

The History of Sleep Medicine

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KEYWORDS

- History • Oral appliances • Sleep medicine
- Dental sleep medicine

Sleep medicine as it is known today actually started as research and scientific study, not as clinical medicine. When one considers that sleep medicine today is in its infancy, it is obvious that there is much more to learn. The history of sleep dates back to the 1880s. However, the most significant developments that moved sleep forward into the practice of medicine, and eventually dentistry, occurred from the 1950s on. This article explores the highlights of the history of sleep and sleep medicine.

SLEEP: THE EARLY DAYS

1880 Gelineau, a French neurologist, recognizes narcolepsy and cataplexy as a condition associated with sudden sleep attacks, distinct from epilepsy.¹ This aspect of sleep was the earliest recognized.

1937 Loomis and colleagues² document the characteristics on an electroencephalogram of what is now known as NREM (non-rapid eye movement) sleep. Loomis outlines 5 stages of the increasing depth of sleep, classified as A through E.

1953 A new sleep stage called REM (rapid eye movement) sleep is discovered by Dement and Kleitman. This stage of sleep is believed to be associated with dreaming.³

1957 Dement and Kleitman³ propose a new classification of sleep, which proposes 4 stages of NREM sleep as well as REM sleep. These investigators describe how NREM sleep has increasing levels of depth, followed by REM. These 2 stages occur in repeating cycles throughout the night. This description of the sleep cycle continues to be used today, with few changes.

1964 A Narcolepsy Center is established at Stanford University.⁴

1966 Researchers in Europe describe the clinical entity of sleep apnea syndrome. This condition is associated with obstructive apneas and symptoms of daytime

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sleepiness that are often severe. At this point the only treatment is a tracheotomy.⁵

1968 A manual is developed for the scoring of sleep.

THE BEGINNING OF SLEEP AS A MEDICAL DISCIPLINE

In the 1970s sleep medicine started to become integrated in the practice of medicine. Throughout the 1970s there was significant activity that fostered sleep as a medical discipline and not just as a scientific or research field. During this time there was an increased interest by many of the related medical specialties, and sleep medicine as a subspecialty was beginning to take shape.

1970 Stanford University develop the first comprehensive sleep center, and the ability to perform nocturnal polysomnography (sleep study) is developed.

1975 At this time there are now 5 sleep centers. Up until this time sleep medicine has been viewed as experimental. At the same time the need for an organization that would be oriented around the sleep center and that would also provide a medical and research direction is created. The Association of Sleep Disorders Centers (ASDC) is duly founded. This organization today is known as the American Academy of Sleep Medicine (AASM).⁴

1976 The ASDC form a nosology committee to develop a diagnostic system that will consider all of the various sleep and arousal disorders that are seen clinically.

1977 The ASDC accredits the first sleep center at Montefiore Hospital in New York City.

1978 The first issue of the journal *Sleep* is published.

As the organization dedicated to sleep medicine moved into the 1980s and the 1990s, the interest in this field was also growing. Through the 1980s the recognition and prevalence of sleep apnea as well as the treatment formed the basis for the developments over the decades to come. The number of people with an interest in sleep medicine and research was growing at an unprecedented rate. The number of events that occurred over these 2 decades was very significant. In the early 1990s dentistry became involved with sleep and sleep medicine through the establishment of the Sleep Disorders Dental Society.

1980 The first report on the successful use of an oral appliance is published: the tongue-retaining device.⁶

1981 Sullivan and colleagues⁷ introduce a new treatment for sleep apnea: continuous positive airway pressure (CPAP). CPAP became the mainstay of treatment in the early days, and has continued to be the gold standard for the management of sleep apnea.

1986 The first scientific meeting dedicated to sleep and sleep disorders is held in Columbus, Ohio. The meeting is attended by more than 700 people and will eventually become an annual event. The meeting is jointly held by the ASDC, the Sleep Research Society (SRS), and the Association of Polysomnographic Technologists (APT), which become known collectively as the Associated Professional Sleep Societies (APSS).⁴

1987 Ancoli-Israel and colleagues use home testing devices, finding that in the 358 people tested, 31% of the men and 19% of the women have sleep apnea.⁸

1987 The ASDC changes its name to the American Sleep Disorders Association (ASDA) and will eventually be known as the AASM.

