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Removal of smear layer by various root canal irrigations in primary teeth [Recurso electrónico] / Yuki Toyota... [et al.]

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'.

Referencias: p.12-13: 17 refs.

Abstract: Purpose: Proper root canal irrigation is essential for endodontic treatment. To evaluate the effectiveness of several root irrigation regimens, the extent of the removal of smear layer from the root canal in primary teeth was analyzed. Methods: Fifteen extracted human primary teeth were divided into five groups and subjected to the following irrigation regimes: Group 1, needle irrigation with saline; Group 2, needle irrigation with 5% sodium hypochlorite (NaOCl); Group 3, ultrasonic irrigation with 5% NaOCl; Group 4, needle irrigation with 14% ethylene diamine tetraacetic acid (EDTA); Group 5, ultrasonic irrigation with 14% EDTA. The percentage of open dentinal tubules (POD) in the irrigated root canal was analyzed using a scanning electron microscope. Results: POD for Groups 4 and 5 were significantly higher than Groups 1, 2, and 3 ($p < 0.01$, respectively). POD for Group 3 was significantly higher than Groups 1 and 2 ($p < 0.01$, respectively). By contrast, in Groups 4 and 5, erosive effects such as enlargement of orifices of dental tubules were observed. In Group 3, the smear layer was removed without erosion. **Conclusión:** These results suggest that root canal irrigation with NaOCl using an ultrasonic effectively removed smear layer from the root canal in primary teeth.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 8-13

1. Primary teeth 2. Smear layer 3. Ultrasonic irrigation 4. NaOCl

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Validity and reliability of Child Perception Questionnaire (CPQ11-14) by Rasch Analysis in Turkish children [Recurso electrónico] / Nural Bekiroglu... [et al.]

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'.

Referencias: p.19-20: 25 refs.

Abstract: Assessment for the reproducibility of the answers to the Child Perception Questionnaire (CPQ11-14) in different languages with test-retest exercises have importance in other populations. The present study is to evaluate the validity and reliability of Child Perception Questionnaire for ages 11-14 (CPQ11-14) with 37 items by means of Rasch Analysis in a group of Turkish population. 133 children aged 11-14 years old were included to the study. CPQ11-14 was administered at their first visit, as well as Facial Image Scale questions. After two weeks, CPQ11-14 was re-applied to a subgroup ($n = 25$) of the children. The construct validity of the CPQ11-14 data was assessed by using Rasch Analysis. Intra-class Correlation Coefficient was calculated with the CPQ11-14 scores of first and second visits. Cronbach's α coefficient was obtained for evaluating internal consistency. According to Rasch Analysis, mean item infit \pm sd was 0.98 ± 0.25 ; mean item outfit \pm sd was 1.08 ± 0.91 . Item and person separation indices and reliabilities were calculated as 3.34 and 2.42; 0.92 and 0.85, respectively. The Pearson's correlation coefficient between the total scores of CPQ11-14 and the Facial Image Scale was found as 0.74 ($p < 0.001$). Cronbach's α coefficient was 0.93 and ICC was 0.90 for the total scale. The findings of the present study showed that the Turkish version of CPQ11-14 with 37 items is valid and has excellent reliability.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 14-20

1. Child Perception Questionnaire (CPQ) 2. Oral Health Related Quality of Life (OHRQoL) 3. Validity 4. Reliability 5. Caries

3**Prenatal vitamin D and enamel hypoplasia in human primary maxillary central incisors [Recurso electrónico]: a pilot study / Susan G. Reed... [et al.]**

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'.

Referencias: p.26-28: 44 refs.

Abstract: Background: Enamel hypoplasia (EH) increases risk for dental caries and also is associated with vitamin D deficiencies. This pilot study evaluates the feasibility to determine the association of human maternal circulating vitamin D concentrations during pregnancy and EH in infant's teeth that develop in utero. Methods: A pilot population of 37 children whose mothers participated in a RCT of vitamin D supplementation during pregnancy was evaluated. Major outcome was EH and major exposure was maternal monthly serum circulating 25(OH) D concentrations during pregnancy. EH was assessed using the Enamel Defect Index and digital images made by a ProScope High Resolution handheld digital USB microscope at 50× magnification. Results: During initial 8 weeks of study, 29/37 children had evaluable data with mean age of 3.6 ± 0.9 years; 48% male; and 45% White, 31% Hispanic, and 24% Black. EH was identified in 13 (45%) of the children. Maternal mean 25(OH) D concentrations were generally lower for those children with EH. Conclusions: Preliminary results suggest follow-up of children of mothers in a vitamin D supplementation RCT during pregnancy provides an important approach to study the etiology of EH in the primary teeth. Further study is needed to discern thresholds and timing of maternal serum 25(OH) D concentrations during pregnancy associated with absence of EH in teeth that develop in utero. Potential dental public health implications for prevention of early childhood caries via sound tooth structure as related to maternal vitamin D sufficiency during pregnancy need to be determined.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 21-28

