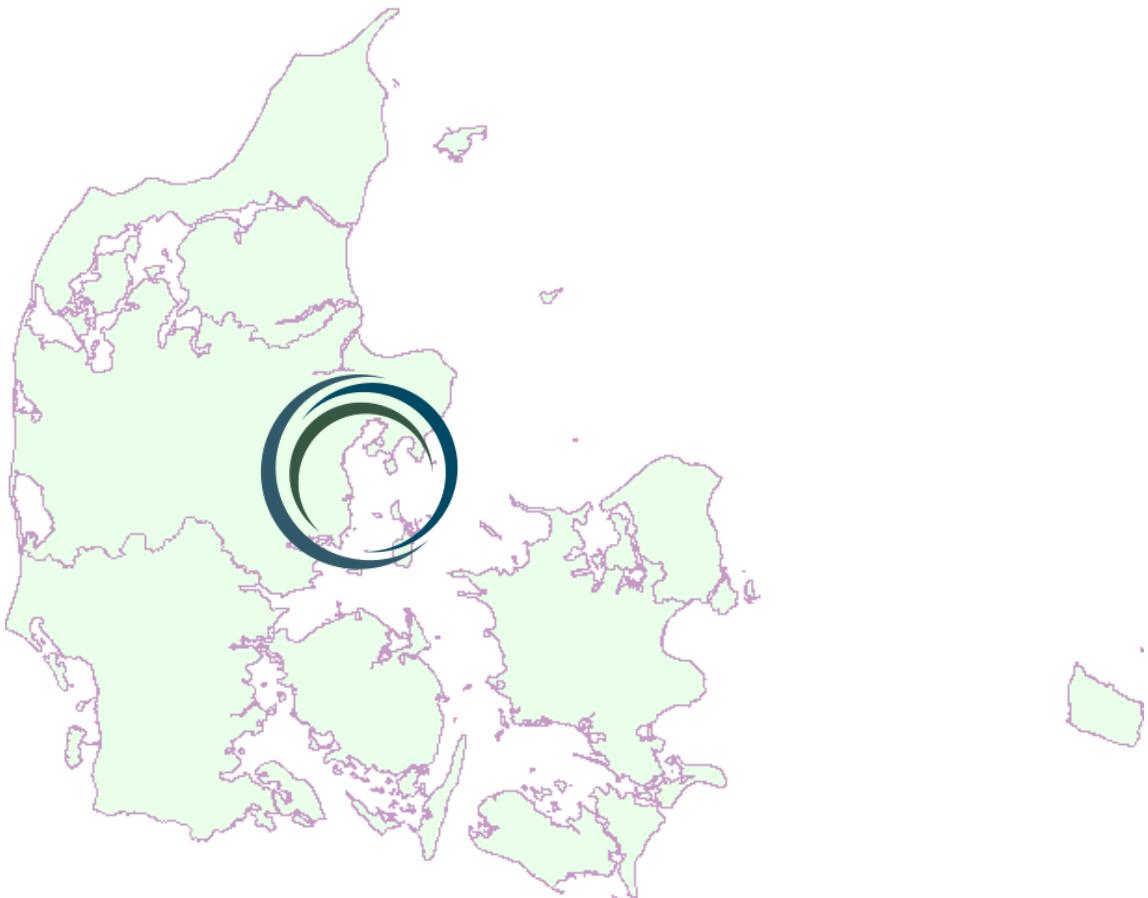




## **30. årsmøde i klinisk ernæring**

Helnan Marselis Hotel, Strandvejen 25, Aarhus

Fredag 6. maj 2022 kl. 8.30 – 16.00



# Årsmøde i klinisk ernæring 2022

Velkommen til årsmøde! Vi har glædet os til igen at kunne samles fysisk. Årsmødet afholdes for 30. gang i alt og for 15. gang i Aarhus. Det er tværfagligt og arrangeres primært for sygeplejersker, læger, kliniske diætister og cand. scient'er i klinisk ernæring.

Ved mødet anvendes elektronisk deltager-inddragelse. **Medbring derfor device** (pc, tablet, telefon mv.) med mulighed for opkobling på wifi. Installér gerne app'en Menti.

## Planlægningsgruppe

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## Tak til vores udstillere



# Program

08.30 – 09.30	<b>Ankomst</b> , registrering og morgenmad
09.30 – 09.35	<b>Velkomst og introduktion til dagen</b> <i>Henrik Højgaard Rasmussen, Aalborg Universitetshospital</i>
09.35 – 09.45	<b>Velkomsthilsen</b> <i>Susanne Lauth, sygeplejefaglig direktør, Aarhus Universitetshospital</i>
09.45 – 10.25	<b>Sarkopeni – en diagnose vi skal tage alvorligt?</b> <i>Charlotte Suetta, professor, Københavns Universitet</i>
10.25 – 10.40	<b>Diskussion og quiz</b>
10.40 – 11.10	<b>Pause</b>
11.10 – 11.20	<b>Klinisk ernæring i 2022 – hvor er vi på vej hen?</b> <i>Christian Lodberg Hvas, formand for DSKE</i>
11.20 – 11.50	<b>Nutritional assessment in patients with kidney disease</b> <i>Alice Sabatino, registered dietitian, University of Parma, Italy</i>
11.50 – 12.00	<b>Questions</b> (English)
12.00 – 13.00	<b>Frokost</b>
13.00 – 13.40	<b>Ny vejledning om ernæringsrisiko</b> <i>Tatjana Hejgaard, chefkonsulent, Sundhedsstyrelsen</i>
13.40 – 14.00	<b>Diskussion og quiz</b>
14.00 – 14.30	<b>Kaffe</b> og fordeling til frie foredrag
14.30 – 15.40	<b>Frie foredrag</b> i to grupper (oversigt side 6-7, abstracts side 8+)
15.40 – 16.00	<b>Uddeling af pris for bedste abstract, Jens Kondrup Prisen og Nutricias forskningslegat i enteral klinisk ernæring</b> <i>Kirstine Guld Frederiksen og Christian Lodberg Hvas, DSKE</i>
16.00	<b>Tak for i dag</b>

Efter årsmødet afholdes:

16.30 – 17.30	<b>Generalforsamling</b> , Dansk Selskab for Klinisk Ernæring
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# Det hører du om på årsmødet

## Velkomsthilsen

Årsmødet er en chance for at mødes på tværs og for at stille skarpt på, hvordan ledelse og klinik kan spille sammen for at få klinisk ernæring til at lykkes. Susanne Lauth, sygeplejefaglig direktør på Aarhus Universitetshospital, bringer ved mødets start en velkomsthilsen.

