2026-01-14

ACT Project catalogue
Revised January 2026

AKADEMISKT CENTRUM FÖR ÄLDRETANDVÅRD

2026-01-14

	Core Projects	ACT-affiliated researchers	Collaborators	PhD student
1.	**Frailest/osteoporosis**	Pia Skott, Åke Seiger, Charlotta Elleby	Helena Salminen, Sven Nyrén, Holger Theobald, Grethe Jonasson	
2.	**Chew and think**	Mats Trulsson, Pia Skott, Gunilla Sandborgh Englund, Åke Seiger	Erik Westman, Urban Ekman, J-I Smedberg, Abhishek Kumar	Linn Hedberg
3.	**Domiciliary dental care**	Inger Wårdh, Pia Skott, Elisabet Morén	Petteri Sjögren, Georgios Belibasakis, Niels Ganzer, Kristina Edman, Helena Domeij	
4.	**Oral Screen**	Pia Skott	Gunilla Sandborgh Englund, Pia Skott Elisabet Åkesson, Åke Seiger Anita McAllister, Kerstin Johansson Åsa Karlsson. Emmelie Persson	--
5.	**Chew and swallow/MoWo**	Mats Trulsson, Gunilla Sandborgh Englund, Pia Skott, Abhishek Kumar,	Anastasios Grigoriadis, Tommy Cederholm, Anders Wänman, Anne Söderlund, Elisabeth Rydwik, Kerstin Johansson	--
6.	**Age-related changes in mastication**	Abhishek Kumar	Anastasios Grigoriadis, Joannis Grigoriadis	Linda Munirji
7.	**Training paradigms development**	Mats Trulsson, Pia Skott, Abhishek Kumar	Anastasios Grigoriadis, Joannis Grigoriadis	Leming Jia
8.	**Oral health and malnutrition**	Gunilla Sandborgh Englund, Abhishek Kumar	Duangjai Lexomboon	--
9.	**Intrinsic capacity in dental setting**	Jesper Dalum, Charlotta Elleby	Dorota Religa, Jessica Friberg, Annette Nordström	

Karolinska Institutet · Folktandvården · Stockholms Sjukhem · Region Stockholm

AKADEMISKT CENTRUM FÖR ÄLDRETANDVÅRD

2026-01-14

Karolinska Institutet

Folktandvården

Stockholms Sjukhem

Region Stockholm

2026-01-14

Principal Investgator:
Helena Salminen
(Supervisor)

Co-investigators:
Charlotta Elleby
(PhD student)

Pia Skott
Sven Nyrén
Holger Theobald
(Co-Supervisors)

Grethe Jonasson
(Research collaborator)

Title

1. **New ways of identifying individuals at risk of frailty and fragility fractures**

Project overview

Project start	**2016**	
Calculated end	2025	
Grants awarded		
Source	ACT FTV Stockholm	

Aim

The aim is to study methods to identify individuals with an augmented risk of frailty and fragility fractures in the dental setting, by assessing the trabecular bone structure in dental radiographs, questions about health status and mobility, comorbidity with other diagnoses, and using the FRAX-tool for fracture risk assessment.

Project description

The REBUS cohort gives possibilities to study the predictive value of risk factors associated with fragility fractures during a follow-up of up to 47 years. Identifying high-risk patients enables early inset of effective preventive treatments such as medication and physical activity, which would decrease both the suffering of individuals and high costs for the society. The first three studies are cohort studies with register data using the REBUS cohort. The purpose of the first study is to investigate if risk for future fractures can be determined by assessing the trabecular bone structure in dental intra oral radiographs in the dental part of the REBUS cohort. In the following two studies the purpose is to find additional risk factors for fragility fractures and frailty. In the fourth study, which is a qualitative study, we investigate patients' thoughts of having their ten-year risk of fragility fractures being assessed in conjunction with a dental appointment. This setting is a previously not identified possibility to find

individuals with augmented risk of sustaining fragility fractures, and, hence, frailty. Dental radiographs are taken regularly on an individual basis on a large part of the population, and the dentists are familiar in analyzing them. The regular dental recall system for check-ups could also enable regular contact with a large part of the population. Altogether this could make the dental setting suitable for identifying patients at risk of fragility fractures and frailty.
Studies included:

Study I: Aim**:** To study two methods of assessment of intraoral radiographs and their association with fragility fractures during a follow-up time of up to 47 years using data of 837 individuals in the Rebus dental cohort.

