



Comunicação Científica e Técnica em Odontologia 4

Emanuela Carla dos Santos
(Organizadora)



Comunicação Científica e Técnica em Odontologia 4

Emanuela Carla dos Santos
(Organizadora)


Atena
Editora
Ano 2020

2020 by Atena Editora

Copyright © Atena Editora

Copyright do Texto © 2020 Os autores

Copyright da Edição © 2020 Atena Editora

Editora Chefe: Profª Drª Antonella Carvalho de Oliveira

Diagramação: Karine de Lima

Edição de Arte: Lorena Prestes

Revisão: Os Autores



Todo o conteúdo deste livro está licenciado sob uma Licença de Atribuição *Creative Commons*. Atribuição 4.0 Internacional (CC BY 4.0).

O conteúdo dos artigos e seus dados em sua forma, correção e confiabilidade são de responsabilidade exclusiva dos autores. Permitido o download da obra e o compartilhamento desde que sejam atribuídos créditos aos autores, mas sem a possibilidade de alterá-la de nenhuma forma ou utilizá-la para fins comerciais.

Conselho Editorial

Ciências Humanas e Sociais Aplicadas

Profª Drª Adriana Demite Stephani – Universidade Federal do Tocantins
Prof. Dr. Álvaro Augusto de Borba Barreto – Universidade Federal de Pelotas
Prof. Dr. Alexandre Jose Schumacher – Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso
Prof. Dr. Antonio Carlos Frasson – Universidade Tecnológica Federal do Paraná
Prof. Dr. Antonio Gasparetto Júnior – Instituto Federal do Sudeste de Minas Gerais
Prof. Dr. Antonio Isidro-Filho – Universidade de Brasília
Prof. Dr. Carlos Antonio de Souza Moraes – Universidade Federal Fluminense
Prof. Dr. Constantino Ribeiro de Oliveira Junior – Universidade Estadual de Ponta Grossa
Profª Drª Cristina Gaio – Universidade de Lisboa
Profª Drª Denise Rocha – Universidade Federal do Ceará
Prof. Dr. Deyvison de Lima Oliveira – Universidade Federal de Rondônia
Prof. Dr. Edvaldo Antunes de Farias – Universidade Estácio de Sá
Prof. Dr. Eloi Martins Senhora – Universidade Federal de Roraima
Prof. Dr. Fabiano Tadeu Grazioli – Universidade Regional Integrada do Alto Uruguai e das Missões
Prof. Dr. Gilmei Fleck – Universidade Estadual do Oeste do Paraná
Profª Drª Ivone Goulart Lopes – Istituto Internazionale delle Figlie di Maria Ausiliatrice
Prof. Dr. Julio Candido de Meirelles Junior – Universidade Federal Fluminense
Profª Drª Keyla Christina Almeida Portela – Instituto Federal de Educação, Ciência e Tecnologia de Mato Grosso
Profª Drª Lina Maria Gonçalves – Universidade Federal do Tocantins
Profª Drª Natiéli Piovesan – Instituto Federal do Rio Grande do Norte
Prof. Dr. Marcelo Pereira da Silva – Universidade Federal do Maranhão
Profª Drª Miranilde Oliveira Neves – Instituto de Educação, Ciência e Tecnologia do Pará
Profª Drª Paola Andressa Scortegagna – Universidade Estadual de Ponta Grossa
Profª Drª Rita de Cássia da Silva Oliveira – Universidade Estadual de Ponta Grossa
Profª Drª Sandra Regina Gardacho Pietrobon – Universidade Estadual do Centro-Oeste
Profª Drª Sheila Marta Carregosa Rocha – Universidade do Estado da Bahia
Prof. Dr. Rui Maia Diamantino – Universidade Salvador
Prof. Dr. Urandi João Rodrigues Junior – Universidade Federal do Oeste do Pará
Profª Drª Vanessa Bordin Viera – Universidade Federal de Campina Grande
Prof. Dr. William Cleber Domingues Silva – Universidade Federal Rural do Rio de Janeiro
Prof. Dr. Willian Douglas Guilherme – Universidade Federal do Tocantins

Ciências Agrárias e Multidisciplinar

Prof. Dr. Alexandre Igor Azevedo Pereira – Instituto Federal Goiano
Prof. Dr. Antonio Pasqualetto – Pontifícia Universidade Católica de Goiás
Profª Drª Daiane Garabeli Trojan – Universidade Norte do Paraná

Profª Drª Diocléa Almeida Seabra Silva – Universidade Federal Rural da Amazônia
Prof. Dr. Écio Souza Diniz – Universidade Federal de Viçosa
Prof. Dr. Fábio Steiner – Universidade Estadual de Mato Grosso do Sul
Prof. Dr. Fágner Cavalcante Patrocínio dos Santos – Universidade Federal do Ceará
Profª Drª Girlene Santos de Souza – Universidade Federal do Recôncavo da Bahia
Prof. Dr. Júlio César Ribeiro – Universidade Federal Rural do Rio de Janeiro
Profª Drª Lina Raquel Santos Araújo – Universidade Estadual do Ceará
Prof. Dr. Pedro Manuel Villa – Universidade Federal de Viçosa
Profª Drª Raissa Rachel Salustriano da Silva Matos – Universidade Federal do Maranhão
Prof. Dr. Ronilson Freitas de Souza – Universidade do Estado do Pará
Profª Drª Talita de Santos Matos – Universidade Federal Rural do Rio de Janeiro
Prof. Dr. Tiago da Silva Teófilo – Universidade Federal Rural do Semi-Árido
Prof. Dr. Valdemar Antonio Paffaro Junior – Universidade Federal de Alfenas

Ciências Biológicas e da Saúde

Prof. Dr. André Ribeiro da Silva – Universidade de Brasília
Profª Drª Anelise Levay Murari – Universidade Federal de Pelotas
Prof. Dr. Benedito Rodrigues da Silva Neto – Universidade Federal de Goiás
Prof. Dr. Edson da Silva – Universidade Federal dos Vales do Jequitinhonha e Mucuri
Profª Drª Eleuza Rodrigues Machado – Faculdade Anhanguera de Brasília
Profª Drª Elane Schwinden Prudêncio – Universidade Federal de Santa Catarina
Prof. Dr. Ferlando Lima Santos – Universidade Federal do Recôncavo da Bahia
Prof. Dr. Gianfábio Pimentel Franco – Universidade Federal de Santa Maria
Prof. Dr. Igor Luiz Vieira de Lima Santos – Universidade Federal de Campina Grande
Prof. Dr. José Max Barbosa de Oliveira Junior – Universidade Federal do Oeste do Pará
Profª Drª Magnólia de Araújo Campos – Universidade Federal de Campina Grande
Profª Drª Mylena Andréa Oliveira Torres – Universidade Ceuma
Profª Drª Natiéli Piovesan – Instituto Federaci do Rio Grande do Norte
Prof. Dr. Paulo Inada – Universidade Estadual de Maringá
Profª Drª Vanessa Lima Gonçalves – Universidade Estadual de Ponta Grossa
Profª Drª Vanessa Bordin Viera – Universidade Federal de Campina Grande