## Klinisk ernæring i 2022

På mødet hører du om aktiviteter i DSKE, nu og fremover. Selskabets formand giver et bud på, hvor klinisk ernæring er på vej hen. Du hører også om nye initiativer inden for klinisk ernæring. Det drejer sig bl.a. om kliniske retningslinjer i DSKE.

Dansk Selskab for Klinisk Ernæring (DSKE) er et videnskabeligt selskab, der søger brede samarbejder. DSKE er organiseret under Videnskabelige Selskaber og har høringsret over for offentlige myndigheder. Ved årsmødet får du en kort oversigt over, hvor vi søger udvikling, uddannelse, samarbejde og dialog, herunder gennem

- European Society for Clinical Nutrition and Metabolism (ESPEN)
- Optimal Nutritional Care for All (ONCA)
- Nordic Nutrition Academy (NNA)
- Alliancen mod Underernæring (ALMU)



**ALLIANCEN MOD  
UNDERERNÆRING**



## Pauser og netværk

Pauserne er en vigtig del af mødet. Mød hinanden – gamle kolleger, nye ansigter, udstilere, foredragsholdere, studerende. Alle har givet samtykke til at fremgå af deltagerlisten, som bliver lagt frem ved mødets start. Alle får et navneskilt, og alle opfordres til at deltage i hele mødet. Velkommen.

# Om foredragsholderne



## Charlotte Suetta

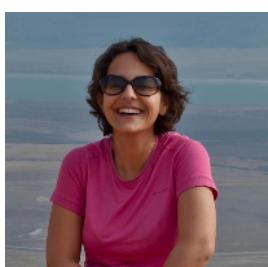
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## Referencer

1. Suetta C et al. The Copenhagen Sarcopenia Study: lean mass, strength, power, and physical function in a Danish cohort aged 20-93 years. *J Cachexia Sarcopenia Muscle* 2019; 10: 1316-1329.
2. Kamper RS, Alcazar J, Andersen LL, Haddock B, Jørgensen NR, Hovind P, Suetta C. Associations between inflammatory markers, body composition, and physical function: the Copenhagen Sarcopenia Study. *J Cachexia Sarcopenia Muscle* 2021; 12: 1641-1652.
3. Alcazar J, Frandsen U, Prokhorova T, Kamper RS, Haddock B, Aagaard P, Suetta C. Changes in systemic GDF15 across the adult lifespan and their impact on maximal muscle power: the Copenhagen Sarcopenia Study. *J Cachexia Sarcopenia Muscle*. 2021 Oct 6. doi: 10.1002/jcsm.12823.



## Alice Sabatino

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## References

1. Fiaccadori E, Sabatino A et al. ESPEN guideline on clinical nutrition in hospitalized patients with acute or chronic kidney disease. *Clin Nutr* 2021; S0261-5614(21)00052-2. doi: 10.1016/j.clnu.2021.01.028.
2. Sabatino A, Theilla M, Hellerman M, Singer P, Maggiore U, Barbagallo M, Regolisti G, Fiaccadori E. Energy and Protein in Critically Ill Patients with AKI: A Prospective, Multicenter Observational Study Using Indirect Calorimetry and Protein Catabolic Rate. *Nutrients* 2017 26; 9: 802.
3. Sabatino A, Cuppari L, Stenvinkel P, Lindholm B, Avesani CM. Sarcopenia in chronic kidney disease: what have we learned so far? *J Nephrol* 2021; 34: 1347-1372.



## Tatjana Hejgaard

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## Reference

1. <https://www.sst.dk/da/Nyheder/2021/Ny-vejledning-skal-forbedre-indsatsen-omkring-underernæring-hos-patienter-og-aeldre-borgere>

## Frie foredrag – sal A

- A1 14.30 Reason to prioritize early nutrition guidance and exercise- a one-year follow-up study in patients with pulmonary fibrosis  
**Mette Holst**
- A2 14.40 Age, BMI, Nutritional risk and Nutrition Impact Symptoms are related to 2-months mortality in patients with Hematological diseases at Herlev Hospital  
**Pernille Bardal**
- A3 14.50 Nutritional intervention makes strong COPD rehabilitation patients  
**L. Geisler**
- A4 15.00 Nutritional gap when transferring from the ICU to regular wards – a retrospective, cross-sectional study  
**Simone Møller Hansen**
- A5 15.10 Observationel (feasibility-)studie af ernæringsproblemerne hos lunge-, pancreas og kolorektal-kræftpatienter i kemoterapi  
**Emilie Engelstrup**
- A6 15.20 Ernærings- og livsstilsrelaterede faktorer som prædiktorer for muskelatrofi hos hæmatologiske cancerpatienter  
**Christiane Sophie Staxen**
- A7 15.30 Proteinindtag ved akut svær colitis ulcerosa – præliminære data fra et randomiseret studie  
**Magnus Grønhøj**

## Frie foredrag – sal B

- B1 14.30 Patient management of reinfusion in a double-barreled stoma by Insides System: A proof of concept case series  
**Christian Lodberg Hvas**
- B2 14.40 Pursuing the Goldilock zone: optimised osmolality in oral supplements. A quasi-randomized cross-over study  
**Josephine Reinert Quist**
- B3 14.50 Dietary Intervention against Gastrointestinal Symptoms after Treatment of Cancer in the Pelvic Organs  
**Mette Borre**
- B4 15.00 Prevention of taste alterations in patients with cancer receiving paclitaxel or oxaliplatin based chemotherapy – a pilot trial of cannabidiol  
**Helena S. H. Dominiak**
- B5 15.10 More2eat: Nutritional risk, protein- and energy intake in hospitalized patients  
**Sabina Lund Mikkelsen**
- B6 15.20 Exploring the association between diet and the human gut microbiome diversity in patients with multiple sclerosis  
**Gladys Tingstrup Mathieu**
- B7 15.30 Diet induced ketosis in brain injured adult patients in the subacute phase is feasible  
**Maria G. P. Edwardsa**

# Abstracts

\*submitted til ESPEN konference

A1

## Reason to prioritize early nutrition guidance and exercise- a one-year follow-up study in patients with pulmonary fibrosis

Mette Holst, Christina Nielsen, Lotte Flink Sørensen, Benedicte Torp Ladefoged, Sofie Meyer Andersen, Samantha Drejer Thomsen, Sabina Lund Mikkelsen

*Center for Nutrition and Intestinal Failure, Department of Gastroenterology, Aalborg University Hospital and Department of Clinical Medicine, Aalborg University, Aalborg, Denmark & Department of Health Science and Technology, Aalborg University, Aalborg SØ, Denmark*

**Background and aims:** Malnutrition in pulmonary fibrosis may influence clinical outcomes negatively. This project aimed to investigate if weight, unintended weight loss (UWL) at baseline and weight development and sarcopenia measured by SARC-F, are associated with hospital admissions and mortality for idiopathic pulmonary fibrosis (IPF) outpatients within one year, as well as referral to pulmonary rehabilitation.

