Daniela Cristina Braga de Lima

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Uberlândia, 2019

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Orientador: Prof. Dr. Paulo Vinícius Soares

Coorientadora: Profa. Dra. Letícia Resende Davi

Banca Examinadora:

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ATA

Ata da defesa de DISSERTAÇÃO DE MESTRADO junto ao Programa de Pós-graduação em Odontologia da Faculdade de Odontologia da Universidade Federal de Uberlândia.

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Discente: **Daniela Cristina Braga de Lima (11712ODO004)**

Título do Trabalho: **Lesão cervical não cariosa, hipersensibilidade dentinária cervical e recessão gengival: prevalência, fatores de risco e qualidade de vida em atletas com deficiência**

Área de concentração: Clínica Odontológica Integrada.

Linha de pesquisa: Tratamento das deformidades e dor oro-facial e disfunções temporomandibulares

Projeto de Pesquisa de vinculação: Tratamento das deformidades e dor oro-facial e disfunções temporomandibulares

As **quatorze horas** do dia **dezenove de fevereiro de 2019** no Anfiteatro Bloco 4T Campus Umuarama da Universidade Federal de Uberlândia, reuniu-se a Banca Examinadora, designada pelo Colegiado do Programa de Pós-graduação em janeiro de 2019, assim composta: Professores Doutores: Paulo César Freitas Santos-Filho (UFU); José irineu Gorla (UNICAMP) e o orientador(a) do(a) candidato(a): **Paulo Vinicius Soares.**

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A seguir o senhor(a) presidente concedeu a palavra, pela ordem sucessivamente, aos (às) examinadore (as), que passaram a argüir o(a) candidato(a). Finalizada a argüição, que se desenvolveu dentro dos termos regimentais, a Banca, em sessão secreta, atribuiu os conceitos finais.

Em face do resultado obtido, a Banca Examinadora considerou o(a) candidato(a) (A)provado(a).

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Nada mais havendo a tratar foram encerrados os trabalhos às _17__ horas e _30__minutos. Foi lavrada a presente ata que após lida e achada conforme foi assinada eletronicamente pela Banca Examinadora.

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DEDICATÓRIA

Dedico esse trabalho a todas as pessoas com deficiência, que convivem com tantos desafios diários e com o preconceito ainda muito presente em nossa sociedade. Especialmente aos atletas com deficiência, que brilhantemente estão representando o esporte do nosso país por todo o mundo!

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Olhe o mundo com a coragem do cego, entenda as palavras com a atenção do surdo, fale com a mão e com os olhos, como fazem os mudos.

Cazuza

SUMÁRIO

LISTA DE ABREVIATURAS E SIGLAS

LCNC – Lesão Cervical Não Cariosa

HDC – Hipersensibilidade Dentinária Cervical

RG – RecessãoGengival

OHIP – Oral Health Impact Profile

NCCL – Noncarious Cervical Lesions

CDH – Cervical Dentin Hypersensitivity

GR – GingivalRecession

CPO-D – Cariados Perdido e Obturados – Dentes (índice)

FUTEL – Fundação Uberlandense de Turismo Esporte e Lazer

WHO – World Health Organization

NRS – Numeric Rating Scale

OHRQoL – Oral Health Related Quality of Life

OR – Odds Ratio

CPI– Community Periodontal Index

CAL – ClinicalAttachmentLoss

RESUMO

O objetivo deste estudo foi avaliar a prevalência e o os fatores de risco de lesões cervicais não cariosas(LCNC), hipersensibilidade dentinária cervical (HDC), e recessão gengival(RG) em atletas com deficiência, e verificar se a presença dessas condições influencia na qualidade de vida. Um estudo observacional analítico transversal foi realizado com 95 atletas da cidade de Uberlândia, MG, Brasil, que responderam um questionário sobre a presença de alguns fatores de risco como doenças gástricas, hábitos parafuncionais, dieta ácida, e um questionário relacionado à qualidade de vida (OHIP-14). As modalidades esportivas praticadas eram: halterofilismo, atletismo, natação e bocha. Uma avaliação clínica foi feita para detectar maloclusão, doença periodontal, LCNC, HDC E RG. Os dados foram submetidos à análise bivariada (Teste Qui-quadrado de Pearson) e ao modelo multivariado (Regressão Logística Binária) para verificar associação entre as variáveis dependentes e independentes. Os resultados mostraram que a prevalência de LCNC, HDC e RG foram de 63,2%, 60%, 57,9% respectivamente, e esta prevalência aumentou com a idade. Os dentes mais afetados foram os pré-molares. Uma diferença significativa foi encontrada entre a presença de LCNC em forma de cunha e arredondada nos atletas de halterofilismo, que também foium grupo de risco para HDC e RG. Maiores pontuações do OHIP 14 foram associadas com a presença de LCNC e RG. Concluiu-se que a idade foi um importante fator relacionado com a prevalência de LCNC, HDC, e RG, que ocorrem simultaneamente. Atletas de halterofilismo tendem a desenvolver LCNC em forma de cunha. A presença de LCNC e RG demonstraram impacto negativo na qualidade de vida dos atletas avaliados.

Palavras-chave:estudo transversal, esporte para pessoas com deficiência, hipersensibilidade dentinária, recessão gengival, desgaste dos dentes.

ABSTRACT

The aim of this study was to evaluate the prevalence and the risk factors of noncarious cervical lesions (NCCL), cervical dentin hypersensitivity (CDH), and gingival recession (GR) in athletes with disabilities, and verify if the presence of these conditions influence in their quality of life. An observational analytical cross-sectional study was carried out with 95 athletes from Uberlândia, MG, Brazil, who answered a questionnaire about the presence of some risk factors such as gastric diseases, parafunctional habits, acidic diet; and about their quality of life (OHIP-14). The sports modalities of the sample were: powerlifting, athletics, swimming and boccia. A clinical evaluation was performed to detect malocclusion, periodontal disease, NCCL, CDH and GR. The data were submitted to bivariate analysis (Pearson's Chi-square) and to a multivariate model (Binary Logistic Regression) to verify association between the dependent and independent variables (α=0.05).The results showed that the prevalence of NCCL, CDH and GR was 63.2%, 60%, 57.9% respectively, and their prevalence increased with the age. The tooth more affected was the premolar. A significant difference was found between the presence of wedge-shaped and saucer-shaped lesions in the powerlifting modality, which also was a risk group for CDH and GR. The higher OHIP score was associated with the presence of NCCL and GR.It was concluded that the age was an important factor related to the prevalence of NCCL, CDH and GR, which had concomitant prevalence. Athletes from powerlifting trend to develop wedge-shaped lesions. The presence of NCCL and GR demonstrated negative impact on quality of life of the athletes evaluated.

Keywords:cross-sectional studies, dentin hypersensitivity, gingival recession, sports for persons with disabilities,tooth wear.

1. INTRODUÇÃO

1. INTRODUÇÃO E REFERENCIAL TEÓRICO

Segundo a Organização Mundial da Saúde (2011), mais de um bilhão de pessoas no mundo possuem algum tipo de deficiência.Considera-se pessoa com deficiência, aquela que tem impedimento de longo prazo de natureza física, mental, intelectual ou sensorial, o qual, em interação com uma ou mais barreiras, pode obstruir sua participação plena e efetiva na sociedade em igualdade de condições com as demais pessoas (Brasil, 2015).

Apromoção e assistênciaà saúde para pessoas com deficiência no Brasil é um grandedesafio eaté o momento, não foram realizados levantamentos a nível nacional que determine a prevalência de problemas de saúde bucal na população com deficiência, o que dificulta uma real comparação com a população em geral. Porém, alguns estudos realizados com pessoas com deficiência e que comparam os resultados com as respectivas pesquisas nacionais reportam que o índice CPO-D de pessoas com deficiência é maior que o da população em geral, apresentando maior número de dentes cariados e perdidos, e um menor índice de dentes restaurados (Seirawan et al., 2008; Lee et al., 2019). Além disso, Rocha et al.(2015) relatam que pessoas com deficiência têm dificuldade de acesso aos serviços odontológicos, devido às barreiras físicas e culturais, apontando falhas por parte do Serviço Único de Saúde (SUS) na conscientização e estímulo com cuidado em saúde bucal e uso dos serviços.

