

# CAD/CAM nitinol bonded retainer versus a chairside bonded retainer: a multicentre randomised controlled trial

<b>Submission date</b> 30/12/2017	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered <input type="checkbox"/> Protocol
<b>Registration date</b> 12/02/2018	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 05/04/2024	<b>Condition category</b> Oral Health	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Following orthodontic brace treatment the teeth are held in their new position by orthodontic appliances called retainers. One type of retainer is called a bonded retainer which is a small metal wire glued behind the front teeth. This study is looking at the use of two different types of bonded retainer to find out which is better: one that is shaped by the orthodontist, or one that has been made from a mould of the teeth by a computer. The study looks at which holds the teeth in their new position the best, which patients prefer and which is the most cost effective.

### Who can participate?

Participants who have undergone a course of orthodontic treatment and who now require a retainer

### What does the study involve?

Participants are randomly allocated to one of two groups to be treated with either a Memotain bonded retainer or an Ortho FlexTech bonded retainer. Participants are followed up over a 5-year period to determine the effectiveness of the retainers at maintaining the stability of the teeth after orthodontic treatment.

### What are the possible benefits and risks of participating?

The benefit to patients is that they are followed up for longer than normal (5 years). The study will help to show the best type of retainer for certain patients. The current research suggests there are no associated risks with wearing retainers.

### Where is the study run from?

1. Leeds Dental Institute (UK)
2. St Luke's Hospital (UK)
3. Beverley Orthodontic Centre (UK)

### When is the study starting and how long is it expected to run for?

September 2017 to January 2019

Who is funding the study?

1. Investigator initiated and funded
2. National Institute for Health Research (NIHR) (additional funding) (UK)

Who is the main contact?

1. Adam Jowett
2. Simon Littlewood

## Contact information

### Type(s)

Scientific

### Contact name

Mr Adam Jowett

### Contact details

St Luke's Hospital  
Little Horton Lane  
Bradford  
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### Type(s)

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Mr Simon Littlewood

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## Additional identifiers

EudraCT/CTIS number

IRAS number

185443

ClinicalTrials.gov number

Secondary identifying numbers

Protocol Number: DT16/86705, IRAS Number: 185443, REC Number 16/YH/0463.

## Study information

**Scientific Title**

CAD/CAM nitinol bonded retainer versus a chairside bonded retainer: a multicentre randomised controlled trial

**Study objectives**

Null hypothesis: There is no significant difference in stability, survival rate, patient satisfaction, and cost-effectiveness between using a CAD/CAM nitinol bonded retainer (Memotain) and a chairside bonded retainer (Ortho FlexTech).

**Ethics approval required**

Old ethics approval format

**Ethics approval(s)**

Yorkshire & The Humber - Bradford Leeds Research Ethics Committee, 07/07/2017, REC ref: 16 /YH/0463, protocol number: DT16/86705

**Study design**

Multicentre prospective two-arm parallel-group randomised controlled trial with a 1:1 allocation

**Primary study design**

Interventional

**Secondary study design**

Randomised controlled trial

**Study setting(s)**

Other

**Study type(s)**

Treatment

**Participant information sheet**

Not available in web format, please use the contact details to request a patient information sheet

**Health condition(s) or problem(s) studied**

Orthodontic relapse

**Interventions**

Simple randomisation will be used to allocate patients to one of the two groups. The randomisation website: [www.sealedenvelope.com](http://www.sealedenvelope.com) will be used to allocate patients to treatment group 1 or group 2. Block sizes of 2, 4 and 6 will be used.

Group 1: Memotain bonded retainer

Group 2: Ortho FlexTech bonded retainer

Patients are followed up to determine the efficacy of a CAD/CAM nitinol bonded retainer (Memotain) compared with a chairside bonded retainer (Ortho FlexTech) at maintaining the stability of the upper and lower arches after orthodontic treatment.