**Methods:** At baseline prevalence of weight and UWL were sought in a cross-sectional questionnaire study, consecutively including 100 patients in an outpatient clinic. Medical records were sought for time from diagnosis and comorbidities. One year after inclusion weight, UWL and SARC-F were collected by phone interviews, and medical records were re-visited for clinical outcomes.

**Results:** Of the 100 patients, two patients died and seven were lost to follow-up. The prevalence of UWL increased within the year (10-13%), and the amount of UWL increased (9.1-11.8 Kg). Patients with an UWL at baseline showed a significantly higher risk of mortality (OR: 29.8; P= 0.037). UWL at baseline was associated with risk of hospital admissions (OR 14.7; P=0.009). Sarcopenia was seen in 20.9%. UWL at follow-up was associated with sarcopenia by SARC-F. Patients with sarcopenia and those with BMI>30 were to a higher degree offered pulmonary rehabilitation, however participation was low.

**Conclusion:** UWL at baseline was significantly associated with risk of hospital admissions and mortality within one year among IPF outpatients. Patients with sarcopenia and BMI>30 were most often referred to pulmonary rehabilitation.

A2

## Age, BMI, Nutritional risk and Nutrition Impact Symptoms are related to 2-months mortality in patients with Hematological diseases at Herlev Hospital\*

Anne Wilkens Knudsen<sup>1</sup>, Pernille Bardal<sup>1</sup>, Nikola Nedic<sup>1</sup>, Anne Marie Beck<sup>1</sup>, Tina Munk<sup>1</sup>

<sup>1</sup>*The Dietitians and Nutritional Research Unit, EATEN, Copenhagen University Hospital - Herlev and Gentofte, Copenhagen, Denmark*

**Introduction:** Nutrition Impact Symptoms (NIS) has been associated with declined nutritional status. BMI and weight-loss has independently been found to predict overall survival in patients with cancer. Therefore, we aimed to assess the prevalence of NIS in patients with hematological diseases and the relationship with overall mortality.

**Methods:** A retrospective cohort study was performed among patients referred to a clinical dietitian for nutritional therapy from the Hematological Department. At time of referral, we recorded weight, weight loss from usual weight, BMI, Nutritional risk (NRS-2002 ≥ 3), and the result of 16 NIS-questions (NIS-points at each NIS-question range: 0-10, total possible NIS-points: range 0-160).

**Results:** We included 110 participants (45% women), median age 67 years (IQR:60-74), median BMI 24.5 kg/m<sup>2</sup> (IQR:21.4-27.1). Nutritional risk was evident in 44 (52%) patients. Total NIS-points were higher in the group at nutritional risk (20 vs.0 points, p=0.032).The three most common NIS were: No appetite (53%), early satiety (34%), and nausea (27%). Prior to dietetic counseling the patients had lost median -2.8 kg (IQR:-8.9-0.8) from usual weight. A total of 19 (17%) died within 2 months. The patients who died during the 2 months-follow-up were older (73 vs.66 years, p=0.005), had a lower BMI (20 vs.25 kg/m<sup>2</sup>, p=0.031), more were at nutritional risk (93 vs.44%, p=0.001), had a higher number of NIS (3 vs.2, p=0.049), and had more NIS-points (24 vs.2 points, p=0.013).

**Conclusions:** Nutrition Impact Symptoms (NIS) are related to nutritional risk and 2-months mortality in patients with a hematological disease.

A3

### Nutritional intervention makes strong COPD rehabilitation patients\*

L. Geisler\*, 1, A. M. Beck 2, H. H. Rasmussen 1, B. G. Jørgensen 3, C. Bach-Dal 4, M. Holst 1

<sup>1</sup>Center of Nutrition and Intestinal Failure, Aalborg University Hospital, Aalborg

<sup>2</sup>Research Unit for Nutrition, Herlev Hospital, Herlev

<sup>3</sup>Sundhedsfremme - og forebyggelses afdelingen, Frederikshavn Kommune, Frederikshavn

<sup>4</sup>Health Care Consulting, Hørsholm, Denmark

**Background:** The benefit of pulmonary rehabilitation (PR) in COPD has been associated with fulfilment of energy and protein balance. *The aim* of this study was to investigate the effect of a nutritional intervention in PR.

**Methods:** An intervention study including three sessions of individual dietary counselling to the ten weeks COPD PR. Data were collected at baseline, post intervention (PI) and at three-month follow up (FU3)(N=39). Energy and protein intake was recorded for four days. Body composition was measured by BIA, and functional status by 30-seconds chair stand (30s-CST), and 6-minutes walking test (6MWT).

**Results:** Of the 111 included, ninety-nine patients, mean age at  $71.36 \pm 0.85$  completed the program. Twelve participants excluded themselves due to fear of COVID-19 or hospitalization. Energy intake increased from baseline  $1676(\pm 505)$  kcal to PI  $1941(\pm 553)$  kcal ( $p=0.00$ ) and protein intake from  $64(\pm 22)$  g to  $88(\pm 25)$  g ( $p=0.00$ ). The increased protein intake almost maintained from PI to FU3 ( $84 \pm 26$ g) ( $p=0.02$ ). An improvement in functional parameters was seen for 30-s CST from  $10.8 \pm 2.8$  repetitions at baseline to  $14.1 \pm 4.3$  repetitions at PI ( $p=0.00$ ). 6MWT increased from  $377(\pm 131)$  meters at baseline to  $404(\pm 128)$  meters at PI ( $p=0.02$ ). For body composition, FFM increased from baseline  $52.7$  kg ( $\pm 10.2$ ) to  $55.1(\pm 11.4)$  kg at FU3 ( $p=0.02$ ). A positive association was seen between energy intake at FU3 and 30s-CTS ( $p=0.04$ ).

**Conclusion:** Individual nutritional guidance sessions are beneficial among COPD patients in PR and helps the patients to increase physical function and muscle mass.

A4

### Nutritional gap when transferring from the ICU to regular wards – a retrospective, cross-sectional study\*

Simone Møller Hansen<sup>1,2,3</sup>, Anne Wilkens Knudsen<sup>1</sup>, Tina Munk<sup>1</sup>, Heidi Knudsen<sup>4</sup>, Thordis Thomsen<sup>2,5</sup>

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<sup>5</sup> Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark

**Background:** Adequate nutrition is important for recovery after critical illness. Our knowledge of patients' nutritional intake after ICU discharge is however scarce. Therefore, we aimed to explore nutritional planning and intake in ICU patients who transfer from the ICU to regular wards.