Ciências Exatas e da Terra e Engenharias

Prof. Dr. Adélio Alcino Sampaio Castro Machado – Universidade do Porto
Prof. Dr. Alexandre Leite dos Santos Silva – Universidade Federal do Piauí
Prof. Dr. Carlos Eduardo Sanches de Andrade – Universidade Federal de Goiás
Profª Drª Carmen Lúcia Voigt – Universidade Norte do Paraná
Prof. Dr. Eloi Rufato Junior – Universidade Tecnológica Federal do Paraná
Prof. Dr. Fabrício Menezes Ramos – Instituto Federal do Pará
Prof. Dr. Juliano Carlo Rufino de Freitas – Universidade Federal de Campina Grande
Prof. Dr. Marcelo Marques – Universidade Estadual de Maringá
Profª Drª Neiva Maria de Almeida – Universidade Federal da Paraíba
Profª Drª Natiéli Piovesan – Instituto Federal do Rio Grande do Norte
Prof. Dr. Takeshy Tachizawa – Faculdade de Campo Limpo Paulista

Conselho Técnico Científico

Prof. Msc. Abrãao Carvalho Nogueira – Universidade Federal do Espírito Santo
Prof. Msc. Adalberto Zorzo – Centro Estadual de Educação Tecnológica Paula Souza
Prof. Dr. Adailson Wagner Sousa de Vasconcelos – Ordem dos Advogados do Brasil/Seccional Paraíba
Prof. Msc. André Flávio Gonçalves Silva – Universidade Federal do Maranhão
Profª Drª Andreza Lopes – Instituto de Pesquisa e Desenvolvimento Acadêmico
Profª Msc. Bianca Camargo Martins – UniCesumar
Prof. Msc. Carlos Antônio dos Santos – Universidade Federal Rural do Rio de Janeiro
Prof. Msc. Cláudia de Araújo Marques – Faculdade de Música do Espírito Santo
Prof. Msc. Daniel da Silva Miranda – Universidade Federal do Pará
Profª Msc. Dayane de Melo Barros – Universidade Federal de Pernambuco

Prof. Dr. Edwaldo Costa – Marinha do Brasil
 Prof. Msc. Eliel Constantino da Silva – Universidade Estadual Paulista Júlio de Mesquita
 Prof. Msc. Gevair Campos – Instituto Mineiro de Agropecuária
 Prof. Msc. Guilherme Renato Gomes – Universidade Norte do Paraná
 Prof^a Msc. Jaqueline Oliveira Rezende – Universidade Federal de Uberlândia
 Prof. Msc. José Messias Ribeiro Júnior – Instituto Federal de Educação Tecnológica de Pernambuco
 Prof. Msc. Leonardo Tullio – Universidade Estadual de Ponta Grossa
 Prof^a Msc. Lilian Coelho de Freitas – Instituto Federal do Pará
 Prof^a Msc. Liliani Aparecida Sereno Fontes de Medeiros – Consórcio CEDERJ
 Prof^a Dr^a Lívia do Carmo Silva – Universidade Federal de Goiás
 Prof. Msc. Luis Henrique Almeida Castro – Universidade Federal da Grande Dourados
 Prof. Msc. Luan Vinicius Bernardelli – Universidade Estadual de Maringá
 Prof. Msc. Rafael Henrique Silva – Hospital Universitário da Universidade Federal da Grande Dourados
 Prof^a Msc. Renata Luciane Polsaque Young Blood – UniSecal
 Prof^a Msc. Solange Aparecida de Souza Monteiro – Instituto Federal de São Paulo
 Prof. Dr. Welleson Feitosa Gazel – Universidade Paulista

**Dados Internacionais de Catalogação na Publicação (CIP)
(eDOC BRASIL, Belo Horizonte/MG)**

C741 Comunicação científica e técnica em odontologia 4 [recurso eletrônico] / Organizadora Emanuela Carla dos Santos. – Ponta Grossa, PR: Atena Editora, 2020.

Formato: PDF

Requisitos de sistema: Adobe Acrobat Reader.

Modo de acesso: World Wide Web.

Inclui bibliografia

ISBN 978-85-7247-961-5

DOI 10.22533/at.ed.615202401

1. Dentistas. 2. Odontologia – Pesquisa – Brasil. I. Santos, Emanuela Carla dos.

CDD 617.6069

Elaborado por Maurício Amormino Júnior – CRB6/2422

Atena Editora
 Ponta Grossa – Paraná - Brasil
www.atenaeditora.com.br
contato@atenaeditora.com.br

APRESENTAÇÃO

A inovação é o combustível do crescimento profissional em todas as áreas, mesmo na mais tradicional até a área mais tecnológica. A Odontologia é a ciência que agrega os princípios técnicos tradicionais, como por exemplo, aqueles postulados por Greene Vardiman Black, às mais avançadas tecnologias, como escâneres intraorais e impressoras 3D capazes de produzirem peças anatomicamente perfeitas, específicas para cada caso.

Pensando na propagação de conhecimento dentro das mais variadas áreas de atuação do Cirurgião Dentista, a Atena Editora disponibiliza mais um compilado de artigos, organizados em dois volumes, com a temática Comunicação Técnica e Científica em Odontologia.

Espero que a leitura do conteúdo deste E-book proporcione ampliação de conhecimentos e que também provoque curiosidade em você, leitor, pois são os novos questionamentos que impulsionam novas descobertas.

Ótima leitura.

