Warm Greetings

Sharad Pawar Dental College,Wardha
Constituent of DMIMS(DU)
Accredited NAAC A+

DR. SUDHINDRA BALIGA

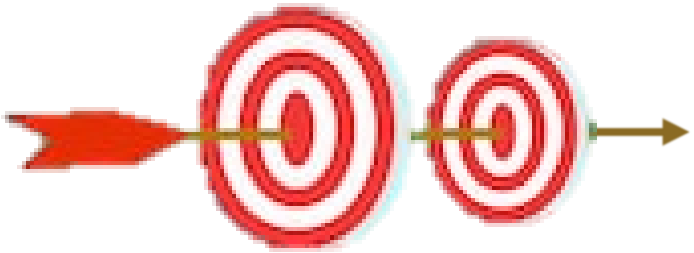
MDS, MFDS RCPS (GLASGOW), Ph.D

- Professor Sudhindra Baliga is currently working as the **Dean and Professor** in the Department of Pedodontics at Sharad Pawar Dental College.
- He graduated from A. B. Shetty Memorial Institute of Dental Sciences, Mangalore in 1999 and went on to complete his Masters in Pedodontics from Yenepoya Dental College; Mangalore in 2002.
- He began his career in Pedodontics in prestigious Manipal College of dental sciences, Manipal.
- He has completed his **PhD** in the field of Pedodontics, the focus of his research being sickle cell anaemia in tribal children.
- He is a **Member of the prestigious Royal College of Physicians and Surgeons of Glasgow**.
- He has completed his **Fellowship in Dental Education and Fellowship in Pediatric orthodontics**.
- To add to his accolades, he also holds the office of the Journal of Indian Society of Pedodontics, a pubmed indexed journal, as **the Editor-In Chief**.
- To date, he has **published over 75 peer reviewed** scientific papers and research abstracts in the scientific dental literature.
- He has **delivered guest lectures** in several national and international conferences and contributed as an author in speciality text books.
- His clinical interests are **Phytodentistry and Minimal Intervention Dentistry**

GOOD AFTERNOON!!