Study II: Aim: To study the association between questions about health status and mobility and hip fractures in the REBUS cohort during a 35-year follow-up using questions from the 1969 postal survey to over 30,000 participants.

Study III: Aim: A nested case control study of the 30 000 individuals from the original REBUS cohort, studying the association of certain medical diagnoses to fragility fractures during a follow-up of up to 47 years.

Study IV: Aim: A qualitative study to investigate patients' thoughts about having their fracture risk assessed in conjunction with a dental appointment using the risk assessment tool FRAX. Patients 65-75 years old in Stockholm Public Dentistry will be interviewed.

Project status December 2022

Two manuscripts have been published, and the PhD candidate has defended her thesis. One manuscript revision is ongoing.

Publications

Elleby C, Skott P, Jonasson G, Theobald H, Nyrén S, Salminen H: Evaluation of the predicted value of two methods to identify individuals with high risk of fragility fractures using intraoral radiographs. Eur J Oral Sci 2021 Oct;129(5):e12801. doi: 10.1111/eos.12801.

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Elleby C, Skott P, Johansson SE, Nyrén S, Theobald H, Salminen H. Long term association of hip fractures by questions of physical health in a cohort of men and women. PLoS One. 2023 Mar 29;18(3):e0283564.

Charlotta Elleby, Pia Skott, Sven-Erik Johansson, Holger Theobald, Sven Nyrén, and Helena Salminen. High alcohol consumption and early hip fracture risk in men and women. Submitted Scientific Reports. (Revision 2 ongoing).

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Principal Investigators:
Urban Ekman
Mats Trulsson
Abhishek Kumar

Co-investigators:
Linn Hedberg
(PhD student)

Eric Westman
Åke Seiger
Pia Skott
Gunilla Sandborgh Englund

Title

2. **The COGCHEW project: The cognitive changes and neural correlate after rehabilitation of mastication in older people – an intervention study**

Project overview

Project start	**2016**	
Calculated end	2027	
Grants awarded	6*425 000	
Source	SOF/PATENTMEDELSFONDEN – För odontologisk profylaxforskning/ KI/ACT FTV Stockholm	

Aim

The overarching aim of this project is to evaluate the association between masticatory function and neurocognition in older adults and to further investigate the potential causal relationship between them. Specifically, during the grant period, we will continue our intervention study involving older adults who are indicated for oral rehabilitation. As part of the study, we will restore masticatory function and assess changes in neurocognitive outcomes using standardized cognitive tests and sophisticated brain imaging techniques.

Project description

Emerging evidence from recent epidemiological studies suggests a strong association between masticatory function and cognitive impairments. These findings reinforce the view that tooth loss and reduced masticatory function are risk factors for dementia and cognitive decline. Animal studies have even indicated a causal relationship and proposed several underlying mechanisms; however, such evidence is still lacking in human research. Therefore, this project ambitiously aims to investigate the “cause-and-effect” relationship between dental

status/masticatory function and cognition in humans. During the project, we will recruit partially dentulous or edentulous patients scheduled for prosthodontic rehabilitation and restore their masticatory function with fixed prostheses. Cognitive changes will be assessed using comprehensive neuropsychological evaluations and advanced MRI techniques.

We hypothesize that the experimental group receiving oral rehabilitation will exhibit greater improvements in cognitive performance, particularly in episodic memory and executive functions, compared to the control group. The increased cognitive performance is expected to correlate with corresponding neural changes, primarily in the hippocampus and prefrontal cortex.

Project status December 2022

Entire samples of 80 patients undergoing prosthodontic treatment for the rehabilitation of their missing teeth are recruited. All baseline measurements have been performed and a large fraction on post intervention follow up measurements are also completed. The entire follow up including the one year follow up and processing of the samples is expected to be completed by end of 2026

We have published the study protocol and reported preliminary baseline findings demonstrating that reduced chewing function is associated with poorer episodic memory and executive function, with white matter changes in the brain mediating this relationship. These results support the hypothesis that masticatory dysfunction may contribute to cognitive decline through vascular brain changes. So far, we have recruited the full study sample and completed baseline cognitive and MRI assessments. Most participants have now been successfully rehabilitated with fixed prostheses. Preliminary analyses have revealed several promising and potentially novel interactions. If oral rehabilitation proves to positively impact cognitive function, it could significantly influence future care strategies for older adults at risk of dementia. This project could pave the way for novel preventive approaches to cognitive decline and dementia, and therefore, we seek the grant for the continuation of this project.