Emanuela C. dos Santos

SUMÁRIO

CAPÍTULO 1	1
APLICABILIDADES CLÍNICAS DO SISTEMA ADESIVO UNIVERSAL: RELATOS DE CASOS	
Leone Pereira Soares Anderson Carlos de Oliveira Vitor Cosentino Delvizio Paula Nunes Guimarães Paes Letícia de Souza Lopes Mauro Sayão de Miranda	
DOI 10.22533/at.ed.6152024011	
CAPÍTULO 2	12
RESISTÊNCIA DE UNIÃO DOS CIMENTOS AUTOADESIVOS E UNIVERSAIS À DENTINA RADICULAR: PUSH-OUT	
Maria Catarina Almeida Lago Áurea Fernanda de Araújo Silva Tavares Viviane Afonso Mergulhão Cácio Lopes Mendes Ricardo Alves dos Santos Maria Tereza Moura de Oliveira Cavalcanti Leonardo José Rodrigues de Oliveira Claudio Paulo Pereira de Assis Monica Soares de Albuquerque Maria Hermínia Anníbal Cavalcanti Rodivan Braz	
DOI 10.22533/at.ed.6152024012	
CAPÍTULO 3	17
AVALIAÇÃO DA MICROINFILTRAÇÃO DAS RESINAS BULK FILL	
Cácio Lopes Mendes Cláudio Paulo Pereira de Assis Hermínia Annibal Cláudia Geisa Souza Silva Tereza Cristina Correia Rodivan Braz Silva Júnior	
DOI 10.22533/at.ed.6152024013	
CAPÍTULO 4	30
CHÁ VERDE: EFEITO NA RESISTÊNCIA ADESIVA AO ESMALTE APÓS CLAREAMENTO E ESCOVAÇÃO COM DENTIFRÍCIO BRANQUEADOR	
Isabel Ferreira Barbosa Josué Junior Araujo Pierote Gisele Vieira Cavalio Lima Gisele Soares Almeida Denise Fernandes Lopez Nascimento Gisele Damiana da Silveira Pereira	
DOI 10.22533/at.ed.6152024014	
CAPÍTULO 5	52
ANÁLISE DO PERCENTUAL DE COLÁGENO NA DENTINA HUMANA ENTRE DIFERENTES ETNIAS, GÊNEROS E IDADES	
Taíssa Cássia de Souza Furtado Nadiele Oliveira Santos Jessyka Cristina dos Santos Juliana Barbosa de Faria Gilberto Antonio Borges	

CAPÍTULO 6 63

TREATMENT SUCCESS AND CARIES LESION PROGRESSION AFTER SELECTIVE CARIES REMOVAL TECHNIQUE AND RESTORATIVE TREATMENT: A SYSTEMATIC REVIEW

Manuela da Silva Spinola
Cristiane Mayumi Inagati
Guilherme da Rocha Scalzer Lopes
Márcia Carneiro Valera Garakis
Renata Marques de Melo Marinho
Eduardo Bresciani

DOI 10.22533/at.ed.6152024016

CAPÍTULO 7 73

INFLUÊNCIA DE RECOBRIMENTO VÍTREO E ATAQUE COM ÁCIDO FLUORÍDRICO NA TOPOGRAFIA DA SUPERFÍCIE Y-TZP PARA CAD/CAM

Maria Eliza Steling Rego
Paula Nunes Guimarães Paes
Fabiana Ribeiro da Silva
Paula Mendes Jardim

DOI 10.22533/at.ed.6152024017

CAPÍTULO 8 81

DEGRADAÇÃO DE MATERIAL REEMBASADOR RESILIENTE: ESTUDO *IN VITRO*

William Kokke Gomes
Augusto César Sette-Dias
Frederico Santos Lages
Cláudia Lopes Brilhante Bhering
Renata Gonçalves de Paula
Roberta Laura Valadares
Dyovana Wales Silva

DOI 10.22533/at.ed.6152024018

CAPÍTULO 9 94

ESQUEMAS OCLUSAIS EM PRÓTESE PARCIAL REMOVÍVEL: UMA REVISÃO DE LITERATURA

Luana de Freitas de Brito
William Fernandes Lacerda
Giselle Emilãine da Silva Reis
Yasmine Mendes Pupo
Priscila Brenner Hilgenberg Sydney
Márcio José Fraxino Bindo
Luciano Mundim de Camargo

DOI 10.22533/at.ed.6152024019

CAPÍTULO 10 105

PRINCIPAIS MÉTODOS DE HIGIENIZAÇÃO DE PRÓTESES DENTÁRIAS REMOVÍVEIS: UMA REVISÃO DA LITERATURA

Clayson William da Silva Neves
Myllena Jorge Neves
Natália Bezerra Cavéquia
Maryana Fernandes Praseres
Cesar Roberto Pimenta Gama

Juliana Feitosa Ferreira
Maria Áurea Lira Feitosa
Frederico Silva de Freitas Fernandes

DOI 10.22533/at.ed.61520240110

CAPÍTULO 11 115

ANÁLISE BIOMECÂNICA DA INFLUÊNCIA DO ÂNGULO DE CONICIDADE INTERNA DE 11,5° OU 16° EM IMPLANTES CONE MORSE

Karla Zancopé
Frederick Khalil Karam
Giovanna Chaves Souza Borges
Flávio Domingues das Neves

DOI 10.22533/at.ed.61520240111

CAPÍTULO 12 138

ANALISE HISTOMORFOMÉTRICA DE ENXERTOS UTILIZANDO LUMINA BONE POROUS®

Sergio Charifker Ribeiro Martins
Daiane Cristina Peruzzo
Leandro Lécio de Lima Sousa
Jose Ricardo Mariano
Gustavo Pina Godoy

DOI 10.22533/at.ed.61520240112

CAPÍTULO 13 156

SYSTEMATIC REVIEW AND META-ANALYSIS OF CRYOTHERAPY AND HEAT THERAPY IN MORBIDITY AFTER SURGERY

Laura de Fátima Souto Maior
Érica Passos de Medeiros Lacerda

DOI 10.22533/at.ed.61520240113

CAPÍTULO 14 171

THE IMPORTANCE OF IN VITRO TESTS FOR BIOMATERIALS AND DRUGS APPLIED IN THE MEDICAL AREA

Sabrina de Moura Rovetta
Maria Angélica de Sá Assis
Carla Pereira Freitas
Felipe Eduardo de Oliveira
Luana Marotta Reis de Vasconcellos
Sigmar de Mello Rode

DOI 10.22533/at.ed.61520240114

CAPÍTULO 15 183

EFEITO DA RADIAÇÃO IONIZANTE NA MICROARQUITETURA CORTICAL ÓSSEA EM FÊMUR DE RATO: ESTUDO PILOTO

Pedro Henrique Justino Oliveira Limirio
Lorena Soares Andrade Zanatta
Camila Rodrigues Borges Linhares
Jessyca Figueira Venâncio
Milena Suemi Irie
Priscilla Barbosa Ferreira Soares
Paula Dechichi

