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Complete dentures base materials and teeth types and phonetics

Submission date	Recruitment status	[_] Prospectively registered
18/09/2015	No longer recruiting	[_] Protocol
Registration date	**Overall study status**	[_] Statistical analysis plan
28/09/2015	Completed	[X] Results
Last Edited	**Condition category**	[_] Individual participant data
24/07/2020	Oral Health	

Plain English summary of protocol

Background and study aims
When people start wearing dentures for the first time, it can affect the way they speak. They may find that their voice has changed and they may have difficulties speaking for a short while. Possible reasons for this include the tongue not being able to get into the correct position or the denture itself being too thick or thin in certain areas. This study looks at the effect of different types of material of complete denture bases and different types of teeth on a person's short-term phonetics (I.e. the way they sound when they speak). Complete dentures affect speech sounds by changing the shape of the mouth (oral cavity dimensions) and structure (morphology). Upper incisors (front upper teeth) and different thickness of the dentures palatal plate in different positions have been reported as having an effect on the dimensions of the oral cavity. The impact of these factors on sounds, virtual period of distinct sounds in a word and the patient's variation with the dentures were examined. Speech making has a major consequence on patients' overall pleasure with the dentures and make them more likely to accept them. The changes in speech that often happen after a person starts to wear dentures are often temporary, but are still a source of worry for many. In addition, there is a lack of guidelines on designing dentures with best phonetic success.

Who can participate?
Men aged at least 55 years without teeth.

What does the study involve?
Participants are split into two batches with three groups in one batch and two groups in the other. Allocation to a particular group is done randomly. The participants in the first batch are given dentures made with one of three different denture base materials (flexible acrylic resin, heat cure acrylic resin, or chrome cobalt metallic base). The two groups in the second batch are given one of two different teeth types for their dentures: acrylic teeth and porcelain teeth. Each participants speech is then analysed by measuring their phonetics immediately after being given their dentures, then again 3 weeks and ten weeks later.

What are the possible benefits and risks of participating?
Not provided at time of registration.

Where is the study run from?
Al-Azhar University-Assiut Branch Dental Clinic (Egypt)

When is the study starting and how long is it expected to run for?
January 2015 to April 2015

Who is funding the study?
Albaha University (Saudi Arabia)

Who is the main contact?
Professor Khalid Arafa

Contact information

Type(s)
Scientific

Contact name
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Additional identifiers

Protocol serial number
N/A

Study information

Scientific Title
Effect of different complete dentures base materials and teeth types on short-term phonetics

Study objectives
Different complete dentures base materials and teeth types affect on short-term phonetics

Ethics approval required
Old ethics approval format

Ethics approval(s)
Dental Health Department of the Faculty of Applied Medical Sciences, Albaha University.

Study design
A parallel design experimental study.

Primary study design
Interventional

Study type(s)
Treatment

Health condition(s) or problem(s) studied
Dentures and phonetics

Interventions
The patients enrolled in the study (n=50) were divided into two main batches (three groups in batch one and two groups in batch two), with a total of ten patients in each group. The patients were randomly assigned into groups. The three groups in the first batch received three different denture base materials for the constructed palatal plate and rouge area of the complete dentures, (flexible acrylic resin, heat cure acrylic resin, and chrome cobalt metallic base). Another batch (twenty patients) divided into two groups received different teeth types: acrylic teeth and porcelain teeth.

Intervention Type
Procedure/Surgery

Primary outcome(s)
The evaluation of the speech quality was made by measuring the phonetics. The patients were connected to a spectrogram and were asked to verbalize Arabic pronunciation letters ( ). The mean of the sound levels was calculated for each patient, and subsequently tabulated and analyzed. The evaluation was made immediately following denture insertion: three weeks, and ten weeks following the insertion of dentures by a computerized speech lab (spectrogram). This measurement protocol was implemented for two batches. The level of sound in patients with complete dentures made from different base materials or different teeth was assessed via a spectrogram. (it was measured at insertion, 3 weeks later and after 10 weeks)

Key secondary outcome(s))
N/A

Completion date
09/04/2015

Eligibility

Key inclusion criteria
1. Male, aged 55 years or older
2. Completely edentulous
3. Normal occlusion class one
4. Free from disabilities or chronic conditions, such as diabetes

Participant type(s)
Patient

Healthy volunteers allowed
No

Age group
Other

Sex
Male

Total final enrolment
50

Key exclusion criteria
1. Diabetic patients
2. Participants that are partially edentulous,
3. Participants that have neglected oral hygiene

Date of first enrolment
01/01/2015

Date of final enrolment
20/01/2015

Locations

Countries of recruitment
Egypt

Study participating centre
Al-Azhar University-Assiut Branch Dental Clinic
Faculty of Dentistry
Assuit
Egypt
71524

Sponsor information

Organisation
Albaha University

ROR
https://ror.org/0403jak37

Funder(s)

Funder type
University/education

Funder Name
Albaha University (Saudi Arabia)

Results and Publications

Individual participant data (IPD) sharing plan

IPD sharing plan summary
Not expected to be made available

Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
Results article	results	01/04/2016	24/07/2020	Yes	No
Participant information sheet	Participant information sheet	11/11/2025	11/11/2025	No	Yes