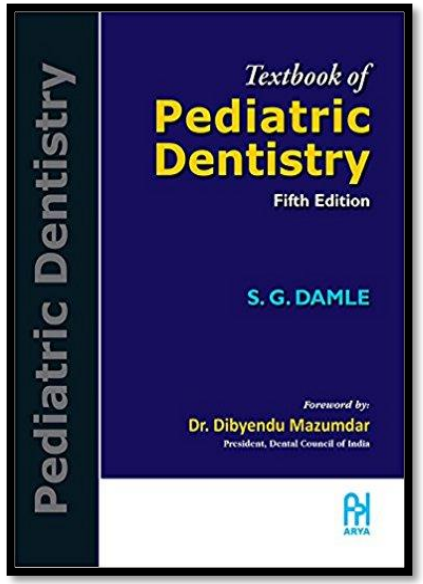
AN UPDATE ON AESTHETIC CROWNS

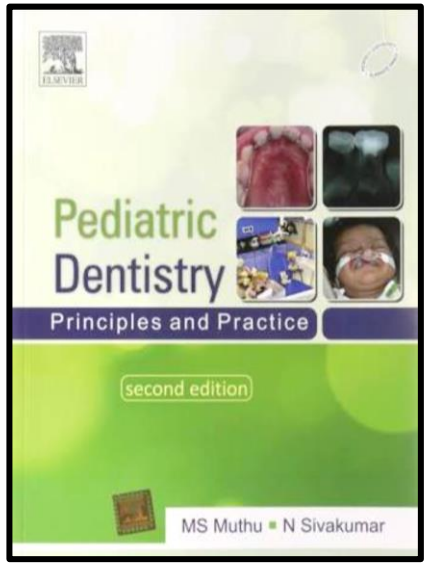
LEARNING

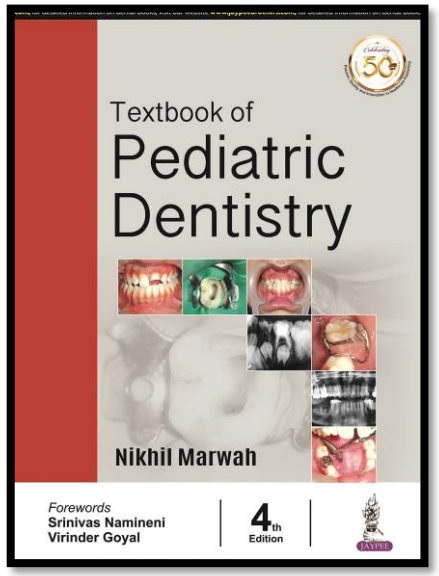


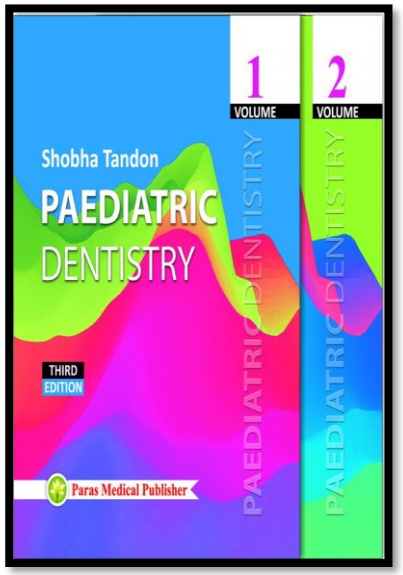
SUCCESS

BASIC BOOKS - INDIAN AUTHORS



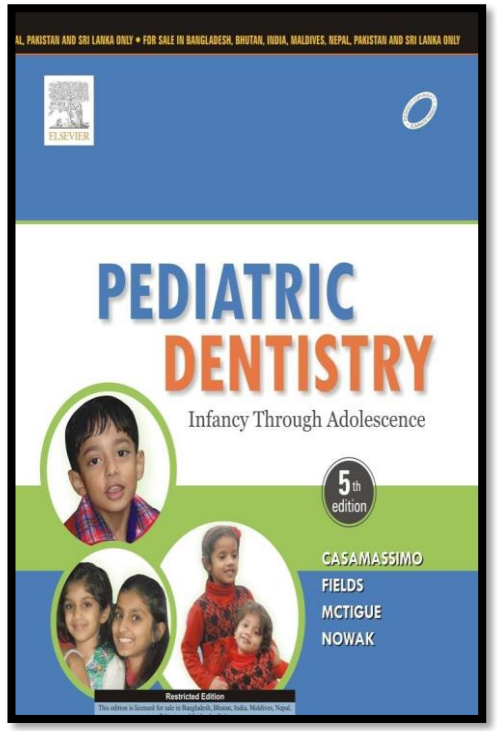


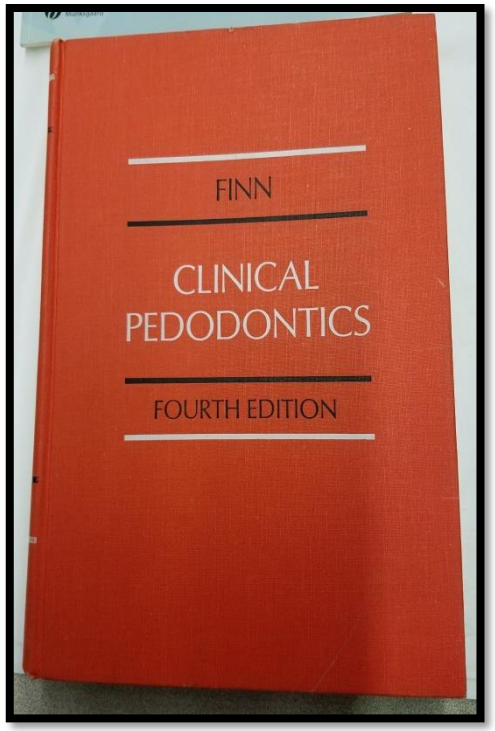


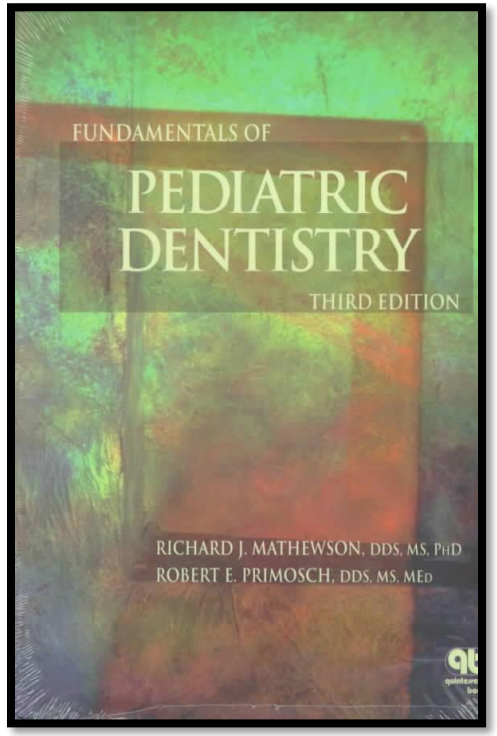


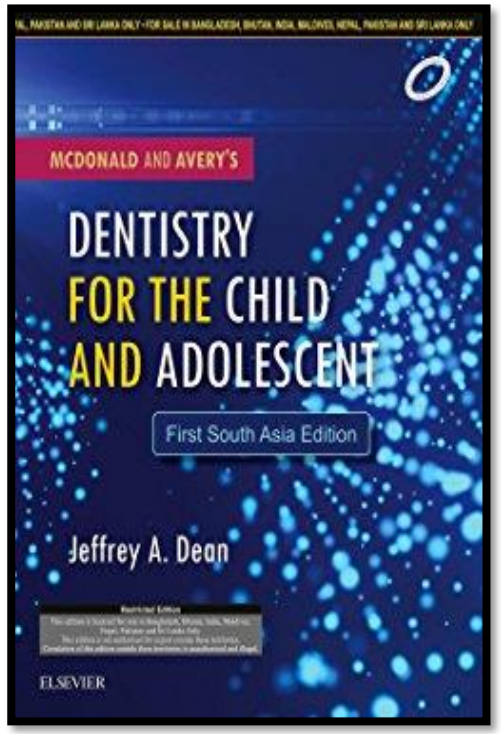
INDIAN SOCIETY OF PEDODONTICS AND PREVENTIVE DENTISTRY

BASIC BOOKS - INTERNATIONAL AUTHORS

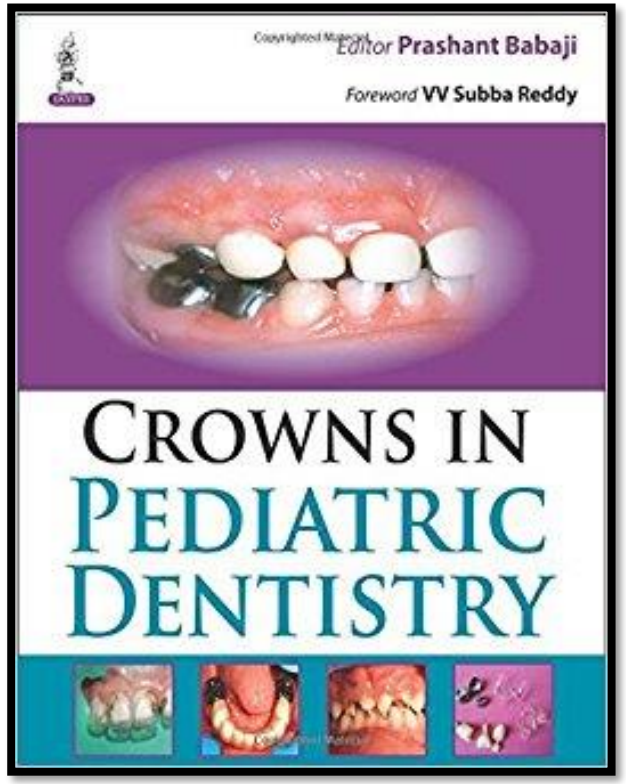


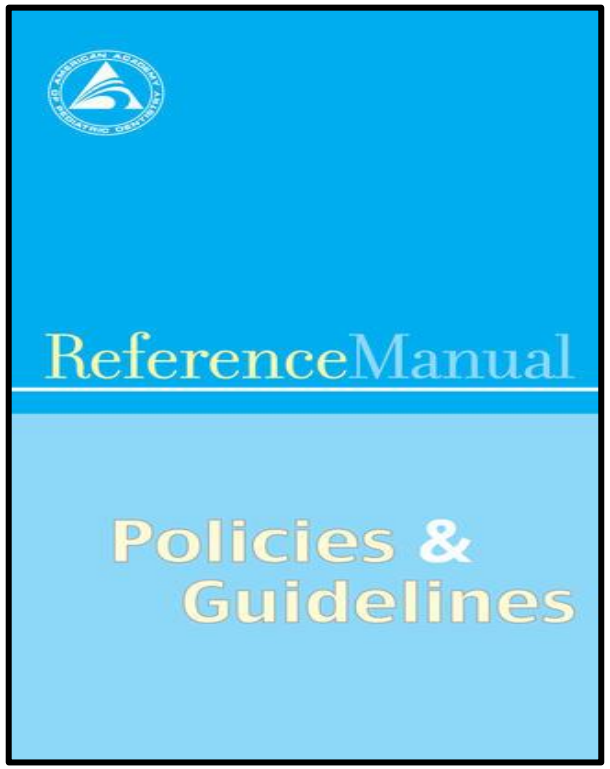






REFERENCE BOOK & JOURNALS





INDIAN SOCIETY OF PEDODONTICS AND PREVENTIVE DENTISTRY

OBJECTIVES

Restoring Esthetics

Complete Coverage of Teeth

Preventing Psychological Trauma

Maintaining Occlusion

Restoring Speech & Mastication

CLASSIFICATION

Based On Materials

- **Polycarbonate Crowns**

- **Strip Crowns**

- **Preveneered Stainless Steel Crown**

- **Aluminium Veneered With Tooth Coloured Material**

- **Zirconia Crowns**

Polycarbonate crowns

- Heat-molded acrylic resin
- High impact strength and rigidity
- Permits crown adjustment
- 3M ESPE

Strip crowns

- Cellulose templates
- Trimmed and filled with composite
- 3M ESPE, kemdent

Preveneered SSC

- Composite resins and thermoplastics bonded to the metal
- NuSmile Signature

Aluminium veneered with tooth coloured material

- Aluminium crowns coated with epoxy resin
- Pedo Pearls

Zirconia crowns

- Made of high grade monolith Zr ceramic
- NuSmile Zr, Kinder Zr, EZ-Pedo, Kids-e-crown, Signature Crown

Review article

Annals and Essences of Dentistry

ESTHETIC CROWNS FOR PRIMARY TEETH: A REVIEW

*** Suzan Sahana, ** Aron Arun Kumar Vasa, *** Ravichandra Sekhar**

* Sr. Lecturer
** Sr. Lecturer
*** Professor and Head

Department of Pedodontics & Preventive Dentistry, St. Joseph Dental College, Eluru. India

