

# THE BATTLE OF ISOLATION: COTTON ROLL VERSUS RUBBER DAM: CAT SUMMARY

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## Clinical problem

- Maintaining an uncontaminated environment is vital for the bond strength and longevity of the restorations (1,2).
- Cotton roll isolation (CRI) and rubber dam isolation (RDI) are considered the most common techniques in dentistry for moisture control (3).
- RDI has been introduced as standard practice for moisture control.
- Many practitioners avoid using RDI because of the high cost and patient acceptability (4).

## Clinical question

**Among children, does rubber dam isolation in comparison to cotton roll isolation alter composite resin restoration survival rates within at least 2 year follow up?**

## Evidence search

**Search strategy:** dental caries.mp. or Dental Caries/ AND rubber dam.mp. or Rubber Dams/ AND children.mp. or Child/

**OvidMedline yield:** 49 articles

### Article Selected:

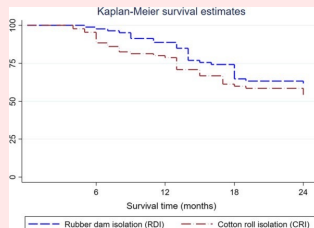
Olegário et al., Use of rubber dam versus cotton roll isolation on composite resin restorations' survival in primary molars: 2-year results from a non-inferiority clinical trial. BMC Oral Health. 2022;22(1):440. - RCT

### References:

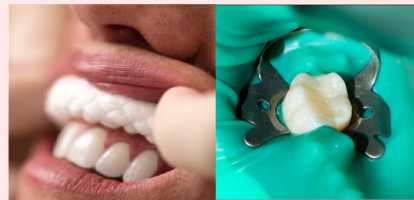
1. Koppolu M, Gogala D, Mathew VB, Thangala V, Deepthi M, Sasidhar N. Effect of saliva and blood contamination on the bond strength of self-etching adhesive system—an in vitro study. J Conserv Dent. 2012;15(3):270–273.
2. Aboushellib MN. Clinical performance of self-etching adhesives with saliva contamination. J Adhes Dent. 2011;13(5):489–493.
3. Cajazeira MR, De Sabóia TM, Maia LC. Influence of the operatory field isolation technique on tooth-colored direct dental restorations. Am J Dent. 2014;27(3):155–9.Mala S, Lynch CD, Burke FM, Dummer PM. Attitudes of final year dental students to the use of rubber dam. Int Endod J. 2009;42(7):632–638.
4. Olegário IC, Moro BLP, Tedesco TK, Freitas RD, Pássaro AL, Garbim JR, Oliveira R, Mendes FM; CARDEC 03 collaborative group; Raggio DP. Use of rubber dam versus cotton roll isolation on composite resin restorations' survival in primary molars: 2-year results from a non-inferiority clinical trial. BMC Oral Health. 2022 Oct 10;22(1):440.

## Clinical bottom line

- **The results of the 2-year RCT (Olegário et al., 2022) did not show clinically meaningful differences in survival rates of composite restorations in children when rubber dam isolation was compared with cotton roll isolation.**



Olegário et al., 2022



## Results

- N=93 children, aged 4-10 years; 174 teeth; 55% male, mean DMFT/dmft:7.52
- **Interventions:** RDI vs CRI , Follow up: 24 months
- **Restoration survival:** RDI = 63%, CRI = 58%
- **Absolute Risk Difference** = 5% (CI 95% -9%, 19%)
- **Interpretation:** the results are **not** statistically significant, **not** clinically meaningful and **not** clinically decisive (assumed clinically meaningful difference 15%).
- Majority of the reasons for restoration failure was due to bulk fracture of the restoration followed by secondary caries within the dentin.
- Mean time spent on restorations: 30.9 minutes, RDI and 17.85 minutes, CRI
- RDI was 53% more expensive compared to CRI
- No differences found regarding pain and behavior for children for both isolation techniques.

## Strengths

- RCT design
- CONSORT guidelines were followed
- Computer random sequence generation
- Opaque envelopes for allocation concealment
- Clear description of the intervention
- Equilibrated baseline characteristics
- Trained care providers and outcome evaluators
- Intention to Treat Analysis

## Limitations

- No blinding: participants and care providers
- Unclear if statistician was blinded
- Calibration results of the examiners were not reported
- Unclear how missing data was treated

## Applicability

- The disease of interest and the age group are relevant
- Study location – Brazil, differences in caries risk factors, disease prevalence, SES, oral health care systems, water fluoridation, cost of material
- University settings (Brazil) vs and private practice settings (Canada)
- All treatments performed are available and feasible to do in Canada
- The follow up is minimal for the outcome of interest (restoration survival) but sufficient to see the caries arrest.

*"We would like to acknowledge the help of Praveen Bhoopathi Haricharan in preparing this CAT summary."*