DOI 10.22533/at.ed.61520240115

CAPÍTULO 16 191

ANÁLISE EPIDEMIOLÓGICA DOS DISTÚRBIOS DE DESENVOLVIMENTO DENTÁRIO VISUALIZADOS ATRAVÉS DE RADIOGRAFIAS PANORÂMICAS

Lucas Santos Villar
Wellington Dorigheto Andrade Vieira
Maria Inês da Cruz Campos

DOI 10.22533/at.ed.61520240116

CAPÍTULO 17 199

PREVALÊNCIA DE ANOMALIAS DENTÁRIAS EM RADIOGRAFIAS PANORÂMICAS REALIZADAS NA FACULDADE DE ODONTOLOGIA DA UFPA

Breno Oliveira da Silva
João Lucas da Silva Figueira
Melquizedec Luiz Silva Pinheiro
Edivam Brito da Silva Filho
Gardênia de Paula Progênio Monteiro
Johnatan Luís Tavares Góes
André Alencar de Lemos
Leonardo Gabriel Gomes Trindade
Pâmela Karoline Silva Xavier
Pedro Luiz de Carvalho

DOI 10.22533/at.ed.61520240117

CAPÍTULO 18 213

EXAMES COMPLEMENTARES NO AUXÍLIO DO DIAGNÓSTICO DA DISFUNÇÃO TEMPOROMANDIBULAR (DTM): REVISÃO DE LITERATURA

José Eraldo Viana Ferreira
Daniella de Lucena Moraes
Camila Maia Vieira Pereira
Kyara Dayse de Souza Pires
Paula Miliana Leal
Marcelo Magno Moreira Pereira
Pettely Thaise de Souza Santos Palmeira

DOI 10.22533/at.ed.61520240118

CAPÍTULO 19 225

EVIDENCIAÇÃO ANATÔMICA E DESCRIÇÃO MORFOLÓGICA DO ÓSTIO DO SEIO MAXILAR EM PEÇA CADAVÉRICA FORMOLIZADA

Polyanne Junqueira Silva Andresen Strini
Cássio Mendes de Alcântara
Paulinne Junqueira Silva Andresen Strini

DOI 10.22533/at.ed.61520240119

CAPÍTULO 20 228

A SCHINUS TEREBINTHIFOLIUS (AROEIRA) E SUA APLICAÇÃO NA ODONTOLOGIA

Lucas Dantas Pereira
Isabela Pinheiro Cavalcanti Lima
Wellington Gabriel Silva de Almeida

DOI 10.22533/at.ed.61520240120

CAPÍTULO 21	234
ANÁLISE DA QUALIDADE DE VIDA E FATORES DESENCADEANTES DA SÍNDROME DE BURNOUT EM DOCENTES	
Ricardo José de Lima	
João Vítor Macedo Marinho	
Vanessa de Carla Batista dos Santos	
Camila Maria Beder Ribeiro Girish Panjwani	
Mara Cristina Ribeiro	
Aleska Dias Vanderlei	
DOI 10.22533/at.ed.61520240121	
CAPÍTULO 22	250
ANÁLISE SALIVAR E AVALIAÇÃO PERIODONTAL DOS PACIENTES TRANSPLANTADOS RENAIIS SOB REGIME DE TERAPIA IMUNOSSUPRESSORA	
Kelly Cristine Tarquínio Marinho	
Alexandre Cândido da Silva	
Camila Correia dos Santos	
Élcio Magdalena Giovani	
DOI 10.22533/at.ed.61520240122	
CAPÍTULO 23	259
INFLUENCE OF ER,CR:YSGG LASER, ASSOCIATED OR NOT TO 5% FLUORIDE VARNISH, IN THE TREATMENT OF EROSION IN ENAMEL AND OF LONGITUDINAL MICROHARDNESS	
Cesar Penazzo Lepri	
Gabriella Rodovalho Paiva	
Marcela Beghini	
Regina Guenka Palma Dibb	
Juliana Jendiroba Faraoni	
Maria Angélica Hueb de Menezes Oliveira	
Denise Tornavoi de Castro	
Vinicius Rangel Geraldo- Martins	
DOI 10.22533/at.ed.61520240123	
SOBRE A ORGANIZADORA.....	267
ÍNDICE REMISSIVO	268

TREATMENT SUCCESS AND CARIES LESION PROGRESSION AFTER SELECTIVE CARIES REMOVAL TECHNIQUE AND RESTORATIVE TREATMENT: A SYSTEMATIC REVIEW

Data de submissão: 11/11/2019

Data de aceite: 13/01/2020

Manuela da Silva Spinola

Instituto de Ciência e Tecnologia, UNESP
São José dos Campos – São Paulo
<http://lattes.cnpq.br/1141845192689571>

Cristiane Mayumi Inagati

Instituto de Ciência e Tecnologia, UNESP
São José dos Campos – São Paulo
<http://lattes.cnpq.br/5669011219821661>

Guilherme da Rocha Scalzer Lopes

Instituto de Ciência e Tecnologia, UNESP
São José dos Campos – São Paulo
<http://lattes.cnpq.br/1726057652282405>

Márcia Carneiro Valera Garakis

Instituto de Ciência e Tecnologia, UNESP
São José dos Campos – São Paulo
<http://lattes.cnpq.br/8763937840329504>

Renata Marques de Melo Marinho

Instituto de Ciência e Tecnologia, UNESP
São José dos Campos – São Paulo
<http://lattes.cnpq.br/3290027572731981>

Eduardo Bresciani

Instituto de Ciência e Tecnologia, UNESP
São José dos Campos – São Paulo
<http://lattes.cnpq.br/3639720155407918>

ABSTRACT: Objectives: To conduct a systematic review of literature to evaluate whether selective removal of carious dentin prior to restorative treatments paralyzes the progression of lesions by evaluating the changes in the number of cariogenic microorganisms and clinical characteristics of the remaining dentin, as well as the success of the restorative treatments. Materials and methods: PIO question was defined and the search for scientific papers was performed on the following databases: PubMed, Scopus, Web of Science, Lilacs and Open Gray. After excluding duplicates and studies not referring to the PIO question, 19 scientific papers were selected by two independent researchers (MS and CI) by title and abstract and 7 were excluded after complete reading. Results: literature review showed that, in all studies analyzed (n = 12), the selective caries removal technique results in a decrease in the number of viable bacteria and *S. mutans* in the remaining dentin compared to baseline and similar when compared to total removal. For bacteria from the *Lactobacillus* spp group, a reduction was observed in 83% of the analyzed studies (n = 10). Regarding clinical parameters, it was observed in 6 studies that the remaining dentin suffers color and consistency changes after selective caries removal technique and changes from yellowish color and softened consistency to a darker and harder tissue

(67% and 83% of the studies, respectively), suggesting inhibition of the caries lesions progression. Conclusion: Selective caries removal is an effective option for stopping the progression of deep caries lesions. However, the success of the restorative treatment could not be evaluated in this review due to the lack of studies evaluating the longevity of restorative procedures.

