



Visual Summary

# ESSD 2024 14th Annual Congress

From bench to bedside



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From bench to bedside

## Pediatric dysphagia

### Keynote

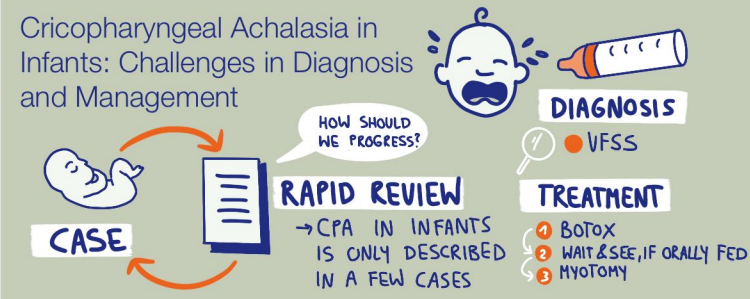


Ms. Alex Stewart  
Great Ormond Street  
Hospital For Children

The importance of holistic care in paediatric dysphagia: lessons learnt from a study of oesophageal atresia



Cricopharyngeal Achalasia in Infants: Challenges in Diagnosis and Management



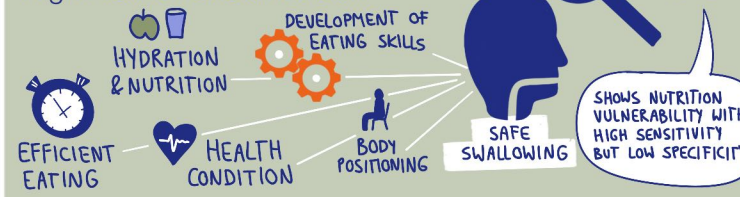
Mealtime Recommendation Interventions provided to Carers of School-aged Children who have Neurodisability and Oropharyngeal Dysphagia



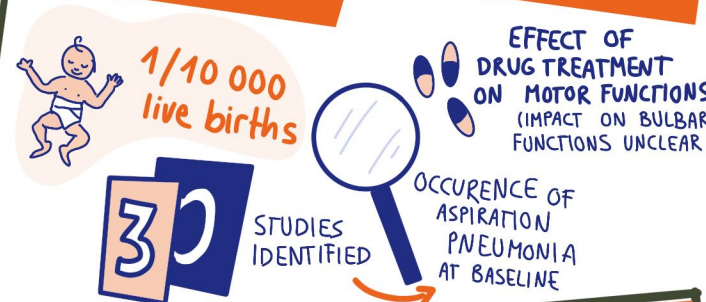
Oral feeding practices, amongst HCP, for infants receiving Nasal Continuous-Positive Airway Pressure (nCPAP) and High Flow Nasal Canula (HFNC) respiratory support



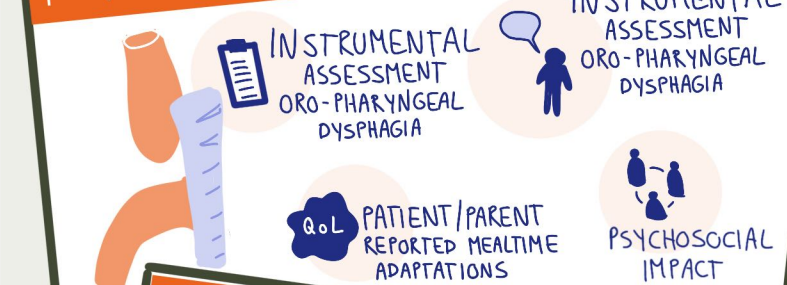
Children with Chronic Diseases in (Re)habilitation Programs are at High Risk for Undernutrition



The management of swallowing and feeding disorders in children with Spinal Muscular Atrophy type 1: A scoping review



Eating, drinking and oro-pharyngeal dysphagia in repaired oesophageal atresia/tracheo-oesophageal fistula: a mixed methods systematic review with meta-proportional analysis.

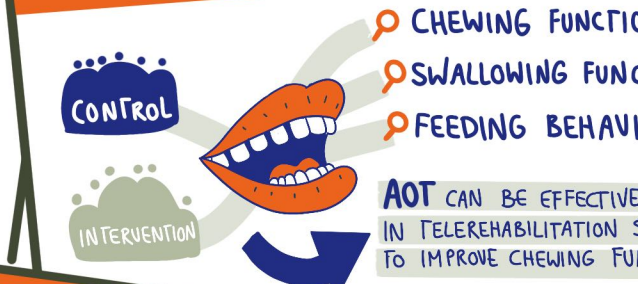


The PÄDY - Paediatric Dysphagia Management Program



Free paper session  
Pediatric Dysphagia

A Novel Approach to Chewing Training in Children with Cerebral Palsy: Home-Based Action Observation Training



Investigation Of The Effectiveness Of The Pedi-EAT-10 Scale In Demonstrating The Effects Of Swallowing Rehabilitation In Infants With SMA Type 1





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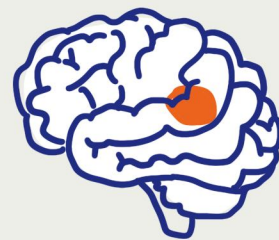
## Presidential Symposium: Innovation in the treatment of Neurogenic Dysphagia

### Keynote

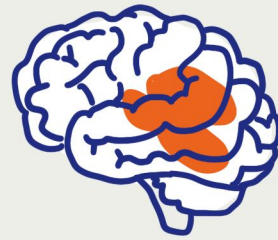


Prof. dr. Shaheen Hamdy  
University Of Manchester

Is neuromodulation the answer to dysphagia after stroke? – a review of the evidence



PRESENTATION



1 MONTH

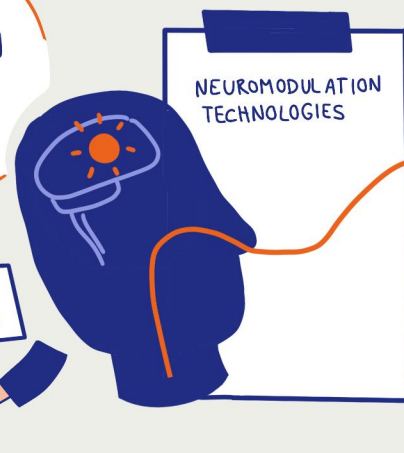


3 MONTHS

WHAT ARE THE EFFECTS OF DIFFERENT STIMULATION METHODS ON SWALLOWING IN DYSPHAGIC STROKE PATIENTS?