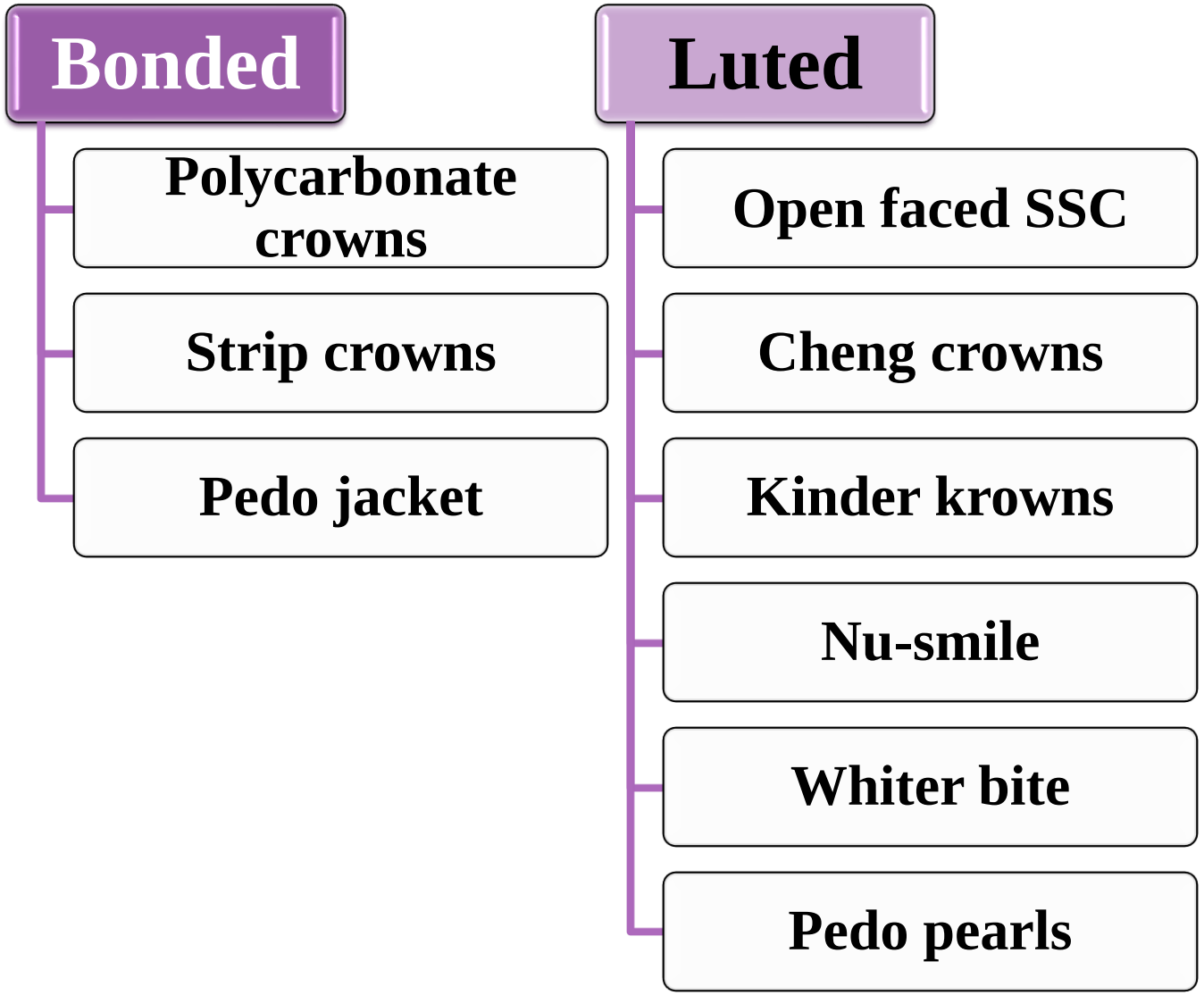
REVIEW ARTICLE

www.ijcmr.com

Esthetic Crowns In Pediatric Dentistry: A review

Gaurav Kumar Mittal[1], Aviral Verma[1], Hansika Pahuja[2], Shashank Agarwal[3], Himani Tomar[3]

ACCORDING TO SAHANA ET AL (2010)



GENERAL INDICATIONS

Multisurface caries

Incisal edge is involved

Fractured teeth

Pulpal therapy is indicated

Discoloured anterior teeth

SPECIFIC INDICATIONS

Criteria	Strip Crown/ Polycarbonate	Preveneered SSC	Aluminium Veneered Crowns	Zirconia Crowns
Adequate tooth structure remaining	✓	✓	✓	✓
Haemorrhage is difficult to control	Moisture Control as resin is involved	✓	Moisture control as resin is used for cementation	✓
Uncooperative child	Isolation issues	Time Consuming	✓ Single Fit	Time Consuming
Child prone to trauma	Less strength	Chipping of Veneer	Soft crown	✓

CONTRAINDICATIONS

Criteria	Strip Crown	Polycarbonate	Preveneered SSC / Aluminium Veneered Crowns	Zirconia Crowns
Crowding of anterior		✗	✗	✗
Gingival inflammation present	✗	✗		
Severe bruxism	✗	✗		✗

STEPS TO BE FOLLOWED…

Crown Selection

Preparation

Crown Fitting

Cementation And Finishing

ARMAMENTARIUM

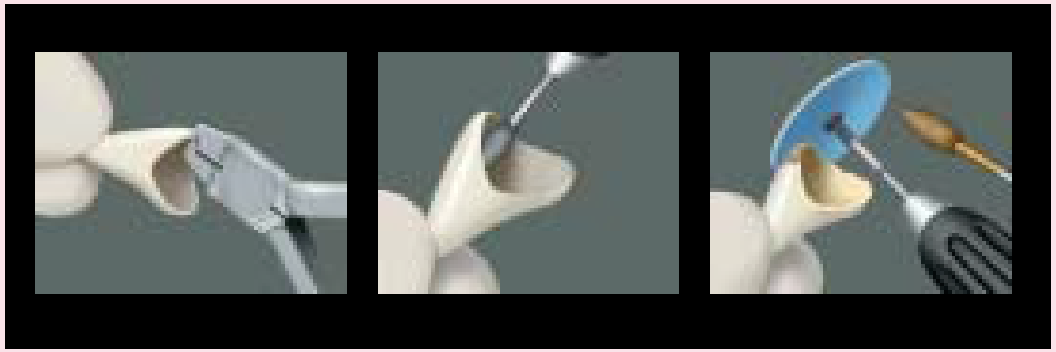
POLYCARBONATE CROWNS

STRIP CROWNS

- **Explorer, Dental floss, Rubber dam kit**
- **Burs – Tapered fissure, Inverted cone shaped**

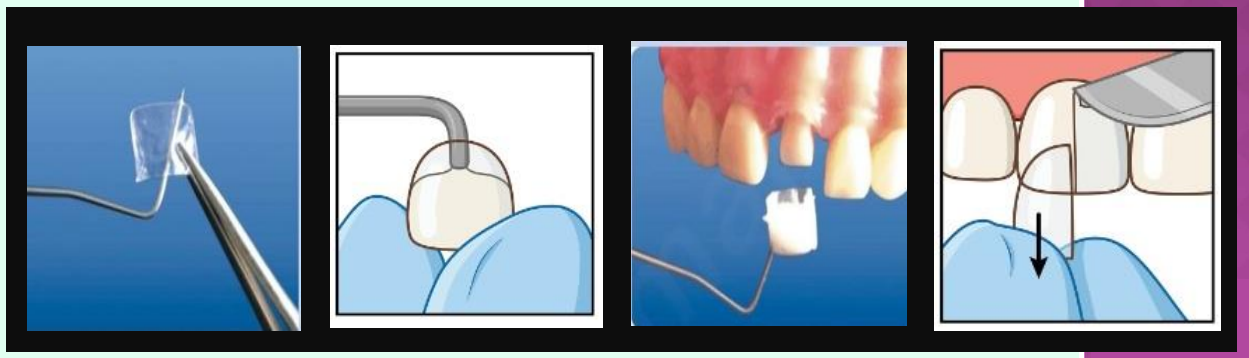
SPECIFIC:

- **Trimming bur or stone**
- **Crimping plier**



SPECIFIC:

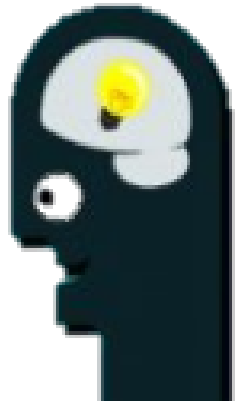
- **Curved scissor**
- **Composite kit**



Solutions to problems encountered during strip crown placement

Tearing the celluloid crown form when trimming.

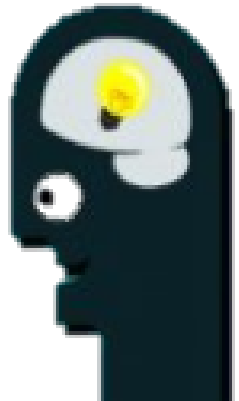
Keep scissors exclusively for strip crown preparation.



