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Beyond the Dawn: Decoding the Mystery of Awake Bruxism

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Abstract

Awake bruxism is a prevalent oral parafunctional activity characterized by repetitive or sustained tooth clenching or grinding during wakefulness. It is influenced by a multifactorial interplay of psychological, physiological, and environmental factors and may significantly compromise oral health and quality of life. This narrative literature review synthesizes current evidence regarding the epidemiology, classification, clinical features, diagnostic approaches, differential diagnosis, and management strategies for awake bruxism. Emphasis is placed on behavioral interventions, patient education, dental therapies, and emerging technologies for diagnosis and monitoring. A comprehensive understanding of awake bruxism is essential for early diagnosis, effective management, and prevention of long-term complications.

Keywords

Awake bruxism; Occlusal splints; Orofacial pain disorders.

Introduction

Bruxism is defined as a repetitive jaw-muscle activity involving clenching, grinding, or gnashing of the teeth and may occur during wakefulness or sleep. It is considered one of the most common oral parafunctional activities and typically occurs subconsciously. The global prevalence of bruxism, including both awake and sleep forms, has been estimated at approximately 22.22% [1,2].

Although occasional tooth clenching may occur during periods of stress, persistent bruxism can exert excessive forces on the dentition and masticatory system. This may result in tooth wear, fractures, hypersensitivity, temporomandibular joint (TMJ) disorders, muscle pain, and recurrent headaches [2,5]. Bruxism can affect individuals across all age groups, with higher prevalence reported during childhood, adolescence, and young adulthood [2,5,6].

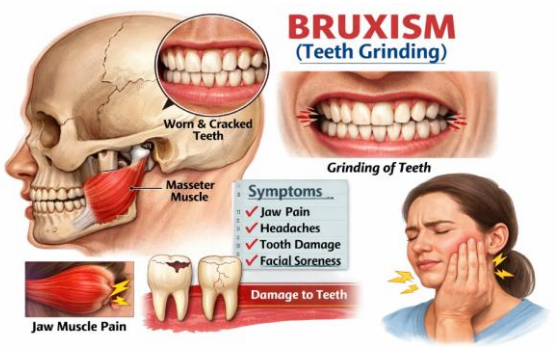

Figure 1: Bruxism [19].

Reported epidemiological data vary considerably due to differences in diagnostic criteria, assessment methods, and reliance on self-reported behaviors. Self-reporting may underestimate prevalence, as many individuals remain unaware of their parafunctional habits [7]. According to the International Classification of Sleep Disorders–Revised (ICSD-R), although 85–90% of the population may exhibit tooth grinding at some point in life, only approximately 5% develop clinically significant disease [8].

Gender differences have been observed, with awake bruxism reported more frequently in females, while sleep bruxism affects males and females equally [7,9] Sleep bruxism has been reported in 14–20% of children and may begin as early as infancy following eruption of the deciduous teeth [8,9]. Prevalence decreases with age, affecting approximately 3% of individuals over 60 years [9].

Given its multifactorial etiology in figure 1, overlap with other orofacial conditions, and potential long-term consequences, awake bruxism presents diagnostic and therapeutic challenges. This review aims to synthesize current evidence on awake bruxism with particular emphasis on contributing factors, clinical presentation, diagnosis, management strategies, and future directions.

Methods

This narrative literature review was conducted through a comprehensive search of peer-reviewed publications related to awake bruxism. Electronic databases including PubMed, Scopus, and Google Scholar were searched using combinations of the following keywords: awake bruxism, diurnal bruxism, bruxism classification, etiology of bruxism, diagnosis of bruxism, and management of bruxism.

Articles published in English were included, with emphasis on systematic reviews, meta-analyses, clinical studies, and consensus reports. Additional references were identified through manual screening of bibliographies from relevant articles. No restrictions were placed on publication year due to the inclusion of foundational classification systems such as the ICSD-R.

Results

Classification of bruxism

Bruxism may be classified based on etiology, severity, duration, and circadian pattern.

