INPLASY

Accuracy of intraoral versus extraoral scanner in full-arch digital impression. A systematic review

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ADMINISTRATIVE INFORMATION

Support - Universidad Católica de Cuenca.

Review Stage at time of this submission - The review has not yet started.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202460021

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 06 June 2024 and was last updated on 06 June 2024.

INTRODUCTION

Review question / Objective What is the fidelity of intraoral versus extraoral scanner in full-arch digital impression?

Rationale Scanning procedures in the mouth are very useful within the specialties of dentistry, especially in the area of orthodontics. These devices aim to avoid the error-sensitive aspects produced by the manual process, increase comfort for patients, reduce steps in the clinic and in the laboratory and therefore significantly save time. Currently, digitization can be performed directly in the patient's mouth (intraoral) or indirectly after taking the impression and manufacturing the model (extraoral).Currently, digital printing in dentistry has been promoted with great force in recent years, especially in the area of Orthodontics, digital scanners have evolved along with the available technology, which is why it is necessary to carry out a systematic analysis in which the precision and veracity of intraoral and extraoral digital impressions can be evaluated and compared.

Condition being studied Currently, digital printing in dentistry has been promoted with great force in recent years, especially in the area of Orthodontics, digital scanners have evolved along with the available technology, which is why it is necessary to carry out a systematic analysis in which the precision and veracity of intraoral and extraoral digital impressions can be evaluated and compared.

METHODS

Search strategy The search will be carried out in the following databases PubMed, Scopus and Web of Science. The key words using the MESH descriptor will be: DENTAL ARCH, SCANNER EXTRAORAL, SCANNER INTRAORAL, ACCURACY, TRUENESS; together with the Boolean operators AND and OR. The key words were used independently with different combinations: Accuracy, intraoral scanner, extraoral scanner, dental arch. An additional combination was included with the keyword orthodontic and digital impression.

Eligibility criteria
The inclusion criteria will be:
Academic articles five years old in the period from 2019 to 2024.
Articles in English and Spanish.
Clinical trials, in vitro experimental studies, meta-analysis, systematic reviews.
Studies that only consider full dental arch impressions.
The exclusion criteria will be:
Studies in the area of implantology and oral rehabilitation that analyze the precision of digital impressions in individual teeth and the entire arch.
Studies with digital impressions in edentulous full and partial arches.
Literature reviews and clinical cases.
The selection criteria according to the PICO question will take into account the following criteria:
P(participants/population): Full arch
I (intervention): Extraoral scanner.
C (comparison): Intraoral scanner.
O (results): Fidelity (truthfulness and precision)
Data collection process
In the data collection process, the year and names of the authors, total number of samples (n), type of scanner, commercial brand of scanner, the tool or technique that was used, unit of measurement used: millimeters will be considered. (mm) and micrometers (µm), variables under study: truthfulness and precision, p value ($p<0.05$).
Risk of bias
The MODIFIED CONSORT IN VITRO tool will be used, with which an evaluation of the quality of scientific studies can be carried out. The evaluation will include the quality analysis of the following points of the study: (a) Title and summary, (b) Background and objectives, (c) Methods, (d) Results; Once the studies are evaluated, they may have a low, medium or high bias.

Participant or population Arco dental completo.

Intervention Intraoral digital impression.

Comparator Extraoral digital impression.

Study designs to be included Clinical trials, in vitro experimental studies, meta-analysis, systematic reviews.

Eligibility criteria Academic articles five years old in the period from 2019 to 2024.
Articles in English and Spanish.
Clinical trials, in vitro experimental studies, meta-analyses, systematic reviews.
Studies that only consider serrated full arch impressions.

Information sources PubMed, Scopus and Web of Science.

Main outcome(s) This research project aims to conclude and present the best results in terms of the reliability of intra- and extraoral digital impressions, thus obtaining the most optimal digital impression system to be used in the area of orthodontics.

Data management In the data collection process, the year and names of the authors, total number of samples (n), type of scanner, commercial brand of scanner, the tool or technique that was used, unit of measurement used: millimeters will be considered. (mm) and micrometers (µm), variables under study: truthfulness and precision, P Valium ($p<0.05$).

Quality assessment / Risk of bias analysis The MODIFIED CONSORT IN VITRO tool will be used, with which an evaluation of the quality of scientific studies can be carried out. The evaluation will include the quality analysis of the following points of the study: (a) Title and summary, (b) Background and objectives, (c) Methods, (d) Results; Once the studies are evaluated, they may have a low, medium or high bias.

Strategy of data synthesis In the data collection process, the year and names of the authors, total number of samples (n), type of scanner, trademark of scanner, the tool or technique used, unit of measurement used: millimeters (mm) and micrometers (µm), variables under study: veracity and precision, P Valium ($p<0.05$) will be considered.

Subgroup analysis n/a.

Sensitivity analysis n/a.

Country(ies) involved Equatorian.

Keywords DENTAL ARCH, SCANNER EXTRAORAL, SCANNER INTRAORAL, ACCURACY, TRUENESS.

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