

LITTERATUROVERSIKT

OM

SYKDOMSRELATERT UNDERERNÆRING

Litteraturoversikten oppdateres av Lene Thoresen. Dersom det er publikasjoner som du mener bør være med kan de meldes inn til kompetansetjenesten på e-post nksu@ous-hf.no

INNHold

| | |
|---|-----------|
| <i>Underernæring</i> | 3 |
| Definisjoner og kriterier | 3 |
| Prevalens (ernæringsrisiko eller underernæring) | 4 |
| ÅRSAKER, assosiasjoner OG Konsekvenser av risiko FOR UNDERERNÆRING og underernæring .. | 6 |
| <i>Screening</i> | 8 |
| Screening og kartleggingsverktøy (med lenker til hvor de finnes) | 9 |
| MNA (SF) | 9 |
| MUST | 10 |
| MST | 10 |
| NRS-2002 | 11 |
| PG-SGA | 11 |
| SNAQ | 12 |
| Effekt av screening | 12 |
| EFFEKT AV ERNÆRINGSSTØTTE TIL DE SOM FANGES OPP VED SCREENING | 12 |
| <i>ernæringsintervensjoner</i> | 13 |
| <i>Implementering av ernæringsstrategier/-PROGRAM</i> | 20 |
| Barrierer og suksessfaktorer | 21 |
| kvalitetsindikatorer | 22 |
| <i>Kompetansebygging</i> | 22 |
| <i>Kostnad, nytte, KODING</i> | 22 |
| <i>ESPEN Guidelines</i> | 26 |
| <i>Utvalgte medisinske diagnoser og tilstander</i> | 27 |
| Graviditet | 28 |
| GERIATRI | 28 |
| demens | 28 |
| DYSFAGI | 28 |
| KOLS | 29 |
| Kakeksi | 30 |
| AVANSERT KREFTSYDOM | 32 |
| Reernæring | 33 |
| <i>PUBLIKASJONER FRA NUTRITION DAY DATA</i> | 33 |
| <i>DIVERSE</i> | 35 |

UNDERERNÆRING

Editorial. **Towards optimal nutritional care for all: A multi-disciplinary patient centred approach to a complex challenge.** *Clinical Nutrition* 39 (2020) 1309-1314

Mogensen KM, Malone A, Becker P, Cutrell S, Frank L, Gonzales K, Hudson L, Miller S, Guenter P; Malnutrition Committee of the American Society for Parenteral and Enteral Nutrition (ASPEN). **Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition Consensus Malnutrition Characteristics: Usability and Association With Outcomes.** *Nutr Clin Pract.* 2019 May 10. doi: 10.1002/ncp.10310. [Epub ahead of print]

Matarese LE, Charney P. **Capturing the Elusive Diagnosis of Malnutrition.** *Nutr Clin Pract.* 2017 Feb;32(1):11-14. doi: 10.1177/0884533616671856. Epub 2016 Oct 13. No abstract available. PMID: 27729403

Bharadwaj S, Ginoya S, Tandon P, Gohel TD, Guirguis J, Vallabh H, Jevann A, Hanouneh I. **Malnutrition: laboratory markers vs nutritional assessment.** *Gastroenterol Rep (Oxf).* 2016 Nov;4(4):272-280. Epub 2016 May 11. Review. PMID: 27174435

Earthman CP. **Body Composition Tools for Assessment of Adult Malnutrition at the Bedside: A Tutorial on Research Considerations and Clinical Applications.** *JPEN J Parenter Enteral Nutr.* 2015 Sep;39(7):787-822. doi: 10.1177/0148607115595227.

Stratton RG, C.J.; Elia, M. **Disease-related malnutrition: An Evidence-Based Approach To Treatment** CABI publishing; 2003.

DEFINISJONER OG KRITERIER

Keller, H., et al. (2020). **Global Leadership Initiative on Malnutrition (GLIM): Guidance on Validation of the Operational Criteria for the Diagnosis of Protein-Energy Malnutrition in Adults.** *JPEN. Journal of Parenteral and Enteral Nutrition.* 2020 Aug;44(6):992-1003. doi: 10.1002/jpen.1806.

Jensen GL, Cederholm T, Correia MITD, et al. **GLIM Criteria for the Diagnosis of Malnutrition: A Consensus Report From the Global Clinical Nutrition Community.** *JPEN J Parenter Enteral Nutr.* 2018 Sep 2. doi: 10.1002/jpen.1440. [Epub ahead of print]

Soeters P, Bozzetti F, Cynober L, Forbes A, Shenkin A, Sobotka L. **Defining malnutrition: A plea to rethink.** *Clin Nutr.* 2017 Jun;36(3):896-901.

Jensen GL, Cederholm T. **Global Leadership Initiative on Malnutrition: Progress Report From ASPEN Clinical Nutrition Week 2017.** *JPEN J Parenter Enteral Nutr.* 2017 Apr 1:148607117707761.

Cederholm T, Jensen GL. **To Create a Consensus on Malnutrition Diagnostic Criteria.** JPEN J Parenter Enteral Nutr. 2017 Mar;41(3):311-314.

Cederholm T, Barazzoni R, Austin P, et al **ESPEN guidelines on definitions and terminology of clinical nutrition.** Clin Nutr. 2017 Feb;36(1):49-64

Matarese LE, Charney P. **Capturing the Elusive Diagnosis of Malnutrition.** Nutr Clin Pract. 2016 Oct 11. pii: 0884533616671856.

Hand RK, Murphy WJ, Field LB, Lee JA, Parrott JS, Ferguson M, Skipper A, Steiber AL **Validation of the Academy/A.S.P.E.N. Malnutrition Clinical Characteristics** J Acad Nutr Diet. 2016;5:856-864

Martin L, Senesse P, Gioulbasanis I, Antoun S, Bozzetti F, Deans C, Strasser F, Thoresen L, Jagoe RT, Chasen M, Lundholm K, Bosaeus I, Fearon KH, Baracos VE. **Diagnostic criteria for the classification of cancer-associated weight loss.** J Clin Oncol. 2015 Jan 1;33(1):90-9.

Cederholm T, Bosaeus I, Barazzoni R, Bauer J, Van Gossum A, Klek S, Muscaritoli M, Nyulasi I, Ockenga J, Schneider SM, de van der Schueren MA, Singer P. **Diagnostic criteria for malnutrition - An ESPEN Consensus Statement.** Clin Nutr. 2015 Jun;34(3):335-40.

Thoresen L, Frykholm G, Lydersen S, Ulveland H, Baracos V, Prado CMM, Birdsell L, Falkmer U. **Nutritional status, cachexia and survival in patients with advanced colorectal carcinoma. Different assessment criteria for nutritional status provide unequal results.** Clinical Nutrition, Volume 32, Issue 1, February 2013, Pages 65-72.

White JV, Guenter P, Jensen G, Malone A, Schofield M, Academy Malnutrition Work G, et al. **Consensus statemet: Academy of Nutrition and Dietetics and American Society for Parenteral and Enteral Nutrition: characteristics recommended for the identification and documentation of adult malnutrition (undernutrition).** JPEN Journal of parenteral and enteral nutrition. 2012;36(3):275-83.

Jeejeebhoy KN. **Malnutrition, fatigue, frailty, vulnerability, sarcopenia and cachexia: overlap of clinical features.** Curr Opin Clin Nutr Metab Care. 2012 May;15(3):213-9. doi: 10.1097/MCO.0b013e328352694f. Review.

Jensen GL, Mirtallo J, Compher C, Dhaliwal R, Forbes A, Grijalba RF, et al. **Adult starvation and disease-related malnutrition: a proposal for etiologybased diagnosis in the clinical practice setting from the International Consensus Guideline Committee.** Clinical nutrition. 2010;29(2):151-3.

PREVALENS (ERNÆRINGSRISIKO ELLER UNDERERNÆRING)

M. Rivelsrud, I. Paur, K. Sygnetveitet al., (2020) **Nutritional treatment is associated with longer survival in patients withpancreatic disease and concomitant risk of malnutrition,** Clinical Nutrition, <https://doi.org/10.1016/j.clnu.2020.09.037>

Tobert CM, Mott SL, Nepple KG. (2018) **Malnutrition Diagnosis during Adult Inpatient Hospitalizations: Analysis of a Multi-Institutional Collaborative Database of Academic Medical Centers.** J Acad Nutr Diet Jan;118(1):125-131. doi: 10.1016/j.jand.2016.12.019. PMID: 28416434

Guerra RS, Fonseca I, Sousa AS, Jesus A, Pichel F, Amaral TF. **ESPEN diagnostic criteria for malnutrition - A validation study in hospitalized patients.** Clin Nutr. 2017 Oct;36(5):1326-1332. doi: 10.1016/j.clnu.2016.08.022. Epub 2016 Sep 8.

Jacobsen EL, Brovold T, Bergland A, Bye A. **Prevalence of factors associated with malnutrition among acute geriatric patients in Norway: a cross-sectional study.** BMJ Open 2016;6:e011512. doi:10.1136/bmjopen-2016-011512

Pereira, G. F., et al. (2015). **Malnutrition among cognitively intact, noncritically ill older adults in the emergency department.** Annals of Emergency Medicine 65(1): 85-91.

Kampman MT, Eltoft A, Karaliute M, Børvik MT, Nilssen H, Rasmussen I, Johnsen SH. **Full Implementation of Screening for Nutritional Risk and Dysphagia in an Acute Stroke Unit: A Clinical Audit.** Neurohospitalist. 2015 Oct; 5(4): 205–211

Eide HK, Benth JS, Sortland K, Halvorsen K, Almendingen K. **Prevalence of nutritional risk in the non.demented hospital elderly: a cross-sectional study from Norway using stratified sampling.** J Nutr Sci. 2015 May 6;4:e18.

Tangvik RJ, Tell GS, Guttormsen AB, Eisman JA, Henriksen A, Nilsen RM, Ranhoff AH: **Nutritional risk profile in a university hospital population.** Clin Nutr. 2015 Aug;34(4):705-11.

Thoresen L, Frykholm G, Lydersen S, Ulveland H, Baracos V, Prado CMM, Birdsell L, Falkmer U. **Nutritional status, cachexia and survival in patients with advanced colorectal carcinoma. Different assessment criteria for nutritional status provide unequal results.** Clinical Nutrition, Volume 32, Issue 1, February 2013, Pages 65-72.

Tangvik RJ, Guttormsen AB, Tell GS, Ranhoff AH. **Implementation of nutritional guidelines in a university hospital monitored by repeated point prevalence surveys.** Eur J Clin Nutr. 2012 Mar;66(3):388-93

Sheard JM, Ash S, Silburn PA, and Kerr GK. **Prevalence of malnutrition in Parkinson's disease: a systematic review.** Nutrition Reviews 2011; Vol. 69(9):520–532

Kaiser MJ, Bauer JM, Ramsch C, Uter W, Guigoz Y, Cederholm T, et al. **Frequency of malnutrition in older adults: a multinational perspective using the mini nutritional assessment.** Journal of the American Geriatrics Society. 2010;58(9):1734-8.

