

# Articulation and coordination of speech after treatment for oral cancer

Published: 25-05-2021

Last updated: 08-04-2024

To investigate the timing and coordination of speech articulation and its relation to speech disorders of people who have been treated for oral cancer with a major resection. This information will lead to a better understanding of articulation and...

<b>Ethical review</b>	Approved WMO
<b>Status</b>	Recruitment stopped
<b>Health condition type</b>	Head and neck therapeutic procedures
<b>Study type</b>	Observational invasive

## Summary

### ID

NL-OMON51026

### Source

ToetsingOnline

### Brief title

Speech difficulties after oral cancer treatment

### Condition

- Head and neck therapeutic procedures

### Synonym

dysarthria, speech pathology

### Research involving

Human

### Sponsors and support

**Primary sponsor:** Universitair Medisch Centrum Groningen

**Source(s) of monetary or material Support:** Ministerie van OC&W

## Intervention

**Keyword:** Articulation, dysarthria, Oral cancer, Speech

## Outcome measures

### Primary outcome

- Displacement of the tongue tip, the tongue body, the lips and the jaw at consonant and vowel targets
- Velocity of tongue, of the tongue tip, the tongue body, the lips, and the jaw at key landmarks of speech gestures.
- Duration of speech gestures produced with the tongue tip, the tongue body, the lips and the jaw.
- Speech rate (syllables/min and words/min)

### Secondary outcome

- Acoustic measures of speech
- Models to link articulation and speech, both speech synthesis from EMA, and EMA from speech (machine learning)
- Changes in the variability and complexity of articulators\* movement under masked auditory feedback compared to normal feedback

## Study description

### Background summary

People treated for oral cancer with a major resection procedure often develop problems with swallowing and articulation. The deviant articulation affects speech, complicates communication, and has a negative effect on the quality of life of patients. Currently, the available information on the effects of oral cancer treatment on speech articulation is rather scarce, especially with respect to the changes and adaptations in articulatory processes in these

speakers. The proposed research will shed more light on this issue and will lead ultimately to a better understanding of the anatomical and physiological basis of the disordered speech in oral cancer patients. In turn, this information will be-come available to clinicians and speech therapists who will be able to minimise negative effects of treatment and improve therapies after treatment.

### **Study objective**

To investigate the timing and coordination of speech articulation and its relation to speech disorders of people who have been treated for oral cancer with a major resec-tion. This information will lead to a better understanding of articulation and articulation related speech problems after oral cancer and will ultimately aid speech therapy and improve the information and consultation of these patients.

### **Study design**

Subjects will perform several speech tasks. Some of the speech tasks will be carried out while the participant is wearing earphones through which pink noise is distributed (at a comfortable volume). During these tasks, articulatory trajectories will be recorded using electromagnetic articulography (EMA). The data from the oral cancer patients will be compared to EMA and speech data from non-speech disturbed controls.

### **Study burden and risks**

No known risks or benefits are associated with participating in this study.

## **Contacts**

### **Public**

Universitair Medisch Centrum Groningen

Hanzeplein 1  
Groningen 9713GZ  
NL

### **Scientific**

Universitair Medisch Centrum Groningen

Hanzeplein 1  
Groningen 9713GZ  
NL

## **Trial sites**

### **Listed location countries**

Netherlands

## **Eligibility criteria**

### **Age**

Adults (18-64 years)

Elderly (65 years and older)

### **Inclusion criteria**

- At least 18 years of age and able to make an informed consent
- Native speaker of Dutch
- Diagnosed with oral tumors and having had a major surgical resection of a TNM stage T3 or T4, where parts of the tongue or jaw have been removed and perhaps replaced by other tissue at least 12 months before (patient subject) or a volunteer without disturbed speech.

### **Exclusion criteria**

- Recurrence of disease
- History of neurological or psychological disorders
- Self-reported signs of depression
- Stuttering or other pre-existing speech and language problems
- Anatomy that prevents attaching sensors to the tongue (i.e., trismus or tongue immobility)
- Problems with sight or hearing that impede reading or understanding instructions. When glasses or a hearing aid resolve these problems, there is no impediment to participation.
- Non removable metal on, in or close to the head (e.g., piercings, dental braces, medical devices such as deep brain stimulation electrodes) or medical devices (e.g., a pacemaker) incompatible to electromagnetic fields.

## **Study design**

## Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)

**Primary purpose:** Diagnostic

## Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	28-09-2021
Enrollment:	40
Type:	Actual

## Ethics review

Approved WMO	
Date:	25-05-2021
Application type:	First submission
Review commission:	METC Universitair Medisch Centrum Groningen (Groningen)

## Study registrations

### Followed up by the following (possibly more current) registration

No registrations found.

### Other (possibly less up-to-date) registrations in this register

No registrations found.

### In other registers

**Register**

CCMO

**ID**

NL76137.042.20