

Clinical Trial Protocol

Iranian Registry of Clinical Trials

28 Jun 2026

Comparison of pit and fissure sealant retention following alumina or bioactive glass air abrasion preparation

Protocol summary

Summary

Objectives: Comparison of pit and fissure sealant retention following alumina or bio active glass air abrasion preparation. Design: Randomized, Single blind, No placebo control. Setting and conduct: Students aged 6 to 12 with 90 pairs of molars are include in study. Using a half-mouth design, the operator perform fissure preparation using BAG or alumina air abrasion technique on randomly assign mandibular or/ and maxillary first permanent molars. Operator applies sealant. Participants including criteria: Students aged 6 to 12 with 90 pairs of molars are include in study. Intervention: Using a half-mouth design, the operator perform fissure preparation using BAG air abrasion technique on randomly assign mandibular or/ and maxillary first permanent molars from one side of the mouth (Intervention group) and perform alumina air abrasion on the contra lateral side of the mouth (Control Group). Main outcome measures: The status of sealant retention are score as completely missing, partially Retention, Completely Retention by visual clinical assessment evaluation by simonsen criteria after 3, 6, 9, 12. month.

General information

Acronym

No

IRCT registration information

IRCT registration number: **IRCT2014060117934N1**

Registration date: **2014-10-27, 1393/08/05**

Registration timing: **retrospective**

Last update:

Update count: **0**

Registration date

2014-10-27, 1393/08/05

Registrant information

Name

Fatemeh Naderi Beni

Name of organization / entity

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Recruitment status

Recruitment complete

Funding source

Dr Mohammad Hashemi, Vice chancellor for research, Isfahan University of Medical Science. Address: Hezar jerib St Email: a_hashemi@med.mui.ac.ir Tell: 00983137923061

Expected recruitment start date

2014-09-23, 1393/07/01

Expected recruitment end date

2014-10-22, 1393/07/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison of pit and fissure sealant retention following alumina or bioactive glass air abrasion preparation

Public title

Comparison of pit and fissure sealant retention following bioactive glass air abrasion

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria: Subjects who their first permanent molars have no restorations or sealants on their fissures;

no detectable caries met the inclusion criteria. Exclusion criteria: Previously sealed first permanent molars; the ones with detectable dentin caries or fillings initially were excluded from the study.

Age

From **6 years** old to **12 years** old

Gender

Both

Phase

2-3

Groups that have been masked

No information

Sample size

Target sample size: **180**

Randomization (investigator's opinion)

Randomized

Randomization description

Blinding (investigator's opinion)

Single blinded

Blinding description

Placebo

Not used

Assignment

Parallel

Other design features

no

Secondary Ids

1

Registry name

-

Secondary trial Id

-

Registration date

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics Committee of Isfahan Medical University

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Hezar- jerib St

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Approval date

2013-12-09, 1392/09/18

Ethics committee reference number

393121

Health conditions studied

1

Description of health condition studied

No

ICD-10 code

-

ICD-10 code description

-

Primary outcomes

1

Description

Sealant Retention

Timepoint

At 3, 6, 9, 12 months after intervention

Method of measurement

Clinical examination with mirror and exploration probe

Secondary outcomes

1

Description

No

Timepoint

-

Method of measurement

-

Intervention groups

1

Description

Control group: Using of alumina air abrasion for the preparation of first permanent molar grooves. Alumina is aluminum oxide. Using 50 micro meter particles for 15 seconds.

Category

Prevention

2

Description

Intervention group: Using of Bio-active glass air abrasion for 15 second. Bio-active glass particles is 50 micro meter. Bio-active glass reacts with an aqueous solution where chemical and structural changes occur that result in the formation of a hydroxycarbonate apatite (HCA) surface layer an eventual dissolution of the powder particle. Bio-active glass is used currently in the oral cavity as bone-graft material.

Category

Prevention

Recruitment centers

1

Recruitment center

Name of recruitment center

School of Dental Medicine

Full name of responsible person

Dr Alireza Eshghi

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Sponsors / Funding sources**1****Sponsor****Name of organization / entity**Vice chancellor for research, Isfahan University of
Medical Sciences**Full name of responsible person**

Dr Mohammad Hashemi

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Grant name

-

Grant code / Reference number

-

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding sourceVice chancellor for research, Isfahan University of
Medical Sciences**Proportion provided by this source**

100

Public or private sector*empty***Domestic or foreign origin***empty***Category of foreign source of funding***empty***Country of origin****Type of organization providing the funding***empty***Person responsible for general inquiries****Contact****Name of organization / entity**

Isfahan Dental Medical School

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Full name of responsible person

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

empty

Study Protocol

empty

Statistical Analysis Plan

empty

Informed Consent Form

empty

Clinical Study Report

empty

Analytic Code

empty

Data Dictionary

empty