KEYWORDS: Selective caries removal; Dental caries.

SUCESSO DO TRATAMENTO E PROGRESSÃO DE LESÕES DE CÁRIE APÓS REMOÇÃO SELETIVA E TRATAMENTO RESTAURADOR: REVISÃO SISTEMÁTICA

RESUMO: Objetivo: realizar uma revisão sistemática da literatura para avaliar se a remoção seletiva de dentina cariada antes de tratamentos restauradores paralisa a progressão das lesões resultando em alterações no número de microrganismos cariogênicos e nas características clínicas da dentina remanescente, bem como o sucesso desses tratamentos restauradores. Materiais e métodos: A pergunta PIO foi definida e a busca de artigos científicos foi realizada nas seguintes bases: PubMed, Scopus, Web of Science, Lilacs e Open Grey. Após exclusão de duplicatas e estudos não referentes à pergunta PIO, 19 artigos científicos foram selecionados por dois pesquisadores independentes (MS e CI) a partir do título e resumo, sendo 7 excluídos após a leitura completa. Resultados: As análises da literatura demonstraram que, em todos os estudos analisados (n=12), o processo de remoção seletiva resulta em diminuição no número de bactérias viáveis e *S. mutans* na dentina remanescente em comparação com o baseline e similar quando comparado a remoção total. Já para o as bactérias do grupo *Lactobacillus* spp, uma redução foi observada em 83% dos estudos analisados (n=10). Em relação aos parâmetros clínicos, foi observado, em 6 estudos, que a dentina remanescente sofre alterações de cor e consistência após a remoção seletiva do tecido cariado, passando de amarelado e amolecido para uma cor mais escura e de consistência mais dura (67% e 83% dos estudos, respectivamente), o que sugere inibição da progressão das lesões de cárie. Conclusão: a remoção seletiva de cárie é uma opção eficaz para paralisação da progressão das lesões de cárie profundas. Entretanto, o sucesso do tratamento restaurador não pôde ser avaliado nessa revisão devido à falta de estudos que avaliam a longevidade dos procedimentos restauradores.

PALAVRAS-CHAVE: Remoção seletiva de cárie; Cárie dental.

INTRODUCTION

Dental caries is a dynamic process that occurs when an imbalance between the teeth mineral and the fluid of the adjacent biofilm happens (Fejerskov and Nyvad, 2003). In its early stages, caries is perceived as an opaque white spot lesion due to the partial dissolution of hydroxyapatite crystals, causing microporosities in dental surface that are filled with water or air, altering the refractive index of light (Thylstrup and Fejerskov, 1995). When it is not treated the progression of the lesion continues

until it reaches deep teeth layers. In its advanced state, the restorative procedure is indispensable to halt caries process and to restore teeth shape and function. However, the complete removal of decayed tissue in deep carious lesions leads to a high risk of pulpal exposure (Leksell et al., 1996), making this procedure a challenge to clinicians.

In order to avoid pulp exposure and maximize the permanence of restored teeth in oral cavity, minimally invasive technique such as selective caries removal has been widely used as a new approach to deep caries lesions management. The selective caries removal technique consists of removing all infected dentin from teeth circundant walls and to leave soft dentine over pulpal wall to preserve pulpal health (Schwendicke et al., 2016). The remaining dentin, although no longer infected, is still contaminated with microorganisms and often presents a yellowish color and a soft consistency, which may lead clinicians to believe that remaining affected dentin would interfere with the success of dental restorations after a long period of time. This concern is partially related to the number of microorganisms left beneath restoration.

Many studies have shown that selective caries removal is effective in reducing dentin cariogenic microorganisms as well as in improving clinical aspects such as color and consistency (Bitello-Firmino et al., 2018, Maltz et al., 2002). However, little is yet understood about this technique, how it affects the clinical parameters of caries and the restorative success after selective removal of caries lesions.

OBJECTIVES

The aims of the present study were to evaluate the caries lesions progression, through bacterial counting and clinical parameters, and success of restorative treatments after selective caries removal technique through a systematic review of literature.

MATERIALS AND METHODS

Defining PIO question

In this study, PIO question format was used as a search strategy and was defined before starting databases search (table 1). The population (P) involved permanent and deciduous teeth with deep caries lesion. The intervention (I) was selective removal of dental caries followed by any type of restoration, whether temporary or definitive. The outcome, or (O) parameter was bacterial load related to dental caries after restoration (e.g.: *S mutans*, *Lactobacillus*). The bacterial load was the parameter chosen to indicate the success or failure of the restorative treatment.

P	Deciduous or permanent teeth with deep caries lesions
I	Selective caries removal technique + restoration
O	Bacterial load related to dental caries

Table 1 – Definition of PIO question and parameters.

Search strategy

A search was conducted by one researcher (MS) in five different databases: PubMed/MEDLINE, Scopus, ISI Web of Science, Lilacs (BBO) and Open Grey. The search terms and conceptual map were defined according to PubMed database for the parameters P, I and O defined in PIO question. After defining and testing the search terms, the search strategy defined for the Medline database (Appendix A) was adjusted to be used in the other four databases: Scopus, Web of Science, Lilacs (BBO) and Open Grey.

RESULTS

Search strategy

After search in all five databases, duplicates were removed using Mendeley software, and two different researchers (MS and CI) analysed the studies according to their title to select those which were according to the PIO question. Disagreements were solved by a third researcher (EB). Nineteen studies were included in the systematic review after first selection. After reading the abstracts from the selected studies, 7 studies were excluded and only 12 left to be used in the present systematic review (fig. 1).