**Methods:** A retrospective, cross-sectional study. Inclusion criteria: adult ICU patients (admitted $\geq 2$  days) transferring to a regular ward at Copenhagen University Hospital-Herlev from May-August 2021. Data collection from patient charts and analysis using descriptive statistics. Primary outcome: Having a nutritional plan on the day of ICU transfer. A nutritional plan was defined by assessment of nutritional requirement, energy- and protein coverage, type of diet. If using enteral or parenteral nutrition the prescribed doses, and product. Secondary outcomes: coverage of energy and protein requirements from 1 day before to 3 days after ICU transfer.

**Results:** We included 57 patients; mean age 64 years; 75% males; median ICU stay 6 days. Five (9%) patients had a nutritional plan. Patients' median energy and protein coverage declined from the day before to the day after ICU discharge; energy and protein coverage declined from 94% to 30.5%, ( $p=0.0051$ ) and

73% to 27.5%, ( $p=0.0117$ ), respectively. Energy and protein coverage remained unchanged from day one to three after ICU transfer.

**Conclusions:** Few patients had a documented nutritional plan on the day of ICU transfer. Patients' nutritional coverage remained insufficiently during the three days after ICU transfer. Interventions focusing on optimized nutritional care and documentation thereof in patients transferring from the ICU to regular wards are needed.

A5

### **Observationel (feasibility-)studie af ernæringsproblemerne hos lunge-, pancreas og kolorektalkræftpatienter i kemoterapi\***

Emilie Engelstrup, MSc<sup>1</sup>, Sara Salina Malou Andersen, MSc<sup>1</sup>, Signe Gamborg Nielsen<sup>2</sup>, Maria Elisabeth Lendorf, MD, PhD<sup>2</sup>, Jens Rikardt Andersen, MD, MPA<sup>1</sup>

<sup>1</sup>Institut for Idræt og Ernæring, Københavns Universitet og

<sup>2</sup>Onkologisk og Palliativ afdeling, Nordsjællands hospital

**Baggrund:** Kræftpatienter er i høj risiko for fejlernæring og tab af Lean Body Mass (LBM) både pga. sygdom og kemoterapi. Ændringer i smagsopfattelsen under kemoterapi er formentligt hyppigt forekommende, og vi ønskede at undersøge, hvilke effekter smagsændringer har på LBM og andre livsstilsfaktorer.

**Metode:** Data blev prospektivt indsamlet fra 44 patienter (lungekræft, 33,3%; pancreaskræft, 36,6%; kolorektalkræft, 30,3%; alder,  $69 \pm 8$  år (mean-SD); mænd, 57%) i kemoterapeutisk forløb. Deltagerne gennemførte en sensorisk test (kartoffelmos tilsat henholdsvis sur, sød, salt, sød og umami i to forskellige styrker), to dages fotobaseret kostregistrering, monitorering af kropssammensætning med bioimpedans, ugentlig udfyldelse af European Organization for Research and Treatment of Cancer QLQ-30-inspireret spørgeskema om livskvalitet, ugentlig pedometermåling for fysisk aktivitetsmåling samt et ernæringsrelateret patientinterview. Undersøgelserne blev gennemført minimum to gange, ugentligt over en observationsperiode på 6-9 uger, hvormed minimum to kemoterapicycli er inkluderet.

**Resultater:** Smagsændringerne observeret var ikke signifikante i forløbet, kun ved gruppering af patienterne efter graden af xerostomi sås en signifikant højere præference for grundsmagene sur ( $P<0,01$ ) og sød ( $P<0,05$ ) hos patienterne med lav grad af xerostomi over tid. Angående kostindtag, fysisk aktivitet, ernæringsproblemer og bivirkninger blev der ligeledes ikke her observeret signifikant ændringer i måleforløbet.

**Konklusion:** Ved de valgte målemetoder sås næsten ingen signifikante ændringer i patienternes status i måleforløbet, som nok har været for kort. Alternativt er vor opfattelse af store ernæringsproblemer i denne patientgruppe forkert. Erfaringerne fra forløbet viste, at især kostregistreringen voldte problemer for patienterne. Ved fremtidige studier bør observationsperioden være mindst 6 mdr. og specielt kostregistrengs metoderne forbedres.

A6

### **Ernærings- og livsstilsrelaterede faktorer som prædiktorer for muskelatrofi hos hæmatologiske cancerpatienter\***

Christiane Sophie Staxen<sup>1,2</sup>, Sara Eidseth Andersen<sup>1,2</sup>, Christian Bjørn Poulsen<sup>1</sup>, Jens Rikardt Andersen<sup>2</sup>

<sup>1</sup>Hæmatologisk afdeling, Sjællands Universitetshospital, Roskilde

<sup>2</sup>Institut for Idræt og Ernæring, Københavns Universitet

**Baggrund og formål:** Tab af vægt og muskelmasse kan medføre nedsat tolerance overfor cytostatisk behandling formentlig fordi cytostatika er vandopløselige, så mindre vandfase betyder højere p-koncentration af cytostatikum. Vi ønskede, at belyse om andre faktorer også kunne spille en rolle for tabet af muskelmasse.

**Metode:** Der blev inkluderet 62 patienter. 57 patienter med malignt lymfom, tre med akut leukæmi og to med myelomatose. Patienterne blev fulgt gennem 1-2 serier af deres kemoterapibehandlinger (4-8 uger). Målinger: Bioelektrisk impedansanalyse ved hver kemoterapi-session, 24-timers kostinterview og spørgeskemaer om ændrede fødevarepræferencer telefonisk med 2-5 dages mellemrum gennem hele perioden, livskvalitet samt fysisk aktivitet telefonisk én gang om ugen.

**Resultater:** Gennemsnitlige vægtab var 1,29%, primært muskelmasse (2,65%). Graden af nedsat appetit og oplevelsen af bismage påvirkede vægtudviklingen signifikant, negativt hos den gruppe af patienter, der

tabte vægt. 97% af patienterne fik ikke dækket deres energibehov, og 84% fik ikke deres proteinbehov. Ved dækning af energibehov sås mindre tab af muskelmasse. Signifikant negativ påvirkning på udviklingen af muskelmasse havde: Nedsat appetit, nedsat livskvalitet, stigning i indtag af mejeriprodukter samt favorisering af søde kornprodukter. Stigende grad af fysisk aktivitet, opnået energibehov, stigning i indtag af kød og læskedrikke samt favorisering af søde og bitre læskedrikke havde en signifikant positiv påvirkning på udviklingen af muskelmasse. Nedsat appetit samt faldende grad af fysisk aktivitet havde en statistisk negativ påvirkning på vægtudviklingen.

