

Personalising meditation with the help of brain research

Therapeutical approach such as meditation (an ancient mind–body practice) that specifically targets stress and associated with it risk factors through regulation of self-related processes may hold potential for lessening the burden of chronic diseases, slowing and possibly preventing risk factors, and thus contributing to improvement of both mental and physical well-being. Currently, such understanding is gaining increasing support throughout the Western industrialized world and in the modern affective and cognitive neuroscience.

Meditation is a set of self-regulatory techniques focused on maintaining attention and awareness with the goal to achieve a greater rate of self-well-being and serenity through the enhancement of control over mental and some physiological processes. There is an increasing body of compelling evidence suggesting positive clinical outcomes of meditation for physical and psychological health. The multitude of reported positive effects of meditation on health made it a widely adopted mental-body exercise that has been considered a safe and harmless practice for everyone. However, adverse (or negative) effects associated with the practice of meditation have been reported by researchers for some time, though without much attention from the public or media. The adverse effects included relaxation-induced anxiety and panic, paradoxical increases in tension, less motivation in life, depression, increased negativity, boredom, pain, impaired reality testing, confusion and disorientation, feeling “spaced out”, and being more judgmental. There are several case reports of acute psychotic illness occurring in people who attend certain meditation/yoga courses. Moreover, some of the effects of meditation that are usually considered positive could become maladaptive and negative if overexpressed in individuals with a particular set of constitutional neurophysiological characteristics.

As such these facts raise concern about suitability of every particular meditation/yoga technique for a given individual. It seems that a ‘one-size-fits-all’ approach may be ill advised in meditation/yoga training: each individual has different cognitive demands and different starting points. This then leads to the next crucial question of understanding which technique confers the greatest benefit and is safest for any particular person. A growing body of research suggests that assessment of brain function may be most useful in this respect.

The brain’s neurophysiology and functioning determine the type of its functional state and related psychological and behavioural reactions. Therefore, if one could objectively measure such functional state of the brain, he/she could get knowledge about one’s neuropsychological type. In this regard the objective assessment of brain functional state through a non-invasive electroencephalogram (EEG) procedure could be most helpful, allowing identifying the individuals who are most likely to exhibit positive alterations in psychophysiological functioning during concrete technique of meditation/yoga. Such EEG-guided approach would guarantee a safe and efficient use of meditation as a therapeutic or self-regulating procedure. The pilot study that compared EEG-guided and arbitrary chosen meditation fully confirmed this conclusion. In this study, using qEEG screening a set of meditation training protocols that maximize positive results and minimize risk of

potential negative effects has been developed.

As scientific studies have shown, various meditative states that are reached through practicing of a particular meditation technique are associated with different EEG spatio-temporal and oscillatory signatures and these signatures are directly related to the baseline neuropsychological profiles of practitioners. Therefore, if one knows in advance his/hers individual EEG profile, he or she (or coaching staff and trainer) could choose or adjust the meditation/yoga technique which would be the most suitable, and in such way could diminish the risk of possible negative effects.

Publication

[REEG-guided meditation: A personalized approach.](#)

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