voxel-wise correlation analysis with predefined region of interest. Then, the strength of functional connectivity is assessed and compared for different age groups. The current study has evaluated three hypotheses on FC of aging brain: the frontal regions involved with motor network try to compensate for declines in the posterior regions, default-mode network are less suppressed and, the posterior regions involved with visual network exhibit less connectivity. The first two hypotheses are accepted by analysis results but visual network behaves differently. Also, results show that the task related functional connectivity is considerably altered in old adults compared to young adults. Old adults demonstrate higher connectivity strength on average with a slightly smaller variance than young adults.

## کلمات کلیدی:

Aging, Functional Network Connectivity, Task-Fmri

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