

MEDITATION AND ATTENTION: A COMMENT ON A RECENT ARTICLE¹

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Summary.—Meditation and attention are considered associated in different ways. For example, contemporary concepts state that to meditate, a practitioner has either to (i) focus attention on the object of meditation (FA) or (ii) maintain vigilance and disengage their attention consciously from all distracters (OM). The Indian sage Patanjali (*circa* 900 B.C.), mentioned that there are two stages of meditation, which differ subtly from the descriptions of FA and OM. One stage is called *dharana*, or focusing attention on the object of meditation. Another stage is called *dhyana*, during which all thoughts remain effortlessly directed to the object of meditation, excluding all other thoughts. Vigilance and attention are not required during *dhyana*, which is the actual phase of meditation. In a previous study, participants who practiced *dharana* performed better in a task for selective attention than those who practiced *dhyana*. Brainstem auditory evoked potential changes during the two states differed. Descriptions of yoga practices from ancient texts can give added insights about meditation and attention, supported by objective assessments.

In a recent article (Leite, Ornellas, Amemiya, Almeida, Dias, Afonso, *et al.*, 2010), the authors mention the relationship between meditation and attentiveness. The authors state, “. . . it is necessary for one to continue being focused on an anchor (which can be breathing or a *mantra* for instance) in a sustained way throughout the meditation process. (p. 840). This description is compatible with current ideas about the mental state associated with attention. In this, meditation is conceptualized as a set of related complex emotional and attentional regulatory processes, in which mental and related somatic events are influenced by the involvement of a specific attentional set (Raffone & Srinivasan, 2010).

All meditation practices have been considered as two main styles, based on how attention is directed (Cahn & Polich, 2006; Lutz, Slagter, Dunne, & Davidson, 2008). One of them is called focused attention (FA), during which sustained attention is focused on a given object. The second style of meditation, called open monitor (OM), requires the practitioner not to react while monitoring the content of ongoing experience. The OM

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style is chiefly a means of being aware of all mental content from one moment to the next. Both FA and OM methods require mental processes to be active, though in entirely different ways. Hence OM does not involve a specific attentional focus, but involves brain regions implicated in disengagement of attention from sources related to ongoing experience. These differences between FA and OM methods of meditation are supported by studies showing the brain areas involved are different and distinct for FA and OM. These have been detailed by Lutz, *et al.*, (2008) in a paper which highlights the differences between FA and OM.

With this in mind, descriptions from ancient yoga texts should be examined. In one of the texts, the *Yoga Sutras* (aphorisms) of the sage Patanjali (*circa* 900 B.C.), two meditative states are described, one of which is supposed to lead to the other, although the two are also practiced separately (Taimini, 1986). The first stage is *dharana*, which is a focusing of the attention on the object chosen for meditation. This requires special effort. It is said that *dharana* is the process of confining the mind within a limited mental area (*desha-bandhash chittasya-dharana*; Patanjali's *Yoga Sutras*, Chapter 3, Verse 1). The other stage is *dhyana*, during which there is no focusing or effort. The description is as follows: "*tatra pratyayaikatanata dhyanam*" (Patanjali's *Yoga Sutras*, Chapter 3, Verse 2).

These descriptions from the ancient texts were supported by a recent study which assessed the effects of *dharana* and *dhyana* practiced separately on the performance of a cancellation task (Kumar & Telles, 2009). A cancellation task correlates with other tasks for cognitive ability and sustained attention (Amador-Campos & Kirchner-Nebot, 1999). Hence, it was interesting to note that the net scores in the task were increased after meditative focusing (or *dharana*), but not after *dhyana* (Kumar & Telles, 2009). In addition, changes in brainstem auditory evoked potentials were different and distinct in *dharana* and *dhyana* recorded in 30 volunteers practicing the two techniques on separate days (Kumar, Nagendra, Naveen, Manjunath, & Telles, 2010). During the *dharana* session the wave V peak latency was significantly increased compared to pre-*dharana*. An increase in evoked potential latency is generally interpreted as indicative of slower information transmission along the sensory pathway. This suggested that meditative focusing in *dharana* was associated with delayed transmission of auditory information at the level of the inferior colliculus (which is the neural generator for wave V). A similar delay did not occur during *dhyana*. Possibly, during *dharana*, effort was required to direct the attention toward the object of meditation and auditory stimuli were consciously shut off, but this remains a speculation.

In summary, descriptions from the yoga texts indicate that the *dhyana* phase of meditation need not be associated with focusing and hence dif-

fers from the description of Leite, *et al.* (2010), which is possibly more applicable to the *dharana* state.

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Accepted November 24, 2010.