**Konklusion:** Der var primært tale om tab af muskelmasse, og der kan meget vel være tale om et langt mere komplekst problem end blot dækning af ernæringsbehov.

A7

### **Proteinindtag ved akut svær colitis ulcerosa – præliminære data fra et randomiseret studie**

Magnus Grønhøj<sup>1,2</sup>, Mathias Redsted<sup>1,2</sup>, Louise Dalsgaard Brøchner<sup>1,2</sup>, Janne Ladefoged Fassov<sup>2</sup>, Karen Frumer<sup>2</sup>, Rikke Bøtchier<sup>3</sup>, Bente Sloth<sup>3</sup>, Jens Rikardt Andersen<sup>1</sup>, Christian Lodberg Hvas<sup>2</sup>

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<sup>2</sup>Lever-, Mave- og Tarmsygdomme, Aarhus Universitetshospital

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**Baggrund:** Patienter med akut svær colitis ulcerosa (ASUC) har katabol stressmetabolisme og modtager højdosis steroid. Begge disponerer til negativ nitrogenbalance. I guidelines anbefales et proteinindtag på 1,2-1,5 g/kg/dag, men evidensen er svag. Formålet med dette studie er at sammenligne proteinindtag, bio-kesiske markører og kropssammensætning hos patienter med ASUC og som efter randomisering til interventionsgruppen tilrådes et proteinindtag på 2 g/kg/dag.

**Metoder:** Enkelt-center open label randomiseret klinisk forsøg. Voksne patienter med ASUC randomiseres til interventionsgruppe eller kontrolgruppe. Interventionsgruppen vejledes i et dagligt proteinindtag (2 g/kg/dag) over 28 dage. Diætvejledning udføres af en klinisk diætist, hvor interventionsgruppen under indlæggelse suppleres med hospitalets proteinprodukter. Efter udskrivning udleveres proteinprodukter og holdes ugentlig telefonkontakt frem til dag 28. Kontrolgruppen modtager standardbehandling, dvs. ingen vejledning ved klinisk diætist. Under indlæggelse udfører begge grupper kostregistrering.

**Resultater:** Der er aktuelt inkluderet 7 patienter (71,4% mænd) med en median alder 24 år (range 18-76 år). Under indlæggelse var det gennemsnitlige daglige perorale proteinindtag 1,97 g/kg for interventionsgruppen (n=2) og 1,04 g/kg for kontrolgruppen (n=5). Der er en tendens til at patientgruppen har præferencer for Barebells proteinbarer, Arla protino yoghurt og skyr og mindre for fuldgylde ernæringsdrikke.

**Konklusion:** Præliminære data tyder på, at patienter med ASUC via diætetisk vejledning og ved frit udvalg af proteinprodukter fra hospitalskøkkenet kan øge deres daglige proteinindtag under indlæggelse. Patientgruppen har god compliance med et peroralt proteinindtag på 2 g/kg/dag. Patienterne har selektive præferencer for bestemte proteinprodukter. Der inkluderes patienter frem til sommeren 2022.

B1

### **Patient management of reinfusion in a double-barreled stoma by Insides System: A proof of concept case series**

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**Background:** Patients with an ileostomy may develop intestinal failure and dependence of parenteral support. In patients with a double-barreled stoma, i.e., a split stoma or a loop stoma, distal feeding of nutrients or chyme may enable absorption from the defunctioned intestines, but current methods are cumbersome for both staff and patient. Applying the new Insides System, we aimed to describe feasibility and proof of concept.

**Methods:** In this observational study, we consecutively included patients referred for distal feeding. The Insides System consists of a feeding tube catheter inserted in the distal stoma limb, a pump connected to the tube inside the stoma bag, and an external driver unit that magnetic couples to and drives the pump across the stoma bag. On this basis, reinfusion is possible in a closed system.

**Results:** We included six patients, two women and four men, with a median age of 59 years (range 42-81) all dependent on home parenteral nutrition. Reinfusion was established in 4 patients (67%), while 2 patients failed due to cognitive impairment (n=1) or inability to insert the distal feeding tube (n=1). All four patients established on reinfusion were self-caring, achieved normal bowel function, and two (50%) were weaned off parenteral nutrition. Both patients, who were weaned, stayed on the reinfusion regimen until reanastomosing surgery. Two patients needed oral laxatives to maintain daily bowel movements.

**Conclusions:** Patient-managed chyme reinfusion with the Insides System is a feasible method of distal feeding in motivated patients. The system holds the potential to wean patients off parenteral nutrition and improve preoperative conditioning before reanastomosing surgery.

B2

### **Pursuing the Goldilock zone: optimised osmolality in oral supplements. A quasi-randomized crossover study\***

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**Background:** Patients with an ileostomy often have impaired quality-of-life, sodium depletion, secondary hyperaldosteronism, and other organ-specific pathologies. The osmolality of oral supplements vastly influences ileostomy output and sodium loss. Treatment strategies that use the osmolality of oral supplements to increase fluid and sodium absorption in patients with an ileostomy are sparse. This study aims to quantify the association between osmolality in liquid oral supplements and ileostomy output to identify the optimal treatment interval, the Goldilock zone.

**Methods:** In total, 12 patients with an ileostomy will be included in a quasi-randomized, crossover intervention study. Each patient will randomly ingest between 3-16 different supplements during separate 6-hours intervention periods. Ileostomy output and urine volume will be collected. Outcome measures include faecal wet-weight, urine volume, electrolytes, osmolality, and body composition measured with bioelectrical impedance analysis.

**Results:** Preliminary results include 11 adults with ileostomy (median age 69 years (range 55)). Statistically significant changes in ileostomy output were detected following the intake of fluids (ranged osmolality 5-1250 mmol/kg). In a mixed-effect model with the patients as a random effect, we found an association between osmolality of oral supplement and ileostomy output. Ileostomy output increases around (0,165 gr. / (mmol/kg)) ( $P<0,000$ ).

**Conclusion:** This study aids our real-life understanding of fluid and sodium absorption in the small bowel and sheds light on fluid and sodium losses in patients with an ileostomy. Preliminary data indicate that patients with an ileostomy may benefit from increasing their ingestion of hypo- or iso-osmolar fluids. The study can help identify the optimal osmolality range, a Goldilocks zone.