Solutions to problems encountered during strip crown placement

Difficulty in stripping off crown form.

Remove excess composite from gingival margin before cutting.



According to literature…

Scientific Article AAPD 2005

Long-term Photographic and Radiographic Assessment of Bonded Resin Composite Strip Crowns for Primary Incisors: Results After 3 Years

Ari Kupietzky, DMD, MSc[1] William F. Waggoner, DDS, MS[2] Jon Galea, DDS[3]

CONCLUSION

Showed 80% of composite strip crowns were completely retained after 3 years, and 20% were partially retained, with none being completely lost.

International Journal of Paediatric Dentistry 2006; **16:** 49–54

Clinical performance of resin-bonded composite strip crowns in primary incisors: a retrospective study

D. RAM & A. B. FUKS
Department of Pediatric Dentistry, The Hebrew University Hadassah School of Dental Medicine, Jerusalem, Israel

CONCLUSION

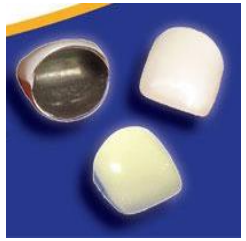
The high success rate of resin-bonded composite strip crowns with a 2-year follow-up . The **retention rate is lower** in teeth with decay in three or more surfaces.

PREVENEERED STAINLESS STEEL CROWN

Cheng Classic Crown

Dura Crown

Nu Smile Signature Crown



Kinder Crown

ALUMINIUM VENEERED WITH TOOTH COLOURED MATERIAL

Pedo Pearls

ZIRCONIA CROWNS

ARMAMENTARIUM:

- Explorer, Dental floss, Rubber dam kit
- Burs – Wheel, Chamfer bur, Tapered fissure

Incisally
1.5 to 2 mm

Supragingivally
chamfer margin
Reduce 0.5 – 1mm

Subgingivally
2mm without ledge formation

ZIRCONIA

T. Walia, A. A Salami, R. Bashiri, O. M Hamoodi, F. Rashid

Department of Growth and Development, College of Dentistry, Ajman University, Ajman, UAE

EAPD 2014

A randomised controlled trial of three aesthetic full-coronal restorations in primary maxillary teeth

PREFERRED

› Pediatr Dent. 2019 Sep 15;41(5):385-390.

Survival of Zirconia Crowns in Primary Maxillary Incisors at 12-, 24- And 36-Month Follow-Up

[illegible] [1], Mariella Garcia [2], Charles Spiekerman [3], Poojashree Rajanbabu [4], Kevin J Donly [5], Peter Harbert [6]

2019

clinicaltrials.gov

Study Title: A comparison of anterior pediatric zirconia crowns and bonded composite resin strip crowns: one-year feasibility study

Principal Investigator:
Michael Casas, DDS, MSc, FRCDC

INDIAN SOCIETY OF PEDODONTICS AND PREVENTIVE DENTISTRY

ORIGINAL ARTICLE

Fracture resistance of different primary anterior esthetic crowns

Manar Zaki Al Shobber *, Thamer A. Alkhadra

Department of Pediatric Dentistry and Orthodontics, College of Dentistry, King Saud University, Riyadh, Saudi Arabia

Received 12 June 2017; revised 25 July 2017; accepted 30 July 2017

Zirconia crowns showed the highest fracture resistance with **NuSmile zirconia crowns to being able to resist fracture** even under intense pressure of load.

ADVANTAGES

Polycarbonate Crowns	Strip Crowns
✓ Natural translucency ✓ Better adaptability	✓ Easy shade control with composite yielding ✓ Simple to fit

High level of parental and patient satisfaction is achieved
Easy to trim and repair
Less chair side time

ADVANTAGES

Preveneered stainless steel crown	Aluminum veneered tooth-colored material
✓ Durability same as SSC	✓ Universal anatomy, can be used on either side ✓ Easy to cut and crimp, without chipping

Esthetically pleasing
Requires less operating time
Less moisture sensitive during placement

ADVANTAGES

Zirconia crowns
✓ Superior esthetics
✓ High level of parental and patient satisfaction
✓ Easy to place and offer superior durability
✓ Easily autoclaved without causing any change in color or structural integrity

DISADVANTAGES

Polycarbonate Crowns	Strip Crowns

- Margins cannot be crimped
- Discoloration
- Poor retention and breakage
- Adequate tooth structure is a prerequisite
- Prone to occlusal wear

DISADVANTAGES

Preveneered stainless steel crown	Aluminum veneered Tooth colored material

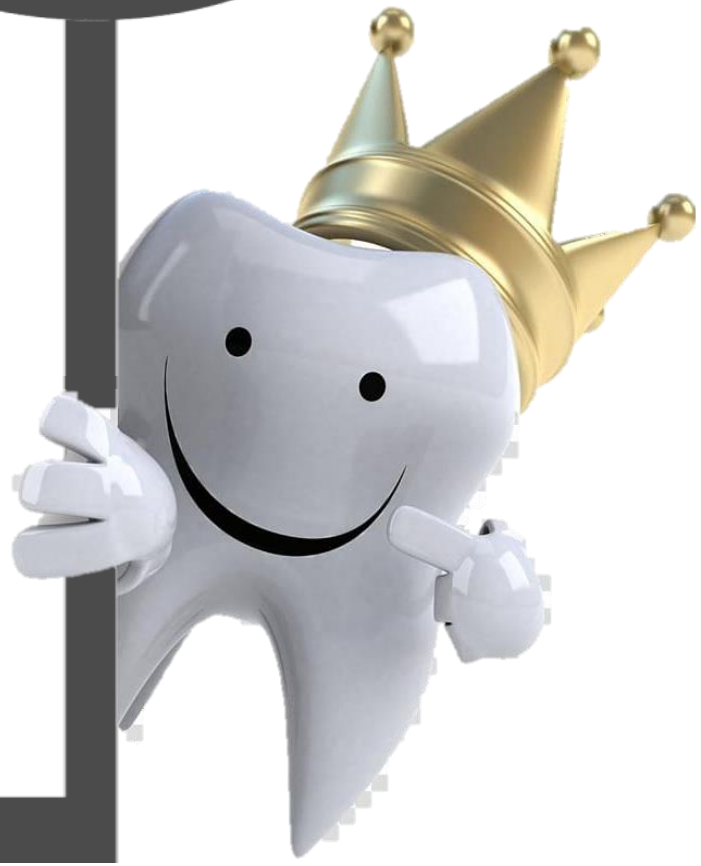
- Loss of veneer facing may occur
- Significant amount of tooth removal
- The tooth is adjusted to fit the crown, rather than adjusting the crown to fit the tooth
- Difficult to recontour and reshape
- Limited shades