MANAGEMENT OF ORO-PHARYNGEAL DYSPHAGIA REMAINS CONTROVERSIAL WITH LIMITED EVIDENCE

RCTs needed



- PES
- NIBS
- 1Hz PARADIGM
- 5Hz PARADIGM
- (NEURONAVIGATED) rTMS
- SHAM
- TMS
- tDCS

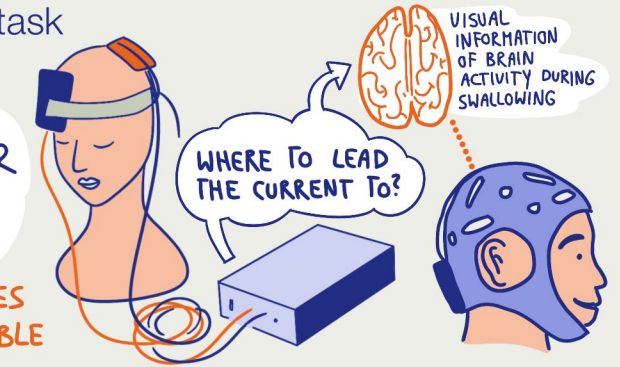


Dr. Paul Muhle  
University Hospital Münster,  
Department Of Neurology

Effects of individually optimized multi-channel transcranial direct current stimulation on cortical activation during a challenged swallow task

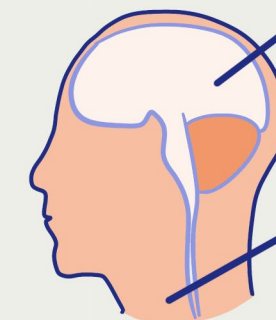
CAN mc-tDCS TARGET THE PHARYNGEAL SENSORIMOTOR CORTEX FOR OPTIMIZED INDIVIDUALIZED STIMULATION?

OUR PILOT DATA DEMONSTRATES THAT THIS APPROACH IS FEASIBLE



Dr. Ivy Cheng  
University Of Hong Kong

Effects of cross-modal neurostimulation on the human swallowing system



CEREBRAL CORTEX STIMULATION (tDCS)

PERIPHERAL STIMULATION (PES)

METAPLASTICITY CAN BE INDUCED IN THE HUMAN SWALLOWING SYSTEM THROUGH CROSS-MODAL NEUROSTIMULATION

HIGH VARIABILITY OF RESPONSE AMONG INDIVIDUALS

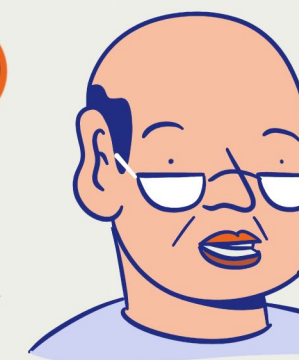


BRING BRAIN INTO SUPPRESSED STATE BEFORE NEUROSTIMULATION TO REDUCE VARIABILITY & ENHANCE tTMS TREATMENT OUTCOMES



Mrs. Jo Puntil  
St. George Regional Hospital/  
Intermountain Health

Novel Treatment Approach to Severe Dysphagia In the United States



GRAPHIC RECORDING  
MANUEL RECKER.DE



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From bench to bedside

## Swallowing impairment in Head and Neck Oncology

### Keynote



Prof. dr. Michiel van den Brekel  
Netherlands Cancer Institute

Innovations in Multidisciplinary Head and Neck Cancer Rehabilitation

INTERDISCIPLINARY REHABILITATION



TAILOR THERAPY TO THE INDIVIDUAL

- BODY FUNCTIONS
- ACTIVITIES
- PARTICIPATION

### PHASES OF REHABILITATION

PREHAB

DURING/AFTER CRT AND/OR SURGERY



LATE RAD

PROGRESSIVE FUNCTIONAL IMPAIRMENT AFTER 10-20 YEARS



DYSPHAGIA PREVENTION + TREATMENT



VOICE & SPEECH THERAPY



ORGANIZATION OF REHABILITATION CARE



COUNSELING & DEVELOPMENT OF DECISION AIDS

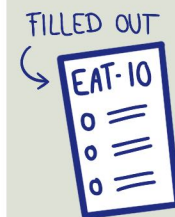
To be or not to be dysphagic: the prevalence of dysphagia in newly diagnosed head-and-neck cancer patients.

#### RISK FACTORS

- ADVANCED STAGE CANCER
- PHARYNGEAL TUMOR LOCATION
- MALNUTRITION

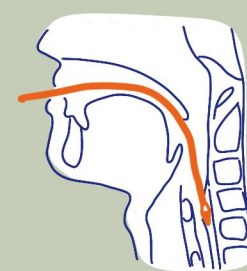


225 PATIENT WITH HNC DIAGNOSIS INCLUDED IN COHORT STUDY



1/5 ARE AT RISK OF OROPHARYNGEAL DYSPHAGIA PRIOR CANCER TREATMENT

Effectiveness and Long-Term Durability of Cricopharyngeal Peroral Endoscopic Myotomy (C-POEM) for Treating Dysphagia with Upper Oesophageal Sphincter Dysfunction