1. Vitamin D 2. Vitamin D deficiency 3. Enamel hypoplasia 4. Tooth 5. Deciduous 6. Pregnancy

4**In vitro effects of mechanical stimulation and photobiomodulation on osteoblastic cell function [Recurso electrónico]: a proof of concept study / Rochaya Chintavalakorn... [et al.]**

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'.

Referencias: p.40-41: 47 refs.

Abstract: Background: The effect of mechanical stimulation and photobiomodulation on tissue defect restoration has recently been investigated in various fields of tissue engineering such as acceleration of healing process and bone calcification. Mechanical stimulation generates shear stress on bone cells resulting in promotion of bone formation whereas photobiomodulation regulates inflammation, decreases pain, accelerates cell proliferation and enhances healing. Methods: MC3T3-E1 cells were cultured in 3 dimensional collagen scaffolds. Cells were daily stimulated by either mechanical loading of 3 Hz sinusoidal with 3000 µstrain vibration, or photobiomodulation using LED with 3 J/cm² fluency or combination of both. The calcifications of 3D tissue-engineered bones were examined by non-destructive monitoring device every day for 42 days. Results: The 3D tissue-engineered bones that exposed to mechanical alone or combined stimulation exhibited early calcification, higher calcium content and bulk density comparing to control and light stimulation alone. Furthermore, the mRNA expression level of bone formation related genes such as RUNX2, ALP, osteopontin and osteocalcin were examined 7 days after stimulations. We showed the potential upregulation of ALP gene after mechanical stimulation alone or combined with light treatment. On day 28 Von Kossa stain revealed higher calcium deposition and increased cell migration to the deeper zone of 3D tissue-engineered bones. Conclusion: We suggested that the mechanical treatment alone and combination with light treatment could accelerate the calcification of 3D tissue-engineered bone possibly through up-regulation of ALP gene during early stage of bone formation.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 29-4

1. MC3T3-E1 2. Mechanical stimulation 3. Photobiomodulation 4. Bulk density 5. Calcium content

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Warmed acidulated phosphate fluoride enhances release of fluoride from human enamel surfaces, promoting lesion remineralization in vitro and in situ [Recurso electrónico] / Hayato Ujiie, Syozi Nakashima y Mitsuro Tanaka

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'

Bibliografía: p.48: 34 refs.

Abstract: Background: The calcium fluoride-like material deposited on the enamel surface is important as a fluoride reservoir. Elevated temperatures significantly increase the acquisition of KOH-soluble fluoride on sound tooth surfaces in vitro. Methods: We investigated the efficacy of warmed APF solution on remineralization of subsurface enamel lesions, both in vitro and in situ. Hardness recovery was measured every week for 4 weeks to assess remineralization efficacy, and the behavior of fluoride release from sound and demineralized enamel with APF solution applied at 25 °C and 50°C was compared. Results: Application of APF to enamel at 50 °C showed a significantly greater degree of F release up to 18 h than the 25 °C group in sound specimens and up to 48 h in demineralized specimens. Moreover, longer-lasting and greater amounts of F release were observed in demineralized specimens versus sound specimens. The profiles of changes in hardness over time in vitro and in situ showed that the hardness was significantly greater in the 50 °C group than in the 25 °C and control groups at all measurement points and the mean value of the hardness recovery in the 25 °C and 50 °C groups was observed by 2 weeks, although a significant increase was only noted from baseline to 1 week in the 25 °C group. Overall, the recovery of hardness was inadequate, compared to the original enamel. Conclusion: In conclusion, application of the warmed APF solution to the demineralized enamel lesion showed potential to increase the fluoride release and enhance the rate of remineralization than that at 25 °C.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 42-48

1. Topical fluoride 2. Remineralization 3. Subsurface lesion 4. Acidified phosphate fluoride (APF)
5. Temperature

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Maternal occlusal disharmony during pregnancy induces spatial memory deficits associated with the suppression of hippocampal neurogenesis in adult mouse offspring [Recurso electrónico] / Hiroko Kondo... [et al.]

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'.

Referencias: p.54-55: 51 refs.