- 1988** The first major textbook on sleep entitled *Principles and Practice of Sleep Medicine* is published by Kryger, Roth and Dement.⁹
- 1989** The AASM begins to accredit fellowship programs in sleep medicine for physicians with an interest in this field.
- 1990** The first comprehensive publication designed for the diagnosis of sleep disorders is published. It is entitled the *International Classification of Sleep Disorders (ICSD-1)*.¹⁰
- 1991** Dentistry becomes involved with sleep medicine through the establishment of the Sleep Disorders Dental Society (SDDS). The SDDS is founded by 8 founding members and 26 charter members.
- 1992** The SDDS develops its bylaws, and is incorporated and has its inaugural meeting in Phoenix, Arizona.
- 1992** The first practice parameters document is published by the AASM. These articles will continue to be published on a wide variety of topics in sleep medicine as a guideline for the diagnosis and treatment of sleep disorders.
- 1993** A study is published by Young and colleagues¹¹ that to this day is cited in numerous publications, which defines the prevalence of sleep apnea in the general population.
- 1993** The National Center for Sleep Disorders Research and Education is established by the National Institutes of Health.
- 1994** The American Medical Association (AMA) recognizes sleep medicine as a subspecialty.¹²
- 1995** The first Practice Parameters for the use of oral appliances is published in the journal *Sleep*.¹³
- 1996** The American Dental Association (ADA) approves the SDDS educational programs for continuing education.
- 1998** The first Certification Examination for dentists with advanced training and knowledge in sleep medicine is given.
- 1999** The ASDA changes its name to the AASM and continues to be known as such up to the present time.

As sleep medicine entered the 2000s, the interest by both physicians and dentists continued to grow. In addition, the recognition of the role of the dentist continued to grow and mature, and this was particularly well recognized in the use of the oral appliance for the management of sleep apnea. Acceptance of oral appliances was beginning to grow after the publication of the practice parameters paper. The number of oral appliances grew through the 1980s and 1990s but seemed to become better recognized in the last decade. At the same time, the interest on the part of the dental professional was also expanding.

- 2000** A special interest section on oral appliances is established in the AASM. This section has since been incorporated into the section on sleep breathing disorders.
- 2000** The SDDS becomes the Academy of Dental Sleep Medicine (ADSM).
- 2003** The ADSM 12th annual meeting is now held in conjunction with the APSS annual sleep meeting.
- 2004** The American Board of Dental Sleep Medicine (ABDSM) is established. This body replaces the Certification Program that was created in 1998. The ABDSM is a testing and examination group that grants Diplomate status to those who meet the requirements and successfully pass the examination; this is designated as D.ABDSM. As of 2010, there were 161 dentists who had achieved this level.

- 2006** The ADSM changes its name to the American Academy of Dental Sleep Medicine (AADSM).
- 2006** The practice parameters for the use of oral appliances are published by the AASM, updating the original publication that appeared in 1995. This updated review significantly improves the validity of oral appliances for the management of sleep apnea and snoring.¹⁴
- 2010** The number of AASM-accredited sleep centers for sleep breathing disorders (sleep apnea and snoring) exceeds 2000.
- 2010** The membership of the AASM exceeds 9000 and the AADSM membership is more than 2200, with 161 D.ABDSMs.

THE FUTURE: 2011 AND BEYOND

Sleep medicine, for the dentist in particular, continues to grow at a rapid pace. More articles appear in journals read by the dentist, and there are more courses at dental meetings and conventions that deal with the dentist's role in sleep disorders, snoring, sleep apnea, sleep bruxism, and oral appliance therapy. The future is bright for the dentist to have an increasingly important role in this field. There will be continued involvement of dentists with their medical colleagues in relation to patient care and the management of sleep apnea and snoring. Regardless, it is important for anyone entering this field to be well trained in a comprehensive way, based on sound evidence.

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