

Dreams may have an important physiological function

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A child sleeping. Image: Alessandro Zangrilli, via Wikipedia.

(PhysOrg.com) -- Dreams have long been assumed to have psychological functions such as consolidating emotional memories and processing experiences or problems, but according to a Harvard psychiatrist and sleep researcher the real function may actually be physiological.

According to Dr J. Allan Hobson, the major function of the [rapid eye movement](#) (REM) sleep associated with dreams is physiological rather than psychological. During REM sleep the brain is activated and "warming its circuits" and is anticipating the sights, sounds and emotions of the waking state.

Dr Hobson said the idea explains a lot, and likened it to jogging. The body does not remember every step of a jog, but it knows it has exercised, and in the same way we do not remember many of our dreams, but our minds have been tuned for conscious awareness.

Hobson said dreams represent a parallel consciousness state that is running continuously, but which is normally suppressed while the person is awake. Dr Mark Mahowald, a neurologist from Hennepin County Medical Center, in Minneapolis,

said most people studying dreams have started out with fixed ideas about the psychological functions of dreaming, and try to make dreaming fit these ideas, but the new study makes no such assumptions.

In evolutionary terms REM sleep seems to be relatively recent, and has been identified in humans, other warm-blooded animals, and birds. Earlier studies have suggested it appears early in life, in the third trimester in humans, and research has produced evidence the brain of the [fetus](#) may in a sense be "seeing" images long before its eyes are opened, so the REM state appears to help the brain build [neural connections](#), especially in the visual areas.

This does not mean dreams have no psychological meaning, since they do at times reflect current problems, anxieties and hopes, but people can read almost anything into dreams. A recent study of more than one thousand people at Carnegie Mellon University in Harvard, showed that there were strong biases in how people interpreted dreams. So, for example, subjects attached more significance to negative dreams about people they disliked and to positive dreams about people they liked.

Research on lucid dreams has suggested that only 20 percent of dreams are about people or places we know, and most images are unique to a single dream. Lucid dreaming is the ability to watch a [dream](#) as an observer without waking up, and Dr Hobson finds support in lucid dreaming for his argument for dreams as a kind of physiological brain exercise. A study co-authored by Hobson and published in the September issue of the journal *Sleep* reported that elements of both REM and waking were apparent in lucid dreaming, especially in the frontal areas that are quiet during normal dreams. According to Hobson, this suggests there are two systems, which can be running at the same time.

The potential applications of the research may be a deeper understanding of conditions such as schizophrenia, which is categorized by imaginings that may be related to abnormal activation of a dreaming state.

The paper was published last month in the *Nature Reviews Neuroscience* journal.

More information: [REM sleep](#) and dreaming: towards a theory of protoconsciousness, *Nature Reviews Neuroscience*, 10, 803-813 (November 2009); [doi:10.1038/nrn2716](https://doi.org/10.1038/nrn2716)

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