O esporte e o exercício físico são considerados importantes na vida da pessoa com deficiência, trazendo uma melhor integração social (Labronici et al., 2000), e ajudando a romper as barreiras culturais. Assim, pode ser estabelecida uma via de mão dupla, da mesma forma que o esporte exerce papel importante na manutenção da saúde do indivíduo, é preciso cuidado e assistência com o bem-estar do atleta para assegurar o desempenho de qualidade (Pagani, 2012). Assistência esta, que deve ser multiprofissional, envolvendo cirurgiões-dentistas, médicos, educadores físicos, psicólogos e fisioterapeutas (Glassman et al., 2016).

A Odontologia do esporte no Brasil teve início em 1958, quando o cirurgião-dentista acompanhou a seleção brasileira durante a copa do mundo. Em seu trabalho como cirurgião-dentista no clube Fluminense, ele percebeu que atletas com algum problema dentário necessitavam de um período mais longo para recuperação de lesões (Soares et al., 2014). O esporte adaptado começou em 1957 no Brasil, com o basquetebol em cadeira de rodas (Pagani, 2012). Porém, a relação entre o paradesporto e a Odontologia ainda não é realidade.

Piccininni&Fasel (2005) apresentaram um breve histórico do atendimento odontológico nas olimpíadas, que se iniciou em Los Angeles, em 1932, com uma unidade móvel doada instalada na Vila Olímpica. Desde então, o cirurgião-dentista passou a fazer parte da policlínica que presta serviços de saúde para os atletas, e os principais atendimentos de urgência envolviam trauma e dor. A presença do serviço odontológico nos jogos paralímpicos, porém, só foi citada em Atenas, em 2004.

Nos jogos olímpicos de 2004, 658 atletas foram atendidos, e 65% dos procedimentos foram devido à dor. Quanto à paralimpíadas, 221 pacientes visitaram o espaço odontológico para tratamento, e 57,4% reportavam dor. A única equipe olímpica que tinha um cirurgião-dentista para acompanhar os atletas nesta competição, era o Brasil, mas nenhum time paralímpico teve esse suporte. O serviço de Odontologia foi o segundo mais procurado, atrás apenas da Fisioterapia (Vougiouklakis et al., 2008).

Em Pequim 2008, 516 atletas receberam tratamento odontológico; os procedimentos mais frequentes foram tratamento endodôntico, restauração, higiene oral, confecção de protetores bucais e tratamento para pericoronarite. No entanto, não foi reportado nenhum dado específico quanto ao atendimento paralímpico (Yang et al., 2011).

Nos jogos de 2012, em Londres, além dos atendimentos, um estudo transversal foi realizado para analisar a condição de saúde bucal de 302 atletas olímpicos. Os resultados demonstraram alto índice de problemas de saúde bucal, incluindo cáries (55% dos atletas), erosão dentária (45%) e doença periodontal (75% com gengivite e 15% com periodontite) (Needleman et al.,

2013). Quanto aos jogos Rio 2016, não foram publicados dados sobre os atendimentos odontológicos nas olimpíadas e paralimpíadas, mas um estudo holandês foi realizado com atletas voluntários do país, que avaliou índice de cárie, erosão dentária e doença periodontal (Kragt e al., 2018). Tanto em 2012, quanto em 2016, os autores não especificaram se houve algum atleta do esporte paralímpico participando do estudo.

Como são observados, os dados na literatura que relacionam a Odontologia e o paradesporto são escassos, a maioria dos estudos encontrados são envolvidos com os eventos do programa “Special Olympics”. O “Special Olympics” é um movimento global sem fins lucrativos, que organiza treinamentos e competições pelo mundo, para pessoas com deficiência intelectual.

Para auxiliar os atletas com deficiência intelectual na manutenção e melhora de sua saúde surgiu o “Special Olympics Healthy Athletes”. E como parte deste programa existe o “Special Olympics Special Smiles”(SOSS), que tem como objetivo coletar dados padronizados que permitam aprimorar o acesso e a atenção à saúde bucal destes atletas. O SOSS realiza, durante as competições, estudos transversais para avaliar as condições de saúde bucal dos atletas. As avaliações incluem parâmetros como edentulismo, prevalência de cárie dentária não tratada, dentes perdidos ou restaurados, selantes, trauma dentário, fluorose e doenças gengivais. Estas pesquisas já foram realizadas na África (Oredugba& Perlman, 2010), Ásia (Trihandini et al., 2010), Europa (Marks et al., 2015; Rojas et al., 2016; Fernandez et al., 2015), América Latina (Herrero et al., 2012)e América do Norte (Fernandez et al., 2012).Os resultados mostraram que, assim como a população com deficiência em geral, os atletas com deficiência intelectual possuem condições de saúde bucal precárias, especialmente os latino-americanos, que apresentaram os maiores índices de cáries não tratadas, dor oral, sinais de inflamação gengival, e necessidade de tratamento urgente (Marks et al., 2018).

Os atletas podem ser caracterizados como grupos propensos a alguns problemas bucais, dentre os quais podemos citar o trauma facial e dentário. A prática de esportes de luta, e de alto contato corporal, como boxe,

artes marciais mistas, basquete, handebol, os deixam expostos às situações de risco com maior frequência comparados a outros adultos, que possuem outra ocupação (Soares et al., 2014).

A rotina de treinos, geralmente é acompanhada da ingestão de bebidas energéticas ou isotônicas, que possuem baixo pH, o que pode afetar a estrutura do esmalte dentário, no qual seus cristais de hidroxiapatita tendem a se dissolver quando o pH atinge 5,5 (Sobral et al., 2000), caracterizando o processo de biocorrosão dentária. O cloro, adicionado à água das piscinas para evitar proliferação de microorganismos, também pode favorecer a ação da biocorrosão, pois pode deixar a água com pH ácido se o processo não for bem controlado (Jahangiri et al., 2011).

A necessidade de manter o peso corporal em determinadas modalidades (Ackland et al., 2012), pode os tornar mais suscetíveis a desordens alimentares (Needleman et al., 2015).O cirurgião-dentista pode ajudar no diagnóstico dessas desordens, através da detecção dos processos de biocorrosão dentária.

A diminuição do fluxo salivar durante as atividades, sem a proteção das propriedades de tamponamento da saliva pode reforçar a ação de carboidratos para desenvolvimento da cárie e da ação dos alimentos e bebidas ácidas para a biocorrosão (Mulic et al., 2012). Sabendo que a rotina dos atletas os torna mais vulneráveis para desenvolver tais condições, surge a dúvida se eles podem caracterizar um grupo suscetível para desenvolvimento de doenças que têm sido detectadas frequentemente no cotidiano clínico, e tem despertado atenção dos cirurgiões-dentistas, como a lesão cervical não cariosa, hipersensibilidade dentinária e recessão gengival.

A lesão cervical não cariosa (LCNC) é entendida como a perda de tecido dentário na região cervical provocada por mecanismos não relacionados à cárie (Silva, 2013). Sua etiologia é multifatorial, e pode resultar da associação de diferentes causas que envolvem tensão, biocorrosão e fricção (Grippoet al., 2012).

A tensão (expressa pela abfração) é relacionada às forças oclusais funcionais como mastigação e deglutição, e principalmente parafuncionais como bruxismo(apertamento)e onicofagia. As forças excessivas e/ou fora do longo eixo do dente resultam em deformações elásticas no dente, causando microfraturas mecânicas e perda de estrutura dentária na área vulnerável do dente, a região cervical (Michael et al., 2009).

A biocorrosão é definida como a ação química, bioquímica ou eletroquímica que causa degradação molecular das propriedades essenciais em um tecido, e pode ocorrer devido à ação de ácidos endógenos e exógenos, por enzimas proteolíticas, e efeitos piezoelétricos que agem na matriz orgânica da dentina. A erosão, termo comumente usado em estudos para explicar este mecanismo de degradação química, conceitualmente, não se refere a um mecanismo químico, mas físico, causando perda de estrutura pelo movimento dos líquidos. Assim, o uso do termo biocorrosão para atribuir a um dos fatores etiológicos de LCNC é mais adequado (Grippo et al., 2012).