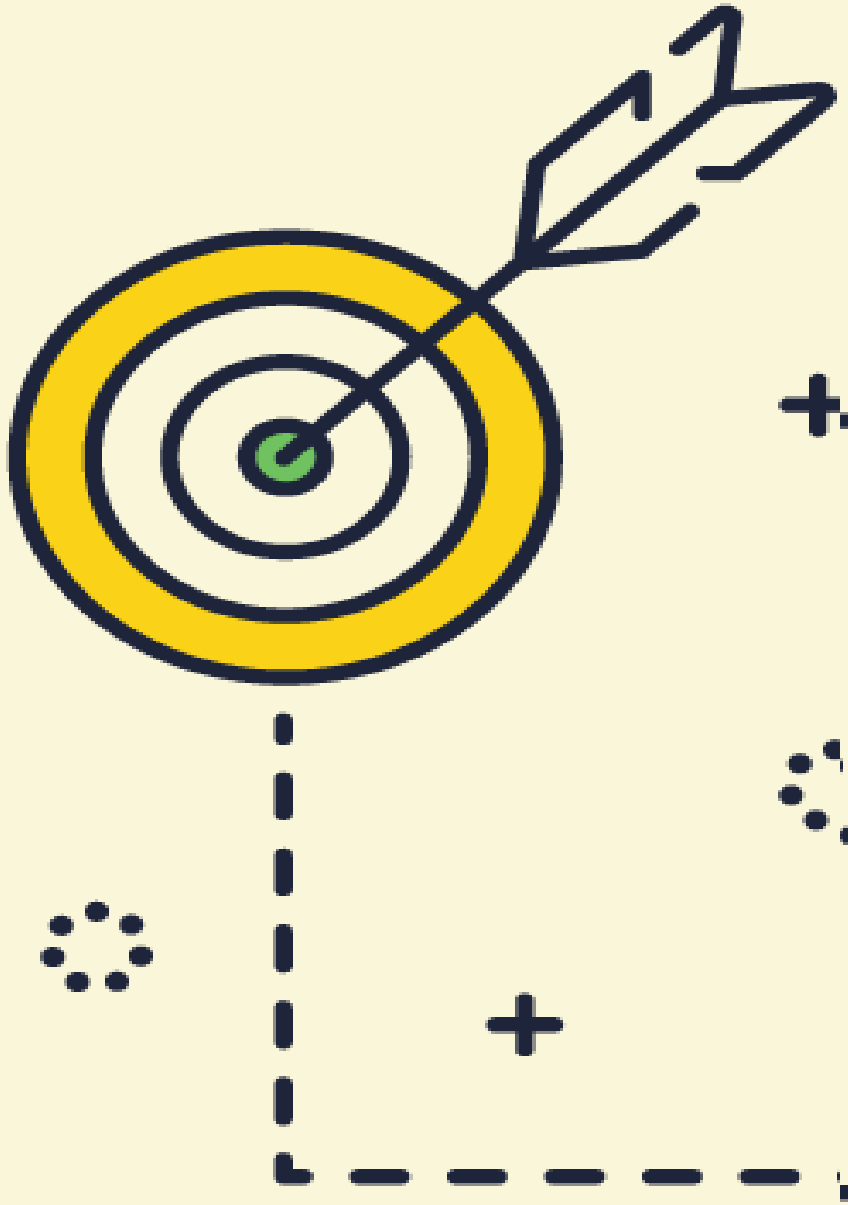
DISADVANTAGES

Zirconia crowns
❑ These crowns can’t be crimped ❑ Can cause occlusal wear of antagonist tooth ❑ Expensive

Questions

- Strip Crowns
- Polycarbonate Crowns
- Aesthetic Crowns In Pediatric Dentistry
- Zirconia Crowns
- Update On Anterior Aesthetic Crowns



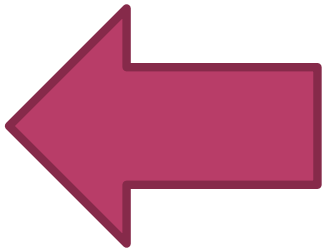


CHECKLIST

- ✓ Introduction
- ✓ Properties
- ✓ Composition
- ✓ Indications
- ✓ Contraindications
- ✓ Tooth preparation
- ✓ Cementation
- ✓ Advantages
- ✓ Disadvantages
- ✓ References

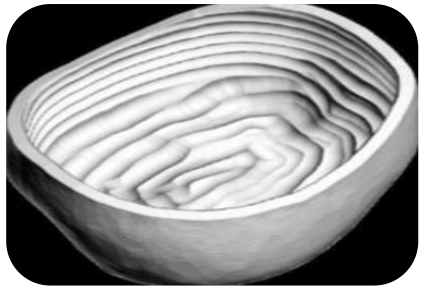
POSTERIOR ESTHETIC CROWNS

- **Polycarbonate crowns**
- **Preveneered SSC**
- **Zirconia crowns**
- **Aluminium veneered with tooth coloured material**



Tote JV, Godhane A, Das G, Soni S, Jaiswal K, Vidhale G. Posterior Esthetic Crowns in Pediatric Dentistry. Int J Dent Med Res 2015;1(6):197-201.

ZIRCONIA CROWN



EZ Pedo

Nu Smile ZR

Kinder ZR

Kids-e-crown

Signature Crown

EZ PEDO

- **Zir–lock ultra** i.e. retentive grooves which extend all the way to the crown margins → prevent cement washout.
- Prevents entry of harmful bacteria
- Provides twice the surface area for bonding
- Additional retention is provided through blasting with aluminium oxide.

