Phasic or Transient? Comment on the Terminology of the AASM Manual for the Scoring of Sleep and Associated Events

Hartmut Schulz

Department of Educational Science and Psychology, Free University Berlin, Berlin, Germany

In the recently published American Academy of Sleep Medicine (AASM) scoring manual for sleep stages, the term phasic was replaced throughout by transient. Recommendations for changes in terminology should be made with great care, especially when terminology is a core topic, as indicated by the subtitle of the AASM manual, “Rules, Terminology, and Technical Specifications.” The decision by the Visual Task Force was substantiated in an accompanying paper. The recommendation was based on the following reasoning, “Dictionary definitions of phase do not include short-lived transient activity and the term is used in physics for a particular appearance or state in a regularly cycle of changes.” This argument is misleading, since the term phasic in the context of rapid eye movement (REM) sleep was derived from physiology not physics. Physiologists discriminate between phasic and tonic muscle fibers according to the discharge pattern (see, e.g.). This also becomes clear by the following quotation from Hobson and Scheibel. “Orlovsky (1970) has shown that, complementing these slowly conducting systems, fast reticulospinal fibers are activated in phase with mainly the flexors of one of the limbs in each step and Shimamura and Kurute (1977) have demonstrated that the reticulospinal neurons thought to be part of the spinal-bulbar-spinal reflex are also phasically activated. Phasic rhythmic activity may also be recorded in vestibulo-spinal and rubrospinal pathways during locomotion (Orlovsky, 1972a, b).”

In his book Neuronal Substrates of Sleep and Epilepsy, Steriade devoted a whole chapter to phasic events.

Phasic events in the context of sleep medicine were clearly defined as early as 1979 in the glossary of terms used in sleep disorders medicine: “Phasic event (activity). Brain, muscle or autonomic events of a brief and episodic nature occurring in sleep; characteristic of REM sleep such as eye movements, or muscle twitches; usually the duration is milliseconds to 1-2 s.”

Orlovsky would be inadequate. (3) Phasic has been used in combination with other terms in sleep science, as for example, in phasic integrated potentials. Such compound terms would unnecessarily become orphans when the parent term is replaced.

For the given reasons, I plead to retain the established term phasic for REM sleep events of brief duration, usually shorter than 2 seconds, and episodic nature.

REFERENCES