INPLASY

The impact of the shelf-life and storage conditions on the accuracy and performance of Additional Silicone impression materials: A Systematic review and meta-analysis

INPLASY202420027
doi: 10.37766/inplasy2024.2.0027
Received: 06 February 2024
Published: 06 February 2024

Saini, R[1]; Altafuddin, S[2]; Vaddamanu, S[3]; Gurumurthy, V[4]; Masroor, K[5].

Corresponding author:
Ravinder Saini

dr_ravi_saini@yahoo.com

Author Affiliation:
King Khalid University.

ADMINISTRATIVE INFORMATION

Support - King Khalid University.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202420027

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

INTRODUCTION

Review question / Objective How do shelf-life and storage conditions impact the accuracy and performance of additional silicone impression materials?

Rationale The main aim of this study is to critically appraise the evidence of the effect of storage on the accuracy and performance of additional silicone impression materials.

Condition being studied The study aimed to investigate the impact of different storage conditions, including temperature, humidity, and light exposure, on the accuracy and performance of additional silicone impression materials.

METHODS

Search strategy A comprehensive search for potential articles was conducted via four databases: PubMed, Scopus, Cochrane Library, and ScienceDirect. The search terms were used in different combinations and search strings in the different databases.

Participant or population Dental patients or dental models requiring silicone impressions. impression materials.

Intervention Additional silicone impression materials with different shelf life and storage conditions. impression materials.

Comparator Different storage conditions, including temperature, humidity, light exposure, and shelf-life durations of silicone impression materials.Other techniques (traditional/manual articulators). Virtual software platforms.

Study designs to be included Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) criteria.

Eligibility criteria Studies published in English.

Information sources PubMed, Scopus, Cochrane Library, and ScienceDirect.

Main outcome(s) Accuracy and performance of silicone impression materials regarding dimensional stability, detail reproduction, tear resistance, and material properties.

Quality assessment / Risk of bias analysis A reviewer conducted the article selection and screening process. Seventy-six duplicate records were removed. The remaining 1029 articles were screened by title and abstract, eliminating 943. Eighty-six articles were retrieved for full-text screening, after which seventeen that met the eligibility criteria were included in the review.

Strategy of data synthesis The extracted data were organized using Microsoft Excel version 2021. In addition, the quantitative data were analyzed using the Review Manager version 5.4.1. Moreover, the outcomes were thematically analyzed.

Subgroup analysis The data was compiled from a variety of articles:
• Author(s), year of publication, country, study design.
• Total number of patients/datasets.
• Training/validation datasets
• Test datasets.

Sensitivity analysis Not applicable.

Language restriction Only articles in English.

Country(ies) involved Saudi Arabia.

Keywords Addition Silicone, Impression Materials, Accuracy, Dimensional Stability, performance. Silicone materials, Tear strength, Tensile strength, Prosthetic rehabilitation.

Dissemination plans All the data and the article will be share after the publication.

Contributions of each author
Author 1 - Ravinder Saini - drafted the manuscript.
Email: rsaini@kku.edu.sa
Author 2 - Syed Altaf - The author provided statistical expertise.
Email: aasayed@kku.edu.sa
Author 3 - Sunil Vaddamanu.
Email: snu@kku.edu.sa
Author 4 - Vishwanath Gurumurthy.
Email: vgurumithy@kku.edu.sa
Author 5 - Masroor Kanji.
Email: mkanji@kku.edu.sa