A fricção é relacionada à abrasão, que pode ser causada por hábitos de higiene bucal.Os átomos da superfície absorvem a energia cinética do movimento, o que causa uma microdeformação, À medida que as moléculas retornam à sua posição original, elas liberam a energia recém-armazenada como calor. E se o calor não é removido, a falha ocorre, resultando em desgaste dentário ou fratura (Mair, 2000).

A hipersensibilidade dentinária é caracterizada por uma dor de curta duração como resultadode estímulos químicos, térmicos, táteis ou osmóticos. Sua causa é relacionada à exposição da dentina ao meio bucal, que pode acontecer devido à doença periodontal, recessão gengival e desgaste do tecido dentário (West et al., 2013) como ocorre nas lesões cervicais não cariosas.A teoria mais aceita para explicar este processo é a teoria hidrodinâmica: movimentação do fluido dos túbulos dentináriosativa um baroreceptor que leva a descarga neural e sensação de dor (Davari et al., 2013).

A recessão gengival é a migração apical da gengiva marginal, causando exposição da raiz e deixando o dente mais suscetível à ocorrência de hipersensibilidade dentinária e lesão cervical não cariosa (Heasman et al.,

2015). Sua causa pode ser relacionada com a patologia da gengivite e periodontite, mas também, pode estar envolvida com fatores iatrogênicos e anatômicos, como a escovação com força excessiva, pois também é observada em pacientes com bom controle de placa (Litonjua et al., 2003).

A lesão cervical não cariosa, hipersensibilidade dentinária e recessão gengival podem ocorrer simultaneamente (Teixeira et al., 2018), sendo alguns fatores de risco comuns para o surgimento e evolução destas. Alguns grupos populacionais podem estar mais expostos a esses fatores, tornando-os mais suscetíveis ao desenvolvimento desses problemas. Os fatores de risco incluem dieta ácida, doenças gástricas, maloclusão, hábitos parafuncionais como apertamento e bruxismo (Álvarez-Arenal et al., 2019). Assim, considera-se importante a realização de um estudo a fim de compreender a prevalência dalesão cervical não cariosa, hipersensibilidade dentinária e recessão gengival no grupo específico de atletas com deficiência em Uberlândia-MG, além de avaliar se podem interferir na qualidade de vida e analisar a presença e influência dos fatores de risco, com o intuito depossibilitar a sua prevenção e controle.

2. CAPÍTULO 1

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Noncarious cervical lesions, cervical dentin hypersensitivity and gingival recession: prevalence, risk factors and quality of life in athletes with disabilities

Short Title: Noncarious cervical lesions in athletes with disabilities

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Keywords: cross-sectional studies, dentin hypersensitivity, gingival recession, sports for persons with disabilities,tooth wear.

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Noncarious cervical lesions, cervical dentin hypersensitivity and gingival recession: prevalence, risk factors and quality of life in athletes with disabilities

ABSTRACT

*Objectives:*The aim of this study was to evaluate the prevalence and the risk factors ofnoncarious cervical lesions (NCCL), cervical dentin hypersensitivity (CDH), and gingival recession (GR) in athletes with disabilities, and verify if the presence of these conditions influence in their quality of life.

*Methods:*An observational analytical cross-sectional study was carried out with 95 athletes from Uberlândia, MG, Brazil, who answered a questionnaire about the presence of some risk factors such as gastric diseases, parafunctional habits, acidic diet; and about their quality of life (OHIP-14). The sports modalities of the sample were: powerlifting, athletics,swimming and boccia.A clinical evaluation was performed to detect malocclusion, periodontal disease, NCCL, CDH and GR. The data were submitted to bivariate analysis (Pearson's Chi-square) and to a multivariate model (Binary Logistic Regression) to verify association between the dependent and independent variables (α=0.05).

Results: The prevalence of NCCL, CDH and GR was 63.2%, 60%, 57.9% respectively, and their prevalence increased with the age. The tooth more affected was the premolar. A significant difference was found between the presence of wedge-shaped and saucer-shaped lesions in the powerlifting modality, which also was a risk group for CDH and GR. The higher OHIP score was associated with the presence of NCCL and GR.

*Conclusions:*The age was an important factor related to the prevalence of NCCL, CDH and GR, which had concomitant prevalence. Athletes from powerlifting trend to develop wedge-shaped lesions. The presence of NCCL and GR demonstrated impact on quality of life of the athletes evaluated.

Clinical Significance: The athletes with disabilities can be exposed to certain risk factors for the development of NCCL and CDH, and the oral research has

not been focusing attention in this population. It is important to know this reality to be able to prevent and improve their quality of life and performance.

Keywords: cross-sectional studies, dentin hypersensitivity, gingival recession, sports for persons with disabilities,tooth wear.

INTRODUCTION

Individuals with disabilities are amongst the populations that live with limited access to dental care resources[1,2]. Barriers to dental treatment may be related to accessibility, dentists not trained, and personal factors such as medical, physical or psychological conditions[3]. To improve the oral health service, dentists and dental hygienists should develop their interprofessional skills, working with physicians, physical educators, physiotherapists, nurses, social workers, and psychologists[4]. Besides that, there are oral health disparities between the general population and people with disabilities, who present more dental disease and missing teeth[5].

Involvement in sports by individuals with disabilities provides valuable opportunities, as the Paralympic Movement, which is a means of social integration for individuals with physical, visual and/or intellectual impairments, as it provides better physical condition, gives the athletes empowerment, psychosocial benefits and stimulate confidence [6, 7]. It is an area where it benefits from the multidisciplinary health attention. Also, good oral health is an important component of overall health. However, even though Sports Dentistry has increasingly been gaining attention [8], only a few National Olympic Committees have programs to deliver dental care to their athletes [9]. When it comes to Paralympic teams, it is believed that the dental care is even lower[10].

There are oral diseases, common in the population currently, such as noncarious cervical lesion (NCCL), cervical dentin hypersensitivity (CDH), and gingival recession which prejudice the good oral health and, probably, influence the quality of life of the individuals, and there is no evidence in the literature that evaluates the presence of these oral conditions in athletes with disabilities.

The NCCL is characterized by a loss of dental tissue in the cervical region, caused by mechanisms not related to caries [11], CDH is characterized by intense and short duration pain, resulting from chemical, thermal, tactile or osmotic stimuli [12], and GR is the apical migration of the gingival margin causing exposure of the root surface [13]. They are multifactorial diseases,

whose causes are related to stress, biocorrosion, and friction [14]. The biocorrosion is the chemical degradation, caused by acids extrinsic and intrinsic, biochemical proteolytic enzymes, and piezoelectric effects; the stress (abfraction) is related to the occlusal loading forces, mainly in the parafunctional movements; and the friction is related to the abrasion and attrition caused in the mouth [14].There are risk factors related to the mechanisms that can influence the evolution and appearance of these diseases. Some specific groups of people may suffer greater exposure to these factors, among them, the high performance athletes, who may besubjected to repetitive periods of stress and pressure, associated with an acidic PH diet [8].

The necessity of prevention and care in oral health for the athleteswith disabilities is noticed, allied to the requirement to expand the field of research about noncarious cervical lesions, cervical dentin hypersensitivity, and gingival recession, once they may influence the athlete's quality of life and their performance. Thus, the aim of this paper was to evaluate the prevalence and risk factors of noncarious cervical lesions,cervical dentin hypersensitivityand gingival recessionin athleteswith disabilities from different modalities, and verify if the presence of these conditions influence in their quality of life. The null hypothesis is that the presence of NCCL, CDH and GR will not be associated with the quality of life of the athletes.

MATERIAL AND METHODS

Ethical Issues

This study was submitted and approved by the Human Research Ethics Committee of the Federal University of Uberlândia, Brazil(CAAE: 98620818.1.0000.5152). The subjects received explanations concerning the purpose of the investigation, and the informed consent forms were signed by volunteers/caretakers who agreed to participate in the study.