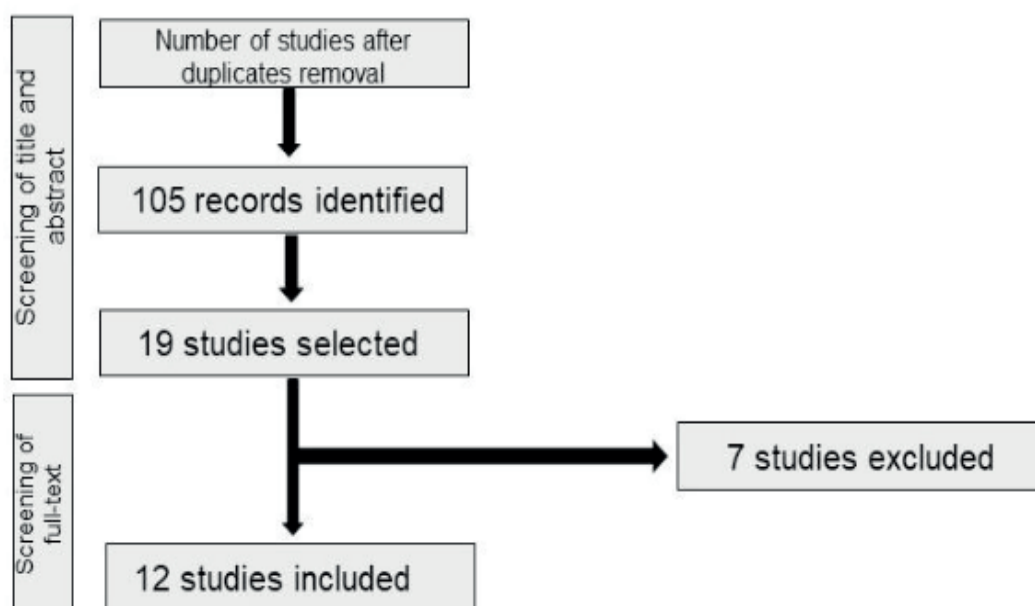


Figure 1: Search flow.

Bacterial load

All the studies included in the present systematic review evaluated bacterial load related to dental caries (table 2). The number of viable bacteria and Streptococcus spp. reduced considerably after selective caries removal and restorative temporary or permanent treatments. A reduced number of bacteria from Lactobacillus spp was observed only in 83% of the studies, approximately after selective caries removal technique, regardless the restorative material used.

Title	n	Bacterial load		Restorative treatment
		Initial bacterial load	Final bacterial load	
Clinical, mineral and ultrastructural changes in carious dentin of primary molars after restoration	45	High amount of different bacteria	Reduction in total viable bacteria	Glass ionomer cement
Partial caries removal in primary teeth: Association of clinical parameters with microbiological status	16	<i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction for <i>Lactobacillus spp</i> and <i>S. mutans</i>	Calcium hydroxide + Composite
Diversity of <i>Lactobacillus</i> species in deep carious lesions of primary molars	70	<i>L. paracasei spp</i> , <i>Paracasei L.</i> , <i>Paracasei spp.</i>	Reduction in total viable bacteria, except for <i>L. paracasei spp</i>	Calcium hydroxide + temporary restoration
Clinical and microbiological performance of resin-modified glass-ionomer liners after incomplete dentine caries removal	9	<i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction for <i>Lactobacillus spp</i> and for <i>S. mutans</i>	Calcium hydroxide or GIC + zinc oxide-eugenol cement
Microbiological analysis after complete or partial removal of carious dentin in primary teeth: A randomized clinical trial	18	<i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction for <i>Lactobacillus spp</i> and <i>S. mutans</i>	Calcium hydroxide + Composite
A clinical and microbiological comparative study of deep carious lesion treatment in deciduous and young permanent molars	47	<i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction of <i>Lactobacillus spp</i> and <i>S. mutans</i>	Calcium hydroxide + temporary restoration
Ultrastructural and Microbiological Analysis of the Dentin Layers Affected by Caries Lesions in Primary Molars Treated by Minimal Intervention	30	Total viable MO, <i>Streptococcus spp</i> , <i>Streptococcus mutans</i> , <i>Lactobacillus spp</i> and <i>Actinomyces spp</i>	Reduction in bacteria	-
A clinical, microbiologic, and radiographic study of deep caries lesions after incomplete caries removal	30	Aerobic and anaerobic MO, <i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction for aerobic and anaerobic MO <i>Lactobacillus spp</i> and <i>S. mutans</i>	Calcium hydroxide + temporary restoration
Microbial Load After Selective and Complete Caries Removal in Permanent Molars: a Randomized Clinical Trial	16	Total viable MO, <i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction in total viable bacteria, <i>S. mutans</i> and <i>Lactobacillus spp</i>	Glass ionomer cement + composite
Conventional caries removal and sealed caries in permanent teeth: a microbiological evaluation	90	Aerobic and anaerobic MO, <i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction in aerobic and anaerobic MO, <i>S. mutans</i> , <i>Lactobacillus spp</i>	Calcium hydroxide + zinc oxide-eugenol cement
Mutans streptococci and lactobacilli in carious dentine before and after Atraumatic Restorative Treatment	40	Viable bacteria, <i>Lactobacillus spp</i> and <i>S. mutans</i>	Reduction of viable bacteria and <i>S. mutans</i>	Glass ionomer cement
A clinical and microbiological study of deep carious lesions during stepwise excavation using long treatment intervals	19	Bacterial load	Reduction of bacterial load	Calcium hydroxide + temporary restoration

Table 2 - Bacterial load before and after selective caries removal and restorative material used.

Clinical parameters

Table 3 shows the results of clinical parameters observed in the studies after

selective removal technique and restorative treatments. The clinical parameters, such as dentin color and consistency were demonstrated in 6 out of 12 studies included in this systematic review. Dentin darkening could be observed in 67% of the studies after caries removal and restorative treatment, whether temporary or permanent. Also, most subjects presented a change in the dentin consistency, which became harder in 83% of the studies.

Title	n	Color		Consistency	
		Initial color	Final color	Initial consistency	Final consistency
<i>Clinical, mineral and ultrastructural changes in carious dentin of primary molars after restoration</i>	45	Light brown	Light brown	Soft	Medium
<i>Partial caries removal in primary teeth: Association of clinical parameters with microbiological status</i>	16	Light brown	Dark brown	Medium	Hard
<i>Clinical and microbiological performance of resin-modified glass-ionomer liners after incomplete dentine caries removal</i>	9	Light brown	Dark brown	Medium	Hard
<i>A clinical and microbiological comparative study of deep carious lesion treatment in deciduous and young permanent molars</i>	47	Light brown and yellow	Light brown and yellow	Soft	Hard
<i>A clinical, microbiologic, and radiographic study of deep caries lesions after incomplete caries removal</i>	30	Light brown	Dark brown	Soft	Hard
<i>A clinical and microbiological study of deep carious lesions during stepwise excavation using long treatment intervals</i>	31	Light brown and yellow	Dark brown and black	Soft	Hard

Table 3 – Clinical parameters of color and consistency after selective caries removal.