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Publications

Hedberg L, Ekman U, Engström Nordin L, Smedberg J-I, Skott P, Seiger Å, Sandborgh-Englund G, Westman E, Kumar A, Trulsson M. Cognitive changes and neural correlates after oral rehabilitation procedures in older adults - Protocol for a randomized controlled interventional study. BMC Oral Health 2021 Jun 9;21(1):297. doi: 10.1186/s12903-021-01654-5.

HEDBERG, L., KUMAR, A., SKOTT, P., SMEDBERG, J.-I., SEIGER, Å., SANDBORGH-ENGLUND, G., NORDIN, L. E., KÅREHOLT, I., TZORTZAKAKIS, A., WESTMAN, E., TRULSSON, M. & EKMAN, U. 2023. White matter abnormalities mediate the association between masticatory dysfunction and cognition among older adults. Journal of Oral Rehabilitation, 50, 1422-1431.

Principal Investigator:
Inger Wårdh

Co-investigators:

PhD student Elisabeth Morén

Georgios Belibasakis
Petteri Sjögren
Pia Skott
Kristina Edman,
Niels Ganzer
Helena Domeij

2026-01-14

Title

3. Domiciliary dental care

Project overview

Project start	**2019**	
Calculated end	2023	
Grants awarded		
Source	SOF	Kamprads stiftelse, Region FTV Dalarna,
Year	2019	2021

Aim

The aim with this project is to develop domiciliary professional oral care. We will compare the effect of different regimens for domiciliary prophylactic professional oral care according to both content and frequency. The overall aim is to establish relevant recommendations for professional domiciliary prophylactic oral care.

Project description

Study 1 To evaluate the effect of domiciliary prophylactic professional oral care for care dependent nursing home living elderly, concerning resident´s oral health and oral care knowledge and attitudes in nursing staff.
Study 2 A systematic review to identify and evaluate interventions to control root caries progression in care dependent home living elderly.
Study 3 To evaluate the effect of domiciliary prophylactic professional oral care interventions for care dependent home living elderly, with focus on root caries progression and oral health related quality of life.
Study 4 To describe the oral microbiome in care dependent home living elderly.

2026-01-14

Project status December 2022

Two manuscripts are published and two are ongoing. One doctoral student has defended her thesis.

Publications

1. Girestam Croonquist C, Dalum J, Skott P, Sjögren P, Wårdh I, Morén E. Effects of Domiciliary Professional Oral Care for Care-Dependent Elderly in Nursing Homes – Oral Hygiene, Gingival Bleeding, Root Caries and Nursing Staff's Oral Health Knowledge and Attitudes. Clin Interv Aging. 2020;15:1305-1315.

2. Morén E, Skott P, Edman K, Gavriilidou N, Wårdh I, Domeij H. The Effect of Domiciliary Professional Oral Care on Root Caries Progression in Care-Dependent Older Adults: A Systematic Review. J Clin Med. 2023;12(7):2748.

3. Morén E, Skott P, Gabre P, Sjögren P, Wårdh I. Impact of Home-Based Professional Dental Cleaning on Oral Health in Care-Dependent Older Adults – A Randomized Controlled Trial – Part 1: Clinical Variables
In manuscript.

4. Morén E, Gabre P, Sjögren P, Wårdh I, Skott P. Impact of Home-Based Professional Dental Cleaning on Oral Health in Care-Dependent Older Adults – A Randomized Controlled Trial – Part 2: Self-Reported Data and Oral Health-Related Quality of Life
In manuscript.