Sample Characteristics and Study design

An observational analytical cross-sectional study including athletes with disabilitieswas carried out inthe city of Uberlândia, Minas Gerais, Brazil. Uberlândia (estimated population: 683,247 [15])is located in the countryside of Minas Gerais State. The Human Development Index is 0.789 [15]. This city is significantly represented in theBrazilian Paralympic scenario; there are high performance athletes, record players and medalists in the Rio 2016 Paralympic Summer Games.

The participants were disabled athletes registered in the Uberlandia's Foundation of Tourism,Sport and Leisure(FUTEL), including players from the modalities: powerlifting, athletics, swimming and boccia.The eligibility criteria included: to be an athletewith disability who trains aiming at competitions; minimum of six teeth present in the mouth; to agree in participating on the study; and to be capable to answer the questionnaires or have a caregiver who can do so.

Training Exercise and Pilot Study

The dentists responsible for the study were submitted to a theoretical and clinical training, guided by a professor from the Dental School. First, the theory consisted in an explanation and discussion about the criteria used for the clinical examination.And then inthe clinical phase, to level the knowledge and the perceptions, the two dentists, who made up the research team, examined 10 patients (not athletes),who were part of the Dental School's patients and were under treatment.

Afterwards, a pilot study was conducted with 10 athletes who were not included in the sample, using the same criteria for the main study. To avoid risk of bias, only one dentist was responsible for evaluating the clinical criteria of this research (Intra-examiner Kappa coefficient= 0.86), followed up by a note taker.On the pilot study, the clinical examination was done in the School of Dentistry of Uberlandia (Brazil); however, the volunteers reported difficulty in

displacement. So, in the main study the assessments were performed in the training site.

Sample Size Calculation

The sample size was calculated based on the total number of athletes enrolled in FUTEL (n=121) and on a 5% margin of error, a 95% confidence level and 50% diseases' prevalence rate. As the NCCL, CDH and GR prevalence are still heterogeneous in the literature, it was considered the rate of 50%, because it maximizes the sample [16]. According to the calculation, the minimum sample size was considered to be 93 athletes.In order to make up for possible losses, all the athletes registered in FUTEL were invited to participate in the research.

Assessment

Before the clinical assessment, the participants answered a questionnaire. The athlete was asked about the presence of some risk factors such as gastric diseases, parafunctional habits and acidic diet, which included the frequency of isotonic intake, supplements, soft drinks and citric fruits.

The quality of life of the athletes was also investigated through the short version of the Oral Health Impact Profile (OHIP-14Br) questionnaire. The OHIP, composed by 14 questions that cover seven dimensions of the impact: functional limitation, physical pain, psychological discomfort, physical disability, psychological disability, social disability and handicap [17]. In each question the subject assigns an answer that have a punctuation, in the end, the higher the score, the greater the impact of oral health on the quality of life. The score, in the addition method can range from 0 to 56.

As this study is part of an exploratory epidemiological research in the population of athletes with disabilitiesthe clinical evaluation was performed according to the World Health Organization criteria (WHO), with natural light, oral clinical mirrors, periodontal probes and sterilized gauze. The occlusal condition was evaluated according to static occlusal parameters (Angle's

malocclusion, overjet, overbite, crossbite, crowding) and the subject was classified as presenting malocclusion or normalocclusion. The periodontal condition was also assessed, using criteria standardized by WHO (1997) [18], and classified as presence or absence of periodontal disease.

Each tooth was examined to verify the presence of noncarious cervical lesions(NCCL). If an NCCL was detected, it was classified according to its morphology (wedge shaped or concave). Then, its dimensions were measured with the periodontal probe, including cervical-apical, mesio-distaldimensions and the depth. To classify the NCCL's depth, one probe was placed in the deepest part of the lesion, perpendicularly the tooth long axis, using the anatomical equator as reference to take the measure in millimeters. The lesions were classified as shallow (0-0.9mm), medium (1-1.9mm), or deep (greater than 2 mm). If the tooth had gingival recession (GR), it was registered according to Miller's Classification in I, II, III, or IV Class [19].

The presence of cervical dentin hypersensitivity(CDH) was verified using the air-water syringe from a portable dentistry office (D-express turbo portable dental office). A jet air stimulus for two seconds was directed to the cervical buccal surface of the tooth, about 1 cm of distance.The adjacent teeth were protected with cotton in the moment of the jet air, to avoid confusing the tooth responsible for the pain. A numeric rating scale (NRS) was shown to the participants who were then asked to classify their pain from 0 to 10 [20], then the value was recorded in 4 levels: 1 – no pain (0); 2- mild pain (1-4); 3-moderate (5-7); 4- severe pain (8-10).

Statistical Analysis

Statistical analysis was made using the Statistical Package for the Social Sciences(IBM-SPSS, version 20.0). Data of the questionnaires and clinical assessments were classified per patients and per teeth. Considering the following conditions NCCL, CDH and GR as the dependent variables, and the risk factors as the independent variables, the association of them was determined performing initially the bivariate analysis (Pearson's Chi-square

test). After that, all independent variables that demonstrated a p-value <0.25 were submitted to a multivariate model (Binary Logistic Regression)following the stepwise technique. The significant differences were reported at the 95%significance level (α=0.05).

RESULTS

A total of 95 individuals participated in this study, considering the losses, exclusion criteria and that, from the total number invited, 10 of them took part in the pilot study (Fig.1). The mean age was 32.2 (±12.3), ranging from 15 to 71 years old, and ad the male-to-female ratio was 1:0.63.Regarding the modalities practiced, a number of 22 athletes were representing the powerlifting, 52 were athletics players, and 11 were swimmers and 10 boccia players.

The etiology of the impairments included:poliomyelitis, traffic accident, myelomeningocele, hydrocephalus, gunshot trauma, hypoxia at birth, dwarfism, arthrogryposis, cerebral palsy, autism, glaucoma, stroke, cerebral aneurysm, meningitis and Arnold Chiari syndrome. The aftereffect included physical, intellectual and visual impairments. Seventy eight(82.1%) athletes had predominant physical impairments, 11(11.5%) athletes had visual impairments, 6 (6.3%) had intellectual impairments. In the physical impairments, 2 dwarfisms, 7 have upper limb limitations, 41 have limitations in the lower limbs, 13 have hemiplegia (limitations in upper and lower limbs of one side in the body) and 15 had limitations in upper and lower limbs on the both sides of the body.Among all athletes, six depend of the caretaker to perform their oral hygiene.

The NCCL wasfound in 60 subjects(328 lesions in total), 57 patients were diagnosed with CDH(302 teeth), and 55 patients presented GR(361 affected teeth). The prevalence in percentage was 63.2%, 60% and 57.9%, respectively. Forty-nine (81.6%) from the 60 individuals who were diagnosed with NCCL also presented CDH, 50 (83.3%) also presented GR, and 46

(76.6%) presented NCCL, CDH and GR concomitantly. Forty-eight (84.2%) subjects that had CDHalso presented GR.Concerning the morphology of the NCCLs, 51.3% of the lesions diagnosed were wedge-shaped and 48.7% were saucer-shaped.

The prevalence of the three conditions studied, according to the age groups is shown in figure 2. Although appeared to be a decrease in the prevalence of NCCL and CDH in the 30 to 39 years age group of the graph, this was due to a lower number of patients in this age group, but the prevalence of the three conditions increased with the aging.

Concerning the distribution of the conditions in the teeth, it was observed that the premolars and first molarswere the teeth more affected by NCCLs, CDH and GR in the maxilla and the premolars were the most affected in the jaw (Fig. 3).

When comparing the type of sport and the presence of NCCL, CDH, and GR, the powerlifting was the group of risk. The figure 4 shows statistically significant results between powerlifting and swimming (p=0.001)andalsoboccia (p=0.019) regarding CDH. Additionally, powerlifting showed statistical difference related to all other modalities regarding to GR.

