

# INPLASY PROTOCOL

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**Support:** No

**Review Stage at time of this submission:** Formal screening of search results against eligibility criteria

**Conflicts of interest:** No

## Levels of salivary cortisol in adults and children with Bruxism diagnostics: a systematic review and meta-analysis

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### ABSTRACT

**Review question:** Is there a relationship between salivary cortisol values and bruxism? Thus, this research had as PICO: **P:** people with a clinical diagnosis of bruxism; **I:** salivary cortisol dosage; **C:** control group; **O:** increased salivary cortisol levels.

### Methods

We searched for studies in the following electronic database MEDLINE via PubMed, EMBASE, Cochrane Library, Web of Science, and LILACS. We used the terms "bruxism" OR "sleep bruxism" and "cortisol", to search for relevant studies. An additional search using the same terms was carried out on Google Scholar. The search was limited to human studies and had no language restrictions. Reference lists of all primary studies were reviewed to identify additional relevant citations.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 15 March 2020 and was last updated on 15 March 2020 (registration number INPLASY202030003).

### INTRODUCTION

**Objectives / Review question:** Is there a relationship between salivary cortisol values and bruxism? Thus, this research had as PICO: **P:** people with a clinical

diagnosis of bruxism; **I:** salivary cortisol dosage; **C:** control group; **O:** increased salivary cortisol levels.

**Condition being studied:** Bruxism is considered a parafunctional habit, being

defined by the American Academy of Sleep Medicine as “repetitive muscle activity of the jaw characterized by clenching or grinding of teeth and / or supporting or pushing the jaw”. The most widely used classification criterion in clinical practice differentiates between “waking bruxism” and “sleep bruxism”. Bruxism is considered a risk factor for temporomandibular joint disorders (TMD), craniofacial pain, and symptoms of masticatory disorders (FLUERAŞU, M. et al., 2019). The multifactorial etiology of bruxism is widely accepted. Several authors have proposed a conceptual shift from peripheral factors (eg, occlusal interferences) to central etiological factors such as psychosocial (eg, perceived stress, anxiety, personality characteristics). In addition, bruxism activity appears to be modulated by several neurotransmitters (norepinephrine, serotonin, dopamine) in the central nervous system (KARAKOULAKI, S. et al., 2015). Behavioral factors such as depression and stress induce hormonal responses with a corresponding increase in cortisol level. Cortisol is secreted by the adrenal cortex due to stimulation of the hypothalamus-pituitary-adrenal axis and is responsible for activating anti-stress and anti-inflammatory processes (FLUERAŞU, M. et al., 2019). Studies suggest a relationship between bruxism activity at higher levels of perceived psychological stress and saliva cortisol level (KARAKOULAKI, S. et al., 2015).

## METHODS

**Participant or population:** Studies that will include individuals with a diagnosis of bruxism who evaluated salivary cortisol levels compared to a control group.

**Intervention:** Salivary cortisol levels.

**Comparator:** control group - people without bruxism.

**Study designs to be included:** case control; cohort.

**Eligibility criteria:** Studies that will include individuals with a diagnosis of bruxism who

evaluated salivary cortisol levels compared to a control group.

**Information sources:** We searched for studies in the following electronic database MEDLINE via PubMed, EMBASE, Cochrane Library, Web of Science, and LILACS. We used the terms "bruxism" OR "sleep bruxism" and "cortisol", to search for relevant studies. An additional search using the same terms was carried out on Google Scholar. The search was limited to human studies and had no language restrictions. Reference lists of all primary studies were reviewed to identify additional relevant citations.

**Main outcome(s):** Levels of cortisol salivary.

**Additional outcome(s):** Levels of cortisol salivary in adults; levels of cortisol salivary in children.

**Quality assessment / Risk of bias analysis:** For the quality assessment will be used NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE for case control and Cohort studies.

**Strategy of data synthesis:** The extraction of data will be performed by a standard form with: age, number of individuals in the population with bruxism and control. The studies that meet the inclusion criteria will have their data extracted by two reviewers, TC and MC. Any disagreement will be resolved, if necessary by a third author (MIR). The data will be analyzed by mean and standard deviations to derive a standard mean difference (SMD) with 95% confidence intervals using RevMan 5.3 software. Pooled-effect estimates using a random-effects model with Mantel-Haenszel statistics. Study heterogeneity was determined using the I<sup>2</sup> statistic (in which numbers greater than 75% suggest considerable heterogeneity) (DerSimonian & Laird 1986).

**Subgroup analysis:** Adults, children.

**Sensibility analysis:** If necessary, sensitivity analysis will be carried.

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**Countries involved:** Brazil

**Keywords:** Systematic Review; bruxism; salivary cortisol.

**Contributions of each author:**

1 - Project, description of results and writing of the article.

2 - Project, description of results and writing of the article.

3 - project, search strategy, study selection, data extraction, data analysis, article writing.

4 - Project, search strategy, study selection, data extraction, data analysis, article writing.

5 - Study selection, data extraction, article writing.