Imoberdorf R, Meier R, Krebs P, Hangartner PJ, Hess B, Staubli M, et al. **Prevalence of undernutrition on admission to Swiss hospitals.** Clinical nutrition. 2010;29(1):38-41.

Leistra E, Neelemaat F, Evers AM, van Zandvoort MH, Weijs PJ, van Bokhorst-de van der Schueren MA, Visser M, Kruizenga HM.

Prevalence of undernutrition in Dutch hospital outpatients. Eur J Intern Med. 2009 Sep;20(5):509-13. doi: 10.1016/j.ejim.2009.03.011. Epub 2009 Apr 23.

Sorensen J, Kondrup J, Prokopowicz J, Schiesser M, Krahenbuhl L, Meier R, et al.

EuroOOPS: an international, multicentre study to implement nutritional risk screening and evaluate clinical outcome. Clinical nutrition. 2008;27(3):340-9.

Bauer JD, Isenring E, Torma J, Horsley P, Martineau J. **Nutritional status of patients who have fallen in an acute care setting.** Journal of human nutrition and dietetics, 2007;20(6):558-64.

Singh H, Watt K, Veitch R, Cantor M, Duerksen DR. **Malnutrition is prevalent in hospitalized medical patients: are housestaff identifying the malnourished patient?** Nutrition. 2006;22(4):350-4.

Segura, A., et al. (2005). **An epidemiological evaluation of the prevalence of malnutrition in Spanish patients with locally advanced or metastatic cancer.** Clinical Nutrition 24(5): 801-814.

Martins CP, Correia JR, do Amaral TF. **Undernutrition risk screening and length of stay of hospitalized elderly.** Journal of nutrition for the elderly. 2005;25(2):5-21.

Waitzberg, D. L., et al. (2001). **Hospital malnutrition: the Brazilian national survey (IBRANUTRI): a study of 4000 patients.** Nutrition 17(7-8): 573-580.

ÅRSAKER, ASSOSIASJONER OG KONSEKVENSER AV RISIKO FOR UNDERERNÆRING OG UNDERERNÆRING

M. Rivelsrud, I. Paur, K. Sygnetveitet al., (2020) **Nutritional treatment is associated with longer survival in patients with pancreatic disease and concomitant risk of malnutrition,** Clinical Nutrition, <https://doi.org/10.1016/j.clnu.2020.09.037>

Skeie, E., et al. (2019). **Weight loss and BMI criteria in GLIM's definition of malnutrition is associated with postoperative complications following abdominal resections - Results from a National Quality Registry.** Clinical Nutrition.

Ness, S. J., et al. (2018). **The pressures of obesity: The relationship between obesity, malnutrition and pressure injuries in hospital inpatients.** Clinical Nutrition 37(5): 1569-1574.

Mauricio, S. F., et al. (2018). **Different nutritional assessment tools as predictors of postoperative complications in patients undergoing colorectal cancer resection.** Clinical Nutrition 37(5): 1505-1511.

Ribeiro, H. S., et al. (2018). **Combined nutritional assessment methods to predict clinical outcomes in patients on the waiting list for liver transplantation.** Nutrition 47: 21-26.

A.L.M.A. Rondel, J.A.E. Langius, M.A.E. de van der Schueren, H.M. Kruizenga. **The new ESPEN diagnostic criteria for malnutrition predict overall survival in hospitalised patients.** 2018; Vol 37: 163-168

P.F. Collins, M. Elia, R.J. Kurukulaaratchy, R.J. Stratton. **The influence of deprivation on malnutrition risk in outpatients with chronic obstructive pulmonary disease (COPD).** Clin Nutr. 2018; Vol 37: 144-148

Alhaug, J., et al. (2017). **Pressure ulcer is associated with malnutrition as assessed by Nutritional Risk Screening (NRS 2002) in a mixed hospital population.** Food Nutr Res 61(1): 1324230.

de van der Schueren MAE, de Smoker M, Leistra E, Kruizenga HM. **The association of weight loss with one-year mortality in hospital patients, stratified by BMI and FFMI subgroups.** Clin Nutr. 2017 Aug 31. pii: S0261-5614(17)30307-2. doi: 10.1016/j.clnu.2017.08.024. [Epub ahead of print]

Barreto Pde S, Cadroy Y, Kalaiditi E, Vellas B, Rolland Y. **The prognostic value of body-mass index on mortality in older adults with dementia living in nursing homes.** Clin Nutr. 2017;36:423-428

Tevik K, Thürmer H, Husby MI, de Soysa AK, Helvik AS. **Nutritional risk is associated with long term mortality in hospitalized patients with chronic heart failure.** Clin Nutr ESPEN. 2016 Apr;12:e20-e29.

Martin L, Senesse P, Gioulbasanis I, Antoun S, Bozzetti F, Deans C, Strasser F, Thoresen L, Jagoe RT, Chasen M, Lundholm K, Bosaeus I, Fearon KH, Baracos VE. **Diagnostic criteria for the classification of cancer-associated weight loss.** J Clin Oncol. 2015 Jan 1;33(1):90-9.

Tangvik RJ, Tell GS, Eisman JA, et al. **The nutritional strategy: four questions predict morbidity, mortality and health care costs.** Clin Nutr. 2014 Aug;33(4):634-41

Thoresen L, Frykholm G, Lydersen S, Ulveland H, Baracos V, Prado CMM, Birdsell L, Falkmer U. **Nutritional status, cachexia and survival in patients with advanced colorectal carcinoma. Different assessment criteria for nutritional status provide unequal results.** Clinical Nutrition, Volume 32, Issue 1, February 2013, Pages 65-72.

Boltong AG, et al. **Using a public hospital funding model to strengthen a case for improved nutritional care in a cancer setting.** Aust Health Rev. 2013. PMID: 23731960

Agarwal E1, Ferguson M, Banks M, Batterham M, Bauer J, Capra S, Isenring E. **Malnutrition and poor food intake are associated with prolonged hospital stay, frequent readmissions, and greater in-hospital mortality: results from the Nutrition Care Day Survey 2010.** Clin Nutr. 2013 Oct;32(5):737-45

Krell RW, Kaul DR, Martin AR, Englesbe MJ, Sonnenday CJ, Cai S, et al. **Association between sarcopenia and the risk of serious infection among adults undergoing liver transplantation.** Liver transplantation : official publication of the

American Association for the Study of Liver Diseases and the International Liver Transplantation Society. 2013;19(12):1396-402.

Lieffers JR, Bathe OF, Fassbender K, Winget M, Baracos VE.

Sarcopenia is associated with postoperative infection and delayed recovery from colorectal cancer resection surgery. British journal of cancer. 2012;107(6):931-6.

Barker LA, Gout BS, Crowe TC. **Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system.** International journal of environmental research and public health. 2011;8(2):514-27.

Hartholt K.A., van Beeck E.F., Polinder S., van der Velde N., van Lieshout E.M., Panneman M.J., van der Cammen T.J., Patka P. **Societal consequences of falls in the older population: injuries, healthcare costs, and long-term reduced quality of life.** J Trauma. 2011 Sep.; 71(3):748-53.

Raslan, M., et al. (2010). **Complementarity of Subjective Global Assessment (SGA) and Nutritional Risk Screening 2002 (NRS 2002) for predicting poor clinical outcomes in hospitalized patients.** Clin Nutr. 2011 Feb;30(1):49-53

Raslan, M., et al. (2010). **Comparison of nutritional risk screening tools for predicting clinical outcomes in hospitalized patients.** Nutrition 26(7-8): 721-726.

Norman K, Stobäus N, Gonzalez MC, Schulzke JD, Pirlich M. **Hand grip strength: outcome predictor and marker of nutritional status.** Clin Nutr. 2011 Apr;30(2):135-42. doi: 10.1016/j.clnu.2010.09.010. Epub 2010 Oct 30. Review.

Juliebo V, Bjoro K, Krogseth M, Skovlund E, Ranhoff AH, Wyller TB. **Risk factors for preoperative and postoperative delirium in elderly patients with hip fracture.** Journal of the American Geriatrics Society. 2009;57(8):1354-61.

Mowe M, Diep L, Bohmer T. **Greater seven-year survival in very aged patients with body mass index between 24 and 26 kg/m².** Journal of the American Geriatrics Society. 2008;56(2):359-60.

Norman K, Pichard C, Lochs H, Pirlich M.(2008). **Prognostic impact of disease-related malnutrition.** Clin Nutr. Feb;27(1):5-15. doi: 10.1016/j.clnu.2007.10.007. PMID: 18061312

Cosqueric G, Sebag A, Ducolombier C, et al **Sarcopenia is predictive of nosocomial infection in care of the elderly.** The British journal of nutrition. 2006;96(5):895-901.

SCREENING

Ruan, X et al. (2020). **Meta-analyses. Nutritional screening tools for adult cancer patients: A hierarchical Bayesian latent-class meta-analysis.** Clin Nutr. 2020 Oct 3:S0261-5614(20)30505-7. doi: 10.1016/j.clnu.2020.09.033. Online ahead of print. PMID: 33041089.

Skipper, A., et al. (2020). **Position of the Academy of Nutrition and Dietetics: Malnutrition (Undernutrition) Screening Tools for All Adults.** J Acad Nutr Diet 120(4): 709-713.

Skipper, A., et al. (2020). **Adult Malnutrition (Undernutrition) Screening: An Evidence Analysis Center Systematic Review.** J Acad Nutr Diet 120(4): 669-708.

van Bokhorst-de van der Schueren MA, Guaitoli PR, Jansma EP, de Vet HC. **Nutrition screening tools: does one size fit all? A systematic review of screening tools for the hospital setting.** Clin Nutr. 2014 Feb;33(1):39-58.

Leistra E, Langius JA, Evers AM, van Bokhorst-de van der Schueren MA, Visser M, de Vet HC, Kruijenga HM. **Validity of nutritional screening with MUST and SNAQ in hospital outpatients.** Eur J Clin Nutr. 2013 Jul;67(7):738-42. doi: 10.1038/ejcn.2013.85. Epub 2013 May 1.

Skipper A, Ferguson M, Thompson K, Castellanos VH, Porcari J. **Nutrition screening tools: an analysis of the evidence.** JPEN J Parenter Enteral Nutr. 2012 May;36(3):292-8

Neelemaat F, Meijers J, Kruijenga H, van Ballegooijen H, van Bokhorst-de van der Schueren M. **Comparison of five malnutrition screening tools in one hospital inpatient sample.** J Clin Nurs. 2011 Aug;20(15-16):2144-52. doi: 10.1111/j.1365-2702.2010.03667.x. Epub 2011 Apr 28.

Schwegler, I., et al. (2010). **Nutritional risk is a clinical predictor of postoperative mortality and morbidity in surgery for colorectal cancer.** British Journal of Surgery 97(1): 92-97.

Pablo, A. M., et al. (2003). **Assessment of nutritional status on hospital admission: nutritional scores.** European Journal of Clinical Nutrition 57(7): 824-831.