DISCUSSION

Systematic reviews of literature are highly used to define clinical managements in dentistry because it is considered a type of study that fill in knowledge from different studies with high scientific evidence and is on the top of the evidence pyramid. The search approaches can be based on PICO question or PIO question format (Akobeng AK, 2004). The PIO question format used in the present study is a common model used to structure research questions in systematic reviews and is considered by the Cochrane handbook for Systematics Reviews a method that ensures that the relevant components of the question are well defined (Akobeng AK, 2004).

In the present study, PICO question was not used to guide the search terms, because the C parameter, or comparison, was not defined at the beginning of the study so that all studies related to selective caries removal could enter in the search and not only those that compared the selective caries removal with total caries removal technique, for example. Thus, in this literature review we could analyse different studies regarding the bacterial load and clinical parameters of selective caries removal in different stages and when compared with total caries removal.

We found that a reduction in bacterial load could be observed after selective caries removal technique and restorations, regardless the type of restoration, whether temporary or definitive. However, it could also be observed in some studies the presence of viable bacteria beneath restorations a few months after sealing (Maltz et al., 2012, Bönecker et al., 2003).

These findings can be explained by the fact that during dental caries process, the cariogenic microbiota is exposed in the oral environment to saliva components and to carbohydrates from the host diet which help bacteria growth. After cavity sealing, the remaining bacteria suffers from starvation and only few of them, which are able to adapt to that environment, can survive (Paddick et al., 2005). Bacteria adaptation consists in surviving in an environment with nutritional stress and with a different pH. In this scenario, only bacteria that can produce certain types of enzymes and are able to use as nutritional source the bacteria that did not survive environment change will survive (Paddick et al., 2005).

A meta-analysis could not be performed in the present study. This occurred because most part of the studies included in the present systematic review compared only the parameters under study (number of microorganisms, color and consistency) at baseline and after selective caries removal and did not compare with the conventional caries removal technique. Only 2 of the included studies compared these parameters between conventional caries removal and selective caries removal technique (Maltz et al., 2012, Bitello-Firmino et al., 2018). However the data provided did not fit the meta-analysis criteria and the authors from one study were not able to provide further required information (Bitello-Firmino et al., 2018).

The clinical parameters observed in the present literature review show that after selective caries removal color and consistency of affected dentin improved, suggesting the paralysation of dental caries process. In most part of studies, a color change from a yellowish appearance to dark brown appearance could be observed in the affected dentin after cavity sealing. Also, the consistency of the infected dentin improved from soft or medium hard to a hard tissue. These findings are related to the fact that infected dentin is able to remineralize after a period of time (Fusayama T, 1979), leading to these clinical parameters. The ability to remineralize is due to the presence of collagen and non-collagen proteins that are present in affected dentin (e.g.: DMP1 and DMP2). The collagen proteins are regulators for intrafibrillar remineralization through nucleation and mineral growth process. The non-collagen proteins are known to control biomineralization

in in vivo dentin (Cao et al., 2015). A harder dentin is clinically desirable as it is more resistant to mechanical forces and can delay bacterial accumulation and penetration, consequently, inhibiting caries progress (ten Cate JM, 2001). Regarding color, although the studies included in this review indicate that a darkening of the dentin is desirable and expected after selective caries removal and restoration, color alteration might not be a guidance for caries removal. This fact is supported by evidence in literature reporting lack of correlation between color of dentin and caries activity (Kidd EA, 2004, Schwendicke et al., 2016).

Regardless the success of the restorative treatments, although few studies have reported in literature a follow up of restorative treatments after selective caries removal technique (Singhal et al., 2016, Stafuzza et al., 2018), it is not well establish if restorative treatments can remain successfully in oral environment due to the lack of studies evaluating this parameter. Mertz-fairhust et al., evaluated ultraconservative treatment of sealed restorations for 10 years. However, this study was not included in the present review because of the lost that occurred during the follow up period (Mertz-Fairhurst et al., 1998).

CONCLUSIONS

These findings suggest that:

- Selective caries removal technique is an efficient technique considering that the clinical parameters (dentin color and consistence) improved and the bacterial load was reduced in most part of the studies, suggesting that the dental caries process was paralysed;
- Regarding to the success of restorative treatment after the selective caries removal, studies with more years of follow up are missing in literature and more studies randomized clinical trials need to be conducted.

AUTHORS' CONTRIBUTION

This study was conducted during “Scientific Methodology” discipline, promoted by the Graduate Program in Operative Dentistry from the Institute of Science and Technology – UNESP. The role of each author was as follows: M.S.S, E.B, M.C.V and R.M design the study; M.S.S, E.B, C.M.I, G.S.L performed the study; M.S.S, E.B analysed the data; M.S.S, E.B wrote the paper; M.S.S, E.B revised the paper.

REFERENCES

Akobeng AK. Principles of evidence based medicine. Arch Dis Child, 2004.

Bitello-Firmino L, Soares VK, Damé-Teixeira N, Parolo CCF, Maltz M. Microbial Load After Selective and Complete Caries Removal in Permanent Molars: a Randomized Clinical Trial. Braz Dent J. 2018 May-Jun;29(3):290-295.

Bjørndal L, Larsen T, Thylstrup A. A clinical and microbiological study of deep carious lesions during

stepwise excavation using long treatment intervals. *Caries Res.* 1997;31(6):411-7.

Bönecker M, Toi C, Cleaton-Jones P. Mutans streptococci and lactobacilli in carious dentine before and after Atraumatic Restorative Treatment. *J Dent.* 2003 Aug;31(6):423-8.

Cao CY, Mei ML, Li QL, Lo ECM, and Chu CH. Methods for biomimetic remineralization of human dentine: a systematic review. *Int. J. Mol. Sci.* 2015. 16 4615 – 27.

Chibinski AC, Wambier L, Reis A, Wambier DS. Clinical, mineral and ultrastructural changes in carious dentin of primary molars after restoration. *Int Dent J.* 2016 Jun;66(3):150-7.

Duque C, Negrini Tde C, Sacono NT, Spolidorio DM, de Souza Costa CA, Hebling J. Clinical and microbiological performance of resin-modified glass-ionomer liners after incomplete dentine caries removal. *Clin Oral Investig.* 2009 Dec;13(4):465-71.

Fejerskov O, Nyvad B. Is dental caries an infectious disease? Diagnostic and treatment consequences for the practitioner. In: Schou L, editor. *Nordic Dentistry 2003 Yearbook*. Copenhagen: Quintessence Publishing, 2003. p. 141 – 52.

Fusayama T, "Two layers of carious dentin; diagnosis and treatment," *Operative Dentistry*, vol. 4, no. 2, pp. 63–70, 1979.

Kidd EA. How 'clean' must a cavity be before restoration? *Caries Res.* 2004 May-Jun;38(3):305-13. Review.