Moreover, the morphology of the lesions also showed statistical significance with the type of sports (Fig. 5). The number of wedge-shaped lesions in powerlifting athletes was higher when comparing with boccia athletes (p=0.031). Besides, powerlifting athletes showed a greater number of wedge-shaped lesions when comparing with saucer-shaped lesions (p=0.002).

Concerning the data about the participants' Oral Health Related Quality of Life (OHRQoL) measured by OHIP-14, our findings demonstrate that the total mean score of OHIP-14 was 10.57 (SD= ±10.13), with the most affected sub-scales being those of *physical pain* (25.6%) followed by *psychological discomfort* (18%) and *psychological disability* (14.5%) (Table 1).The Mann Whitney test was performed between the OHIP score and the absence or presence of the oral conditions evaluated (NCCL, CDH, GR)

showing statistically significant results (Fig. 6).According to our findings, it was noted that participants with NCCL and GR showed a higher score for the OHIP-14 when compared with those without these conditions (p=0.04 and p=0.03, respectively).

Some risk factors for NCCL, CDH and GR evaluated in this study are shown in the Table 2. First of all, it was performed a bivariate analysis (Pearson's Chi-square test). The independent variables that showed an association with a p-value<0.25 in this analysis was submitted to the multivariate model. The binary logistic regression in the multivariate analysis (Table 3) shows that the most important factor for NCCL, CDH and GR in theathletes with disabilities was the age, and the other risk factors did not present statistical significance. Taking as a reference category the youngest age (15-19 years) that was the category that presented better condition, that is, less affected by the diseases. It is noted that, as the age advances, the chance of developing the 3 conditions increases. The 20-29 age group showed significant difference for NCCL (OR = 5.26); 30-39 years showed significantdifference for NCCL (OR= 10.40), CDH (OR= 9.75) and GR (OR= 10.40); as well as 40 years or more that showed significant difference for all three conditions: NCCL, CDH and GR (OR = 40.44, 15.60 and 130.00, respectively).

DISCUSSION

The present study assessed therelation of theprevalence of NCCL, CDH and GR andthe quality of life of the athletes with disabilities. The null hypothesis was rejected, since the results found suggest that the presence of NCCL and GR influence in the quality of life, reported by the participants through the OHIP-14.

This is the first study to evaluate the influence of NCCL, CDH and GR in the Oral health related Quality of Life in this population, so caution should be exercised when comparing the results. Moreover, there are no studies in the literature that analyses the impact of the presence of specifically NCCL in the quality of life of any community. Li and Bernabé (2016) [21]assessed the relationship between tooth wear and quality of life in adults from United Kingdom and found that most severe level of tooth wear were related with the poorer quality of life. However, despite the tooth wear also characterize a process of loss of dental hard tissue related to noncarious process; it is not specific only of the cervical region.

It is expected that CDH influence in the daily life and well-being of the subjects, since is a condition that deals with pain. A systematic review and meta-analysis showed that decreasing in the level of dentin hypersensitivity improve the OHRQoL [22].Two studies with Brazilian adults [23, 24]associated the level of CDH and the OHIP 14 score, and confirms that, after treatment for reduce the level of cervical dentin hypersensitivity, the score of OHIP also decreased, this means less negative impact of CDH in the quality of life. In the present study, the correlation between CDH and worst OHIP did not show statistical significance, maybe because the majority of the teeth diagnosed with CDH demonstrated mild pain(63%), only 13% present severe pain and 24% shows moderate pain.

The results about the impact of GR in the quality of life found in this study corroborate with a research with Brazilian adults[25], which demonstrated that the presence of GR significantly contribute to poor OHRQoL. There are no references values about the score of OHIP 14 that enable us to classify the mean found in this study (10.57), but it presented higher negative experience than the other studies with adults in Brazil [25] and United Kingdom [21] that showed means of 9.6 and 6.79 respectively.

The prevalence of the NCCLs, CDH and GR in this study was respectively 62.3%, 60% and 57.9%. These results were similar to some previous researches, that demonstrate NCCL's prevalence rate of 63% [26] and

61.7% [27], and CDH of 51.7%[28], but presented different rates from other surveys that bring highervalues of NCCL like76.8% [29] or 88%[30] or lower values like 49.1%[31]. The variety in the occurrence rate of these oral manifestations is a common scenario in the literature. The reasons to justify it may be the different methodologies applied in the studies, like the sample population and the different diagnostic criteria [11, 12]. For example, the differences between the populations who compound the studies can cause greater exposure [32] to some risk factor, due to the different occupations.

The premolar was found to be a susceptible tooth for develop NCCL, CDH and GR. This situation was also showed in previous studies [27, 33, 34], and it is probably because of the crown anatomy that have less volume [30], and the occlusive forces received commonlyin the excursive moments, when there is an occlusal interference [26].

The sample of this study is a specific population consisted of athletes with disabilities.There are no previous surveys comparing this population with the prevalence ofNCCL, CDH and GR. Most of the studies found in the literature, related to oral care and sports for individuals with impairments, are related with athletes with intellectual disabilities which evaluate indexes like edentulism, untreated dental caries, filled or missing teeth, sealants, tooth injury, fluorosis and signs of gingival disease [35, 36, 37, 38, 39]. The results showed that athletes with intellectual disabilities have poor oral health and high unmet-preventive and restorative needs [40]. Beyond these parameters, it is known that athletes can be risk groups for some oral diseases, like dental-facial trauma, due to the sports with big contact; and biocorrosion, due to the lifestyle that includes a healthy diet, intake of isotonic drinks [41], and drying of the mouth, reducing salivary flow during the training activity [42].

Since NCCLs, CDH, and GR are multifactorial diseases, which the biocorrosion is one of the etiological factors, the athletes also can be a risk group to this oral manifestation. In addition, amongst the sport, there may be specific modalities that are more likely to develop these diseases due to the type of movements or to the training environment.This study found a positive

correlation between the presence of wedge-shaped lesions and the practice of powerlifting. The morphologies of the NCCLs might be associated to the prevalence of the etiological factor [43]. The wedge shaped are more connected with the stress factors, while the biocorrosion and abrasion exert a higher contribution for the saucer-shaped lesions[44]. In the stress mechanism the excessive occlusal forces or not directed to the tooth's long axis result in elastic deformations, causing mechanical microfractures and loss of tooth structure in the vulnerable area of the tooth, the cervical region. This situation mainly occur in the parafunctions activities, which the magnitude and duration of forces during these episodes are bigger than in the function contacts like swallowing and chewing [45]. The powerlifting athletes undergo multiple episodes of parafunction every day during training, since the supine movement most of the time is accompanied by the teeth tightening, this might explain the higher prevalence of wedge-shaped NCCLs.

Comparing the type of sports presented in this study, the powerlifting was observed to be the risk group to develop CDH when comparing with swimming and boccia, and to develop GR comparing with the other types of sport. The authors believe that, the stress episodes allied to the supplements use, habit very prevalent in this sport, may actually make them susceptible to the diseases studied.But, a statistical significance was not found with NCCLs, probably due to the low age of the group that practice this sport in this sample (mean age=27 years old), considering that the NCCLs etiology has a time-dependent progression process [46].

The risk factors related to the biocorrosion analyzed in this study were gastric diseases and diet; related to stress were self-reported parafunctional habits as bruxism or tightening, and malocclusion. The brushing frequency was analyzed as the friction factor.They did not influence in the presence of NCCL, CDH or GR in athletes with disabilities.These risk factors are commonly included in the studies of NCCL, and CDH. In some of them, these factors did not play a role in the prevalence of the diseases neither. As well as in Sazaf and Ahmad [47], which did not found correlation between

NCCL and occlusion or frequency of brushing. Teixeira et al, 2018 [30] did not found correlation between bruxism and diet and the presence of NCCL, CDH and GR. In Que et al, 2013 [27] the factors: intensity of toothbrushing, stiffness of toothbrush, toothbrushing after eating, bruxism, gastroesophageal reflux disease, and diet were not associated to NCCLs and CDH.While in some studies, a significant association was encountered related to acidic diet [32,48,49], bruxism [32,49], occlusal trauma [28, 30], and frequency of brushing [50].It is understandable that these differences in clinical outcomes are found, since the results are totally dependent on the host and the environment in which he/she is inserted.