Kelly IE, Tessier S, Cahill A, Morris SE, Crumley A, McLaughlin D, McKee RF, Lean ME. **Still hungry in hospital: identifying malnutrition in acute hospital admissions.** QJM. 2000 Feb;93(2):93-8.

Rowland, M. L. (1990). **Self-reported weight and height.** American Journal of Clinical Nutrition 52(6): 1125-1133.

Stunkard, A. J. and J. M. Albaum (1981). **The accuracy of self-reported weights.** American Journal of Clinical Nutrition 34(8): 1593-1599.

SCREENING OG KARTLEGGINGSVERKTØY (MED LENKER TIL HVOR DE FINNES)

MNA (SF)

Mini Nutritional Assessment er et kartleggingsverktøy som fører til vurderingene «Normal ernæringsstatus», «Risiko for underernæring» eller «Underernært».

Lenk til norsk oversettelse av MNA

http://www.mna-elderly.com/forms/MNA_norwegian.pdf

Veiledning for utfylling av MNA skjema for ernæringsvurdering

http://www.mna-elderly.com/forms/mna_guide_norwegian.pdf

Veiledningen har følgende vedlegg:

Vedlegg 1 • Tabell over Kroppsmasseindeks

Vedlegg 2 • Regne ut BMI for personer med amputasjon

Vedlegg 3 • Måle høyde ved hjelp av et Stadiometer

Vedlegg 4 • Måle Demispan

Vedlegg 5 • Måle Knehøyde

Vedlegg 6 • Måle Overarmens Omkrets (OO)

Vedlegg 7 • Måle Leggens Omkrets

17 referanser

Mastronuzzi T, Paci C, Portincasa P, Montanaro N, Grattagliano I. **Assessing the nutritional status of older individuals in family practice: Evaluation and implications for management.** Clin Nutr. 2015 Dec;34(6):1184-8.

MUST

Malnutrition Universal Screenings Tool er et verktøy som vurderer risikoen for underernæring og skårer pasientene i «Lav risiko», «Middels risiko» eller «Høy risiko» for underernæring.

Lenk til norsk oversettelse av MUST

http://www.nutricia.no/images/uploads/3. MUST_flytskjema.pdf

Lenk til veiledning for utfylling av MUST

http://www.nutricia.no/images/uploads/MUST_brosjyre_32_sider.pdf

13 referanser

MST

Malnutrition Screening Tool er ikke oversatt til norsk.

Marshall S, Young A, Isenring E **The malnutrition screening tool in geriatric rehabilitation: A comparison of validity when completed by health professionals with and without malnutrition screening training has implications for practice.** J Acad Nutr Diet, 2018;118:118-123

Phillips W, Zechariah S **Minimizing False-Positive Nutrition Referrals Generated from the Malnutrition Screening Tool.** J Acad Nutr Diet. 2017 May;117(5):665-669. doi: 10.1016/j.jand.2016.05.014. Epub 2016 Jul 14.

Isenring E, Cross G, Daniels L, Kellett E, Koczwara B. **Validity of the malnutrition screening tool as an effective predictor of nutritional risk in oncology outpatients receiving chemotherapy.** Support Care Cancer. 2006 Nov;14(11):1152-6. Epub 2006 Apr 19.

NRS-2002

Nutrition Risk screening 2002

Hersberger L, et al. **Nutritional risk screening (NRS 2002) is a strong and modifiable predictor risk score for short-term and long-term clinical outcomes: secondary analysis of a prospective randomised trial.** Clin Nutr. 2019 Dec 14. pii: S0261-5614(19)33171-1. doi: 10.1016/j.clnu.2019.11.041. [Epub ahead of print] PMID: 31882232

Tevik K, Thürmer H, Husby MI, de Soysa AK, Helvik AS. **Nutritional risk screening in hospitalized patients with heart failure.** Clin Nutr. 2015 Apr;34(2):257-64

Sorensen J, Kondrup J, Prokopowicz J, et al **EuroOOPS: an international, multicentre study to implement nutritional risk screening and evaluate clinical outcome.** Clin Nutr. 2008 Jun;27(3):340-9.

Kondrup J, Rasmussen HH, Hamberg O et al **Nutritional risk screening (NRS 2002): a new method based on an analysis of controlled clinical trials.** Clin Nutr (2003) 22(3):321-336

J. Kondrup, S. P. Allison, M. Elia, B. Vellas, M. Plauth **ESPEN Guidelines for Nutrition Screening 2002** Clinical Nutrition (2003) 22(4): 415–421

Norsk oversettelse

NRS 2002 finnes i heftet God ernæringspraksis på følgende lenk;
http://www.nske.no/pdf/290517_god_ernaringspraksis.pdf

PG-SGA

The Scored Patient-Generated Subjective Global Assessment

Det er mange versjoner av SGA oversatt til ulike språk. Side 1 av PG-SGA inneholder elementene i screeningsverktøy og kan derfor fungere som screeningsverktøy. Denne kalles PG-SGA-SF (short form) eller også abPG-SGA (abridged). PG-SGA setter i dag standarden for diagnostisering av underernæring og er det foretrukne verktøyet innen onkologi og ved andre kronisk katabolske tilstander. PG-SGA er et kartleggingsverktøy som leder til tilstandene velernært, moderat underernært eller alvorlig underernært.

Norsk oversettelse

http://pt-global.org/?page_id=13

Jager-Wittenaar H and Ottery FD **Assessing nutritional status in cancer: role of the Patient-Generated Subjective Global Assessment. Assessing nutritional status in cancer: role of the Patient-Generated Subjective Global Assessment** Curr Opin Clin Nutr Metab Care. 2017 Sep;20(5):322-329. doi: 10.1097/MCO.0000000000000389.

Gabrielson DK, Scaffidi D, Leung E, Stoyanoff L, Robinson J, Nisenbaum R, Brezden-Masley C, Darling PB. **Use of an abridged scored Patient-Generated Subjective Global Assessment (abPG-SGA) as a nutritional screening tool for cancer patients in an outpatient setting.** Nutr Cancer. 2013;65(2):234-9. doi: 10.1080/01635581.2013.755554.

Thoresen L, Fjeldstad I, Krogstad K, Kaasa S, Falkmer UG. **Nutritional status of patients with advanced cancer: the value of using the subjective global assessment of nutritional status as a screening tool.** Palliat Med January 2002 16: 33-42,

SNAQ

Short Nutritional Assessment Questionnaire (SNAQ) er ikke oversatt til norsk. Det finnes flere varianter av SNAQ for bruk på ulike nivåer av helsetjenestene og for ulike aldersgrupper.

Lenk til SNAQ verktøyene

<http://www.fightmalnutrition.eu/fight-malnutrition/screening-tools/snaq-tools-in-english/>

Sealy MJ, Nijholt W, Stuiver MM, et al **Content validity across methods of malnutrition assessment in patients with cancer is limited.** J Clin Epidemiol. 2016 Aug;76:125-36

EFFEKT AV SCREENING

Omidvari AH, Vali Y, Murray SM, Wonderling D, Rashidian A. **Nutritional screening for improving professional practice for patient outcomes in hospital and primary care settings.** Cochrane Database Syst Rev. 2013 Jun 6;6:CD005539.

EFFEKT AV ERNÆRINGSSTØTTE TIL DE SOM FANGES OPP VED SCREENING

Gomes F, Baumgartner A, Bounoure L, Bally M, Deutz NE, Greenwald JL, Stanga Z, Mueller B, Schuetz P. **Association of Nutritional Support With Clinical Outcomes Among Medical Inpatients Who Are Malnourished or at Nutritional Risk: An Updated Systematic Review and Meta-analysis.** JAMA Netw Open. 2019 Nov 1;2(11):e1915138. PMID: 31747030

Schuetz P, Fehr R, Baechli V, et al **Individualised nutritional support in medical inpatients at nutritional risk: a randomised clinical trial.** Lancet, Published online April 25, 2019 [http://dx.doi.org/10.1016/S0140-6736\(18\)32776-4](http://dx.doi.org/10.1016/S0140-6736(18)32776-4)

Sriram K, Sulo S, VanDerBosch G, Feldstein JPJ, Hegazi RA, Summerfelt WmT, A **Comprehensive Nutrition-Focused Quality Improvement Program Reduces 30-Day Readmissions and Length of Stay in Hospitalized Patients** JPEN J Parenter Enteral Nutr. 2017 Mar;41(3):384-391

Bounoure L, Gomes F, Stanga Z, et al. **Detection and treatment of medical inpatients with or at-risk of malnutrition: Suggested procedures based on validated guidelines.** Nutrition. 2016 Jul-Aug;32(7-8):

Starke J, Schneider H, Alteheld B, Stehle P, Meier R. **Short-term individual nutritional care as part of routine clinical setting improves outcome and quality of life in malnourished medical patients.** Clin Nutr. 2011 Apr;30(2):194-201.

Johansen N, Kondrup J, Plum LM, Bak L, Nørregaard P, Bunch E, Baernthsen H, Andersen JR, Larsen IH, Martinsen A. **Effect of nutritional support on clinical outcome in patients at nutritional risk.** Clin Nutr. 2004 Aug;23(4):539-50.

ERNÆRINGSINTERVENSJONER

Nguyen HT, et al. (2020) **Effectiveness of Tailored Dietary Counseling in Treating Malnourished Outpatients with Chronic Obstructive Pulmonary Disease: A Randomized Controlled Trial.** J Acad Nutr Diet. 120(5): 778-791. PMID: 31786177

Paulsen, M. M., et al. (2020). **Effects of using the MyFood decision support system on hospitalized patients' nutritional status and treatment: A randomized controlled trial.** Clin Nutr. <https://doi.org/10.1016/j.clnu.2020.03.012>

van der Werf, A., et al. (2020). **The effect of nutritional counseling on muscle mass and treatment outcome in patients with metastatic colorectal cancer undergoing chemotherapy: A randomized controlled trial.** Clin Nutr. Jan 29. pii: S0261-5614(20)30029-7. doi: 10.1016/j.clnu.2020.01.009. [Epub ahead of print]

Mullin, G. E., et al. (2019). **The Association between Oral Nutritional Supplements and 30-Day Hospital Readmissions of Malnourished Patients at a US Academic Medical Center.** J Acad Nutr Diet 119(7): 1168-1175.

Tobberup R, Thoresen L, Falkmer U, Yilmaz MK, Solheim TS, Balstad TR. (2019). **Effects of current parenteral nutrition treatment on health-related quality of life, physical function, nutritional status, survival and adverse events exclusively in patients with advanced cancer: A systematic literature review.** Critical Reviews in Oncology/Hematology 139: 96-107.

Holst M, Rasmussen HH. **NutriDia-Nutritional Decision Support between Cancer Patients at Risk of Weight Loss and Healthcare Staff.** Annals of Clinical Case Reports. 2019, Vol 4, Article 1581, <http://anncaserep.com/>

Wright, J. and C. Baldwin (2018). **Oral nutritional support with or without exercise in the management of malnutrition in nutritionally vulnerable older people: A systematic review and meta-analysis.** Clinical Nutrition 37(6 Pt A): 1879-1891.