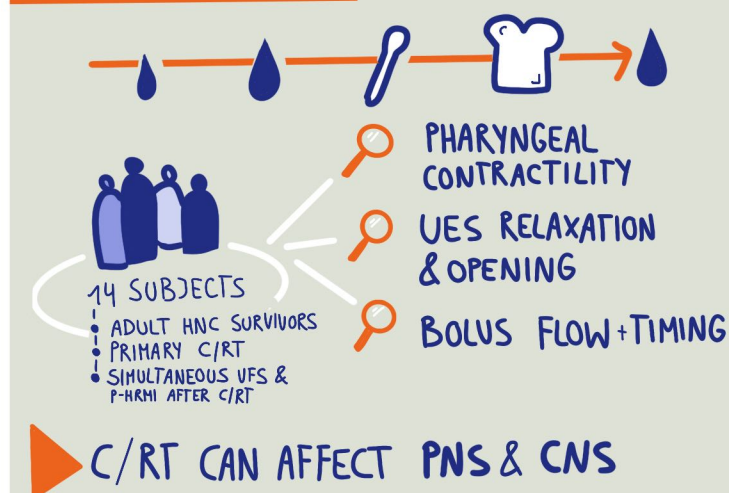


- ✓ C-POEM IS EFFECTIVE & SAFE
- ✓ VARIOUS NEUROMYOGENIC DISORDERS
- ✓ DEMONSTRATED TREATMENT DURABILITY
- ✓ MAJORITY OF PATIENTS ABLE TO BE WEANED OFF PEG

Swallowing Rehabilitation Post-Total Laryngectomy: A Clinical Phase II Trial Using the Swallowing Exercise Aid (SEA 2.0)



Impact of primary (chemo-) radiotherapy on pharyngeal and upper oesophageal swallow biomechanics in head and neck cancer patients





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## EUGMS-ESSD-Joint-Symposium



Dr. Elisabet Sánchez-García  
Mater Private Hospital Cork,  
Ireland

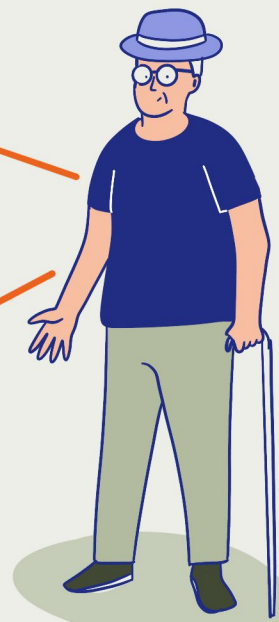
### Sarcopenic Dysphagia: An Update

**SARCOPENIA**  
PROGRESSIVE &  
GENERALIZED  
SKELETAL MUSCLE  
DISORDER

low muscle  
strength

low muscle  
quantity

ALSO AFFECTS  
SWALLOWING  
MUSCLES!



What are the  
odds of developing  
dysphagia in  
sarcopenia patients?

- 1 DIAGNOSE SARCOPENIA
- 2 ASSESS RISK  
FOR DYSPHAGIA

WHAT ABOUT  
THE TREATMENT

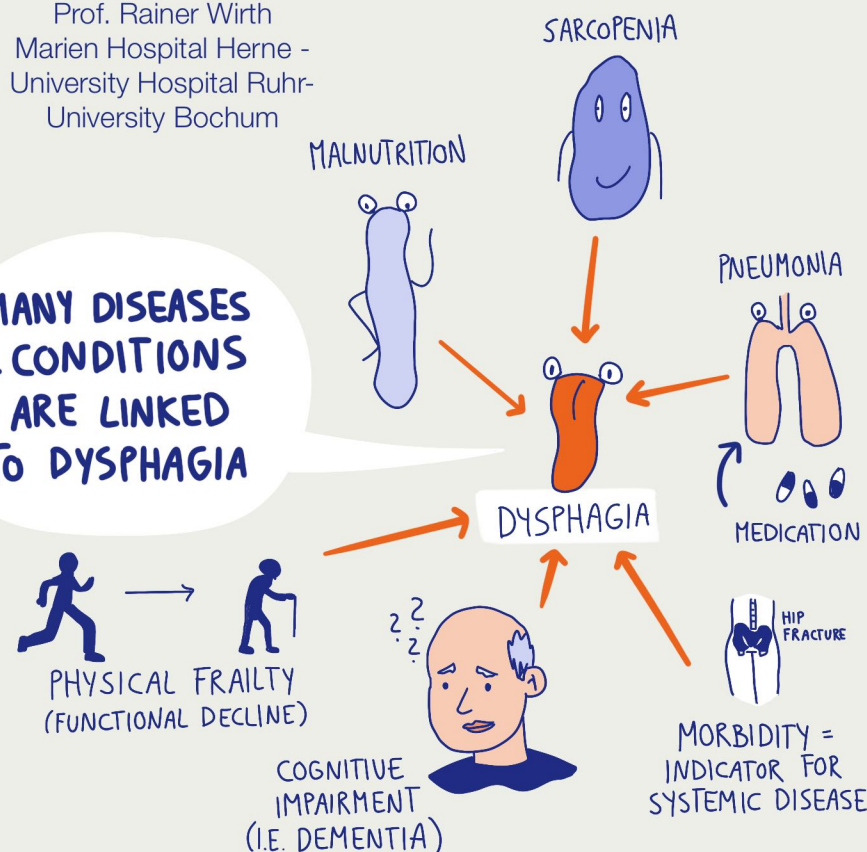
**NUTRITION  
REHABILITATION**  
WHOLE BODY & SWALLOWING  
MUSCLE STRENGTH & RESISTANCE  
TRAINING PROBABLY HAVE A ROLE  
IN MANAGING THESE PATIENTS



Prof. Rainer Wirth  
Marien Hospital Herne -  
University Hospital Ruhr-  
University Bochum