Some other factors studied were age, gender, and periodontal disease. Generally, the periodontal factor analyzed in the NCCL and CHD studies is the presence of gingival recession. But in this study,it was included the evaluation of periodontal disease, that is the probing depth ≥ 4mm. The examination was performed following the World Health Organization criteria[18]and the individual was classified as having periodontal disease if presents the association of at least one site with a CPI≥ 4mm and CAL≥ 4mm [51]. The periodontal disease could influence the prevalence of NCCL because the periodontal microbiota could change the pH of the gingival sulcus, and increased enamel weakness and facilitate the action of other risk factors[32] but this was not statistically significant in the present study.

The age was found to be the most important factor related to NCCLs, CDH, and GR in this study. The age is demonstrated to be significantly associated to NCCLs in many studies [26,27, 30, 52, 53], the reason is probably because the older people have been exposed to the etiological factor for longer time than the youngest [27,30].

There were not found positive correlation between the risk factors when submitted to the multivariate analysis. Even though, malocclusion and periodontal disease presented p values<.05 in the bivariate analysis. These results can be attributed to some limitations of this study which can be cited as the small sample, and the heterogeneity of the individuals. Thereby, variables

that have a tendency to represent importance in the prevalence of NCCLs, CDH and GR could not be noticed. Although, there is a lack of studies in literature relating oral health and the population of athletes with disabilities, so this is a pioneer study and the heterogeneity can be important to perform a generalized view of the oral conditions and to guide future surveys, as example, the occupation of the powerlifting demonstrated an important influence on the development of NCCL, CDH and GR, and this group deserves attention in more researches. The results also showed that oral manifestations studied can play an important role in the perception of quality of life of these individuals, which reinforces the importance of understanding them and investing in their prevention.

CONCLUSIONS

It was concluded that:

- The age was an important factor related to the prevalence of NCCL, CDH and GR in the athletes with disabilities, and the three manifestations had concomitant prevalence;
- The powerlifting had a positive correlation with the occurrence of wedge-shaped lesions and it was a risk group for CDH and GR;
- The presence of NCCLs and GR demonstrated impact on quality of life of the athletes with disabilities.

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TABLES

Table 1. Items and distribution of responses of OHIP-14 of the participants.

OHIP-14		Distribution of Responses											
		Never		Hardly ever		Occasionally		Fairly often		Very often		Mean	S.D
Dimension	Items	n	%	n	%	n	%	n	%	n	%		
Functional limitation	OH1	62	65.3	12	12.6	16	16.8	1	1.1	4	4.2	0.66	1.068
	OH2	61	64.2	10	10.5	20	21.1	2	2.1	2	2.1	0.67	1.015
Physical pain	OH3	25	26.3	24	25.3	37	38.9	4	4.2	5	5.3	1.37	1.082
	OH4	33	34.7	13	13.7	40	42.1	2	2.1	7	7.4	1.34	1.190
Psychological discomfort	OH5	50	52.6	8	8.4	25	26.3	6	6.3	6	6.3	1.05	1.275
	OH6	49	51.6	18	18.9	23	24.2	2	2.1	3	3.2	0.86	1.058
Physical disability	OH7	58	61.1	12	12.6	17	17.9	2	2.1	6	6.3	0.8	1.190
	OH8	58	61.1	17	17.9	17	17.9	2	2.1	1	1.1	0.64	0.922
Psychological disability	OH9	64	67.4	13	13.7	15	15.8	2	2.1	1	1.1	0.56	0.908
	OH10	52	54.7	16	16.8	13	13.7	5	5.3	9	9.5	0.98	1.329
Social disability	OH11	72	75.8	10	10.5	9	9.5	3	3.2	1	1.1	0.43	0.871
	OH12	69	72.6	12	12.6	12	12.6	1	1.1	1	1.1	0.45	0.835
Handicap	OH13	72	75.8	7	7.4	12	12.6	2	2.1	2	2.1	0.47	0.944
	OH14	77	81.1	10	10.5	7	7.4	0	0	1	1.1	0.29	0.698

Table 2.Bivariate analysis (Pearson´s Chisquare) between the dependent variables (NCCL, CHD and GR) and associated factors

Variables	LCNC		p	CDH		p	GR		p
	Absent	Present		Absent	Present		Absent	Present	
Sociodemographic factors									
Age									
15-19 years	13 (81.2%)	3 (18.8%)	<0.001	12 (75%)	4 (25%)	<0.001	13 (81.2%)	3 (18.8%)	<0.001
20-29 years	14 (45.2%)	17 (54.8%)		17 (54.8%)	14 (45.2%)		21 (67.7%)	10 (32.3%)	
30-39 years	5 (29.4%)	12 (70.6%)		4 (23.5%)	13 (76.5%)		5 (29.4%)	12 (70.6%)	
40 years or more	3 (9.7%)	28 (90.3%)		5 (16.1%)	26 (83.95)		1 (3.2%)	30 (96.8%)	
Gender									
Male	20 (34.5%)	38 (65.5%)	0.551	23 (39.7%)	35 (60.3%)	0.932	23 (39.7%)	35 (60.3%)	0.545
Female	15 (40.5%)	22 (59.5%)		15 (40.55)	22 (59.5%)		17 (45.9%)	20 (54.1%)	
Friction related factor									
Brushing frequency									
1-2 times/day	10 (32.3%)	21 (67.7%)	0.519	12 (38.7%)	19 (61.3%)	0.858	12 (38.7%)	19 (61.3%)	0.641
3 times/day or more	25 (39.1%)	39 (60.9%)		26 (40.6%)	38 (59.4%)		28 (43.8%)	36 (56.2%)	
Biocorrosion related factors									
Gastric disease									
No	29 (40.8%)	42 (59.2%)	0.164	31 (43.75)	40 (56.3%)	0.210	34 (47.9%)	37 (52.1%)	0.05
Yes	6 (25%)	18 (75%)		7 (29.2%)	17 (70.8%)		6 (25%)	18 (75%)	
Energetic drink consumption									
No	20 (39.2%)	31 (60.8%)	0.606	19 (37.3%)	32 (62.7%)	0.557	19 (37.3%)	32 (62.7%)	0.303
Yes	15 (34.1%)	29 (65.9%)		19 (43.2%)	25 (56.8%)		21 (47.7%)	23 (52.3%)	
Supplements use									
No	17 (34.7%)	32 (65.3%)	0.654	21 (42.9%)	28 (57.1%)		19 (38.8%)	30 (61.2%)	0.497
Soda consumption									
No	7 (31.8%)	15 (68.2%)	0.577	5 (22.7%)	17 (77.3%)	0.059	7 (31.8%)	15 (68.2%)	0.265
Yes	28 (38.4%)	45 (61.6%)		33 (45.2%)	40 (54.8%)		33 (45.2%)	40 (54.8%)	
Temper salad with vinegar and lemon									
No	12 (38.7%)	19 (61.3%)	0.793	14 (45.2%)	17 (54.8%)	0.475	14 (45.2%)	17 (54.8%)	0.675
Yes	23 (35.9%)	41 (64.1%)		24 (37.5%)	40 (62.5%)		26 (40.6%)	38 (59.4%)	
Citric juice consumption									
No or hardly ever	24 (43.6%)	31 (56.4%)	0.107	25 (45.5%)	30 (54.5%)	0.203	25 (45.5%)	30 (54.5%)	0.438
Yes	11 (27.5%)	29 (72.5%)		13 (32.5%)	27 (67.5%)		15 (37.5%)	25 (62.5%)	
Tension related factors									
Jaw clenching									
No	18 (35.3%)	33 (64.7%)	0.736	21 (41.2%)	30 (58.8%)	0.801	23 (45.1%)	28 (54.9%)	0.525
Yes	17 (38.6%)	27 (61.4%)		17 (38.6%)	27 (61.4%)		17 (38.6%)	27 (61.4%)	
Malocclusion									
No	14 (58.3%)	10 (41.7%)	0.012	15 (62.5%)	9 (37.5%)	0.009	17 (70.8%)	7 (29.2%)	0.001
Yes	21 (29.6%)	50 (70.4%)		23 (32.4%)	48 (67.6%)		23 (32.4%)	48 (67.6%)	
Periodontal status									
Periodontal disease									
Absent	30 (46.9%)	34 (53.1%)	0.004	31 (48.4%)	33 (51.6%)	0.016	35 (54.7%)	29 (45.3%)	0.000
Present	5 (16.1%)	26 (83.9%)		7 (22.6%)	24 (77.4%)		5 (16.1%)	26 (83.9%)	

Table 3. Multiple analysis (Binary Logistic Regression) between NCCL, CDH and GR and associated factors.