B3

### Dietary Intervention against Gastrointestinal Symptoms after Treatment of Cancer in the Pelvic Organs\*

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**Rationale:** Late adverse effects including gastrointestinal (GI) symptoms are common in patients, who receive radiotherapy, chemotherapy and surgery for cancer in the pelvic organs. The most well described factors contributing to GI symptoms are small intestinal bacterial overgrowth (SIBO) and Bile Acid Malabsorption (BAM). The aim of the present study was to report the additive efficacy of dietary intervention to medical treatment in patients with late GI sequelae to treatment of cancer in pelvic organs.

**Methods:** In this prospective cohort study performed at a tertiary centre from April 2018 to December 2021, we consecutively included patients with medical intractable late adverse GI symptoms for specialist dietitian guidance. GI symptoms and QoL were assessed before and after dietary intervention by validated questionnaires. Data was analysed using the Wilcoxon signed-rank test and the paired sample t-test. P-values < 0.05 were considered significant.

**Results:** In total, 89 patients were referred for dietary intervention. A low fat diet was commenced in 44 (49%), a dietary modification of the fibre content in the diet in 19 (21%) patients, a gluten free diet in 1 (1%) patient, a low FODMAP diet in 19 (21%) patients, and other dietary advice in 6 (7%) patients. We observed improvement of the following outcomes: quality of life (EQ5D scale) ( $p<0.01$ ), urgency ( $p<0.05$ ), bowel function for the last four weeks ( $p<0.02$ ), performing usual activities ( $p<0.04$ ), stool frequency ( $p<0.02$ ), stool consistency ( $p<0.03$ ), and incomplete emptying ( $p<0.01$ ).

**Conclusions:** With appropriate dietary intervention, symptoms and quality of life can be improved significantly in patients with late GI sequelae following cancer treatment in the pelvic organs. The dietary guidance should be individually tailored depending on the patients' main symptoms and underlying pathophysiology.

B4

### Prevention of taste alterations in patients with cancer receiving paclitaxel or oxaliplatin based chemotherapy – a pilot trial of cannabidiol\*

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**Background:** Alteration in taste is a commonly occurring adverse effect of chemotherapy and might lead to malnutrition, weight loss and treatment toxicity. This study aimed to investigate if cannabidiol (CBD) has an effect on Lean Body Mass (LBM), and the patients ability to differentiate taste during chemotherapy.

**Methods:** LBM was estimated by bioelectrical impedance analysis (BIA) and taste perception were evaluated by randomized sensory test of six samples: sweet, salt and umami in a weak and a strong concentration scored on a VAS-scale indicating how weak or strong the flavour was perceived. Patients were followed for four cycles.

**Results:** No effects on LBM was demonstrated. At baseline the control group ( $n = 10$ ) was able to differentiate between weak and strong salt ( $p = 0.03$ ) and sweet ( $p = 0.01$ ). Prior to fourth chemotherapy cycle, the control group could no longer differentiate these concentrations. At baseline the intervention group ( $n = 22$ ) could not differentiate between the concentrations, but before the fourth chemotherapy cycle the intervention group had the ability to significantly differentiate weak and strong sweet ( $p = 0.03$ ) and salt ( $p = 0.04$ ).

**Conclusion:** Cannabidiol may improve patient ability to differentiate taste strength after four cycles of chemotherapy compared to controls.

B5

**More2eat: Nutritional risk, protein- and energy intake in hospitalized patients\***

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**Background:** The aim of this study was to investigate nutritional risk measured with NRS-2002 and to evaluate fulfillment of energy and protein requirements among hospitalized patients.

**Methods:** A one-day prevalence study was performed among hospitalized patients at 31 departments at a Danish university hospital. Data was collected using a patient questionnaire, diet recording (protein requirements 1.3 g/kg/d) and electronic medical journals.

**Results:** In total 318 hospitalized patients were included in the age 72 (18-98) years, male 56%, BMI 26.8 (14.3-55.5 kg/m<sup>2</sup>). The prevalence of nutritional risk was 53.1% ( $n=169$ ), and energy and protein intake  $\geq 75\%$  of requirements were found in 55% and 30% respectively. Patients with cancers, comorbidities, BMI<18.5 and weight loss over 5% of body weight had higher OR for nutritional risk ( $p<0.05$ ). A 5% loss of body weight increased OR for nutritional risk by 2.25, while 10% weight loss increased OR to 13.83 ( $p<0.05$ ). Nutritional risk was associated with decreased food intake ( $p=0.001$ ). Patients at age 18-49 and disease in circulatory organs had lower OR for nutritional risk ( $p<0.05$ ). Patients in nutritional risk had lower OR for achieve 75% energy and protein intake ( $p=0.031$ ,  $p=0.810$ ). Patients who received snack meals ( $p=0.001$ ,  $p=0.001$ ) and ONS ( $p=0.004$ ,  $p=0.001$ ) had higher OR for achieving 75% of energy and protein intake ( $p<0.05$ ).

**Conclusion:** We found 53.14% at nutritional risk. Patients with cancer, comorbidities, BMI<18.5 and a weight loss over 5% of body weight were at increased risk. Fulfillment of energy- and protein requirements was better in those who had snack meals and ONS.

B6

**Exploring the association between diet and the human gut microbiome diversity in patients with multiple sclerosis\***

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**Objective:** Comparing dietary intake and identify differences of gut microbiome diversity (GMD) between patients with multiple sclerosis (MS) and healthy controls (HCs). Investigate if markers of a healthy diet and/or a high GMD are inversely associated with MS disease severity. Explore the association between diet and the GMD in MS-patients HC.

**Methods:** Cross-sectional case-control study including 125 participants (78 MS-patients, 47 HC). Dietary intake-assessment by myfood24® and a FFQ. GMD-assessment by amplicon sequencing,  $\alpha$ -diversity (Shannon-Wiener diversity index, Observed features), and  $\beta$ -diversity (Bray-Curtis, weighted UniFrac distance (UniFrac)). Disease severity-assessment by MS Severity Score (MSSS), Fatigue Severity Scale (FSS), and SymptoMScreen. Transit time-, anthropometric measurements, and questionnaires were performed.

**Results:** Based on the total study population, 17% had a fruit and vegetable (FV) -intake  $\geq 600$  g/10 MJ/day, 34% had a fiber-intake  $\geq 30$  g/10 MJ/day, and 40% had a saturated fatty acid (SFA) -intake  $\leq 10$  E%. MSSS correlated with SFA-intake in both g/day and g/MJ/day. UniFrac and Bray-Curtis showed  $\beta$ -diversity differences between MS-patients and HCs. Bray-Curtis showed  $\beta$ -diversity differences between high and low SymptoMScreen scores. UniFrac showed  $\beta$ -diversity differences in FV-intakes for MS-patients and the total study population, as well as in fiber-intakes for HCs. Transit time correlated with the Shannon-Wiener diversity index in MS-patients.