2026-01-14

Principal Investigator:
Gunilla Sandborgh Englund

Co-investigators:
Pia Skott
Elisabet Åkesson
Åke Seiger
Anita McAllister
Kerstin Johansson
Åsa Karlsson
Emmelie Persson

Title

4. Oral screens in post stroke training: a randomized clinical trial

Project overview

Project start	**2015**	
Calculated end	2023	
Grants awarded	3*425 000 SEK	
Source	SOF	

Aim

The aim is to investigate if 3 months of oral screen training will improve the swallowing capacity and the oral motor function in stroke patients with residual dysphagia 8-12 months after first stroke, in comparison to controls.

Project description

Stroke is a common disease in older people, and often leads to various degrees of disability. Dysphagia is one such consequence which is associated with aspiration pneumonia and malnutrition. There are studies showing that oral screen-training may reduce dysphagia, but the method is insufficiently evaluated. Since treatment with an oral screen is easy, relatively quick and cheap, it is of high relevance to perform a strict and unbiased study to assess the feasibility and efficacy of the intervention. Thus, the aim of the present study is to evaluate the effect of daily oral screen training in post-stroke patients with dysphagia.

We will perform a randomized controlled clinical study in subjects who have had a first stroke 8-12 months earlier and suffer from dysphagia. The intervention consists of daily oral screen training for 3 months. In total 70 subjects will be randomized to intervention or control. The change in swallowing capacity is the main outcome, and secondary

outcomes are subjective swallowing problems, lip force, chewing function and quality of life.

Improved oral motor function and decreased dysphagia in post-stroke patients will result in an improved quality of life for the individual, and also reduce hospitalization and health care costs.

Project status December 2022

The inclusion period was terminated in May 2021. In total, 26 patients participated in the study. Two manuscripts are published from the project.

Publications

Skott P, Åkesson E, Johansson K, Dalum J, Persson E, Karlsson Å, Seiger Å, McAllister A, Sandborgh-Englund G. Orofacial dysfunction after stroke-A multidisciplinary approach. Gerodontology. 2024 Sep;41(3):376-384.

Dalum J, Skott P, Åkesson E, Persson E, Karlsson Å, Häbel H, Seiger Å, McAllister A, Johansson K, Sandborgh-Englund G. Effect of Oral Screen Training After Stroke-A Randomised Controlled Trial. Gerodontology. 2025 Sep;42(3):380-385. doi: 10.1111/ger.12803.

Principal Investigators:
Mats Trulsson
Abhishek Kumar

Co-investigators:
Gunilla Sandborgh Englund
Pia Skott
Tommy Cederholm
Kerstin Belqaid
Anastasios Grigoriadis
Kerstin Johansson
Elisabeth Rydwik
Anne Söderlund
Anders Wänman

2026-01-14

Title

5. The MoWo-project - Mouth work-out to prevent malnutrition and sarcopenia

Project overview

Project start	**2018**	
Calculated end	2028	
Grants awarded	500 000 640 000 975 000 500000*3	
Source	Vinnova UDI 1 VR Klinisk behandlingsforskning SOF	

Aim

Our long-term goal is to prevent malnutrition which is caused by impaired chewing and swallowing function. Together with dietary advice and an incentivization for behavioural change, mouth workout exercises have the potential to reduce malnutrition in older people. The aims for Phase I (2021-2023) are to determine physiological predictors of good chewing, swallowing and eating behaviours, identify the phenotype profiles of people with chewing and swallowing impairments and estimate the prevalence of people with such problems.

Project description

Ageing causes reduction in muscle mass and strength including the muscles responsible for chewing and swallowing movements. Older people with chewing and swallowing problems often choose to eat a poor diet of “coffee and sweet bread” instead of vegetables, meat and other nutritious, fibrous and protein rich food. The change of dietary patterns is gradual and often unnoticed by the healthcare. Recent research has

shown evidence of a vicious cycle involving decreased muscle mass and strength (sarcopenia), chewing and swallowing problems and malnutrition. Here we present a two-phase project to disrupt this vicious cycle. During phase I we will determine the physiological predictors of chewing, swallowing and eating behaviours and identify people with impairments. We will also determine the prevalence of chewing and swallowing impairments and strengthen our multidisciplinary network comprising of researchers from dentistry, swallowing experts, dietitians, physiotherapists and experts is malnutrition and sarcopenia. During phase II we will perform interventional studies on stratified groups identified in phase I and employ a multispecialty clinical approach. This includes mouth workout exercises, diet counselling, and behavioural modifications. We propose that our holistic approach will optimize chewing and swallowing function, improve eating behaviour, and subsequently prevent malnutrition in the older population.