### Geriatric comorbidity - what is relevant for dysphagia?

MANY DISEASES  
& CONDITIONS  
ARE LINKED  
TO DYSPHAGIA



Prof. dr. Sonja Suntrup-Krüger  
University Hospital Münster

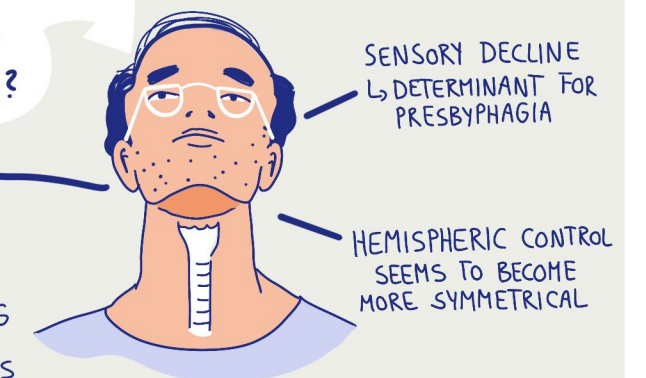
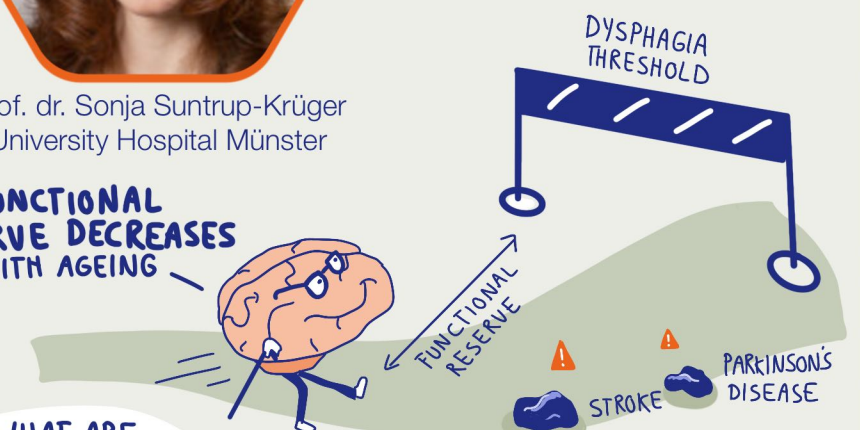
### Neurophysiology of Swallowing in the aging brain

FUNCTIONAL  
RESERVE DECREASES  
WITH AGEING

WHAT ARE  
COMPENSATORY  
CHANGES IN  
CORTICAL PROCESSING  
IN THE AGEING BRAIN?

COGNITIVE DECLINE  
→ LIMITS COMPENSATION  
MECHANISMS

AVOID DUAL-TASK  
SITUATIONS DURING  
MEALTIME TO POOL  
CORTICAL RESOURCES  
FOR SWALLOWING





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## Free paper session

Geriatric Dysphagia

Eating and Drinking with Acknowledged Risks in older adults – A mixed methods study of the experiences of clinicians in Japan and the UK



### EATING & DRINKING WITH ACKNOWLEDGED RISKS (EDAR)

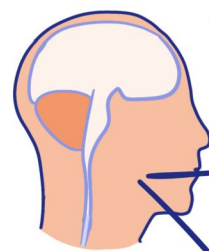
- EXPERIENCE / TRAINING ON EDAR
- PRIORITIES IN DECISION-MAKING
- RELATIONSHIP WITH PATIENTS & FAMILIES

INTERVIEWS WITH JAPANESE HCP / SLT / NURSES

Sarcopenic dysphagia: preliminary findings from ultrasonographic examination of swallowing muscles and development of an assessment battery

### AGEING

### PRESENCE OF SARCOPENIA

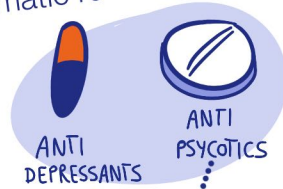


ULTRASOUND IMAGE ACQUISITION

MASS & QUALITY OF SUPRAHYOID SWALLOWING MUSCLES



Effects of prescribed pharmaceutical agents on oropharyngeal swallowing in geriatric population: a systematic review



SUDDEN ONSET OF SWALLOWING IMPAIRMENT = RED FLAG!

STUDY GROUP: OLDER ADULTS



### DYSPHAGIA

- CAUTION: MEDS WITH ANTICHOLINERGIC EFFECT IN OLDER ADULTS
- INVOLVE SLT IN ASSESSMENT OF OLDER ADULTS

K-means clustering of Brazilian community-dwelling older adults based on age, nutritional status and risk of sarcopenia and dysphagia



### AGEING

- MUSKOSKELETAL
- FUNCTIONAL
- NUTRITIONAL



COMMUNITY DWELLING BRAZILIAN ELDERLY

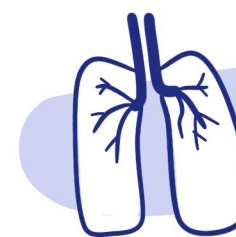
CLUSTER 2  
**RAD**  
(DYSPHAGIA)

CLUSTER 1  
**BMI**  
(NUTRITIONAL STATUS)

The prognostic significance of cough force for the occurrence of pneumonia in geriatric patients with oropharyngeal dysphagia



### MAXIMUM EXPIRATORY FLOW



GENERAL PROGNOSIS & INCIDENCE OF PNEUMONIA



GRAPHIC RECORDING  
MANUEL RECKER.DE



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## Dysphagia in the ICU / Dysphagia and airway management

### Keynote

Switching the swallow back on – treatment of dysphagia in the ICU

WE NEED TO RESENSITIZE THE LARYNGOPHARYNX.

DYSPHAGIA IS COMMON IN THE ICU!

INCREASING NUMBER OF PATIENTS

POST-EXTUBATION DYSPHAGIA

TRACHEOSTOMY

MULTIPLE CO-MORBIDITIES

HIGH CRITICAL ILLNESS INCIDENCE

EARLY INTERVENTION FOR DYSPHAGIA MATTERS

TREATMENT SHOULD ADDRESS SENSORY & MOTOR ASPECTS

PRECISION MEDICINE  
AI + PREDICTION MODELLING

LIMITED OPTIONS & LACK OF EVIDENCE FOR TREATMENTS WHICH TARGET SENSORY IMPAIRMENT



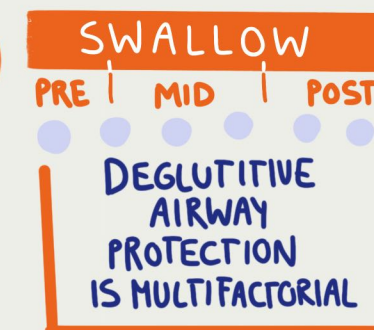
Ms. Devin Lucas  
Boston University Chobanian & Avedisian School of Medicine

Identifying the Association between Post-Extubation Laryngeal Edema and Aspiration in Acute Respiratory Failure Patients



Dr. Corinne Jones  
The University Of Texas At Austin

Deglutitive airway protection: What is necessary and what is sufficient?



