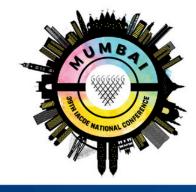


ELIGIBILITY

SCREENING

INCLUDED





# COMPARATIVE ANALYSIS OF VARIOUS ROTARY AND RECIPROCATING RETREATMENT FILE SYSTEMS - AN UMBRELLA REVIEW

## **OBJECTIVE**

The goal of this comprehensive research is to help clinicians make decisions about which form of kinematics is safer and more effective by comparing the removal capabilities of rotary and reciprocating kinematics from root canals.

## INTRODUCTION

Retreatment is defines as "therapy of the same disease in a patient, with the same agent or procedure repeated after initial treatment or with an additional or alternate measure or follow up in the medical subject headings of the National Library of Medicine".

One of the main objectives of secondary root canal therapy is to remove old filling material from the root canals so that cleaning and shaping can occur inside the apical constriction.

This process eliminates microorganisms from the root canals and raises the success rate of secondary root canal therapy.'

The terms retreatment systems (d-race, m-two, protaper, r-endo) and reciprocating systems (reciproc, reciproc blue ,wave one , waveone gold) were utilized

## **MATERIALS AND METHODS**

Inclusion criteria for the selection of articles were 1.Articles published after the year 2013 were used

2. The studies must be conducted in vitro or vivo environment

3.The samples must be standardized such as root canal curvature and fully formed root apex. 4. The studies must be necessarily on the comparison between retreatment and reciprocating systems: the prescence or abscence of other systems is not of importance.

5.The studies must be carried out employing at least one retreatmnet system with continous motion and one reciprocating system with adaptive motion 6. The articles must be written in English

#### EXCLUSION CRITERIA:

The exclusion criteria for the selection of the articles were 1.Articles with the publication date prior to 2013 were excluded. 2.Articles in which artificial teeth were used as the samples were excluded 3.Case reports, studies conducted on animals were excluded. ne umbrella review was developed according to thr Prefered Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines.

ne inclusion criteria were systemic evaluations with or without meta-analysis that assessed any variations in the effectiveness of various rotary and reciprocating files.

e exclusion criteria were: case reports, clinical studies , lab investigations , animal studies and narrative reviews.

## **METHODOLOGY**

Pubmed and Google-Records identified through database searching (n=156) Additional records (JOE,IEJ) :- Identified through other sources (n=41)

> Records selected during initial analysis (n=197)

Records excluded after duplicates (n=68)

Articles excluded based on language, publication date and title searched (n=129)

Records excluded after abstract evaluation (n=79)

Studies selected for eligibility and full text analysis (n=50)

Studies excluded after full text analysis (n=45)

Studies included in the umbrella review fulfilling the inclusion criteria (n=5)

# **RESULTS**

#### FEDELE ET.AL.

ROTARY - PROTAPER UNIVERSAL PROFILE, D-RACE,R-ENDO,TRU SHAPERECIPROCATING RECIPROC,

### **NASIRI ET AL**

ROTARY- PROTAPER, D- RACE, M-TWO RECIPROCATING -RECIPROC RECIPROC BLUE WAVEONE WAVEONE GOLD

#### BHUJBAL ET AL

ROTARY-PROTAPER RECIPROCATING- WAVEONE

## SIMOSE ET AL

FLARE, PROFILE, M-TWO, R-ENDO RECIPROCATING - RECIPROC RECIPROC BLUE, WAVEONE GOLD

#### **BUCHELI ET AL**

ROTARY-PROTAPER M-TWO RECIPROCATING-RECIPROC, WAVEONE

## ENTAL, ORAL AND MAXILLOFACIAL RESEARCH 2020

JOURNAL OF

**CRITICAL** 

**REVIEWS 2021** 

**JOE 2016** 

ROTARY AND RECIPROCATING SYSTEMS EXHIBIT

SIMILAR ABILITIES IN REMOVING ROOT CANAL

FILLING MATERIAL

NEITHER ROTARY NOR RECIPROCATING RETREATMENT

COULD COMPLETELY REMOVE ROOT CANAL FILLING

MATERIALS

BOTH ROTARY AND

RECIPROCATING SYSTEMS PROVE EFFECTIVE IN REMOVING ROOT CANAL FILLING MATERIAL. NONE OF THEM IS SUPERIOR

ROTARY - PROTAPER, ONE

JOURNAL OF RESTORATIVE DENTISTRY AND ENDODONTICS

RESTORATIVE

DENTISTRY

reciprocating) does not influence the efficacy of root canal filling material removal from root canals.

The type of kinematics(rotary or

None of the reviewed systems is effective to completely remove the filling materials from straight root canals and all systems appear to be equally time efficient

# (RECIPROC® blue







## CONCLUSION

This umbrella review found that while various techniques can be applied to efficiently remove root canal filling materials, they cannot be removed entirely. Less leftover material is linked to hybrid approaches and larger preparation sizes. Comparing NiTi retreatment files to traditional methods reveals no advantages. The capacities of reciprocating and continuous rotational systems to remove root canal filling material are comparable. It is possible to infer that all of the systems can be utilized for secondary root canal therapy given the constraints of this evaluation and the data gathered. In curved root canals, removal of the root canal filling is successful regardless of the kind of kinematics- rotary or reciprocating - based on the standard data from this examination. Moreover, additional clinical and laboratory experiments are needed to assess the effectiveness of reciprocating motion and continuous motion systems in minimizing the amount of filling material remaining in root canals after retreatment.