The cross-sectional observational study planned for Phase I will include patients ≥65 years, with no current need of dental treatment that are able to fill in the questionnaires and perform the clinical tests. Phase I is explorative and does not have a primary outcome for hypothesis testing. A convenient sample of 300 participants (equal number of men and women) will be recruited for the study. Our estimation assumes that perhaps 30% will have swallow/chewing problems. A number of Subjective (OHIP, EAT10, MNA) and objective measurements (oral status, bite forces, tongue and lip forces, saliva secretion, TOMASS, food comminution test, mixing ability test, swallowing capacity test, grip force, arm and calf muscle circumference, etc) will be collected in order to identify the phenotype profiles of people with chewing and swallowing impairments.

Project status December 2023

Data collection for phase I (cross-sectional study) is completed. We have preliminarily analyzed the data and determined the important physiological markers of chewing and swallowing performance. We will now phenotype people and identify clusters of people with poor chewing and swallowing performance and introduce interventions to improve their eating behavior. We will determine the prevalence of chewing and swallowing impairment and strengthen our multidisciplinary network comprising researchers from dentistry, speech pathologists, dietitians, physiotherapists, and experts in malnutrition and sarcopenia.
During phase II, we will perform interventional studies on stratified groups identified in phase I and employ a multispecialty clinical approach in the

management of identified groups. This approach will include mouth workout (MoWo), diet counseling, and behavioral medicine. We will also incorporate the end user perspective in developing the intervention programs (ongoing doctoral project). This initiative is an attempt to implement the principles of precision medicine and offer a tailored and targeted approach to older individuals with chewing and swallowing impairments. The results of phases I and II will help us achieve our overarching goal of successfully designing robust clinical interventions with multicenter randomized control trials in the future. We also believe that our holistic approach will optimize chewing and swallowing function, improve eating behavior, and subsequently prevent (oral) frailty and malnutrition in the older population.

1. Determinants of Oral Function and Their Association with General Frailty in Swedish Older Adults
   (Data analysis and manuscript writing ongoing.)

Publications

Kumar A, Almotairy N, Merzo JJ, Wendin K, Rothenberg E, Grigoriadis A, Sandborgh-Englund G, Trulsson M. Chewing and its influence on swallowing, gastrointestinal and nutrition-related factors: a systematic review. Crit Rev Food Sci Nutr. 2023 Nov;63(33):11987-12017.

Leming Jia, Tommy Cederholm, Anders Wänman, Anne Söderlund, Elisabeth Rydwik, Kerstin Johansson, Anastasios Grigoriadis, Pia Skott, Gunilla Sandborgh Englund, Mats Trulsson, Abhishek Kumar. Determinants of Oral Function and Their Association With General Frailty in Swedish Older Adults (under preparation)

2026-01-14

Principal Investigator:
Anastasios Grigoriadis

PhD student
Linda Munirji

Co-investigators:
Abhishek Kumar
Joannis Grigoriadis

Title

6. Development and age-related changes in the determinants of masticatory function.

Project overview

Project start	**2023**	
Calculated end	**2029**	
Grants awarded	Klicka här för att ange text.	
Source		
Year		

Aim

The overall aim of the project is to study and establish normality indicators of orofacial muscle strength, chewing, and swallowing function and optimum chewing behavior in growing children and older adults with purpose of developing and optimizing an artificial intelligence-based masticatory function application.

Project description

Oral functions are important components of oral and general health. Oral functions are primarily dependent on the state of the dentition, orofacial muscles, and other orofacial structures in and around the oral cavity. The orofacial structures are subjected to developmental changes in children and age-related changes in younger and older individuals. In the current project we will determine the age-related changes in orofacial muscle strength, masticatory and swallowing function, and age dependent changes in dietary choices/preferences and nutrition in younger and older individuals. The knowledge thus generated will be used to customize and optimize an artificial intelligence-based masticatory function application (TUGGAai). The TUGGAai application will incorporate the important physiological determinants of chewing functions along with the performance in a food comminution masticatory function test.

