

عنوان مقاله:

Estimating the Depth of Meditation Using Electroencephalogram and Heart Rate Signals

محل انتشار:

مجله علمی پژوهشی دانشگاه علوم پزشکی زنجان, دوره 20, شماره 79 (سال: 1391)

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خلاصه مقاله:

Background and Objective: Meditation is commonly perceived as an alternative medicine management tool for psychological diseases such as depression and anxiety disorders. To our knowledge, there is no published study providing an index for estimating meditationchr('۳۹')s depth from biological signals. Estimating the depth of meditation can be useful in controlling its different levels, and it can be used as a biofeedback technique to help a person achieve the desired state of meditation. In this study, an index for meditation depth is offered using the features of electroencephalogram and heart rate signals. **Material and Methods:** For this purpose, EEG signals in Fz, Cz, and Pz channels, and the heart rate time series of ۲۵ healthy women were collected both before and during the meditations. The algorithm is suggested based on the rational alpha power of EEG signals and the time domain feature of the heart rate to estimate the depth of meditation. **Results:** The analysis of biological signals using this method suggests that ۲۲ of the ۲۵ participants have experienced the deepest meditation state. Interestingly, ۲ of the beginners as well as one expert-mediators could not reach the deepest state by following up the master mediator. These results were in line with the evaluation of the questionnaire. **Conclusions:** The suggested algorithm has some practical characteristics including: the option of being calibrated for each subject not requiring high-volume calculations and it does not take much time.

کلمات کلیدی:

Keywords: Electroencephalogram, Estimate, Frequency powers, Heart rate signals, Meditation depth

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