**Conclusion:** The MS-patients and HCs have different GMDs despite having similar dietary intakes. Most study participants did not comply with the current dietary guidelines and nutritional recommendations. A high disease severity is correlated with a high SFA-intake and might be associated with an altered GMD.

B7

### **Diet induced ketosis in brain injured adult patients in the subacute phase is feasible\***

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**Background:** Research in animals on cerebral metabolism after brain injury highlights the potential benefits of ketosis in brain injury as an alternative to glycolysis in areas short of blood (oxygen) supply. Ketogenic diet (KD) reduces secondary brain injury in animal models, but studies in humans are lacking.

**Aim:** This study aimed to examine if a KD with added medium-chain triglycerides (MCT) was feasible in adult patients with acquired brain injury for six weeks in the subacute phase, and whether ketosis could be achieved and maintained without serious adverse events and was acceptable for the patients.

**Methods:** The intervention was a KD supplemented with MCT (MCT-KD) to obtain a plasma concentration of  $\beta$ -hydroxybutyrate (BHB)  $\geq 0,5$  mmol/L. Patients who were enterally fed were given KetoCal® 2.5:1 LQ MCT Multi Fiber (Nutricia), supplemented with Liquigen® (Nutricia). Patients consuming oral nutrition were given KetoCal® 2.5:1 LQ MCT Multi Fiber supplemented with Liquigen®, in addition to ketogenic meals.

Results: During a 13-week inclusion period, 92% of eligible patients (43% of all patients) admitted to the department were included. Deputy consent was given in all patients unable to give personal consent. Two-thirds of the patients completed the six weeks intervention. It lasted a median of one day to achieve ketosis from starting 100% MCT-KD, and it was maintained for 97% of the intervention period after ketosis was obtained. There were no serious adverse events. The patients accepted the treatment in all the intervention days.

**Conclusion:** An intervention with MCT-KD is feasible, safe, and tolerated for six weeks in hospitalized adult patients with severe brain injury in the subacute phase. Randomized controlled trials are needed to document the effect of MCT-KD on patients' recovery.

# Abstracts, der alene præsenteres her i årsmødebogen

1

## Nutrition Impact Symptoms in patients with head and neck cancer referred to a clinical dietitian\*

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**Introduction:** Patients with cancer are at high risk of experiencing weight-loss during treatment. To assess the cause of weight-loss a variation of questionnaires regarding Nutrition Impact Symptoms (NIS) are used. To optimize the nutritional treatment, we wanted to assess the prevalence of NIS and evaluate if the perceived NIS also were perceived to limit nutritional intake.

**Methods:** A retrospective cohort study was performed among patients from Department of Oncology, at Herlev Hospital. At time of referral, we recorded; sex, age, weight, BMI, Nutritional risk (NRS-2002≥3), and 16 different NIS-questions. The NIS-questions were divided in two parts 1) if the NIS was present and 2) if the NIS limited the nutritional intake.

**Results:** A total of 125 patients were included (74% men), median age 66 years (IQR:58-72), BMI 26 kg/m<sup>2</sup> (IQR:23-29), and 36% were found to be at nutritional risk. NIS was evident in 94%, whereas NIS limiting intake was evident in 65% of the patients. The three most common NIS present were: dry mouth 77 (75%), taste changes 75 (72%), and general pain 69 (68%). Whereas the three most common NIS limiting nutritional intake were: no appetite 38 (31%), taste changes 38 (31%), and general pain 35 (29%). Comparing the NIS present with the NIS limiting intake significantly fewer patients perceived that their nutritional intake was limited in all 16 questions ( $p<0.05$ ).

**Conclusions:** The prevalence of NIS is high in patients with head and neck cancer. We found no consistency in present NIS also were limiting the nutritional intake.

2

## Unplanned weight loss among COPD outpatients and association to six months clinical outcomes

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**Background and aims:** Unintentional weight loss is prevalent among patients with chronic obstructive pulmonary disease (COPD). This study aimed to investigate the association between BMI, unintentional weight loss (UWL), and hospitalizations, length of stay, exacerbations, mortality, and quality of life (QoL).

**Methods:** In this prospective cohort study, 200 COPD outpatients were asked about UWL, defined as more than 5% body weight. Follow-up occurred after six months. By phone, patients were interviewed with EQ-5D-5L and SARC-F questionnaire and exacerbations since inclusion. Patient records were assessed for hospitalizations, length of stay and mortality. Data were analyzed using odds ratios in a linear regression and hazard ratios using Cox hazard regression.

**Results:** In the 169 patients available for follow-up, the prevalence of UWL was 13.6%. At baseline, a significantly lower BMI was found in the UWL group. A significantly higher risk of hospitalization was found in the obese patients (OR 2.6,  $p = 0.022$ ). Additionally, the risk of increased length of stay was more than doubled in the UWL group (OR 2.6,  $p = 0.045$ ). No significant difference was found in terms of exacerbations. During follow-up, 19 patients (11.2%) had died. No significant difference in mortality was found. In terms of QoL, UWL was associated with a worse quality of life in the EQ-5D-5L questionnaire.

**Conclusion:** This study found UWL associated with poorer clinical outcome and reduced quality of life. The data suggests that UWL is a predictor of negative clinical outcome, and thus suggests to consider regular outpatient screening for UWL.

**Prevalence of nutritional risk and nutritional support provided during admission and at discharge for older patients prescribed an exercise rehabilitation plan\***

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**Background:** The prevalence of older patients not completing their planned exercise rehabilitation after hospital discharge is high. Nutritional risk and insufficient nutritional support during and at hospital discharge might play an important role. This study therefore aimed, as a first step, to investigate the association between being discharge with an exercise plan and being at nutritional risk.

**Methods:** In a retrospective cohort study the following data was collected in older patients (+65 years) discharged with an exercise rehabilitation plan: nutritional risk (NRS-2002), the provision of an energy and protein dense menu, prescription of oral nutritional supplements (ONS), dietary guidance by a registered dietitian and documentation of a nutritional rehabilitation plan.

**Results:** Data were obtained for 35 patients (83% women). Median age 84 (82;86) year. Nutritional risk increased during admission from 39% to 45% at discharge ( $p=0.011$ ). Of those at risk ad admission, 25% were provided with an energy and protein dense menu, 58% were prescribed ONS and 33% had dietary guidance. At discharge 17% of those at risk were prescribed ONS and 33% received a nutritional rehabilitation plan.