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Planned studies:

1. Age-related changes in the determinants of oral functions, diet, and nutrition in adults. (data from about 60 individuals collected)
2. To develop and optimize an artificial intelligence-based application to screen people for chewing impairments. (working prototype developed)
3. Testing the application to screen people with poor chewing function, stratified populations of older individuals with prosthodontic treatment needs
4. The Role of Posterior Teeth in Masticatory Function, Nutrition, Cognition, and Quality of Life: An Umbrella Review (screening of articles ongoing)

Project status December 2023

PhD student registered June 2023

Age-related changes in the determinants of oral functions, diet, and nutrition in adults.

This ongoing study aims to evaluate age- and sex-related changes in oral function using a comprehensive battery of objective assessments. A total of 300 adults (≥18 years) will be included; to date, approximately 50 participants across different age groups have been recruited.

The Role of Posterior Teeth in Masticatory Function, Nutrition, Cognition, and Quality of Life: An Umbrella Review

The umbrella review has been initiated, and to date, more than 2,500 articles have been systematically screened. Approximately 10 high-quality reviews have been shortlisted for pooled synthesis across masticatory function, nutritional status, cognition, and quality of life outcomes. This review will provide an integrated, high-level evaluation of the strength and consistency of evidence linking posterior dentition to key health outcomes in older adults.

Publications

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Principal Investigator:
Abhishek Kumar

Co-investigators:
Mats Trulsson
Anastasios Grigoriadis
Pia Skott
Joannis Grigoriadis

7. Develop training paradigms and strategies for optimizing oral functions in older individuals

Project overview

Project start	**2023**	
Calculated end	2030	
Grants awarded	3*500 000 900 000	
Source	SOF, Foundation Nakao	

Aim

The overall aim of the project is to study the oral motor training needs and end-user perspective in the development of oral motor training paradigms. Further, the aim is to develop the oral motor training paradigm and test its effect on oral functions, dietary habits, and oral and general quality of life in older individuals.

Project description

As people age, they lose muscle mass and strength (Keller & Engelhardt, 2013). There is no doubt that the orofacial muscles are susceptible to aging. A weak orofacial muscle, including those responsible for chewing and swallowing, can lead to poor chewing and swallowing function. We hypothesize that there is a vicious cycle-like relationship that involves decreased muscle mass and strength (sarcopenia) of masticatory muscles, chewing and swallowing problems, food avoidance, and gradually, malnutrition. Therefore, interventional studies are needed to disrupt the effects of this vicious cycle. In the current project, we propose oral exercises as a simple method of preventing oral impairment and optimizing chewing function. During the course of the project, we will design a screening questionnaire (Oral Exercises Prescription Screening tool) to better understand the user needs that will help us in

"prescribing" exercises for improving oral functions. We will study the available literature and evaluate the oral exercises for clinical use from the end-user perspective. Based on this we will design an Oral Function Interventional Program that would involve a multidimensional approach to improve chewing and swallowing functions. We will test and study the short-term and long-term effects of the Oral Function Interventional Program on oral functions, dietary habits, and oral and general quality of life in older individuals.

Project status December 2023

- PhD student registered in November 2023.
- Ethical approval obtained

Studies planned

1. Effects of Oral Exercises on Cognitive and Physical Function, Nutritional Status, and Quality of Life: A Systematic Review

2. A user-centered approach to developing oral motor training paradigms (Data collection ongoing, 120 participants recruited)

3. Feasibility of Using EEG to Measure Cortical Activity During Chewing in Healthy Adults

Publications

Leming Jia, Ayumi Suzuki, Anastasios Grigoriadis, Pia Skott, Gunilla Sandborgh Englund, Mats Trulsson, Abhishek Kumar. Determinants of Oral Functions in Older People: A Comprehensive Analysis. Submitted (1st revision), The Journals of Gerontology Series A

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8. Oral health and malnutrition

Project overview

Project start	**2023**	
Calculated end	2026	
Grants awarded	--	
Source	DentMed/ACT	
Year		

Aim

To investigate whether poor oral health is a risk factor for nutritional status in older adults

OBJECTIVES

1. To determine whether number of teeth, chewing ability, and xerostomia are associated with low BMI (<18.5 kg/m2) and risk for malnutrition