Based on etiology, bruxism is categorized as:

- **Primary (idiopathic) bruxism**, occurring without identifiable medical conditions
- **Secondary bruxism**, associated with neurological disorders, psychiatric conditions, sleep disorders, or adverse drug reactions
- **Based on severity,** the ICSD-R classifies sleep bruxism as mild, moderate, or severe depending on frequency, tooth damage, and psychosocial impairment.
- **Based on duration,** bruxism may be acute (<1 week), subacute (1 week–1 month), or chronic (>1 month).
- **Based on circadian pattern,** bruxism is classified as:
  - Awake bruxism, occurring during wakefulness and commonly associated with stress and psychosocial factors
  - Sleep bruxism, occurring during sleep and often associated with arousal-related sleep disturbances.

	Sleep bruxism	Awake bruxism
Occurrence	While asleep, mostly during periods of sleep arousal	While awake
Time–intensity relationship	Pain worst on waking, then slowly gets better	Pain worsens throughout the day, may not be present on waking
Noises	Commonly associated	Rarely associated
Activity	Clenching and grinding	Usually clenching, occasionally clenching and grinding
Relationship with stress	Unclear, little evidence of a relationship	Stronger evidence for a relationship, but not conclusive
Prevalence (general population)	9.7–15.9%	22.1–31%
Gender distribution	Equal gender distribution	Mostly females
Heritability	Some evidence	Unclear

Table 1: Comparison of typical features of sleep bruxism and awake bruxism [11,7,13].

Clinical Features and Symptoms of Awake Bruxism

Awake bruxism is characterized by involuntary or semi-voluntary clenching or grinding of teeth during conscious hours. Common clinical features include:

- Jaw discomfort or TMJ pain
- Facial and masticatory muscle tension
- Headaches related to muscle fatigue
- Tooth sensitivity

- Occlusal wear, fractures, or chipping
- Gingival discomfort and occlusal changes

Diagnosis

Diagnosis of awake bruxism relies primarily on clinical assessment and patient-reported symptoms.

- **Clinical examination** includes evaluation of tooth wear patterns, fractures, and hypertrophy of masticatorymuscles.
- **Palpation** of the TMJ and associated musculature may reveal tenderness or muscle enlargement.
- **Patient history and self-reports** provide insight into stress levels, parafunctional habits, and symptom patterns.

Differential diagnosis

Awake bruxism must be differentiated from:

- **Sleep-related bruxism**, which occurs during sleep
- **Temporomandibular disorders**, characterized by joint sounds and restricted jaw movement
- **Occlusal discrepancies**, such as malocclusion or premature contacts
- **Orofacial pain disorders**, with overlapping pain presentations
- **Psychological stress-related muscle tension**, without true parafunctional activity

Management strategies

Management of awake bruxism is multifactorial and patient-specific.

- **Behavioral interventions** include stress management, mindfulness, and cognitive behavioral therapy.
- **Patient education** focuses on habit awareness and conscious relaxation techniques. Dental therapies, such as occlusal splints, protect dentition and reduce muscle strain.
- **Adjunctive approaches** include physiotherapy, short-term muscle relaxants, and lifestyle modifications.

A multidisciplinary approach involving dental professionals, psychologists, and physical therapists is often beneficial.

Future directions

Emerging technologies such as wearable biofeedback devices, smart oral appliances, and telehealth-based monitoring may enhance early detection and personalized management. Advances in neuroimaging, big-data analytics, and virtual reality–based stress management interventions offer promising future avenues.

Conclusion

Awake bruxism is a common and multifactorial oral parafunctional activity with significant implications for oral and musculoskeletal health. Variability in diagnostic criteria and reliance on self-reported behaviors complicate prevalence estimation and clinical management. Early recognition, accurate

diagnosis, and individualized treatment strategies are essential to prevent long-term complications. Future research integrating wearable technology, behavioral science, and multidisciplinary collaboration may significantly improve the understanding and management of awake bruxism.

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