Capitol Sleep Medicine Newsletter

2441 Old Stringtown Road • Grove City, Ohio 43123
Phone: 614-317-9990 • Facsimile: 614-317-9905
www.CapitolSleepMedicine.com

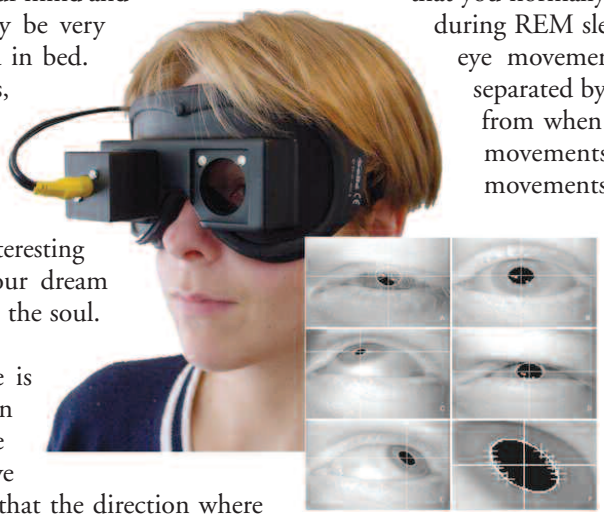
May 2008 • Volume 3 • Number 5

Timothy J. Walter, M.D.

Uma Marar, M.D.

Your Dream Body

When you dream, what is your real body doing? In REM sleep, there is a substantial disconnect between your mind and your body. In REM sleep your brain may be very busy but your real body remains paralyzed in bed. This paralysis exists except for your eyes, diaphragm, and stapedius muscle in your middle ear. The fact that your eyes are able to move is how rapid eye movement sleep was named. The fact that your eyes are able to move also provide some very interesting clues as to what is really going on in your dream world. After all, the eyes are the window to the soul.



Several studies have determined that there is very likely a correlation between the direction of gaze in the dream by the dreamer and the direction of the dreamer's actual rapid eye movements.[1] [2] [3] In other words, it is likely that the direction where you are looking in your dream is portrayed by the direction of you real eyes. There are a number of ways to study what the eye movements seen by the researcher mean to the dreamer in their dream. Following an awakening from REM sleep, a concordance exists among the number, direction, and amplitude of REM sleep rapid eye movements and the shifts of gaze described by the dreamer.[4] This suggests that the real eye movements are reflecting the direction of gaze within the dream itself.

While you are awake, the speed and direction of your head movements have a significant influence on the speed and direction of your eye movements.[5] Certain types of eye movements and head movements go together and don't often occur separately. One of the most convincing studies that the rapid eye movements during REM sleep are indeed reflective of the dreamt eye movements of the dreamer is that the rapid eye movements of REM sleep are most similar, in velocity and pattern to waking eye movements when the head and eyes move together in synchrony, and they are not similar to eye movements in the awake state when the head is still.[6] [7] REM sleep eye movements look just like awake eye movements when the head is in motion. Not only does this imply that the eye movements of the sleeper are likely reflecting the same eye movements within the dream but it also supports for the idea that these same rapid eye movements also reflect the time when vivid action or motion is occurring in the dream.

There is also something different about the pattern of eye movements that you normally have while awake compared to those seen during REM sleep. While awake with the head restrained, eye movements usually occur in single bursts, often separated by at least 150 milliseconds.[8] This is different from when eye movements are accompanied by head movements. When the head is also moving eye movements most often occur in a burst pattern formed by sequences of multiple eye and head movements.[9] This again reflects a coordinated effort of the eyes and the head moving together almost as a single movement. The rapid eye movements of REM sleep are much more similar to those seen during head movements. They do not usually occur as single movements here or there. Instead, they occur in bursts of rapid eye movements punctuated by periods of ten to twenty seconds or so during which time they are not moving much at all.

Rotatory eye movements are rotational movements, either clockwise, or counterclockwise, such as a turning doorknob. While awake, these rotatory eye movements are only seen when the head is in motion and never when the head is stationary.[10] When in REM sleep, the head is motionless but rotatory eye movements are nevertheless seen.[11] This is very strong support that the rapid eye movements in REM sleep reflect head and eye motion within the dream.

All of these studies provide strong support for the idea that the actual eye movements reflect the eye movements of the dreamer within the dream itself and that their occurrence is likely to be associated with simultaneous head motion within the dream. Bursts of rapid eye movements reflect times of dream action and motion.[12]

1 Journal of Experimental Psychology, 1957, 53. 339-346.
2 Journal of Experimental Psychology, 1958, 55, 543-553.
3 Archives of General Psychiatry, 1962, 7, 235-258.
4 Sleep, 1984, 7, 52-63.
5 Experimental Brain Research, 1973, 16, 492-500.
6 Herman, J., Barker, D., Rampy, P., & Roffwarg, H., (1987). Further evidence confirming the similarity of eye movements in REM sleep and the awake state. In Sleep Research, 16 (p. 38). Los Angeles: Brain Information Service / Brain Research Institute.
7 Psychophysiology, 1983, 20, 537-543.
8 Carpenter, R. S. (1977). Movements of the eyes (pp. 60-64). London: Pion.
9 Meiry, J. L. (1971). Vestibular and proprioceptive stabilization of eye movements. In The control of eye movements (p. 483-485). New New York: Raven. Academic.
10 Nakayama, K. (1975), Coordination of extraocular muscles. In The control of eye movements (pp. 193-207). New York: Academic.
11 Psychophysiology, 1983, 20, 537-543.
12 Walter, T (2007) Chapter 5, Your Dream Body. In REM Illumination Memory Consolidation (pp. 53-57), Grove City; OH: Lotus Magnus.