Kneist S, Schmidt F, Callaway A, Willershausen B, Rupf S, Wicht M, Thiede B. Diversity of *Lactobacillus* species in deep carious lesions of primary molars. *Eur Arch Paediatr Dent.* 2010 Aug;11(4):181-6. Erratum in: *Eur Arch Paediatr Dent.* 2010 Oct;11(5):262. PubMed PMID: 20840828.

Leksell E, Ridell K, Cvek ME, Mèjare I. Pulp exposure after stepwise versus direct complete excavation of deep carious lesions in young posterior permanent teeth. *Endodontics and Dental Traumatology* 1996;12:192–6.

Lula EC, Monteiro-Neto V, Alves CM, Ribeiro CC. Microbiological analysis after complete or partial removal of carious dentin in primary teeth: a randomized clinical trial. *Caries Res.* 2009;43(5):354-8.

Lula EC, Almeida LJ Jr, Alves CM, Monteiro-Neto V, Ribeiro CC. Partial caries removal in primary teeth: association of clinical parameters with microbiological status. *Caries Res.* 2011;45(3):275-80.

Maltz M, de Oliveira EF, Fontanella V, Bianchi R. A clinical, microbiologic, and radiographic study of deep caries lesions after incomplete caries removal. *Quintessence Int.* 2002 Feb;33(2):151-9.

Maltz M, Henz SL, de Oliveira EF, Jardim JJ. Conventional caries removal and sealed caries in permanent teeth: a microbiological evaluation. *J Dent.* 2012 Sep;40(9):776-82.

Mertz-Fairhurst EJ, Curtis JW Jr, Ergle JW, Rueggeberg FA, Adair SM. Ultraconservative and cariostatic sealed restorations: results at year 10. *J Am Dent Assoc.* 1998 Jan;129(1):55-66.

Orhan AI, Oz FT, Ozcelik B, Orhan K. A clinical and microbiological comparative study of deep carious lesion treatment in deciduous and young permanent molars. *Clin Oral Investig.* 2008 Dec;12(4):369-78.

Paddick JS, Brailsford SR, Kidd EA, Beighton D. Phenotypic and genotypic selection of microbiota surviving under dental restorations. *Appl Environ Microbiol* 2005;71:2467-2472.

Schwendicke F, Frencken JE, Bjørndal L, Maltz M, Manton DJ, Ricketts D, Van Landuyt K, Banerjee A,

Campus G, Doméjean S, Fontana M, Leal S, Lo E, Machiulskiene V, Schulte A, Splieth C, Zandona AF, Innes NP. Managing Carious Lesions: Consensus Recommendations on Carious Tissue Removal. *Adv Dent Res*. 2016 May;28(2):58-67.

Singhal DK, Acharya S, Thakur AS. Microbiological analysis after complete or partial removal of carious dentin using two different techniques in primary teeth: A randomized clinical trial. *Dent Res J (Isfahan)*. 2016;13(1):30–37.

Stafuzza TC, Vitor LLR, Rios D, Silva TC, Machado MAAM, Oliveira TM. Clinical and Radiographic Success of Selective Caries Removal to Firm Dentin in Primary Teeth: 18-Month Follow-Up. *Case Reports in Dentistry*, 2018.

ten Cate JM. Remineralization of caries lesions extending into dentin. *J Dent Res*, 2001 80:1407-1411.

Thylstrup A, Fejerskov O. Características clínicas e patológicas da cárie dentária. In: Thylstrup A, Fejerskov O. *Cariologia clínica*. 2. ed. São Paulo: Santos, 1995. p.111-57.

Wambier DS, dos Santos FA, Guedes-Pinto AC, Jaeger RG, Simionato MR. Ultrastructural and microbiological analysis of the dentin layers affected by caries lesions in primary molars treated by minimal intervention. *Pediatr Dent*.2007 May-Jun;29(3):228-34.

ÍNDICE REMISSIVO

A

Ácido Fluorídrico 73, 74, 75, 76, 78, 79
Adesivos dentinários 1
AFM 73, 74, 75, 76
Antioxidantes 30, 32, 45, 46

B

Biomateriais 12, 17, 139, 140, 149, 181, 259

C

Candida 82, 84, 91, 92, 93, 105, 106, 107, 108, 109, 110, 111, 113, 114, 223
Cândida albicans 81, 82, 84, 85, 87, 89, 91
Cárie dental 64
Cell culture 171, 172, 173, 175, 177, 178, 180
Cerâmicas 73, 74
Cimento resinoso 4, 5, 13, 73, 74, 75
Clareamento dental 30, 31, 34
Colágeno 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 144, 149, 185
Cryotherapy 156, 157, 158, 159, 160, 162, 163, 164, 165, 166, 167
Cytotoxicity 171, 172, 173, 174, 176, 179, 181

D

Dentifrícios 30, 31, 33, 43
Dentina 1, 2, 3, 7, 8, 9, 12, 13, 17, 19, 20, 22, 23, 26, 27, 28, 31, 32, 45, 47, 52, 53, 54, 56, 57, 58, 60, 61, 64

E

Enxerto Heterógeno 139
Esmalte dentário 30
Esquema oclusal 94, 95, 96, 97, 98, 100, 101, 102, 103

G

Genotoxic 171, 176, 177, 181
Grupos Etários 53
Grupos Étnicos 53, 61

H

Higienização 84, 89, 105, 106, 107, 108, 109, 110, 112, 113

I

Induced hyperthermia 156

Induced hypothermia 156
In Vitro Techniques 171, 173

M

Micro-infiltração 17, 18, 19, 20, 21, 22, 25, 26, 27, 28

O

Oclusão dentária 95

P

Padrão oclusal 95, 97, 98, 101

Pino de fibra de vidro 5, 13

Prótese Dentária 83, 84, 91, 93, 106, 107, 113, 213, 267

Prótese parcial removível 94, 95, 96, 100, 103

R

Remoção seletiva de cárie 64

Resina Bulk Fill 18

Resina reembasadora 81, 82, 91

Resinas compostas 1, 19, 25, 26, 27, 32

Resistência à tração 30, 41, 55, 93

S

Seio Maxilar 138, 139, 142, 143, 149, 152, 153, 154, 225, 226

Solução Salina 82, 87, 91, 186

Substitutos Ósseos 139, 142, 149

T

Thermotherapy 156, 166

Third molars 156, 157, 158

Tooth extraction 156

Tratamento ácido 18

U

União dentinária 13

X

Xenoenxerto 139

Y

Y-TZP 73, 74, 75, 76, 77, 79, 80

 **Atena**
Editora

2 0 2 0