Hugo, C., et al. (2018). **Cost-effectiveness of food, supplement and environmental interventions to address malnutrition in residential aged care: a systematic review.** Age and Ageing 47(3): 356-366.

Marx, W., et al. (2018). **Is telehealth effective in managing malnutrition in community-dwelling older adults? A systematic review and meta-analysis.** Maturitas 111: 31-46.

Sriram, K., et al. (2017). **A Comprehensive Nutrition-Focused Quality Improvement Program Reduces 30-Day Readmissions and Length of Stay in Hospitalized Patients.** JPEN. Journal of Parenteral and Enteral Nutrition 41(3): 384-391.

Lindegaard Pedersen, J., et al. (2017). **Nutritional Follow-Up after Discharge Prevents Readmission to Hospital - A Randomized Clinical Trial.** J Nutr Health Aging 21(1): 75-82.

Uster A, Ruehlin M, Mey S, Gisi D, Knols R, Imoberdorf R, Pless M, Ballmer PE. **Effects of nutrition and physical exercise intervention in palliative cancer patients: A randomized controlled trial.** Clin Nutr. 2018 Aug;37(4):1202-1209. doi: 10.1016/j.clnu.2017.05.027. Epub 2017 Jun 8. PMID: 28651827

Beelen J, Vasse E, Janssen N, Janse A, de Roos NM, de Groot LCPGM. **Protein-enriched familiar foods and drinks improve protein intake of hospitalized older patients: A randomized controlled trial.** Clin Nutr. 2018 Aug;37(4):1186-1192. doi: 10.1016/j.clnu.2017.05.010. Epub 2017 May 18. PMID: 28571713

de van der Schueren MAE, Laviano A, Blanchard H, Jourdan M, Arends J, Baracos VE. **Systematic review and meta-analysis of the evidence for oral nutritional intervention on nutritional and clinical outcomes during chemo(radio)therapy: current evidence and guidance for design of future trials.** Ann Oncol. 2018 May 1;29(5):1141-1153. doi: 10.1093/annonc/mdy114.

Il-Young Kim, Nicolaas E.P. Deutz, Robert R. Wolfe. **Update on maximal anabolic response to dietary protein.** Clin Nutr. 2018; Vol 37: 411-762

Arends J. **Struggling with nutrition in patients with advanced cancer: nutrition and nourishment-focusing on metabolism and supportive care.** Ann Oncol. 2018 Feb 1;29(suppl_2):ii27-ii34. doi: 10.1093/annonc/mdy093.

Martin L, Kubrak C. **How much does reduced food intake contribute to cancer-associated weight loss?** Curr Opin Support Palliat Care. 2018 Dec;12(4):410-419. doi: 10.1097/SPC.0000000000000379.

Sowerbutts AM, La S, Sremanakova J, Clamp A, Todd C, Jayson GC, Teubner A, Raftery AM, Sutton EJ, Hardy L, Burden S. **Home parenteral nutrition for people with inoperable malignant bowel obstruction.** Cochrane Database Syst Rev. 2018 Aug 10;8:CD012812. doi: 10.1002/14651858.CD012812.pub2. Review.

Ortiz-Reyes LA, Castillo-Martinez L, Lupian-Angulo AI et al **Increased efficacy and safety of enteral nutrition support with a protocol (ASNET) in noncritical patients: a randomized controlled trial.** J Acad Nutr Diet, 2018; 118: 52-60

Neelemaat F, van Keeken S, Langius JAE, de van der Schueren MAE, Thijs A, Bosmans JE. **Survival in Malnourished Older Patients Receiving Post-Discharge Nutritional Support; Long-Term Results of a Randomized Controlled Trial.** J Nutr Health Aging. 2017;21(8):855-860. doi: 10.1007/s12603-017-0939-7.

Ottestad I, Løvstad AT, Gjevestad GO, Hamarsland H, Šaltytė Benth J, Andersen LF, Bye A, Biong AS, Retterstøl K, Iversen PO, Raastad T, Ulven SM, Holven KB. **Intake of a Protein-Enriched Milk and Effects on Muscle Mass and Strength. A 12-Week Randomized Placebo Controlled Trial among Community-Dwelling Older Adults.** J Nutr Health Aging. 2017;21(10):1160-1169. doi: 10.1007/s12603-016-0856-1. PMID: 29188875

Sine Roelsgaard Obling, Benedicte Vibjerg Wilson, Per Pfeiffer, Jens Kjeldsen. Randomized Control Trials. **Home parenteral nutrition increases fat free mass in patients with incurable gastrointestinal cancer. Results of a randomized controlled trial** Clin Nutr 2017, <https://doi.org/10.1016/j.clnu.2017.12.011>

Munk T, Bruun N, Nielsen MA, Thomsen T. **From Evidence to Clinical Practice: Positive Effect of Implementing a Protein-Enriched Hospital Menu in Conjunction With Individualized Dietary Counseling.** Nutr Clin Pract. 2017 Jun;32(3):420-426. doi: 10.1177/0884533616688432. Epub 2017 Feb 1.

Deutz NE, Matheson EM, Matarese LE, et al **Readmission and mortality in malnourished, older, hospitalized adults treated with a specialized oral nutritional supplement: A randomized clinical trial.** Clin Nutr. 2016 Feb;35(1):18-26

Lisa Bounoure, Filomena Gomes, Zeno Stanga et al. **Detection and treatment of medical inpatients with or at-risk of malnutrition: Suggested procedures based on validated Guidelines.** Nutrition 32 (2016) 790–798

Weekes CE, Baldwin C, Munk T, Beck AM. **Are oral nutritional supplements more effective than dietary advice in malnourished care home residents?** Clin Nutr. 2016 Aug;35(4):984. doi: 10.1016/j.clnu.2016.04.022. Epub 2016 May 13.

Bonilla-Palomas JL, Gámez-López AL, Castillo-Domínguez JC, et al **Nutritional Intervention in Malnourished Hospitalized Patients with Heart Failure.** Arch Med Res. 2016 Oct;47(7):535-540

Munk T, Tolstrup U, Beck AM, Holst M, Rasmussen HH, Hovhannisyanyan K, Thomsen T. **Individualised dietary counselling for nutritionally at-risk older patients following discharge from acute hospital to home: a systematic review and meta-analysis.** J Hum Nutr Diet. 2016 Apr;29(2):196-208. doi: 10.1111/jhn.12307. Epub 2015 Mar 18. Review.

Leistra E, Eerenstein SE, van Aken LH, Jansen F, de van der Schueren MA, Twisk JW, Visser M, Langius JA. **Effect of Early Individualized Dietary Counseling on Weight Loss, Complications, and Length of Hospital Stay in Patients With Head and Neck Cancer: A Comparative Study.** *Nutr Cancer.* 2015;67(7):1093-103. doi: 10.1080/01635581.2015.1073755. Epub 2015 Aug 28.

van Dijk DP, van de Poll MC, Moses AG, Preston T, Olde Damink SW, Rensen SS, Deutz NE, Soeters PB, Ross JA, Fearon KCh, Dejong CH. **Effects of oral meal feeding on whole body protein breakdown and protein synthesis in cachectic pancreatic cancer patients.** *J Cachexia Sarcopenia Muscle.* 2015 Sep;6(3):212-21. doi: 10.1002/jcsm.12029. Epub 2015 Apr 20.

Engelen MP, Safar AM, Bartter T, Koeman F, Deutz NE. **High anabolic potential of essential amino acid mixtures in advanced nonsmall cell lung cancer.** *Ann Oncol.* 2015 Sep;26(9):1960-6. doi: 10.1093/annonc/mdv271. Epub 2015 Jun 25.

De Waele E, Mattens S, Honoré PM, Spapen H, De Grève J, Pen JJ. **Nutrition therapy in cachectic cancer patients. The Tight Caloric Control (TiCaCo) pilot trial.** *Appetite.* 2015 Aug;91:298-301. doi: 10.1016/j.appet.2015.04.049. Epub 2015 Apr 22.

Andreyev J, Ross P, Donnellan C, Lennan E, Leonard P, Waters C, Wedlake L, Bridgewater J, Glynn-Jones R, Allum W, Chau I, Wilson R, Ferry D. **Guidance on the management of diarrhoea during cancer chemotherapy.** *Lancet Oncol.* 2014 Sep;15(10):e447-60. doi: 10.1016/S1470-2045(14)70006-3. Review. PMID: 25186048

Kiss NK, Krishnasamy M, Isenring EA. **The effect of nutrition intervention in lung cancer patients undergoing chemotherapy and/or radiotherapy: a systematic review.** *Nutr Cancer.* 2014;66(1):47-56. doi: 10.1080/01635581.2014.847966. Epub 2013 Dec 9. Review.

Beck A, Andersen UT, Leedo E et al **Does adding a dietician to the liaison team after discharge of geriatric patients improve nutritional outcome: A randomized controlled trial.** *Clin Rehabil.* 2014;29:1117-28

Munk T, Beck AM, Holst M, Rosenbom E, Rasmussen HH, Nielsen MA, Thomsen T. **Positive effect of protein-supplemented hospital food on protein intake in patients at nutritional risk: a randomised controlled trial.** *J Hum Nutr Diet.* 2014 Apr;27(2):122-32. doi: 10.1111/jhn.12210. Epub 2014 Jan 31.

Sheard JM, Ash S, Mellick GD, Silburn PA, Kerr GK. **Improved nutritional status is related to improved quality of life in Parkinson's disease** *BMC Neurol.* 2014 Nov 18;14:212.

Omlin A, Blum D, Wierecky J, Haile SR, Ottery FD, Strasser F. **Nutrition impact symptoms in advanced cancer patients: frequency and specific interventions, a case-control study.** *J Cachexia Sarcopenia Muscle.* 2013 Mar;4(1):55-61. doi: 10.1007/s13539-012-0099-x. Epub 2013 Jan 11.

Agarwal E, Ferguson M, Banks M, Bauer J, Capra S, Isenring E. **An exploratory study to evaluate whether medical nutrition therapy can improve dietary intake in hospital**

patients who eat poorly. J Hum Nutr Diet. 2013 Dec;26(6):538-43. doi: 10.1111/jhn.12173. Epub 2013 Oct 23.

Munk T, Seidelin W, Rosenbom E, Nielsen AL, Klausen TW, Nielsen MA, Thomsen T. **A 24-h a la carte food service as support for patients at nutritional risk: a pilot study.** J Hum Nutr Diet. 2013 Jun;26(3):268-75. doi: 10.1111/jhn.12017. Epub 2012 Dec 4.

Neelemaat F, Lips P, Bosmans JE, Thijs A, Seidell JC, van Bokhorst-de van der Schueren MA. **Short-term oral nutritional intervention with protein and vitamin D decreases falls in malnourished older adults.** J Am Geriatr Soc. 2012 Apr;60(4):691-9. doi: 10.1111/j.1532-5415.2011.03888.x. Epub 2012 Feb 8.