WHAT CONDITIONS WITHIN THE SWALLOW ARE NECESSARY/SUFFICIENT TO DEGLUTITIVE AIRWAY PROTECTION?



Associate prof. Siramya Lapa  
Goethe Universitätsklinikum Frankfurt

Intensive care unit-acquired dysphagia – change in feeding route after a standardized dysphagia assessment in neurocritical care patients



ICU-SPECIFIC GUIDELINES FOR DYSPHAGIA ARE LACKING

IN HOW MANY PATIENTS DID THE DYSPHAGIA ASSESSMENT BY SLT LEAD TO CHANGE IN FEEDING ROUTINE?



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## Free paper session

Dysphagia management in acute care

Expiratory Flow Accelerator Therapy (EFA®) efficacy in post-stroke dysphagia: a pilot study



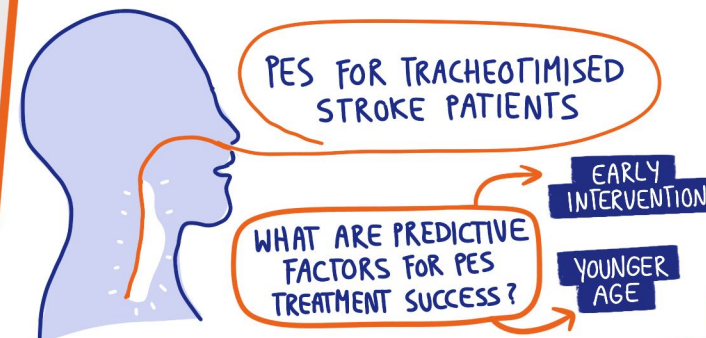
Change of perspective: Rethinking tracheostomy tube management with cuffless tubes for patients with risk of aspiration



## Free paper session

Swallowing (neuro-)physiology in health and disease

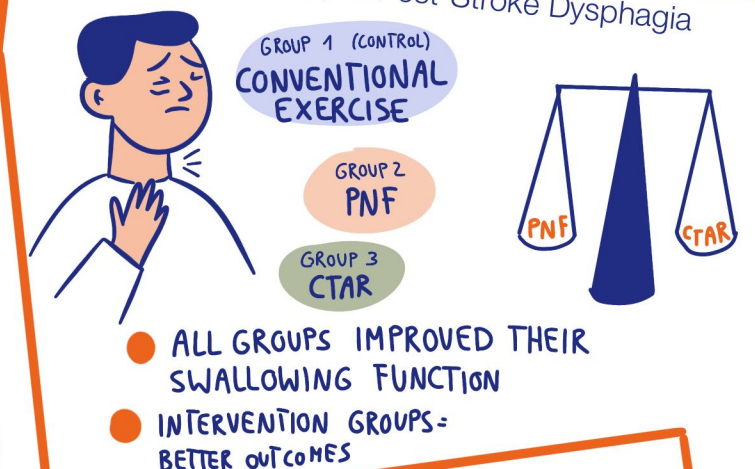
Investigation on factors for pharyngeal electrical stimulation success: A secondary analysis from PHADER cohort study with tracheotomised stroke patients with dysphagia



Combination of Non-Invasive Electrical Stimulation (Pharyngeal Electrical Stimulation) with Functional Direct Current Therapy: Effects on Aspiration in Tracheotomized and Non-Tracheotomized Patients with Postacute Dysphagia



Effects of Proprioceptive Neuromuscular Facilitation or Chin Tuck Against Resistance Exercises in Addition to Conventional Therapy in Post-Stroke Dysphagia



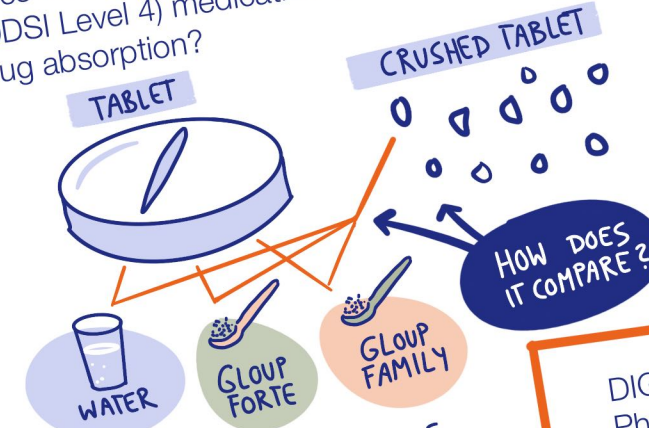
Management of adults with a tracheostomy: an international survey of speech-language pathologists' practice



Swallowing muscle mass in stroke patients is a predictor of reduced swallowing efficiency after thrombectomy



Does swallowing tablets with an extremely thick (IDDSI Level 4) medication swallowing gel alter drug absorption?



- NO EVIDENCE FOR NEGATIVE EFFECT OF GLOUP IN VIVO
- GLOUP FORTE CAN REDUCE DOSE DUMP IF CRUSHING TABLETS IS UNAVOIDABLE

Nurse-sensibilization for dysphagia in patients with swallowing disorders



Respiratory Therapy and Speech Language Pathology – a Dream Team? The collaboration of RTs and SLPs in German centers for weaning



DIGEST-FEES as a Global Outcome Measure for Pharyngeal Dysphagia in Parkinson's Disease – Results of a Validation Study





# ESSD 2024 14th Annual Congress

From bench to bedside

## Free paper session

Swallowing (neuro-)physiology in health and disease

The Influence of Food Texture and Liquid Consistency Modification on Swallowing Physiology and Function: Preliminary Findings from a Systematic Review Update



12 YEARS OF NEW LITERATURE!

CHEWING  
ORAL PROCESSING  
SWALLOWING (DIFFERENT CONSISTENCIES)

WE ARE WORKING ON SIGHTING THE LITERATURE NOW!