NU SMILE ZR

- High grade monolith Zr ceramic
- Increased durability with strength more than enamel.
- Translucency of Zr ceramic →
  - Excellent aesthetics
  - Prevents problem of discolouration

KINDER ZR

- Based on nanotechnology
- Produces most consistent high quality Zr
- Has polished surface to reduce opposite enamel wear
- It has internal retention system which locks the restoration after cementation.

KIDS-E CROWNS

- Occlusal Flat Surface
- Uniform Axial Thickness
- Retentive micromechanical boxes
- Surfaces are sand blasted

Signature Crowns
Pre-Formed Zirconia Crowns

SIGNATURE CROWNS

- Feather-edge margins → reduces the need for excess crown cutting and enhances cervical adaptation.
- Micro-mechanical interlocking improves retention.
- High Strength at 1400+ MPa

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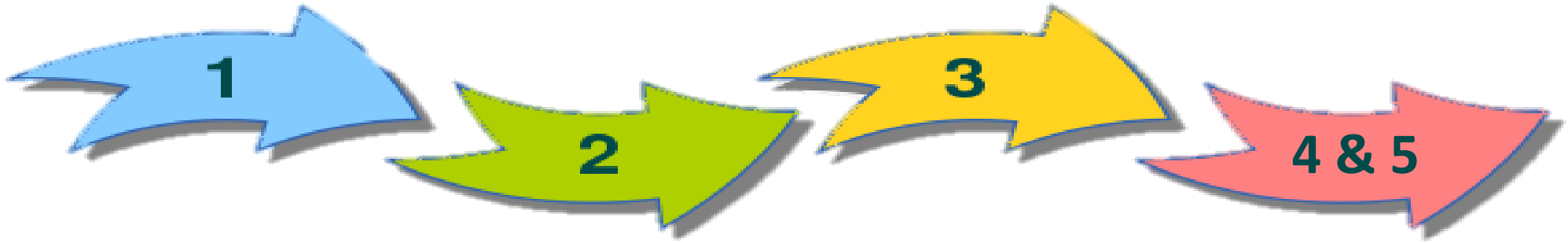
Preparation For Posterior Crown

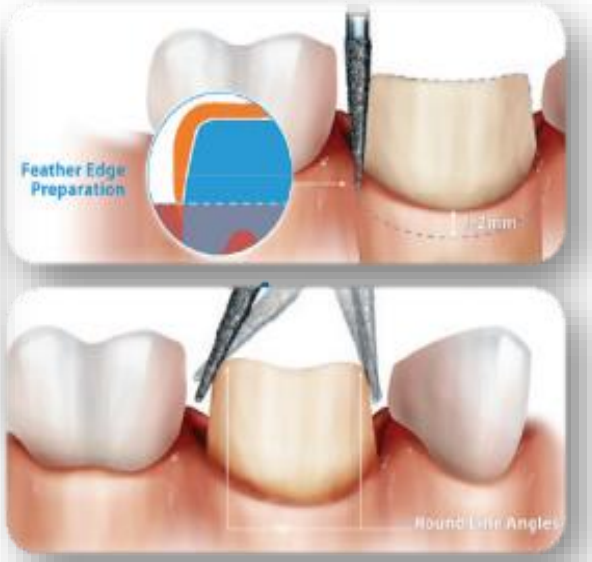


Selection of crown size

Initiate preparation

Supra-gingival Reduction

Create margin & refine



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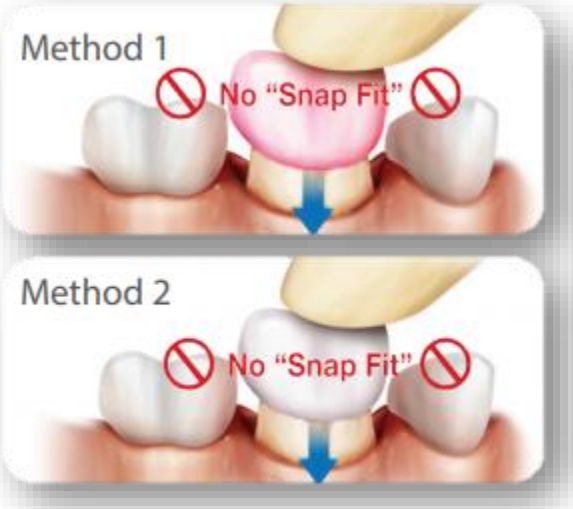
Test the fit



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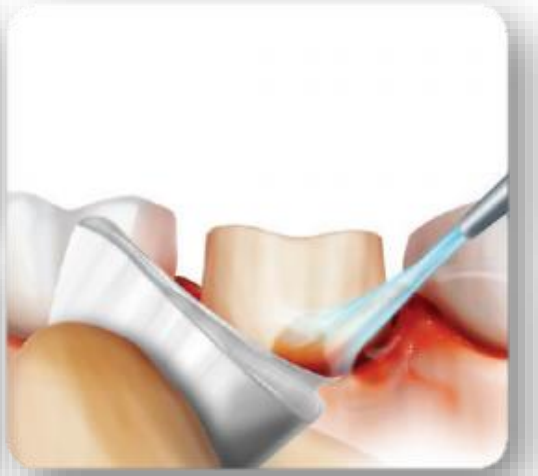
Prepare for cementation



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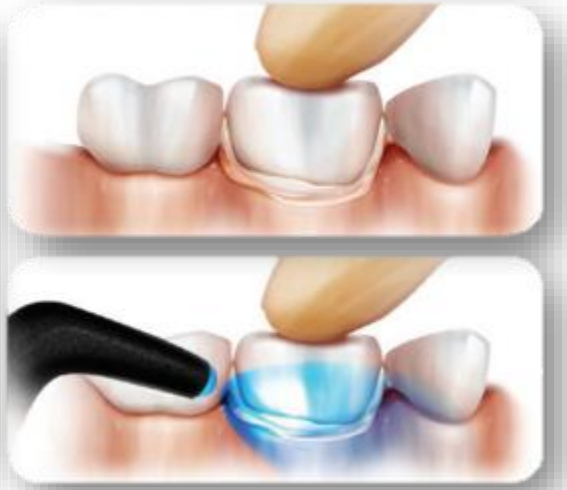
Fill. Position. Clean up