Engelen MP, Rutten EP, De Castro CL, Wouters EF, Schols AM, Deutz NE. **Casein protein results in higher prandial and exercise induced whole body protein anabolism than whey protein in chronic obstructive pulmonary disease.** Metabolism. 2012 Sep;61(9):1289-300. doi: 10.1016/j.metabol.2012.03.001. Epub 2012 Apr 17.

Neelemaat F, Bosmans JE, Thijs A, Seidell JC, van Bokhorst-de van der Schueren MA. **Oral nutritional support in malnourished elderly decreases functional limitations with no extra costs.** Clin Nutr. 2012 Apr;31(2):183-90. doi: 10.1016/j.clnu.2011.10.009. Epub 2011 Nov 8.

Deutz NE, Safar A, Schutzler S, Memelink R, Ferrando A, Spencer H, van Helvoort A, Wolfe RR. **Muscle protein synthesis in cancer patients can be stimulated with a specially formulated medical food.** Clin Nutr. 2011 Dec;30(6):759-68. doi: 10.1016/j.clnu.2011.05.008. Epub 2011 Jun 16.

Bonato SR, Oliveira HP, Nunes E, et al. **Fish oil supplementation improves neutrophil function during cancer chemotherapy.** Lipids. 2012;47(4):383-389.

Finocchiaro C, Segre O, Fadda M, et al. **Effect of n-3 fatty acids on patients with advanced lung cancer: A double-blind, placebo-controlled study.** Br J Nutr. 2012;108:327-333.

Holyday M, Daniells S, Bare M, Caplan GA, Petocz P, Bolin T. **Malnutrition screening and early nutrition intervention in hospitalised patients in acute aged care: a randomised controlled trial.** J Nutr Health Aging. 2012;16(6):562-8.

Silva JA, Trindade EB, Fabre ME, et al. **Fish oil supplement alters markers of inflammatory and nutritional status in colorectal cancer patients.** Nutr Cancer. 2012;64(2):267-273.

Weed HG, Ferguson ML, Gaff RL, Hustead DS, Nelson JL, Voss AC. **Lean body mass gain in patients with head and neck squamous cell cancer treated perioperatively with a protein- and energy-dense nutritional supplement containing eicosapentaenoic acid.** Head Neck. 2011;33(7):1027-1033.

Glare P, Jongs W, Zafiroopoulos B. **Establishing a cancer nutrition rehabilitation program (CNRP) for ambulatory patients attending an Australian cancer center.** Support Care Cancer. 2011;19(4):445-454.

Murphy RA, Mourtzakis M, Chu QS, Baracos VE, Reiman T, Mazurak VC. **Nutritional intervention with fish oil provides a benefit over standard of care for weight and skeletal muscle mass in patients with nonsmall cell lung cancer receiving chemotherapy.** *Cancer*. 2011;117(8):1775-1782.

Somanchi M1, Tao X, Mullin GE. **The facilitated early enteral and dietary management effectiveness trial in hospitalized patients with malnutrition.** *JPEN J Parenter Enteral Nutr*. 2011 Mar;35(2):209-16.

Norman, K., et al. (2011). **Cost-effectiveness of a 3-month intervention with oral nutritional supplements in disease-related malnutrition: a randomised controlled pilot study.** *European Journal of Clinical Nutrition* 65(6): 735-742.

Trabal, J., et al. (2010). **Potential usefulness of an EPA-enriched nutritional supplement on chemotherapy tolerability in cancer patients without overt malnutrition.** *Nutricion Hospitalaria* 25(5): 736-740.

van der Meij BS, Langius JAE, Smit EF, et al. **Oral nutritional supplements containing (n-3) polyunsaturated fatty acids affect the nutritional status of patients with stage III non-small cell lung cancer during multimodality treatment.** *J Nutr*. 2010;140(10):1774-1780.

Taylor LA, Pletschen L, Arends J, Unger C, Massing U. **Marine phospholipids: A promising new dietary approach to tumor associated weight loss.** *Support Care Cancer*. 2010;18:159-170.

van den Berg MGA, Rasmussen-Conrad EL, Wei KH, et al **Comparison of the effect of individual dietary counselling and of standard nutritional care on weight loss in patients with head and neck cancer undergoing radiotherapy.** *Br J Nutr*. 2010;104:872- 877.

Pituskin E, Fairchild A, Dutka J, et al. **Multidisciplinary team contributions within a dedicated outpatient palliative radiotherapy clinic: A prospective descriptive study.** *Int J Radiat Oncol Biol Phys*. 2010;78(2):527-532.

Ha L, Hauge T, Spenning AB, Iversen PO. **Individual, nutritional support prevents undernutrition, increases muscle strength and improves QoL among elderly at nutritional risk hospitalized for acute stroke: a randomized, controlled trial.** *Clin Nutr*. 2010 Oct;29(5):567-73

Campos D, Austerlitz C, Allison RR, Póvoa H, Sibata C. **Nutrition and orthomolecular supplementation in lung cancer patients.** *Integr Cancer Ther*. 2009 Dec;8(4):398-408. doi: 10.1177/1534735409344333.

Ryan AM, Reynolds JV, Healy L, et al. **Enteral nutrition enriched with eicosapentaenoic acid (EPA) preserves lean body mass following esophageal cancer surgery: Results of a double-blinded randomized controlled trial.** *Ann Surg*. 2009;249(3):355-363.

de Luis DA, Izaola O, Aller R, Cuellar L, Terroba MC, Martin T. **A randomized clinical trial with two omega-3 fatty acid enhanced oral supplements in head and neck cancer ambulatory patients.** *Eur Rev Med Pharmacol Sci*. 2008;12:177-181.

Read J, Beale P, Volker D, Smith N, Childs A, Clarke S. **Nutrition intervention using an eicosapentaenoic acid (EPA)- containing supplement in patients with advanced colorectal cancer. Effects on nutritional and inflammatory status: A phase II trial.** Support Care Cancer. 2007;15(3):301-307.

Guarcello M, Riso S, Buosi R, d'Andrea F. **EPA-enriched oral nutritional support in patients with lung cancer: Effects on nutritional status and quality of life.** Nutr Ther Metab. 2007;25:25-30.

Isenring EA, Bauer JD, Capra S. **Nutrition support using the American Dietetic Association medical nutrition therapy protocol for radiation oncology patients improves dietary intake compared with standard practice.** J Am Diet Assoc. 2007;107(3):404-412.

Fearon KC, Barber MD, Moses AG, et al. **Double-blind, placebo-controlled, randomized study of eicosapentaenoic acid diester in patients with cancer cachexia.** J Clin Oncol. 2006;24(21):3401-3407.

Duncan DG, Beck SJ, Hood K, Johansen A. **Using dietetic assistants to improve the outcome of hip fracture: a randomised controlled trial of nutritional support in an acute trauma ward.** Age and ageing. 2006;35(2):148-53.

Wright, L., et al. (2006). **Eating together is important: using a dining room in an acute elderly medical ward increases energy intake.** J Hum Nutr Diet 19(1): 23-26.

de Luis DA, Izaola O, Aller R, Cuellar L, Terroba MC. **A randomized clinical trial with oral immunonutrition (u3-enhanced formula vs. arginineenhanced formula) in ambulatory head and neck cancer patients.** Ann Nutr Metab. 2005;49(2):95-99.

Bauer J, Capra S, Battistutta D, Davidson W, Ash S. **Compliance with nutrition prescription improves outcomes in patients with unresectable pancreatic cancer.** Clin Nutr (Edinburgh, Scotland). 2005;24(6):998-1004.

Bauer, J. D. and S. Capra (2005). **Nutrition intervention improves outcomes in patients with cancer cachexia receiving chemotherapy--a pilot study.** Supportive Care in Cancer 13(4): 270-274.

Ravasco P, Monteiro-Grillo I, Vidal PM, Camilo ME. **Dietary counseling improves patient outcomes: A prospective, randomized, controlled trial in colorectal cancer patients undergoing radiotherapy.** J Clin Oncol. 2005;23(7):1431-1438.

Ravasco P, Monteiro-Grillo I, Marques Vidal P, Camilo ME. **Impact of nutrition on outcome: A prospective randomized controlled trial in patients with head and neck cancer undergoing radiotherapy.** Head Neck. 2005;27(8):659-668.

Persson C, Glimelius B, Rönnelid J, Nygren P. **Impact of fish oil and melatonin on cachexia in patients with advanced gastrointestinal cancer: A randomized pilot study.** Nutrition (Burbank). 2005;21(2):170-178.

Odelli C, Burgess D, Bateman L, et al. **Nutrition support improves patient outcomes, treatment tolerance and admission characteristics in oesophageal cancer.** Clin Oncol. 2005;17(8):639-645.

Jatoi A, Rowland K, Loprinzi CL, et al. **An eicosapentaenoic acid supplement versus megestrol acetate versus both for patients with cancer-associated wasting: A north central cancer treatment group and national cancer institute of Canada collaborative effort.** J Clin Oncol. 2004;22(12):2469-2476.

Isenring E, Capra S, Bauer J. **Patient satisfaction is rated higher by radiation oncology outpatients receiving nutrition intervention compared with usual care.** J Hum Nutr Diet. 2004;17:145-152.

Isenring EA, Capra S, Bauer JD. **Nutrition intervention is beneficial in oncology outpatients receiving radiotherapy to the gastrointestinal or head and neck area.** Br J Cancer. 2004;91(3):447-452.

Burns CP, Halabi S, Clamon G, et al. **Phase II study of high-dose fish oil capsules for patients with cancer-related cachexia.** Cancer. 2004;101(2):370-378.

Ravasco P, Monteiro-Grillo I, Camilo ME. **Does nutrition influence quality of life in cancer patients undergoing radiotherapy?** Radiother Oncol. 2003;67(2): 213-220.

Isenring E, Capra S, Bauer J, Davies PSW. **The impact of nutrition support on body composition in cancer outpatients receiving radiotherapy.** Acta Diabetol. 2003;40(1):s162-s164.

Fearon KCH, von Meyenfeldt MF, Moses AGW, et al. **Effect of a protein and energy dense n-3 fatty acid enriched oral supplement on loss of weight and lean tissue in cancer cachexia: A randomized double blind trial.** Gut. 2003;52(10):1479-1486.

Stratton RG, C.J.; Elia, M. **Disease-related malnutrition: An Evidence-Based Approach To Treatment** CABI publishing; 2003.

Evidence for nutrition support

| | |
|------------------|---|
| Meta-analysis of | 27 RCT with 1710 patients (complications) |
| | 30 RCT with 3250 patients (mortality) |
| Complications | 28% vs 46% (P<0.001) |
| Mortality | 17% vs 24% (P<0.001) |

Pratt VC, Watanabe S, Bruera E, et al. **Plasma and neutrophil fatty acid composition in advanced cancer patients and response to fish oil supplementation.** Br J Cancer. 2002;87(12):1370-1378.

