

# 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

Isfahan Medical School

##### Country

Iran (Islamic Republic of)

##### Phone

+98 31 3792 2891

##### Email address

fatemehnaderi@dnt.mui.ac.ir

##### 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

##### Street address

Hezar- jerib St

##### City

Isfahan

##### Postal code

-

#### 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

**Street address**

Hezar jerib St.

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**Web page address**

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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

**Street address**

Hezar jerib St.

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**Grant name**

-

**Grant code / Reference number**

-

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

Yes

**Title of funding source**Vice 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

**Full name of responsible person**

Dr Alireza Eshghi

**Position**Professor in the Department of Pediatric Dentistry;  
Professional Doctor of Pediatric Dentistry**Other areas of specialty/work****Street address**

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**Person responsible for scientific inquiries****Contact****Name of organization / entity**

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**Full name of responsible person**

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professional Doctor of Cosmetic and Restorative  
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**Person responsible for updating data****Contact****Name of organization / entity**

Naderi Beni

**Full name of responsible person**

Fatemeh

**Position**General Dentist; Assistant Professor of Pediatric  
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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*