

## A Systematic Review

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### Introduction

- Advancements in dental technology have a substantial impact on improving patient's experience, quality of treatment and cost- and time-effectiveness<sup>(1)</sup>.
- In Pediatric Dentistry, dental impressions are essential in diagnosis, treatment planning and fabrication of fixed space-maintainer appliances such as band and loop space maintainers and orthodontic appliances such as Hyrax<sup>(1)</sup>.

### Objectives

- This systematic review aimed to report young patients' experience in terms of comfort, preference and time efficiency of the intraoral scanner versus conventional impression.

### Material and Methods

#### Search Strategy

- Search strategies were built to search four databases (PubMed, MEDLINE, Web of Science and Scopus).

#### Inclusion/Exclusion Criteria

	Inclusion Criteria	Exclusion Criteria
<b>Type of Study</b>	In vivo studies	In vitro Studies. Experts' opinions. Reviews. Case reports Implant or prosthodontic studies
<b>Population</b>	Pediatric and young adolescents	Adult and geriatric
<b>Intervention</b>	Digital scanner	Different intervention

#### Studies Screening and Selection

- Records were screened by two independent reviewers, and conflicts were solved by a senior reviewer.

### Material and Methods

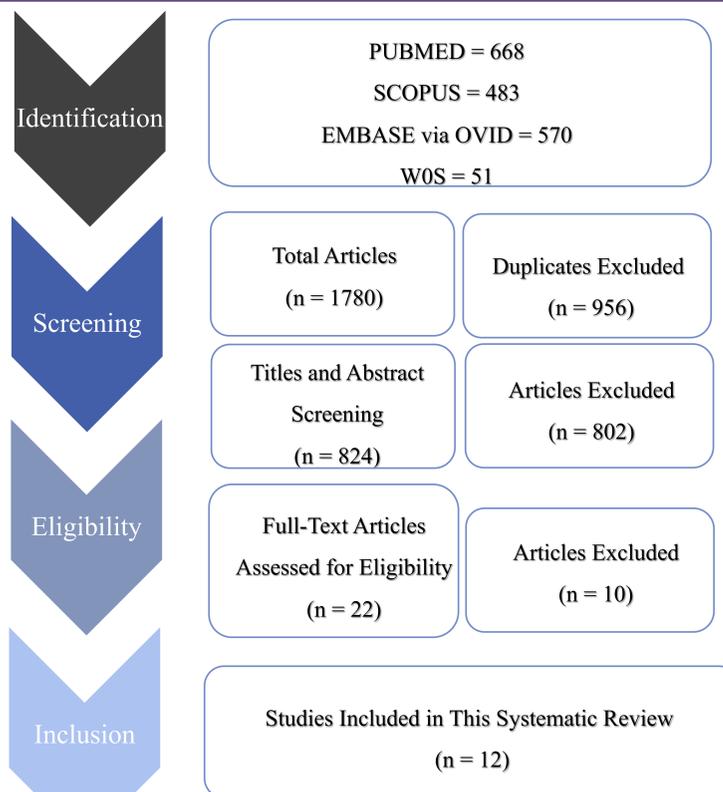


Figure 1. Flow diagram of study screening and selection.

#### Quality Assessment

- Risk of bias was assessed using the **Cochrane Collaboration's tool** for assessing risk of bias in randomized trials

### Results

#### Comfort

- Overall, intraoral scanners showed less general discomfort in comparison to Alginate impression material.

#### Preference

- Out of 7 studies, 6 studies reported that patients preferred intraoral scanners.

- **One** study reported preference for Alginate impression material<sup>(2)</sup>.

### Results

#### Time

Study	Less time	More time
Sfondrini et.al, 2019	TRIOS scanner	Alginate impression
Burzynski et.al, 2017	Alginate impression and iTero scanner	TRIOS
Yuzbasioglu et.al, 2014	CEREC scanner	Polyether impression
Burhardt et.al, 2015	Alginate impression and CEREC scanner	Lava C.O.S scanner

Three studies showed no significant differences between digital impressions and conventional impressions<sup>(3,4,5)</sup>.

#### Anxiety/Stress

- Most of the studies showed no significant difference in the levels of anxiety between digital and conventional impressions<sup>(5-7)</sup>.
- One study showed significantly higher stress levels with Alginate impression material in comparison to TRIOS scanner<sup>(8)</sup>.

#### Risk of Bias

Study	Risk of bias						Overall
	D1	D2	D3	D4	D5	D6	
Yilmaz et.al, 2019	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Sfondrini et.al, 2019	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Glisic et.al, 2019	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Mangano et.al, 2018	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Christian Kirschneck, 2019	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Burzynski et.al, 2017	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Gan et.al, 2016	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Chalmers et.al, 2016	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Burhardt et.al, 2015	⊕	⊗	⊗	⊗	⊕	⊕	⊕
Yuzbasioglu et.al, 2014	⊗	⊗	⊗	⊗	⊕	⊕	⊗
Grunheid et.al, 2014	⊕	⊗	⊗	⊗	⊕	⊕	⊕
Vasudavan et.al, 2010	⊕	⊗	⊕	⊕	⊕	⊕	⊕

D1: Random sequence generation  
D2: Allocation concealment  
D3: Blinding of participants and personnel  
D4: Blinding of outcome assessment  
D5: Incomplete outcome data  
D6: Selective reporting  
Judgement  
⊗ High  
⊕ Low

Figure 2. Risk of bias appraisal

### Results

#### Risk of Bias

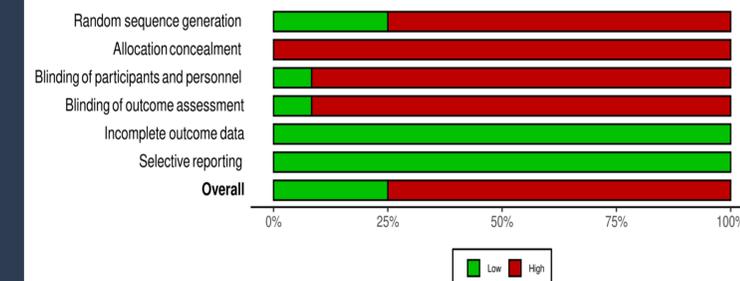


Figure 3. Overall risk of bias for each parameter.

- Out of the 12 included studies, **3** were judged to have **low risk of bias**.

### Conclusion

- Patients experience less general discomfort during digital impression in term of difficulty in breathing, gag reflex, and voice/heat or taste/smell.
- Patients preferred digital impression over conventional except in a study that used Lava C.O.S with powder.
- Digital impressions showed less total treatment time than conventional when considering packaging and processing time.
- CEREC and iTero presented less total treatment time than scanners such as TRIOS and Lava C.O.S.

### References