IMPLEMENTERING AV ERNÆRINGSSTRATEGIER/-PROGRAM

Editorial (2020) **Towards optimal nutritional care for all: A multi-disciplinary patient centred approach to a complex challenge** Clinical Nutrition 39 (2020) 1309e1314

Fjeldstad SH, Thoresen L, Mowé M, Irtun Ø. **Changes in nutritional care after implementing national guidelines – a 10-year follow-up study.** Eur J Clin Nutr; 2018; online <https://doi.org/10.1038/s41430-017-0050-5>

Guenter P, Jensen G, Paten V et al **Addressing Disease-Related Malnutrition in Hospitalized Patients: A call for a National Goal** The Joint Commission Journal on Quality and Patient Safety, 2015; 41:469-473

Rasmussen, H. H., et al. (2006). **A method for implementation of nutritional therapy in hospitals.** Clinical Nutrition 25(3): 515-523.

Brugler L, DiPrinzio MJ, Bernstein L. **The five-year evolution of a malnutrition treatment program in a community hospital.** Jt Comm J Qual Improv. 1999 Apr;25(4):191-206.

BARRIERER OG SUKSESSFaktorER

Nasrah, R., et al. (2019). **Defining barriers to implementation of nutritional advice in patients with cachexia.** J Cachexia Sarcopenia Muscle. (epub)

Keller H, Allard J, Vesnaver E, et al **Barriers to food intake in acute care hospitals: a report of the Canadian Malnutrition Task Force.** J Hum Nutr Diet. 2015 Dec;28:546-57.

Eide HD, Halvorsen K, Almendingen K. **Barriers to nutritional care for the undernourished hospitalised elderly: perspectives of nurses.** J Clin Nurs. 2015 Mar;24(5-6):696-706.

Ekramzadeh M, Mazloom Z, Jafari P, Ayatollahi M, Sagheb MM. **Major barriers responsible for malnutrition in hemodialysis patients: challenges to optimal nutrition.** Nephrourol Mon. 2014 Nov 10;6(6):e23158. doi: 10.5812/numonthly.23158.

Leistra, E., van Bokhorst-de van der Schueren, M. A., et al **Systematic screening for undernutrition in hospitals: predictive factors for success** Clin Nutr, 2014;33:495-501

Stamp N, Davis AM **Identifying barriers to implementing nutrition recommendation** Topics in Clin Nutr, 2013; 28:249-261

Juul HJ, Frich JC. **Kartlegging av underernæring i sykehus. Hva hemmer og fremmer sykepleieres bruk av screeningverktøy for identifisering av ernæringsmessig risiko?** Nordisk Sygeplejeforskning 2013;3:77-89

Holst M, Rasmussen HH. **Nutrition Therapy in the Transition between Hospital and Home: An Investigation of Barriers.** J Nutr Metab. 2013;2013:463751. doi: 10.1155/2013/463751. Epub 2013 Dec 29

Cahill NE, Suurdt J, Ouellette-Kuntz H, Heyland DK. **Understanding adherence to guidelines in the intensive care unit: development of a comprehensive framework.** JPEN J Parenter Enteral Nutr. 2010 Nov-Dec;34:616-24.

Persenius MW, Hall-Lord ML, Bååth C, Larsson BW. **Assessment and documentation of patients' nutritional status: perceptions of registered nurses and their chief nurses.** *J Clin Nurs*. 2008 Aug;17(16):2125-36. doi: 10.1111/j.1365-2702.2007.02202.x. Epub 2008 May 29.

Windle, E.M. **Adequacy of dietetic service provision to adult critical care: a survey of 33 centres in Northern England.** *J Hum Nutr*. 2007; 20:111-120

Food and nutritional care in hospitals: How to prevent undernutrition.
Strasbourg: Council of Europe Publishing; 2002

KVALITETSINDIKATORER

S. Moick, J. Simon, M. Hiesmayr (2020). **Nutrition care quality indicators in hospitals and nursing homes: A systematic literature review and critical appraisal of current evidence.** *Clinical Nutrition* 39:1667-1680

van Nie-Visser, N. C., Meijers, J. M., Schols, et al **To what extent do structural quality indicators of (nutritional) care influence malnutrition prevalence in nursing homes?** *Clin Nutr* 2015;34:1172-1176

Thoresen L, Rothenberg E, Beck A M, Irtun Ø and on behalf of the Scandinavian Nutrition Group (SNG) **Doctors and nurses on wards with greater access to clinical dietitians have better focus on clinical nutrition.** *Journal of Human Nutrition and Dietetics* Volume 21, Issue 3, pages 239–247, June 2008

KOMPETANSEBYGGING

Cuerda, C., et al. (2019). **Nutrition education in medical schools (NEMS). An ESPEN position paper.** *Clinical Nutrition* 38(3): 969-974.

KOSTNAD, NYTTE, KODING

Schuetz P, et al. (2020). **Economic evaluation of individualized nutritional support in medical inpatients: Secondary analysis of the EFFORT trial.** *Clin Nutr*. PMID: 32147200

Trujillo, E. B., et al. (2019). **Inadequate Nutrition Coverage in Outpatient Cancer Centers: Results of a National Survey.** *J Oncol* 2019: 7462940.

Giancarlo Buitrago, Juan Vargas, Suela Sulo, Jamie S. Partridge, Michelle Guevara-Nieto, Gabriel Gomez, Juan Diego Misas, M. Isabel T.D. Correia (2019). **Targeting malnutrition: Nutrition programs yield cost savings for hospitalized patients.** *Clinical Nutrition*, <https://doi.org/10.1016/j.clnu.2019.12.025>

Doley, J. and W. Phillips (2019). **Coding for Malnutrition in the Hospital: Does It Change Reimbursement?** *Nutrition in Clinical Practice* 34(6): 823-831.

Riley, K., et al. (2019). **Reducing Hospitalizations and Costs: A Home Health Nutrition-Focused Quality Improvement Program.** JPEN. Journal of Parenteral and Enteral Nutrition. DOI: 10.1002/jpen.1606

Marinos Elia, on behalf of the Malnutrition Action Group of BAPEN and the National Institute for Health Research Southampton Biomedical Research Centre. **The cost of malnutrition in England and potential cost savings from nutritional interventions. A report on the cost of disease-related malnutrition in England and a budget impact analysis of implementing the NICE clinical guidelines/quality standard on nutritional support in adults**
<https://www.bapen.org.uk/resources-and-education/publications-and-reports/malnutrition/cost-of-malnutrition-in-england> (25.10.2018)

Khalatbari-Soltani, S., et al. (2019). **Large regional disparities in prevalence, management and reimbursement of hospital undernutrition.** European Journal of Clinical Nutrition 73(1): 121-131.

Ruiz AJ, Buitrago G, Rodríguez N, Gómez G, Sulo S, Gómez C, Partridge J, Misas J, Dennis R, Alba MJ, Chaves-Santiago W, Araque C. **Clinical and economic outcomes associated with malnutrition in hospitalized patients.** Clin Nutr. 2018 Jun 1. pii: S0261-5614(18)30201-2. doi: 10.1016/j.clnu.2018.05.016. [Epub ahead of print]

A. Wong, G. Goh, M.D. Banks, J.D. Bauer. **A systematic review of the cost and economic outcomes of home enteral nutrition.** Clin Nutr. 2018; 37:429–442

Pedro Marques-Vidal, Saman Khalatbari-Soltani, Sahbi Sahli, Pauline Coti Bertrand, François Pralong, Gérard Waeber. **Undernutrition is associated with increased financial losses in hospitals.** Clin Nutr. 2018; 37:681–686

Khalatbari-Soltani, S., et al. (2018). **Diagnostic accuracy of undernutrition codes in hospital administrative discharge database: improvements needed.** Nutrition 55-56: 111-115.

Sjors Verlaan, Andrea B. Maier, Jürgen M. Bauer, Ivan Bautmans, Kirsten Brandt, Lorenzo M. Donini, Marcello Maggio, Marion E.T. McMurdo, Tony Mets, Chris Seal, Sander L.J. Wijers, Cornel Sieber, Yves Boirie, Tommy Cederholm. **Sufficient levels of 25-hydroxyvitamin D and protein intake required to increase muscle mass in sarcopenic older adults – The PROVIDE study.** Clin Nutr. 2018; 37: 551–557

Sulo, S., et al. (2017). **Budget Impact of a Comprehensive Nutrition-Focused Quality Improvement Program for Malnourished Hospitalized Patients.** Am Health Drug Benefits 10(5): 262-270.

Jian Ming Hoong, Maree Ferguson, Craig Hukins, Peter F Collins.(2017) **Economic and operational burden associated with malnutrition in chronic obstructive pulmonary disease.** Clin Nutr Aug;36(4):1105-1109 PMID: 27496063

Slawomirski L, Auraaen A, Klazinga N. (2017) **The economics of patient safety**
<https://www.oecd.org/els/health-systems/The-economics-of-patient-safety-March-2017.pdf>

Curtis LJ, Bernier P, Jeejeebhoy K, Allard J, Duerksen D, Gramlich L, Laporte M, Keller HH. **Costs of hospital malnutrition.** Clin Nutr. 2017 Oct;36(5):1391-1396. doi: 10.1016/j.clnu.2016.09.009. Epub 2016 Sep 19.

Elia M, Parsons EL, Cawood AL, Smith TR, Stratton RJ. **Cost-effectiveness of oral nutritional supplements in older malnourished care home residents.** Clin Nutr. 2017 Feb 11. pii: S0261-5614(17)30058-4. doi: 10.1016/j.clnu.2017.02.008. [Epub ahead of print]

Elia M, Normand C, Laviano A, Norman K. **A systematic review of the cost and cost effectiveness of using standard oral nutritional supplements in community and care home settings.** Clin Nutr. 2016 Feb;35(1):125-37. doi: 10.1016/j.clnu.2015.07.012. Epub 2015 Jul 30.

Meehan, A., et al. (2016). **Health System Quality Improvement: Impact of Prompt Nutrition Care on Patient Outcomes and Health Care Costs.** Journal of Nursing Care Quality 31(3): 217-223

Jane Kellett, Greg Kyle, Catherine Itsiopoulos, Mark Naunton, Narelle Luff (2016) **Malnutrition: The Importance of Identification, Documentation, and Coding in the Acute Care Setting** J Nutr Metab . 2016;2016:9026098. doi: 10.1155/2016/9026098. Epub 2016 Sep 28. PMID: 27774317

Elia M, Normand C, Norman K, Laviano A. **A systematic review of the cost and cost effectiveness of using standard oral nutritional supplements in the hospital setting.** Clin Nutr. 2015 May 29. pii: S0261-5614(15)00142-9.

Souzaa TT, Sturiona CJ, Faintuchb J. **Is the skeleton still in the hospital closet? A review of hospital malnutrition emphasizing health economic aspects** Clinical Nutrition, 2015;34:1088–1092

Freijer K, Lenoir-Wijnkoop I, Russell CA, et al **The view of European experts regarding health economics for medical nutrition in disease-related malnutrition.** Eur J Clin Nutr. 2015;69:539-45.

