Protocol: Evaluation of oral condition and the effect of dental treatment on physical parameters of athletes

Researcher: Caio Vinicius G. Roman Torres

Approval of the Research Ethics Committee in Brazil: 93416718.1.0000.0081

Approval date: 09/August/2018

Main goal

Evaluate the oral condition and propose dental treatment according to the needs of athletes linked to the Faculty of Physical Education of the Santo Amaro University.

Secondary objectives.

-Comparing the athlete's performance through physical tests of strength, speed, endurance, before and after dental treatment;

-Relate the oral conditions found with the specific habits of each sport;

- Assess the effect of biofilm control on the oral and performance conditions of the evaluated athletes.

Protocol:

This research project will comply with Resolution No. 196, of October 16, 1996, of the National Health Council, and the Dental Professional Code of Ethics (Resolution CFO No. 042/2003).

All recruited individuals will be offered verbal and written explanations of the objectives, methodology, benefits and possible risks related to participation in the project. Thus, individuals who accept to participate in the study, will sign the Free and Informed Consent Term, previously evaluated and approved by the Research Ethics Committee involving human beings of UNISA.

3.1-Experimental design

Students and / or athletes linked to the Faculty of Physical Education of the University Santo Amaro must be evaluated. According to an initial survey, about 120 individuals should be examined. Clinical parameters such as decayed, lost and / or filled dental index (CPO) and periodontal parameters such as probing depth (PS), clinical level of insertion (NCI), plaque index (IP) and bleeding index (IS) will be evaluated . Physical tests of strength, speed and resistance should be performed and periodontal therapy should be performed according to the needs presented by each individual. After 90 days, new clinical examinations and physical tests should be performed.

3.2-Selection of patients

Individuals practicing physical activities linked to UNISA will be included. Initially, we will have a convenience sample that will later be stratified into groups for evaluation and analysis. Individuals with systemic pathologies, smokers, should be included in the study

Patients with any of these characteristics should be excluded from the study: pregnancy or lactation, use of antibiotics in the last 3 months, phenytoin, calcium antagonists, cyclosporine or anti-inflammatory drugs one month before the initial consultation, use of oral or replacement contraceptives hormonal, periodontal treatment in the 6 months prior to the start of the study.

After being properly informed about the nature of the study, individuals must sign a free and informed consent form.

Patients will be submitted to periodontal treatment in undergraduate and graduate clinics at the UNISA Department of Dentistry, according to the needs presented.

3.3-Clinical evaluation

Patients will be evaluated by a previously trained and calibrated periodontist. Of the sample, 10% will be examined twice for each of the clinical criteria evaluated, in order to obtain the inter-examiner diagnostic reliability measured by Kappa statistics (between 0.8 and 1.0) and intra-examiner using the standard error of the measurement. (EPM). In the periodontal clinical examination, measurements will be obtained for probing depth and clinical level of insertion performed at six points per tooth: mesio buccal, labial mesio, buccal mesio, mesio lingual / palatine, lingual / palatine medium, this lingual / palatine, using periodontal probe manual (PCPUNC 15, Hu-Friedy, Chicago, USA). For Plaque Index and Gingival Index (Ainamo & Bay, 1975), dichotomous evaluation will be performed on the faces: vestibular, mesial, distal and lingual / palatal.

Patients will be observed in two stages, as shown in figure 1, prior to the start of treatment (T0) where clinical examinations will be performed, radiographs will receive dental scaling and root planing treatment (T1) and 90 days after therapy (T2) will be evaluated again (Nakamura-Minami, et al., 2003; Figueredo et al., 2004; Gomi, et al., 2007).

3.4- Physical Evaluation

The following demographic variables will be assessed: age, sex, race and education. We will adopt the following inclusion criteria: Be a practitioner of one of the modalities investigated for more than 5 years and perform more physical activity than the minimum recommendations per week, for this analysis we will use the international physical activity questionnaire.

The evaluations performed will be: Aerobic running performance evaluation test, critical speed in swimming, body composition evaluation, muscle strength through the 1RM test in the bench press and short-term heart rate variability at rest. The evaluations proposed by the present study will be carried out in three days, with an interval of 24 hours.

Risk stratification for cardiovascular events during exercise will be performed according to the ACS recommendations. An anamnesis will be performed based on the following cardiovascular risk factors: age, family history of cardiovascular disease, smoking, high blood pressure, dyslipidemia or hypercholesterolemia, diabetes or hyperglycemia.

3.5- Periodontal Therapy

Periodontal treatment will start after physical tests of strength, speed and endurance. The individuals evaluated in this study will receive instructions on oral hygiene, including brushing technique and use of dental floss / tape, and treatment of dental scaling and root planing (RDAR).

After anamnesis, the individuals included will receive instructions for individualized oral hygiene. The treatment of RDAR will be performed in a single session (full-mouth disinfection) according to the established protocol (Quirynen et al 1999, 2006), with two sessions carried out in 24 hours.

The individuals will be treated by a single periodontist and the scraping and planing procedures will be performed on all teeth as follows: local anesthetic infiltrative type of the areas to be treated, RDAR using Gracey 5/6 carbon steel curettes, 11/12, 13/14 and MacCall 13/14, 17/18 curettes, according to their therapeutic indications. Polishing the quadrants treated with abrasive paste; oral hygiene instructions including brushing of the Bass type, dental floss and sometimes toothbrush inter dental or unitufo (Apatzidou; Riggio, Kinane, 2004, Jervoe-Stormet al., 2006).

After the dental scaling and root planing procedures, 90 days should be waited for reassessment and conducting the new clinical and physical exams. The individuals will then be referred to the clinics in operation at the Faculty of Dentistry of UNISA according to their needs.

3.6 - Statistical analysis

Analysis of variance (ANOVA) will be used to compare the averages of dental clinical values and physical tests. Parametric and non-parametric values should be analyzed. The analyzes and graphs of the present study will be performed with the aid of the statistical program graphPad Prism version 4.0. The data present in the graphs will be expressed as mean ± SEM (standard error of the mean).

With the objective of studying the association between the probing depth, presence of plaque, presence of bleeding and existence of maintenance variables, as the physical exercises performed before and after dental treatment generalized estimating equation models should be used used. The score test will be used to test the target hypotheses, because the observations are dependent. The Gaussian with an identity link function will be applied. The half-normal probability plot with a simulated envelope15 made it possible to observe that the model was well adjusted. R software, version 3.2.5, will be used to analyze the data and a significance level of 5% was considered for all the tests.