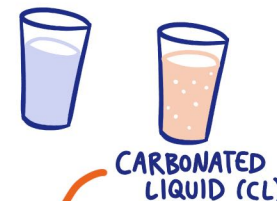
The effect of posture and consistency on laryngeal closure during swallowing : Kinematic analysis using 3D Upright CT and 3D Reclining CT

UPRIGHT

RECLINING



DYSparkLE - The Effect of Carbonated Liquid on Swallowing Safety in Patients with Parkinson Disease



CARBONATED LIQUID (CL)

HIGHER SWALLOWING SAFETY WITH CL IN PATIENTS WITH IMPAIRED WATER SWALLOWS

Long-term changes of the cortical swallowing network in Parkinson's disease

DO COMPENSATORY MECHANISMS DIMINISH OVER TIME IN PD PATIENTS?



LONGITUDINAL STUDY

NO, CORTICAL SWALLOWING NETWORK IS INCREASINGLY DISTURBED

TIME COURSE OF THIS PROCESS IS INDIVIDUAL

Dysphagia pattern differences in Progressive Supranuclear Palsy subtypes compared to Parkinson's disease



FEES · DISPHAGIA SCORE

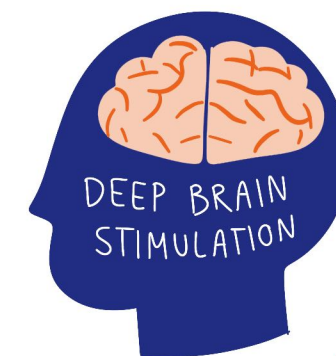
PHARYNGEAL TRANSIT TIME

PHARYNGEAL CONTRACTION SCORE

PD PATIENTS  
VERSUS  
PSP PATIENTS

HIGHER RISK FOR P/A EVENTS

The Effect of Subthalamic Deep Brain Stimulation on Swallowing Function in Parkinson's Disease: A FEES-based, Prospective, Longitudinal Intervention Study



WHAT'S THE IMPACT ON SWALLOWING FUNCTION?

SLIGHT INCREASE IN PAS

RESIDUE INCREASED IN THE POSTOPERATIVE CASE

NO CONTRAINDICATION IN CASE OF DYSPHAGIA



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## Instrumental assessment with FEES

Keynote



Prof. Heather Starmar  
Stanford University

Optimizing the FEES exam

WHAT DOES THIS MEAN IN FOR THE INDIVIDUALS OVERALL SWALLOWING FUNCTION

FEES EXAM

**SAFETY**

- PAS

**EFFICIENCY**

- YALE PHARYNGEAL RESIDUE SEVERITY SCALE
- BOSTON RESIDUE & CLEARANCE SCALE

FEES SCORES ARE NOT A BINARY!

COMMON NOMENCLATURE TO IMPROVE COMMUNICATION

**DIGEST**

SAFETY VS EFFICIENCY

OVERALL SEVERITY SCORE

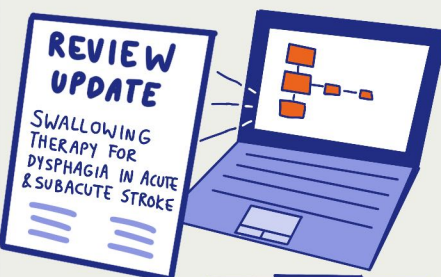
WE DEVELOPED:

**DIGEST-FEES**

→ STICK TO BOLUS PROTOCOL!

- 2 TRIALS 10ML CUP SIP THIN
- 2 TRIALS PUREE BOLUS
- 2 CRACKER BOLUSES

Treating post-stroke dysphagia – update from Cochrane and ongoing studies



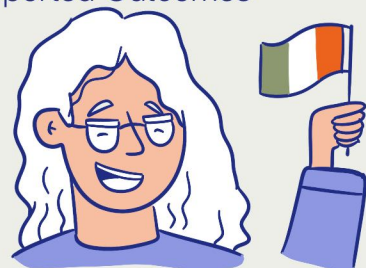
Do 6 DAYS OF PES ACCELERATE RETURN TO ORAL INTAKE OF FOOD & DRINKS?

**PHEAST TRIAL**

ONGOING

- UK SITES 35 SITES
- EU 4 COUNTRIES 20 SITES

Community Flexible Endoscopic Evaluation of Swallowing (FEES): A Prospective Cohort Study of Clinical, Process and Patient-Reported Outcomes



- COMMUNITY FEES → WELL UTILIZED BY OLDER ADULTS
- ↑ FUNCTIONAL SWALLOWING STATUS + HEALTH-RELATED QOL AT 6 MONTHS

Endoscopic Pharyngo-laryngeal Pathophysiology that Predict Oropharyngeal Dysphagia in Adults: A Scoping Review



IDENTIFY LITERATURE LINKING PLP WITH OROPHARYNGEAL DYSPHAGIA

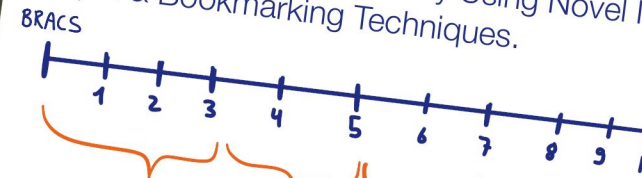


SYNTHESIZE TERMINOLOGY USED IN LITERATURE



STRENGTH OF EVIDENCE FOR EACH PLP IN RELATION TO DYSPHAGIA

Establishing Preliminary Boston Residue And Clearing Scale (BRACS) Interpretability Using Novel Modified Delphi & Bookmarking Techniques.