Freijer K, Bours MJ, Nuijten MJ, Poley MJ, Meijers JM, Halfens RJ, Schols JM. **The economic value of enteral medical nutrition in the management of disease-related malnutrition: a systematic review.** J Am Med Dir Assoc. 2014;15:17-29.

Karen Freijers avhandling (2014) **Nutrition Economics Disease related malnutrition & the economic health care value of medical nutrition** kan lastes ned fra denne lenken http://www.fightmalnutrition.eu/wp-content/uploads/2017/08/Thesis_Karen_Freyer.pdf

Economic evaluation for protein and energy supplementation in adults: opportunities to strengthen the evidence. Eur J Clin Nutr. 2013 Dec;67(12):1243-50. doi: 10.1038/ejcn.2013.206. Epub 2013 Oct 30.

Boltong AG, et al. **Using a public hospital funding model to strengthen a case for improved nutritional care in a cancer setting.** Aust Health Rev. 2013. PMID: 23731960

Freijer K, Tan SS, Koopmanschap MA, Meijers JM, Halfens RJ, Nuijten MJ. **The economic costs of disease related malnutrition.** Clin Nutr. 2013;32:136-41.

Milte RK, Ratcliffe J, Miller MD, Crotty M. **Economic evaluation for protein and energy supplementation in adults: opportunities to strengthen the evidence.** Eur J Clin Nutr. 2013 Dec;67(12):1243-50. doi: 10.1038/ejcn.2013.206. Epub 2013 Oct 30.

Jie B1, Jiang ZM, Nolan MT, Zhu SN, Yu K, Kondrup J **Impact of preoperative nutritional support on clinical outcome in abdominal surgical patients at nutritional risk.** Nutrition. 2012;28:1022-7.

Meijers, J.M.M., Halfens, R.J.G., Wilson, L., Schols, J.M.G.A. **Estimating the costs associated with malnutrition in Dutch nursing homes.** Clinical Nutrition 2012;31,65-68.

Lim, S.L., Ong, K.C., Chan, Y.H., Loke, W.C., Ferguson, M., Daniels, L. **Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality.** Clinical Nutrition 2012;31,345-350.

Freijer K, Nuijten MJ, Schols JM. **The budget impact of oral nutritional supplements for disease related malnutrition in elderly in the community setting** Front Pharmacol 2012; 3; 78: 1-8

Norman, K., Pirlich, M., Smoliner, C., Kilbert, A., Schulzke, J. D., Ockenga, J., Lochs, H. **Reinhold, T. Cost-effectiveness of a 3-month intervention with oral nutritional supplements in disease-related malnutrition: a randomised controlled pilot study** Eur J Clin Nutr, 2011;65: 735-42

Guest JF, Panca M, Baeyens JP, de Man F, Ljungqvist O, Pichard C, Wait S, Wilson L. **Health economic impact of managing patients following a community-based diagnosis of malnutrition in the UK.** Clin Nutr. 2011;30:422-9

Juul, H J. **Forebygging og behandling av Underernæring. Potensial for kostnadsbesparelser?** (2010) <http://www.helsedirektoratet.no/publikasjoner/nasjonalt-faglig-retningslinje-for-forebygging-og-behandling-av-underernering/Documents/kostnad-nytte-oppgave-ertering.pdf>

Freijer K, Nuijten MJ. **Analysis of the health economic impact of medical nutrition in the Netherlands.** Eur J Clin Nutr. 2010 Oct;64(10):1229-34. doi: 10.1038/ejcn.2010.147. Epub 2010 Aug 18.

T.F. Amaral, L.C. Matos, M.M. Tavares, A. Subtil, A. Martins, R. Nazare, et al. **The economic impact of disease-related malnutrition at hospital admission.** Clin Nutr, 2007;26:778–784

Elia, M. (2006). **Nutrition and health economics.** Nutrition 22(5): 576-578.

Kruizenga H.M., Van Tulder M.W., Seidell J.C., Thijs A., Ader H.J., Van Bokhorst-de van der Schueren M.A. **Effectiveness and cost-effectiveness of early screening and treatment of malnourished patients.** Am. J. Clin. Nutr. 2005 Nov;82(5):1082-9. PubMed PMID: 16280442.

C.L. Funk, C.M. Ayton. **Improving malnutrition documentation enhances reimbursement**
J Am Diet Assoc, 1995;95,468–475

ESPEN GUIDELINES

Alle kan lastes ned fra <http://www.espen.org/education/espen-guidelines>

ESPEN guideline on home parenteral nutrition. Clinical Nutrition published online: 18 Apr 2020

ESPEN expert statements and practical guidance for nutritional management of individuals with sars-cov-2 infection. Clinical Nutrition published online: March 31, 2020

ESPEN practical guideline Clinical Nutrition in inflammatory bowel disease. Clinical Nutrition 39 (2020) 632-653

ESPEN guideline on clinical nutrition in acute and chronic pancreatitis. Clinical Nutrition published online: 22 Jan 2020

ESPEN guideline on home enteral nutrition. Clinical Nutrition 39 (2020) 5-22

ESPEN guideline on clinical nutrition in liver disease. Clinical Nutrition published online: 16 January 2019

ESPEN guideline on clinical nutrition in the intensive care unit. Clinical Nutrition 38 (2019) 48-79

ESPEN guideline on clinical nutrition and hydration in geriatrics. Clinical Nutrition 38 (2019) 10-47

ESPEN guideline clinical nutrition in neurology. Clinical Nutrition published online: 27 September, 2017

ESPEN guidelines on nutritional support for polymorbid internal medicine patients
Clinical Nutrition Published online: July 24, 2017

ESPEN expert group recommendations for action against cancer-related malnutrition
Clinical Nutrition 36 (2017) 1187e1196

ESPEN guideline: Clinical nutrition in surgery Clinical Nutrition 36 (2017) 623-650

ESPEN guideline: Clinical nutrition in inflammatory bowel disease Clinical Nutrition 36 (2017) 321-347

ESPEN guidelines on definitions and terminology of clinical nutrition Clinical Nutrition 36 (2017) 149-64

ESPEN guidelines on nutrition in cancer patients Clinical Nutrition 36 (2017) 11–48

Management of acute intestinal failure: A position paper from the European Society for Clinical Nutrition and Metabolism (ESPEN) Special Interest Group Clinical Nutrition 35 (2016), 6, 1209–1218

ESPEN-ESPGHAN-ECFS guidelines on nutrition care for infants, children, and adults with cystic fibrosis Clinical Nutrition 35 (2016) 557-577

ESPEN guideline on ethical aspects of artificial nutrition and hydration Clinical Nutrition 35 (2016) 545-556

ESPEN guidelines on chronic intestinal failure in adults Clinical Nutrition 35 (2016) 247-307

ESPEN guidelines on nutrition in dementia Clinical Nutrition 34 (2015) 1052-73

ESPEN endorsed recommendations: Protein intake and exercise for optimal muscle function with aging: Recommendations from the ESPEN Expert Group Clinical Nutrition 33 (2014) 929-936

ESPEN endorsed recommendations: Nutritional therapy in major burns Clinical Nutrition 32 (2013) 497-502

Guidelines for perioperative care for pancreaticoduodenectomy: Enhanced Recovery After Surgery (ERAS) Society recommendations Clinical Nutrition 31 (2012) 817-830

Guidelines for perioperative care in elective rectal/pelvic surgery: Enhanced Recovery After Surgery (ERAS) Society recommendations Clinical Nutrition 31 (2012) 801-816

Guidelines for perioperative care in elective colonic surgery: Enhanced Recovery After Surgery (ERAS) Society recommendations Clinical Nutrition 31 (2012) 783-800

ESPEN Guidelines for adult parenteral nutrition Clinical Nutrition 2009; 28:359-479

ESPEN Guidelines on adult enteral nutrition Clinical Nutrition 2006;25:177-360

ESPEN Guidelines on enteral nutrition — Percutaneous endoscopic gastrostomy (PEG) Clinical Nutrition 2005;24:848-861

ESPEN Guidelines for nutrition screening 2002 Clinical Nutrition 2003;22:415-421

ESPEN Guidelines on nutrition in acute pancreatitis Clinical Nutrition 2002;21:173-183

Expert Working Group report on nutrition in adult patients with renal insufficiency (part 2 of 2) Clinical Nutrition 2000;21:281-291

Expert Working Group report on nutrition in adult patients with renal insufficiency (part 1 of 2) Clinical Nutrition 2000;21:197-207

ESPEN Guidelines for nutrition in liver disease and transplantation Clinical Nutrition 1997;16:43-55

GRAVIDITET

Birkeland E, Stokke G, Tangvik RJ, Torkildsen EA, Boateng J, Wollen AL, Albrechtsen S, Flaatten H, Trovik J. **Norwegian PUQE (Pregnancy-Unique Quantification of Emesis and nausea) identifies patients with hyperemesis gravidarum and poor nutritional intake: a prospective cohort validation study.** PLoS One. 2015 Apr 1;10(4):e0119962. doi: 10.1371/journal.pone.0119962. eCollection 2015. PMID: 25830549

Stokke, G., et al. (2015). **Hyperemesis gravidarum, nutritional treatment by nasogastric tube feeding: a 10-year retrospective cohort study.** Acta Obstet Gynecol Scand 94(4): 359-367.

GERIATRI

Halvorsen, K., Eide, H. K., Sortland, K., & Almendingen, K. (2016). **Documentation and communication of nutritional care for elderly hospitalized patients: perspectives of nurses and undergraduate nurses in hospitals and nursing homes.** BMC Nurs, 15, 70. doi:10.1186/s12912-016-0193-z

Eide, H. K., Šaltytė Benth, J., Sortland, K., Halvorsen, K., & Almendingen, K. (2016). **Are Nutritional Care Adequate for Elderly Hospitalized Patients? A Cross-Sectional Study.** SAGE Open, 6(4), 2158244016682060. Retrieved from <https://doi.org/10.1177/2158244016682060>. doi:10.1177/2158244016682060

DEMENS

Nutrition and dementia. A review of available research.

<https://www.alz.co.uk/sites/default/files/pdfs/nutrition-and-dementia.pdf>

Hilde Risvoll, Trude Giverhaug, Kjell H. Halvorsen, Marit Waaseth and Frauke Musia. **Direct and indirect risk associated with the use of dietary supplements among persons with dementia in a Norwegian memory clinic.** BMC Complementary and Alternative Medicine (2017) 17:261 DOI 10.1186/s12906-017-1765-5

ESPEN guidelines on nutrition in dementia Clinical Nutrition 34 (2015) 1052-73

DYSFAGI

Carrion, S., et al. (2015). **Oropharyngeal dysphagia is a prevalent risk factor for malnutrition in a cohort of older patients admitted with an acute disease to a general hospital.** Clinical Nutrition 34(3): 436-442.

Leonard, R. J., et al. (2014). **Effects of bolus rheology on aspiration in patients with Dysphagia.** J Acad Nutr Diet 114(4): 590-594.