**Conclusion:** Around half of the patients discharged with an exercise rehabilitation plan are at nutritional risk. The prevalence of nutritional risk increases during hospitalization, and only around half of these nutritional at risk patients are offered nutritional support during admission and at discharge. Further studies are needed to assess the significance of this for completing exercise rehabilitation.

**Digital kostregistrering hos rehabiliteringspatienter, samt audit\***

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**Baggrund:** Efter positiv screening for ernæringsrisiko med NRS2002 lægges en ernæringsplan, og der monitoreres med en kostregistrering, som er en kendt udfordring. Det registreres, hvad der serveres for patienten, men ikke hvad der bæres ud igen. Papir registreringen opfattes af mange som besværlig, og tilliden til resultatet er ikke stor. Vi ønskede at undersøge om en elektronisk registrering kunne bedre kvaliteten.

**Metode:** Tre dele i projektet. Del 1 var en audit for at undersøge, om kvalitetsmål inden for ernæringscreening, kostregistrering og ernæring af patienter blev opfyldt. Del 2 var en sammenligning af konventionel kostregistrering på papir og digital kostregistrering. Et åbent crossover studie 3 dages registrering med hver metode. Facit var registreringen af to diætister, der var i afdelingen hele dagen. Del 3 var en spørge-skemaundersøgelse af personalets vurderinger.

**Resultater:** Del 1: 15 journaler blev inkluderet i audit, og alle struktur- og procesindikatorer viste fornem opfyldelse af den gældende vejledning. Dog blev målet om sufficient ernæring i 75% af indlæggelsestiden ikke efterlevet. Del 2: Metodetestningen viste ingen signifikant forskel mellem de anvendte metoder: Spearman's Rank Correlation for total patient-gennemsnit;  $p = 0,00$  (kJ),  $p = 0,00$  (protein). Sign test test;  $p = 1,00$  (kJ),  $p = 0,15$  (protein). Mann Whitney-U;  $p = 0,223$  (kJ),  $p = 0,19$  (protein).

**Konklusioner:** Hovedparten af de gældende kvalitetsmål blev efterlevet, dog ikke opfyldelse af 75% af estimeredt energibehov. Der var ingen forskel på konventionel- og digital kostregistrering. Personalet påpegede flere problematikker og vurderede at den digitale metode ikke kunne implementeres i den anvendte form.

**Et randomiseret, kontrolleret forsøg af indtagelsen af organisk og uorganisk fosfat hos peritonealdialyse patienter**

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**Baggrund og formål:** Patienter der er diagnosticeret med kronisk nyresygdom, er i risiko for at udvikle kardiovaskulære sygdommen som følge af hyperfosfatæmi. Der er dermed en stor sammenhæng mellem hyperfosfatæmi, dødelighed og sygelig hos patienterne. Normale plasmafosfatkoncentrationerne forsøges fastholdt inden for det normale ved diæt og medicin. Formålet med dette studie var at sammenligne plasma fosfat efter fem dages diæt baseret på organisk eller uorganisk fosfat i et randomiseret, cross-over design.

**Metode:** Fem patienter indgik, men to droppede ud inden studiet sluttede. Der blev taget blodprøver på dag 1 og dag 6. Derudover blev der lavet døgnopsamlinger af urin og peritonealvæske fra dag 0-1 og dag 5-6. Syv dages wash-out mellem diæterne.

**Resultater:** Den gennemsnitlige fosfatkoncentration på dag 6 var  $1,39 \text{ mmol/l} \pm 0,16$  efter den organiske diæt. Den gennemsnitlige fosfatkoncentration på dag 6 var  $1,82 \text{ mmol/l} \pm 0,31$  efter den uorganiske diæt, et gennemsnitligt fald på  $0,9 \text{ mmol/l}$  under perioden med organisk fosfat baseret kost beregnet som gennemsnit af de individuelle ændringer. Ændringen under den uorganiske diæt var  $0,31 \text{ mmol/l}$ . Forskellene var signifikante. Der var en stigning i plasma FGF23 og PTH under den uorganiske diæt, mens koncentrationserne faldt under den organiske diæt. Forskellene var ikke signifikante. Dialysevæske indholdet af fosfat steg under den uorganiske diæt.

**Konklusion:** Med forbehold for de få patienter, der gennemførte, tyder resultaterne på, at diæt baseret på organisk fosfat er en fordel for patienternes fosfatbalance.

## 6

### Indvirkning af konsistensimplementerende, individuel, diætetisk vejledning på energiindtag hos patienter med dysfagi - et randomiseret klinisk forsøg\*

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**Baggrund:** Dysfagi er en hyppig årsag til underernæring blandt hjemmeboende ældre og individer med neurologiske lidelser. Der er ifølge vores viden, ingen studier omhandlende diætetiske interventioner for hjemmeboende ældre med dysfagi.

**Formål:** Formålet i dette projekt var at undersøge om en konsistensimplementerende, individuel ernæringsvejledning vil have effekt på energiindtaget hos ambulante dysfagipatienter.

**Metode:** Der inkluderedes 13 førstegangs henviste patienter, som blev randomiseret til to grupper, intervention ( $n = 6$ ) og kontrol ( $n = 7$ ). Inklusionskriterierne var:  $>18$  år, Fiberoptic Endoscopic Dysphagia Severity Scale score 1-4,  $<50\%$  af dagligt energiindtag gennem sonden, lavere energiindtag end beregnet behov. Interventionen var en individuel ernæringsvejledning, med fokus på fødevare konsistens anbefalinger, på baggrund af dysfagiundersøgelsen. Kontrolgruppen modtog konsistens anbefalinger fra dysfagiundersøgelsen, men ingen ernæringsvejledning. Det primære outcome var energiindtag beregnet ud fra tre-dages kostanamnese. Sekundære outcomes: Vægtudvikling, protein-indtag, fedtfri masse, fedtmasse og væskeindtag, samt livskvalitet og evner for almen daglig livsførelse (ADL) målt ved Dysphagia Handicap Index.

**Resultater:** Der var henholdsvis én og to dropouts i interventionsgruppen og kontrolgruppen. Compliance for interventionen blev vurderet som tilfredsstillende. Gennemsnitsøgningen for energiindtag var 997 kilojoule og 435 kilojoule for henholdsvis interventionsgruppen og kontrolgruppen ( $p=0,60$ ), samt 17,7 gram og 13,8 gram for protein ( $p=0,92$ ).

**Konklusion:** Der sås ingen overbevisende effekter på hverken primært eller sekundære outcomes. Der sås dog tendenser til fordelagtige resultater for interventionen, hvorfor forsøget ønskes gentaget med højere statistisk power.

## **Noter**

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