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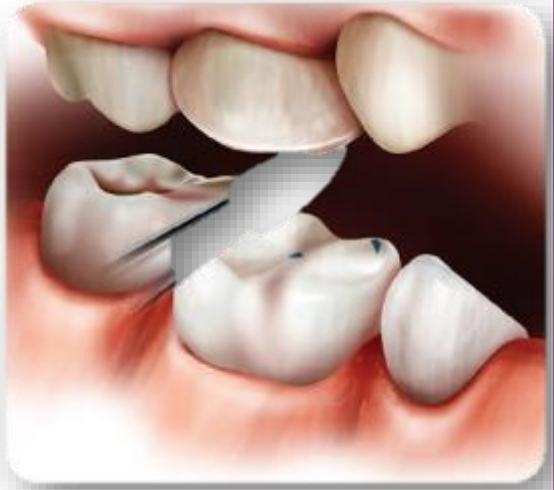
Adjust if necessary



CEMENTATION TECHNIQUES: ZIRCONIA CROWNS

GIC Type I:

ADVANTAGES:

- Physicochemical bonding to tooth structures
- Low coefficients of thermal expansion
- Long-term release of fluoride.

DISADVANTAGES:

- Low mechanical strength → compromises its use in the high strength regions.

RESIN CEMENTS

ADVANTAGES:

- High bonding strength,
- High compressive strength, and
- Low solubility.
- Overcomes the disadvantages of other cement such as support, and adhesion.

RESIN CEMENTS CONTRAINDICATIONS:

Uncooperative patients

Poor isolation control

RMGIC

ADVANTAGES:

- Ease of Use
- Moisture tolerance
- Adequate Bond Strength

Attia A. Bond strength of three luting agents to zirconia ceramic - influence of surface treatment and thermocycling. *J Appl Oral Sci*. 2011;19(4):388-395.

Literature on Cementation…

Research Article

Drug Invention Today 2018

Recommended cementation for monolithic zirconia crowns

Saloni Kachhara[1], Padma Ariga[2], Ashish R. Jain[1]*

ELSEVIER

Dental Materials

Volume 23, Issue 1, January 2007, Pages 45-50

Durability of the resin bond strength to zirconia ceramic after using different surface conditioning methods

Mona Wolfart, Frank Lehmann, Stefan Wolfart, Matthias Kern

Dent Mater. 2007 Jan;23(1):45-50. doi: 10.1016/j.dental.2005.11.040. Epub 2006 Jan 20.

Durability of the Resin Bond Strength to Zirconia Ceramic After Using Different Surface Conditioning Methods

Mona Wolfart [1], Frank Lehmann, Stefan Wolfart, Matthias Kern

CONCLUSION

The combination of sandblasting and
phosphate monomer 10 methacryloyloxydecyl dihydrogen phosphate (MDP)
is the best self-adhesive resin cement for Zirconia Crowns.

IMPORTANT FOR CLINICS

Commercially available crowns……

3M ESPE Strip Crown
Rs. 160/- per unit

3M ESPE Polycarbonate Crown
Rs. 95/- per unit

3M Signature Crowns
Rs. 1800/- per unit

Kids-e-Crown
Rs. 1300/- per unit

NuSmile ZR Crown
Rs. 1700/- per unit

INDIAN SOCIETY OF PEDODONTICS AND PREVENTIVE DENTISTRY

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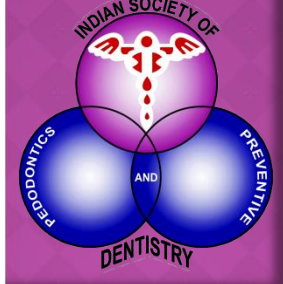

Case Report

CASE REPORT

BMJ Case Reports 2017

Twenty-nine-month follow-up of a paediatric zirconia dental crown

Serena Lopez Cazaux,[1,2] Isabelle Hyon,[2] Tony Prud'homme,[1,2] Sylvie Dajean Trutaud[1,2]

CONCLUSION

Paediatric zirconia crown allowed sustainable functional restoration while restoring a natural appearance of the tooth.

Original Article

Journal of Family Medicine and Primary Care

Evaluation of Clinical Success, Parental and Child Satisfaction of Stainless Steel Crowns and Zirconia Crowns in Primary Molars

Mebin George Mathew[1], Korishettar Basavaraj Roopa[2], Ashu Jagdish Soni[3], Md Muzammil Khan[4], Afreen Kauser[5]

26-03-2020

Latest study were patients were evaluated at 6 months, 12 months, 18 months, 24 months, and 36 months. Posterior zirconia crowns can be considered as clinically aacceptable.

My AE Sthetic Crowns

REVIEW ARTICLE www.ijcmr.com 2016

Esthetic Crowns In Pediatric Dentistry: A review

MITTAL G K

Pediatric Restorative Dentistry 2019

Latest Revision
2019

AAPD

The Americ
intends thes
decisions reg
necessary to
techniques
adolescents.

2017

Aesthetic preformed paediatric crowns: systematic review

ELODY A

Review article Annals and Essences of Dentistry

ESTHETIC CROWNS FOR PRIMARY TEETH: A REVIEW 2010

SAHANA S

** Sr. Lecturer
*** Professor and

Department of Ped

STUDY PROTOCOL Open Access

Preformed pediatric zirconia crown versus preformed pediatric metal crown: study protocol for a randomized clinical trial 2019

CAZAUX S L

iem[2], Ana Miriam Velly[3] and Michèle Muller-Bolla[4,5]

TO FOLLOW-UP

Lopez-Cazaux *et al. Trials* (2019) 20:530
https://doi.org/10.1186/s13063-019-3559-1

Trials

STUDY PROTOCOL Open Access

Preformed pediatric zirconia crown versus preformed pediatric metal crown: study protocol for a randomized clinical trial

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THANK YOU!

Any questions?

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