Supplementary Table 1. Summary of included studies.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Reference | Study design | Site | Sample size | Methods/techniques | Control | Measurements | Results | | | *p* value |
| Isolite/DryShieled | Control | |
| Mean ± SD | Mean ± SD | |
| Collette *et al*. [20], (2009) | Split mouth RCT | Cincinnati Children’s Hospital Medical Center Cincinnati, Ohio | N = 48  5 to 14 Y  (9 ± 2.3) Y  N teeth: 192 1st Molars  (4 teeth per participant) | Stop-watch  Isolite  Interview questionnaire | CRI | Chair time in minutes | 5.67 ± 1.18 | 6.63 ± 1.92 | | <0.01\* |
| N (%) | N (%) | |
| Noise | 46/48 (96.00) | 2/48 (4.00) | | ≤0.001\* |
| Stretching | 29/48 (60.00) | 19/48 (40.00) | | ≤0.15 |
| Gagging | 12/48 (26.00) | 1/48 (2.10) | | ≤0.001\* |
| Unpleasant Taste | 9/48(18.80) | 24/48 (50.00) | | ≤0.009\* |
| Discomfort | 13/48 (27.00) | 3/48 (6.00) | | ≤0.02\* |
| Preference | 26/48 (54.00) | 22/48 (46.00) | | ≤0.56 |
| Alhareky *et al*. [15], (2014) | Split mouth RCT | Tufts School of Dental Medicine, Boston | N = 42  7 to 16 Y  N teeth: 84  1st Molars | Stop-watch  Isolite  Interview questionnaire | RDI | Chair time in minutes | Mean ± SD | Mean ± SD | | <0.001\* |
| 10.00 ± 1.76 | 19.36 ± 3.58 | |
| N (%) | N (%) | |
| Noise | 33/42 (79.00) | 9/42 (21.00) | | <0.001\* |
| Stretching | 29/42 (69.00) | 13/42 (31.00) | | <0.02\* |
| Gagging | 10/42 (24.00) | 8/42 (19.00) | | <0.81 |
| Unpleasant Taste | 5/42 (12.00) | 14/42 (33.00) | | <0.6 |
| Discomfort | 7/42 (17.00) | 24/42 (57.00) | | 0.003\* |
| Preference | 31/42 (74.00) | 11/42 (26.00) | | <0.002\* |
| Bagher *et al*. [19], (2021) | Split mouth RCT | King Abdulaziz University, Jeddah, Saudi Arabia | N = 28  9 to 15 Y  N teeth: 56  Premolars | Stop-watch  DryShield  Interview questionnaire | RDI | Chair time in minutes | Mean ± SD | Mean ± SD | | <0.001\* |
| 3.59 ± 0.72 | 4.50 ± 0.72 | |
| Noise | 2.07 ± 2.11 | 0.86 ± 1.60 | | 0.022\* |
| Stretching | 3.68 ± 3.19 | 3.50 ± 3.90 | | 0.627 |
| Gagging | 1.04 ± 2.52 | 0.43 ± 1.60 | | 2.206 |
| Water leaking | 0.93 ± 1.72 | 1.32 ± 2.40 | | 0.341 |
| Discomfort | 2.86 ± 3.08 | 2.54 ± 3.04 | | 0.683 |
| Preference | 11 (39.3) | 10 (25.7) | | 1.00 |
| Subjective pain | 1.21 ± 1.57 | 1.71 ± 2.23 | | 0.336 |
| Mattar *et al*. [22], (2021) | Split mouth RCT | King Saud University, Riyadh, Saudi Arabia | N = 48  6 to 15 Y  N teeth: 144  molars | Stop-watch  Isolite  Interview questionnaire | RDI  OR  CRI | Chair time in minutes |  | CRI | RDI | 0.700 |
| Mean ± SD | Mean ± SD | |
| 4.14 ± 1.42 | 4.05 ± 1.14 | 4.27 ± 1.66 |
| N (%) | N (%) | |  |
| Noise | 32/48 (66.70) | 3/48 (6.25) | 13/48 (27.08) | <0.001\* |
| Stretching | 7/48 (14.58) | 39/48 (81.25) | 2/48 (4.17) | <0.001\* |
| Discomfort | 42/48 (87.50) | 10/48 (20.83) | 44/48 (91.67) | <0.001\* |
| Preference | 10/48 (20.83) | 34/48 (70.83) | 4/48 (8.33) | <0.001\* |
| Lyman *et al*. [21], (2012) | Split mouth RCT  (Blinded) | Texas A&M University Health Science Center, Dallas | N = 32  5–14 Y  N teeth: 108 1st and 2ed molars  Follow-up:  96 teeth | Photographs  Isolite  FS retention  Scale (1–5):  1:(100% retention)  5:(0% retention) | CRI | 6 months: | | | | |
| Overall retention | 2.2 | 2 | >0.2 | |
| Factor affecting FS retention | | | | |
| Gender | a | a | 0.7 | |
| 1st *vs.* 2ed molars | a | a | 0.99 | |
| Max *vs.* Mand (ISI) | 2.5 | 1.8 | 0.37 | |
| Max *vs.* Mand (CRI) | 2.1 | 1.9 | 0.003\* | |
| Order of placement | a | a | 0.29 | |
| 12 months: | | | | |
| Overall retention | 2.7 | 2.6 | 0.82 | |
| Factor affecting FS retention | | | | |
| Gender | a | a | 0.71 | |
| 1st *vs.* 2ed molars | a | a | 0.72 | |
| Max *vs.* Mand (ISI) | 2.9 | 2.5 | 0.23 | |
| Max *vs.* Mand (CRI) | 2.8 | 2.3 | 0.02\* | |
| Order of placement | a | a | 0.56 | |

a: Not reported in the manuscript; RCT: Randomized clinical trial; Y: Years; N: Number; FS: Fissure sealant; Max: Maxillary; Man: Mandibular; SD: Standard Deviation; CRI: cotton roll isolation; RDI: rubber dam isolation; ISI: Isolite System Isolation;

\* Statistically significant.