Condition					
NCCL	**Covariate**	**Categories**	**OR**	**95% CI**	**P**
	Age	15-19 years	Referent		
		20-29 years	5.26	1.246-22.230	0.024*
		30-39 years	10.40	2.033-53.202	0.005*
		40 years or more	40.44	7.169-228.184	<0.001*
CDH	**Covariate**	**Categories**	**OR**	**95% CI**	**P**
	Age	15-19 years	Referent		
		20-29 years	2.47	0.650-9.383	0.184
		30-39 years	9.75	1.983-47.936	0.005*
		40 years or more	15.60	3.544-68.672	<0.001*
GR	**Covariate**	**Categories**	**OR**	**95% CI**	**P**
	Age	15-19 years	Referent		
		20-29 years	2.06	0.477-0.892	0.332
		30-39 years	10.40	2.033-53.202	0.005*
		40 years or more	130.00	12.338-1369.801	<0.001*

*p-value statistically significant

FIGURES

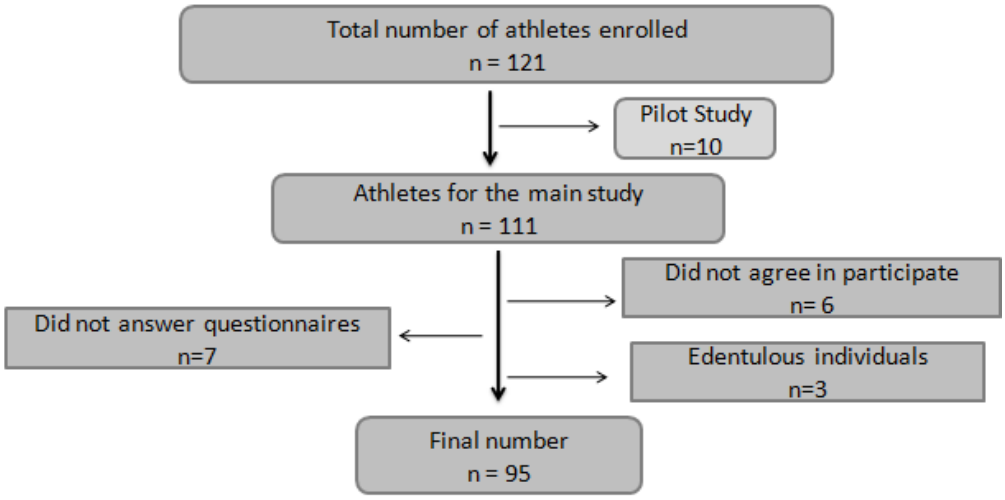

Figure 1: Flowchart of sampling procedures and study sample.

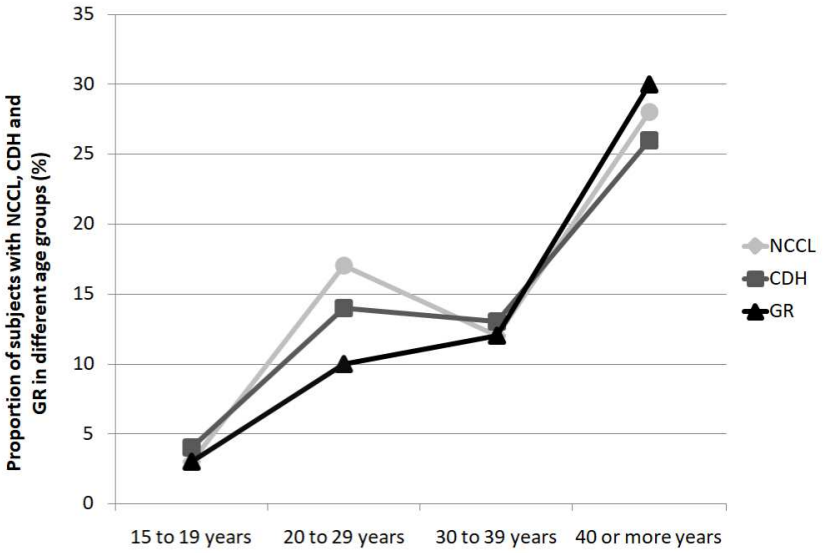

Figure 2: Subjects distribution per age with isolated prevalence of NCCL, CDH and GR.

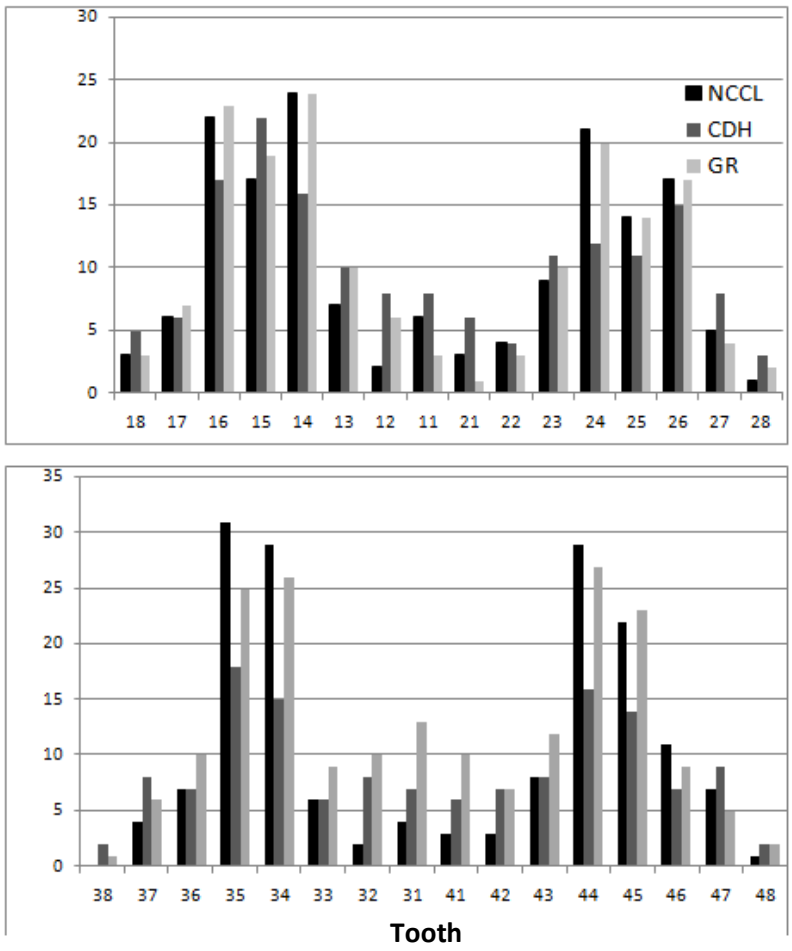

Figure 3: Tooth distribution of NCCL, CDH and GR.