**Intervention Type**

Device

**Phase**

Not Applicable

**Drug/device/biological/vaccine name(s)**

Not provided at time of registration

**Primary outcome measure**

Stability measured by changes in Little's Irregularity Index, and the width of the upper and lower dental arches measured by inter-canine and inter-molar width. In extraction cases, the trialists will also assess whether or not the extraction space re-opens. These measurements will be carried out on orthodontic study models taken at the debond appointment, and the 6 month, 1 year, 2 year and 5 year review appointments.

**Secondary outcome measures**

Assessed at the 6 week, 6 month, 1 year, 2 year and 5 year review appointments:

1. The survival rate of each retainer type
2. The patient satisfaction with each retainer type

Assessed at the 1 year and 5 year review appointments:

1. The cost-effectiveness of each retainer type

**Overall study start date**

12/09/2017

**Completion date**

11/01/2019

## **Eligibility**

**Key inclusion criteria**

Each subject will:

1. Have undergone a course of upper and lower fixed appliance orthodontic treatment with satisfactory correction of the presenting malocclusion, where the treating clinician feels that retention is required
2. Have a full and normal complement of teeth in the upper and lower labial segments (incisors and canines) with these teeth being of normal size and shape
3. Brush their teeth at least twice per day
4. Be in good health
5. Be willing and able to comply with the trial regime
6. Have given written informed consent

Subjects may:

1. Have received treatment at any of the research sites
2. Have had dental extractions (premolar or molar) or a non-extraction approach
3. Have had other orthodontic treatment (e.g. removable or functional appliances) as part of their orthodontic treatment
4. Have undergone adjunctive surgical treatment, whether minor oral surgery to expose a tooth or orthognathic surgery to correct the position of the jaws

**Participant type(s)**

Patient

**Age group**

All

**Sex**

Both

**Target number of participants**

100 patients (50 patients per arm)

**Total final enrolment**

63

**Key exclusion criteria**

Subjects with:

1. Nickel allergy
2. Cleft palate and/or other severe facial deformity
3. Poor periodontal health including the presence of supragingival or subgingival calculus or periodontal pocketing greater than 3.5mm as determined by a basic periodontal examination (BPE) probe
4. Gross or uncontrolled caries
5. Prosthodontic requirement in the upper or lower arch at end of treatment
6. Restorations on the palatal/lingual surfaces of upper or lower incisors or canines
7. A starting malocclusion requiring extreme transverse correction

**Date of first enrolment**

20/10/2017

**Date of final enrolment**

05/07/2019

**Locations****Countries of recruitment**

England

United Kingdom

**Study participating centre**

**Leeds Dental Institute (University Dental Hospital)**

The Worsley Building

Clarendon Way

Leeds

United Kingdom

LS2 9LU

**Study participating centre****St Luke's Hospital (District General Hospital)**

Little Horton Lane

Bradford

United Kingdom

BD5 0NA

**Study participating centre****Beverley Orthodontic Centre (Specialist Orthodontic Practice)**

114 Norwood

Beverley

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HU17 9HL

## **Sponsor information**

**Organisation**

Leeds Dental Institute

**Sponsor details**

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[governance-ethics@leeds.ac.uk](mailto:governance-ethics@leeds.ac.uk)

**Sponsor type**

Hospital/treatment centre

**ROR**

<https://ror.org/024mrx33>

## **Funder(s)**

**Funder type**

Other

**Funder Name**

Investigator initiated and funded

**Funder Name**

National Institute for Health Research (NIHR) (additional funding)

**Alternative Name(s)**

National Institute for Health Research, NIHR Research, NIHRresearch, NIHR - National Institute for Health Research, NIHR (The National Institute for Health and Care Research), NIHR

**Funding Body Type**

Government organisation

**Funding Body Subtype**

National government

**Location**

United Kingdom

## Results and Publications

**Publication and dissemination plan**

Planned publication in a high-impact peer reviewed journal in late 2020.

**Intention to publish date**

11/10/2020

**Individual participant data (IPD) sharing plan**

The datasets generated and/or analysed during the current study will be included in the subsequent results publication.

**IPD sharing plan summary**

Other

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>		01/03/2023	23/03/2023	Yes	No
<a href="#">HRA research summary</a>			26/07/2023	No	No