2. To investigate whether change in number of teeth, chewing ability, and xerostomia is associated with weight change and change in risk for malnutrition

3.To identify groups at risk based on oral health status and investigate the association with consumption of cariogenic food

Project description

As people age, they lose muscle mass and strength (Keller & Engelhardt, 2013). There is no doubt that the orofacial muscles are susceptible to aging. A weak orofacial muscle, including those responsible for chewing and swallowing, can lead to poor chewing and swallowing function. We hypothesize that there is a vicious cycle-like relationship that involves

decreased muscle mass and strength (sarcopenia) of masticatory muscles, chewing and swallowing problems, food avoidance, and gradually, malnutrition. Therefore, interventional studies are needed to disrupt the effects of this vicious cycle. In the current project, we propose oral exercises as a simple method of preventing oral impairment and optimizing chewing function. During the course of the project, we will design a screening questionnaire (Oral Exercises Prescription Screening tool) to better understand the user needs that will help us in "prescribing" exercises for improving oral functions. We will study the available literature and evaluate the oral exercises for clinical use from the end-user perspective. Based on this we will design an Oral Function Interventional Program that would involve a multidimensional approach to improve chewing and swallowing functions. We will test and study the short-term and long-term effects of the Oral Function Interventional Program on oral functions, dietary habits, and oral and general quality of life in older individuals.

Project status December 2025

The project is ongoing, with two complementary studies designed to address all objectives. One manuscript, "**Is poor chewing ability a risk factor for malnutrition? A six-year longitudinal study of older adults in Sweden,**" has been published, demonstrating that impaired chewing ability predicts malnutrition risk and significant weight loss. The second manuscript, currently under preparation, builds on these findings using longitudinal data from the SNAC-K cohort, showing that both baseline and worsening chewing difficulties are associated with higher odds of malnutrition and >10% weight loss. Together, the studies indicate that poor chewing ability is a modest but clinically meaningful risk factor for malnutrition in community-dwelling older adults.

The second manuscript, "**The associations between poor oral health and between-meal consumption of cariogenic foods in older adults**," extends this work by showing that compromised oral health is associated with more frequent between-meal intake of cariogenic foods, suggesting adaptive but nutritionally unfavorable eating behaviors.

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Publications

1. Lexomboon D, Kumar A, Freyland S, Xu W, Sandborgh-Englund G. Is poor chewing ability a risk factor for malnutrition? A six-year longitudinal study of older adults in Sweden. J Nutr Health Aging. 2025 Jun;29(6):100554.

2. Lexomboon D, Adrián Carballo-Casla, Xu W, Kumar A, Sandborgh-Englund G. The associations between poor oral health and between-meal consumption of cariogenic foods in older adults (under preparation)

2026-01-14

9. Assessing intrinsic capacity: Swedish translation of a basic assessment for loss of intrinsic capacity and co-creation of a pilot in a dental setting

Project overview

Project start	**2026**	
Calculated end	2030	
Grants awarded	500 000*3	
Source	SOF	
Year		

Aim

Klicka här för att ange text.The project aims to translate and validate an international assessment tool, *Basic Assessment for Loss of Intrinsic Capacity* (WHO, 2024), into Swedish and explore how dental care, as a novel setting for assessment of IC, can serve as a setting for identifying older adults at risk of frailty. Through co-creation with patients and healthcare professionals, an implementation model will be developed, incorporating both screening and health-promoting counselling

Project description

Frailty is one of the greatest challenges in public health and linked to functional impairment, morbidity, and increased care dependency. Intrinsic Capacity (IC), which describes an individual's physical and mental resources, is a dynamic state. Despite WHO recommendations, IC assessments are rarely used systematically in healthcare, neither in dental care settings – an arena where many older adults regularly seek treatment. This project investigates whether WHO's Integrated Care for Older People (ICOPE) model can be applied within dental care to enable the early identification of signs of frailty.

The project focuses on three main research questions:

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Validation of the WHO assessment instrument for intrinsic capacity for use in Swedish care settings.
Implementation model developed through co-creation with elderly patients and healthcareprofessionals

Evaluation of a pilot in dental care setting

Project status December 2025

The project has been initiated in January 2026