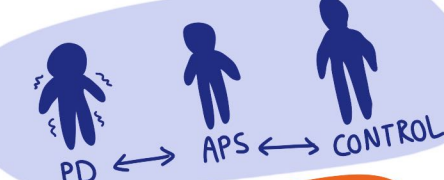
INTERPRETABILITY HELPS TO IDENTIFY CLINICAL RELEVANCE

WE BOOKMARKED THE SCORE INTO 5 CATEGORIES

Dysphagic vs Non-Dysphagic people with Parkinson's Disease and Atypical Parkinsonian syndromes: could specific voice parameters act as predictive indicators for the presence of dysphagia?



AUDITORY + PERCEPTUAL CHARACTERISTICS OF VOICE

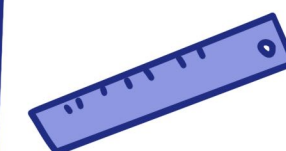
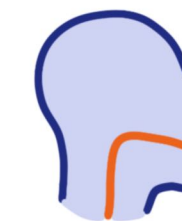


VOICE

SWALLOWING MECHANISM

Development of a new ultrasound scoring system for swallowing disorders diagnosis in outpatients at risk

AIM DEVELOP NEW US SCORE TO ASSESS SWALLOWING DISORDERS



Tongue Plyometrics: RMFD

**TONGUE MUSCLE TRAINING**

"PUSH AS FAST AS POSSIBLE"



SWALLOW SPEED MATTERS!

NOVEL METRIC INSPIRED BY ATHLETICS

Looking back on two decades of evidence-based practice in the swallowing sciences: How well are we really doing?

Systematic ≠ high quality

AMSTAR-2 QUALITY RATING OF SYSTEMATIC REVIEWS IN OUR FIELD

→ WE NEED BETTER QUALITY PRIMARY STUDIES!

WE NEED TO STABILIZE OUR FOUNDATION!



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## AI in dysphagia diagnostics and treatment

### Keynote



Dr. Anaïs Rameau  
Weill Cornell Medical College

Deglutition in the Age  
of Digital Health

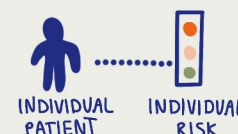
WORD → TOKEN → WORD

TRANSFORMERS

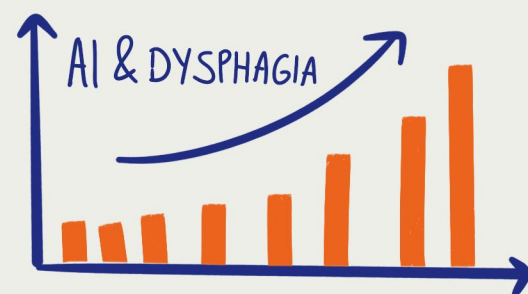
AI



MACHINE  
LEARNING



PREDICTIVE  
MODELS



MORE  
STUDIES  
ON AI  
&  
DYSPHAGIA

AUDIOMICS  
TO PREDICT  
SWALLOWING  
DYSFUNCTION



EASY DATA COLLECTION  
FROM EVERYWHERE

DATA ACQUISITION

- PHONATION • HIGH
- COUGH • COUNT

AI & LITERATURE

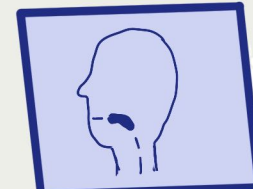
→ LESS PYJAMA TIME  
/NOTE WRITING  
AFTER WORK

COMPUTER VISION

I.E. FOR VIDEO-FLUOROSCOPY

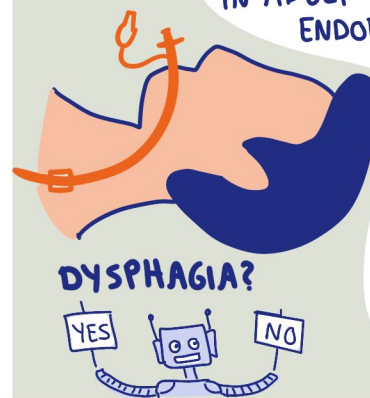
AI CAN HELP  
US TO SCALE  
INTERVENTIONS

REMOTE MONITORING  
COLLABORATION



Identifying risk factors for  
dysphagia in adult critically ill  
patients post extubation using  
machine learning

CAN AI-ASSISTED ML MODELS  
IDENTIFY DYSPHAGIA RISK  
IN ADULT PATIENTS WHO REQUIRED  
ENDOTRACHEAL INTUBATION  
WITHIN AN ICU?

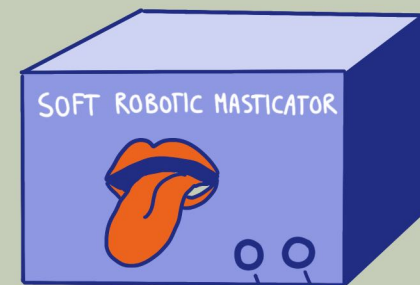


DYSPHAGIA?

YES NO

CONVOLUTIONAL  
NEURAL NETWORKS  
CAN PREDICT PED  
RISK FOR THE  
INDIVIDUAL PATIENT

A first-of-its-kind Soft Robotic  
Masticator that, combining in vitro  
mastication and swallowing, is  
capable of simulating food intra-oral  
manipulation: Stage II of Transport