Abstract: Background and objective: Maternal stress during pregnancy is an important factor affecting fetal brain development and leading to behavioral disorders such as spatial learning deficits and inhibition of hippocampal neurogenesis in the offspring. Occlusal disharmony induces cognitive deficits by suppressing hippocampal neurogenesis via increased plasma corticosterone levels. The present study aimed to explore the effects of maternal occlusal disharmony during pregnancy on hippocampal morphology and function in the adult mouse offspring. Design: Occlusal disharmony was induced in pregnant mice during the last week of gestation. Male offspring were raised until 4 months old, and then the Morris water maze was performed as a spatial memory test. Newborn cell proliferation in the hippocampal dentate gyrus was analyzed using 5-bromodeoxyuridine (BrdU) immunohistochemical method in separate groups of mice. Results: Plasma corticosterone concentrations were significantly higher in dam with occlusal disharmony. In the adult offspring, maternal occlusal disharmony not only induced learning deficits, but also suppressed cell proliferation in the hippocampal dentate gyrus compared with control mice. Conclusion: These findings suggest that maternal occlusal disharmony during pregnancy increases plasma corticosterone concentrations in the dam, which leads to learning deficits and suppression of hippocampal cell proliferation in the offspring. Occlusal disharmony in the dam may be a risk factor for cognitive impairment in the offspring.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 49-55

1. Prenatal stress 2. Occlusal disharmony 3. Learning ability 4. Hippocampus 5. Cell proliferation

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Effect of fluoride-releasing fissure sealants on enamel demineralization [Recurso electrónico] / Koichi Nakamura... [et al.]

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'.

Referencias: p.63-64: 29 refs.

Abstract: Objective: The purpose of this study was to investigate the effect of three types of fissure sealant (resin-based fissure sealant, resin-based fissure sealant containing S-PRG filler, and resin-modified glass ionomer cement (RMGIC)-based fissure sealant) on the surrounding enamel. Materials and methods: Human deciduous molars were filled with fissure sealants and cut into 200 sections. Using an automatic pH-cycling system, the specimens were repeatedly demineralized and remineralized for 5 weeks. After automatic pH-cycling, integrated mineral loss of the enamel around the fissure sealant was calculated. Twelve blocks of each fissure sealant were exposed to 10 mL of distilled deionized water at pH 6.3. Fluoride ion release, strontium ion release, and pH changes of the water were measured every week for 5 weeks. Results: The BeautiSealant and FujiIII LC sealant groups had a significantly lower mean integrated mineral loss at 5 weeks than the control group. The rate of fluoride and strontium ion release was significantly greater for the FujiIII LC sealant group than that for the Teethmate F-1 2.0 and BeautiSealant groups. Conclusion: Fissure sealants that released a lot of fluoride and strontium ions showed decreased enamel demineralization.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 56-64

1. Fissure sealant 2. Automatic pH-cycling system 3. Demineralization

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Synergetic remineralization effectiveness of calcium, phosphate and fluoride based systems in primary teeth [Recurso electrónico] / Abba Arafat

Este artículo se encuentra disponible en su edición electrónica. Su acceso electrónico es a través del enlace de 'Acceso al documento'.

Referencias: p.70-71: 42 refs.

Abstract: Objective: To assess remineralization of primary teeth enamel under the presence of fluoride, calcium and phosphorous ions using microhardness and surface roughness testing. Design: Artificial caries lesions were created in enamel surface of 144 human primary molars. Specimens were randomly assigned according to remineralizing agent into six groups: 1) Artificial saliva, 2) Fluoride varnish, 3) Clinprowhite varnish, 4) Relief, 5) Tooth Mousse Plus, 6) VanishXTM. Surface micro-hardness and surface roughness were evaluated at baseline, after demineralization, after 2 and 4 weeks remineralization and after exposure to acid challenge. Results: All test groups showed superior results to the control. The surface micro-hardness of Clinpro group by 4 weeks remineralization showed statistically the highest value with the least softening as exposed to acid challenge. Concomitantly, by 4 weeks remineralization, Clinpro agent was able to regain enamel surface roughness incomparable to that of baseline value statistically the least of test groups. Conclusion: Calcium-phosphate and fluoride remineralizing systems possess added remineralization potency in comparison to artificial saliva. Clinpro varnish showed the greatest remineralizing action and the least softening by acid challenge.

Pediatric Dental Journal. -- 2017(April), v. 27, n. 1, p. 65-71

1. Enamel remineralization 2. Primary teeth 3. Calcium-phosphate 4. Fluoride