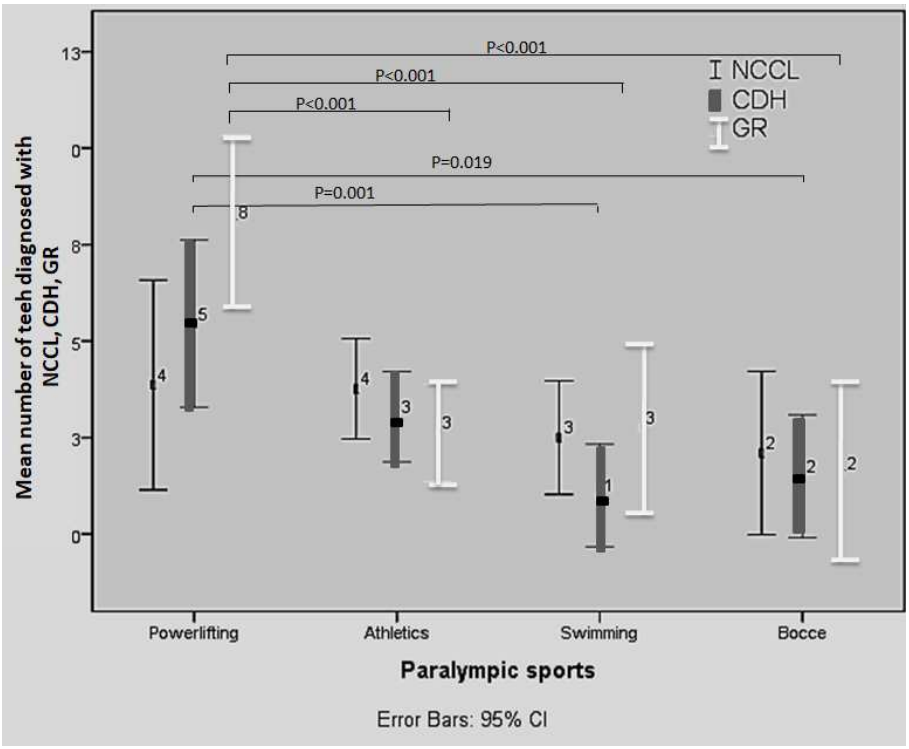

Figure4: Type of sports related to the mean number of teeth diagnosed with NCCL, CDH and GR(Linear Regression Model).

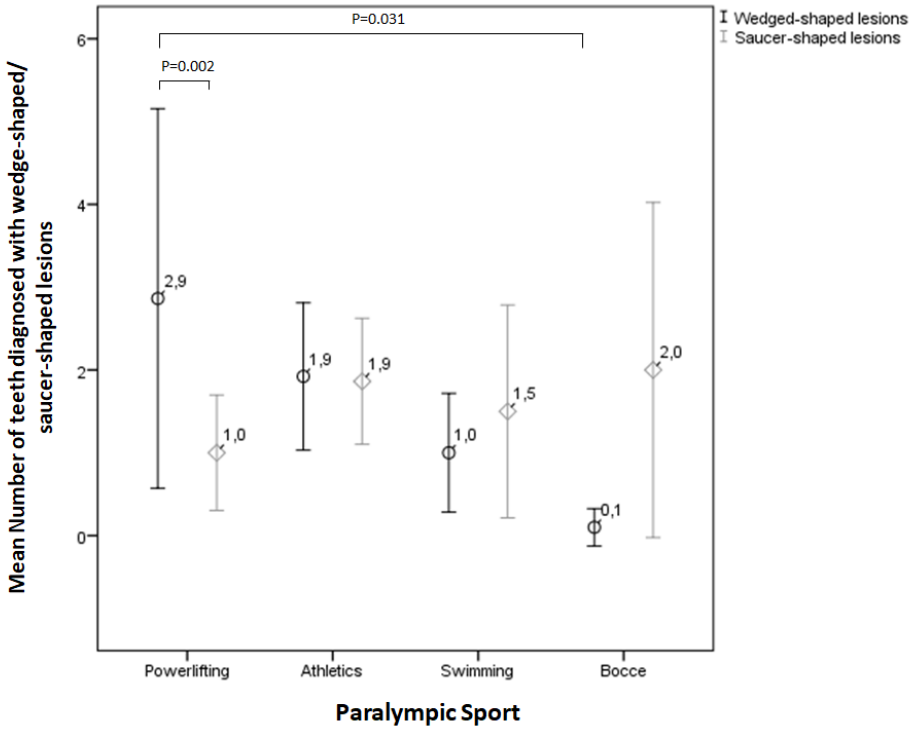

Figure 5: Morphology of NCCL related to the type of sports (Linear Regression Model).

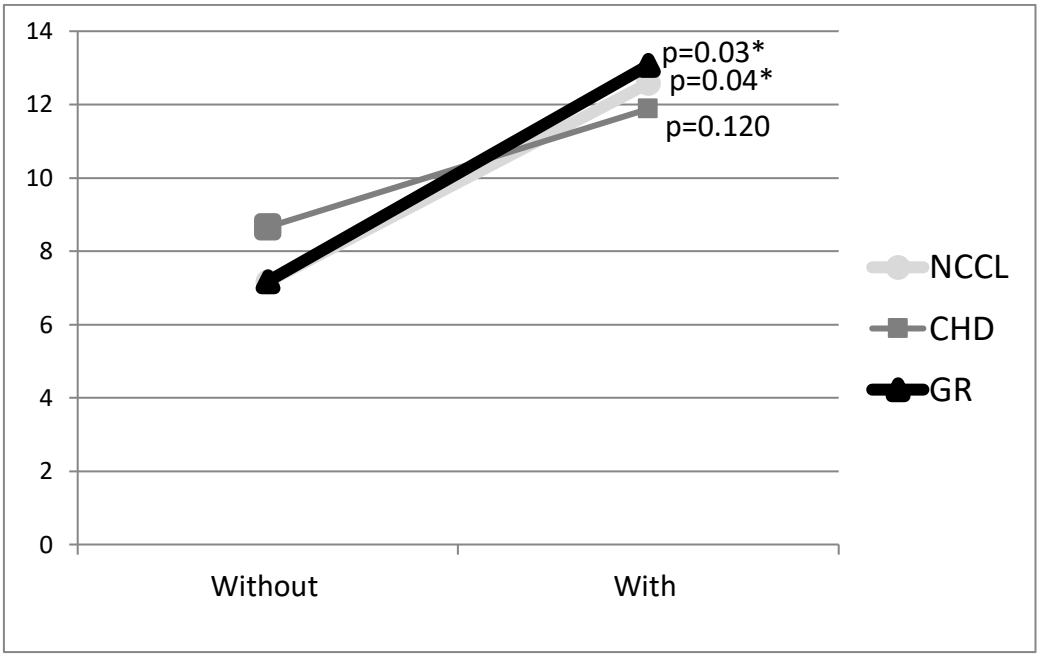

Figure 6: Association between of OHIP-14 Score and the presence of NCCLs, CDH and GR, performed by Mann-Whitney U test.

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* De acordo com a Norma da FOUFU, baseado nas Normas de Vancouver. Abreviaturas dos periódicos com conformidade com Medline (Pubmed).

ANEXOS

ANEXO 1

PARECER CONSUBSTANCIADO DO CEP

DADOS DO PROJETO DE PESQUISA

Título da Pesquisa: Avaliação da saúde bucal e qualidade de vida de atletas paralímpicos

Pesquisador: Leticia Resende Davi

Área Temática:

Versão: 2

CAAE: 98620818.1.0000.5152

Instituição Proponente: FACULDADE DE ODONTOLOGIA

Patrocinador Principal: Financiamento Próprio

DADOS DO PARECER

Número do Parecer: 3.064.713

ANEXO 2

Oral Health Impact Profile short version (OHIP-14) (adaptado de Oliveira &Nadanowsky, 2005).

Nos últimos 12 meses, por causa de problemas com seus dentes, boca ou prótese:

1. você teve problemas para pronunciar alguma palavra?
2. você sentiu que o sabor dos alimentos tem piorado?
3. você sentiu dores na sua boca ou nos seus dentes?
4. você se sentiu incomodado ao comer algum alimento?
5. você ficou preocupado?
6. você se sentiu estressado?
7. sua alimentação ficou prejudicada?
8. você teve que parar suas refeições?
9. você encontrou dificuldade para relaxar?
10. você se sentiu envergonhado?
11. você ficou irritado com outras pessoas?
12. você teve dificuldade para realizar suas atividades diárias?
13. você sentiu que a vida, em geral, ficou pior?
14. você ficou totalmente incapaz de fazer suas atividades diárias?

Opções de respostas: Nunca (0), Raramente (1), às vezes (2), Repetidamente (3) e Sempre (4).