SIMULATING  
THE  
MASTICATION  
PROCESS

CHEWING FREQUENCY  
SALIVA FLOW RATE

Predicting Long-term Prognosis of  
Poststroke Dysphagia with  
Machine Learning

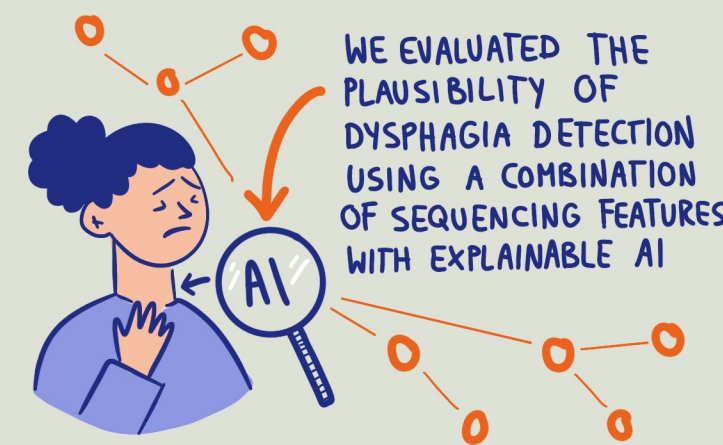


VFSS  
DATA  
1 MONTH  
AFTER STROKE  
ONSET

MACHINE  
LEARNING

LONG-TERM  
PROGNOSIS OF  
POST-STROKE  
DYSPHAGIA  
PATIENTS

An explainable AI (XAI) approach to  
oropharyngeal dysphagia detection  
using swallowing sequencing  
features identified in point-of-care  
ultrasound (POCUS)



WE EVALUATED THE  
PLAUSIBILITY OF  
DYSPHAGIA DETECTION  
USING A COMBINATION  
OF SEQUENCING FEATURES  
WITH EXPLAINABLE AI



# ESSD 2024 14th Annual Congress

From bench to bedside

## Free paper session

AI, semiautomated  
diagnostics in deglutology,  
telehealth





## Neurogastroenterology

### Keynote



Prof. Nathalie Rommel  
University of Leuven

The use of pharyngeal high resolution manometry in oropharyngeal dysphagia care: where are we?

WE HAVE COME  
A LONG WAY!

TODAY  
36 SENSORS

P-HRM

#### BOLUS FLOW

- SHOWING HOW BOLUS IS TRAVELING
- INTRABOLUS PRESSURE

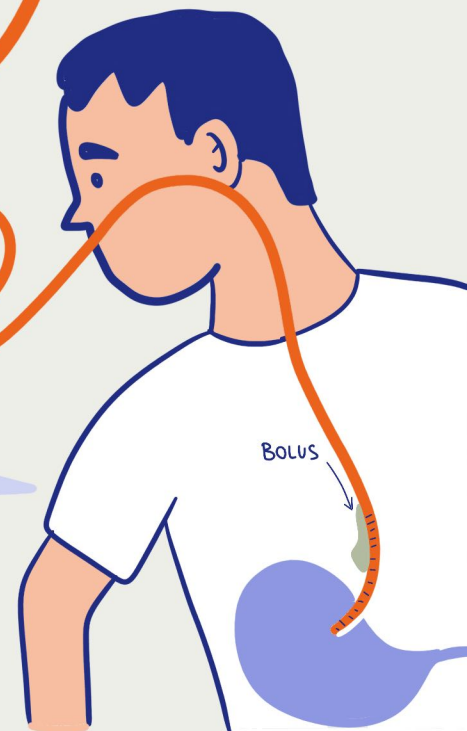
#### SWALLOW RISK INDEX

#### CONTRACTILITY

- LENGTH
- STRENGTH
- AMPLITUDE

#### UES FUNCTION

- RELAXATION PRESSURE
- RELAXATION TIME



Effects of barium sulfate, thickener type, and bolus volume on pharyngeal pressures measured with high-resolution pharyngeal manometry



The Impact of Bolus Rheology on Physiological Swallowing Parameters Derived by Pharyngeal High-Resolution Manometry Impedance

CAN SIMILAR IDDS FLUIDS PRODUCE DETECTABLE CHANGES IN PHARYNGEAL SWALLOWING?

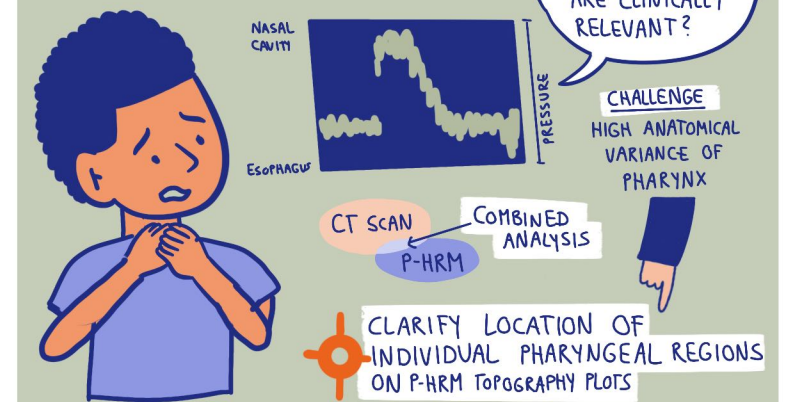


CMC  
VS.  
XG

- SIMILAR VISCOSITY AT SHEAR RATE OF  $50s^{-1}$
- EQUIVALENT THICKNESS

- CONTRACTILITY
- FLOW RESISTANCE
- BOLUS PRESENCE

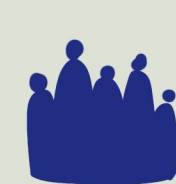
Characterizing pharyngeal contraction patterns using combined pharyngeal high-resolution manometry (P-HRM) and Swallowing CT



Development and internal validation of a diagnostic multivariable model predicting aspiration risk from high-resolution impedance manometry data



DEVELOP & VALIDATE PROGNOSTIC MODEL PREDICTING DEGLUTITIVE ASPIRATION FROM PRESSURE-FLOW VARIABLES

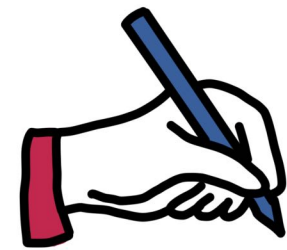


OUR MODEL

MULTIVARIABLE LOGISTIC MODEL SHOWED A MODEST PREDICTIVE ABILITY (HIGH SPECIFICITY, POOR SENSITIVITY)



**Visual summary by**



GRAPHIC RECORDING  
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