Rofes, L., et al. (2014). **Sensitivity and specificity of the Eating Assessment Tool and the Volume-Viscosity Swallow Test for clinical evaluation of oropharyngeal dysphagia.** Neurogastroenterology and Motility 26(9): 1256-1265.

Rofes, L., et al. (2011). **Diagnosis and management of oropharyngeal Dysphagia and its nutritional and respiratory complications in the elderly.** *Gastroenterol Res Pract* 2011.

Rofes, L., et al. (2010). **Pathophysiology of oropharyngeal dysphagia in the frail elderly.** *Neurogastroenterology and Motility* 22(8): 851-858, e230.

Leibovitz, A., et al. (2007). **Dehydration among long-term care elderly patients with oropharyngeal dysphagia.** *Gerontology* 53(4): 179-183.

Clave, P., et al. (2004). *Approaching oropharyngeal dysphagia.* *Revista Espanola de Enfermedades Digestivas* 96(2): 119-131.

Kawashima, K., et al. (2004). **Prevalence of dysphagia among community-dwelling elderly individuals as estimated using a questionnaire for dysphagia screening.** *Dysphagia* 19(4): 266-271.

Spieker, M. R. (2000). **Evaluating dysphagia.** *American Family Physician* 61(12): 3639-3648.

KOLS

Nguyen HT, et al. (2020). **Effectiveness of Tailored Dietary Counseling in Treating Malnourished Outpatients with Chronic Obstructive Pulmonary Disease: A Randomized Controlled Trial.** *J Acad Nutr Diet.* 120(5): 778-791. PMID: 31786177

Long R, Stracy C, Oliver MC. **Nutritional care in Chronic Obstructive Pulmonary Disease.** *Br J Community Nurs.* 2018 Jul 1;23(Sup7):S18-S26. doi: 10.12968/bjcn.2018.23.Sup7.S18.

Dubé BP, Laveneziana P. **Effects of aging and comorbidities on nutritional status and muscle dysfunction in patients with COPD.** *J Thorac Dis.* 2018 May;10(Suppl 12):S1355-S1366. doi: 10.21037/jtd.2018.02.20.

Hoong Jian Ming, Ferguson Maree, Hukins Craig, Collins Peter F. (2017) **Economic and operational burden associated with malnutrition in chronic obstructive pulmonary disease.** *Clin Nutr Aug;36(4):1105-1109* PMID: 27496063

McLoughlin RF, McDonald VM, Gibson PG, Scott HA, Hensley MJ, MacDonald-Wicks L, Wood LG. **The Impact of a Weight Loss Intervention on Diet Quality and Eating Behaviours in People with Obesity and COPD.** *Nutrients.* 2017 Oct 20;9(10). pii: E1147. doi: 10.3390/nu9101147.

Hodson M. **Integrating nutrition into pathways for patients with COPD.** *Br J Community Nurs.* 2016 Nov 2;21(11):548-552.

The Lancet Respiratory Medicine. **Don't forget the diet.** *Lancet Respir Med.* 2016 Sep;4(9):675. doi: 10.1016/S2213-2600(16)30236-3.

Akner G, Larsson K. **Undernutrition state in patients with chronic obstructive pulmonary disease. A critical appraisal on diagnostics and treatment.** *Respir Med.* 2016 Aug;117:81-91. doi: 10.1016/j.rmed.2016.05.023. Epub 2016 May 30.

Schols AMWJ. **Nutrition as a metabolic modulator in COPD.** *Chest.* 2013 Oct;144(4):1340-1345. doi: 10.1378/chest.13-0326.

Remels AH, Gosker HR, Langen RC, Schols AM. **The mechanisms of cachexia underlying muscle dysfunction in COPD.** *J Appl Physiol,* 114 (9) (2013), pp. 1253-1262

Ferreira IM, Brooks D, White J, Goldstein R. **Nutritional supplementation for stable chronic obstructive pulmonary disease.** *Cochrane Database Syst Rev* (12) (2012)

Goris AH, Vermeeren MA, Wouters EF, Schols AM, Westerterp KR. **Energy balance in depleted ambulatory patients with chronic obstructive pulmonary disease: the effect of physical activity and oral nutritional supplementation.** *Br J Nutr,* 89 (5) (2003), pp. 725-731

KAKEKSI

Nasrah, R., et al. (2019). **Defining barriers to implementation of nutritional advice in patients with cachexia.** *J Cachexia Sarcopenia Muscle.* (epub)

Advani, S. M., et al. (2018). **Pharmacological management of cachexia in adult cancer patients: a systematic review of clinical trials.** *BMC Cancer* 18(1): 1174.

R. Nasrah, M. Kanbalian, C. Van Der Borch, N. Swinton, S. Wing, R.T. Jago **Defining the role of dietary intake in determining weight change in patients with cancer cachexia.** *Clin Nutr* 37 (2018) 235-241

Pötgens SA, Sboarina M, Bindels LB. **Polyunsaturated fatty acids, polyphenols, amino acids, prebiotics: can they help to tackle cancer cachexia and related inflammation?** *Curr Opin Clin Nutr Metab Care.* 2018 Nov;21(6):458-464. doi: 10.1097/MCO.0000000000000505.

Laird BJA, Balstad TR, Solheim TS. **Endpoints in clinical trials in cancer cachexia: where to start?** *Curr Opin Support Palliat Care.* 2018 Oct 5. doi: 10.1097/SPC.0000000000000387. [Epub ahead of print]

Ramage MI, Skipworth RJE. **The relationship between muscle mass and function in cancer cachexia: smoke and mirrors?** *Curr Opin Support Palliat Care.* 2018 Dec;12(4):439-444. doi: 10.1097/SPC.0000000000000381.

Martin L, Kubrak C. **How much does reduced food intake contribute to cancer-associated weight loss?** *Curr Opin Support Palliat Care.* 2018 Aug 16. doi: 10.1097/SPC.0000000000000379. [Epub ahead of print]

R. Nasrah, M. Kanbalian, C. Van Der Borch, N. Swinton, S. Wing, R.T. Jagoe. **Defining the role of dietary intake in determining weight change in patients with cancer cachexia.** Clin Nutr, 2018; 37: 235–241

Baracos VE, Martin L, Korc M, Guttridge DC, Fearon KCH. **Cancer-associated cachexia.** Nat Rev Dis Primers. 2018 Jan 18;4:17105. doi: 10.1038/nrdp.2017.105. Review.

Sadeghi, M., et al. (2018). **Cancer cachexia: Diagnosis, assessment, and treatment.** Critical Reviews in Oncology/Hematology 127: 91-104.

Solheim, T. S., et al. (2018). **Cancer cachexia: rationale for the MENAC (Multimodal-Exercise, Nutrition and Anti-inflammatory medication for Cachexia) trial.** BMJ Support Palliat Care 8(3): 258-265.

Argilés JM, Muscaritoli M. **Unifying diagnostic criteria for cachexia: An urgent need.** Clin Nutr. 2017 Jun;36(3):910-911. doi: 10.1016/j.clnu.2017.01.020. Epub 2017 Feb 8.

Argilés JM, López-Soriano FJ, Stemmler B, Busquets S. **Novel targeted therapies for cancer cachexia.** Biochem J. 2017 Jul 27;474(16):2663-2678. doi: 10.1042/BCJ20170032. Review.

Martin L. **Diagnostic criteria for cancer cachexia: data versus dogma.** Curr Opin Clin Nutr Metab Care. 2016 May;19(3):188-98. doi: 10.1097/MCO.0000000000000272. Review. PMID: 26945342

Aoyagi T, Terracina KP, Raza A, Matsubara H, Takabe K. **Cancer cachexia, mechanism and treatment.** World J Gastrointest Oncol. 2015 Apr 15;7(4):17-29. doi: 10.4251/wjgo.v7.i4.17.

Cohen S, Nathan JA, Goldberg AL. **Muscle wasting in disease: molecular mechanisms and promising therapies.** Nat Rev Drug Discov. 2015 Jan;14(1):58-74. doi: 10.1038/nrd4467. Review.

Ezeoke CC, Morley JE. **Pathophysiology of anorexia in the cancer cachexia syndrome.** J Cachexia Sarcopenia Muscle. 2015 Dec;6(4):287-302. doi: 10.1002/jcsm.12059. Epub 2015 Oct 27.

Argilés JM, Busquets S, Stemmler B, López-Soriano FJ. **Cancer cachexia: understanding the molecular basis.** Nat Rev Cancer. 2014 Nov;14(11):754-62. doi: 10.1038/nrc3829. Epub 2014 Oct 9. Review.

de Vos-Geelen J, Fearon KC, Schols AM. **The energy balance in cancer cachexia revisited.** Curr Opin Clin Nutr Metab Care. 2014 Nov;17(6):509-14. doi:10.1097/MCO.0000000000000106. Review.

Dingemans AM, de Vos-Geelen J, Langen R, Schols AM. **Phase II drugs that are currently in development for the treatment of cachexia.** Expert Opin Investig Drugs. 2014 Dec;23(12):1655-69. doi: 10.1517/13543784.2014.942729. Epub 2014 Jul 24.

Blauwhoff-Buskermolen, S., et al. (2014). **Pre-cachexia': a non-existing phenomenon in cancer?** Annals of Oncology 25(8): 1668-1669.

Fearon K, Arends J, Baracos V. **Understanding the mechanisms and treatment options in cancer cachexia.** Nat Rev Clin Oncol. 2013 Feb;10(2):90-9. doi: 10.1038/nrclinonc.2012.209. Epub 2012 Dec 4. Review.

Argilés JM, Stemmler B. **The potential of ghrelin in the treatment of cancer cachexia.** Expert Opin Biol Ther. 2013 Jan;13(1):67-76. doi: 10.1517/14712598.2013.727390. Epub 2012 Oct 18. Review.

Argilés JM, López-Soriano FJ, Busquets S. **Mechanisms and treatment of cancer cachexia.** Nutr Metab Cardiovasc Dis. 2013 Dec;23 Suppl 1:S19-24. doi:10.1016/j.numecd.2012.04.011. Epub 2012 Jun 30. Review.

L. Martin, P. Senesse, I. Gioulbasanis, S. Antoun, F. Bozzetti, C. Deans **Definition and classification of cancer cachexia: an international consensus** Lancet Oncol, 12 (2011), pp. 489-495

Argilés J.M., Anker S.D., Evans W.J., Morley J.E., Fearon K.C.H., Strasser F., et al. **Consensus on cachexia definitions.** J Am Med Dir Assoc, 11 (2010), pp. 229-230

Muscaritoli M., Anker S.D., Argiles J., Aversa Z., Bauer J.M., Biolo G., et al. **Consensus definition of sarcopenia, cachexia and pre-cachexia: joint document elaborated by Special Interest Groups (SIG) “cachexia-anorexia in chronic wasting diseases” and “nutrition in geriatrics”** Clin Nutr, 29 (2010), pp. 154-159

Evans W.J., Morley J.E., Argiles J., Bales C., Baracos V., Guttridge D., et al. **Cachexia: a new definition** Clin Nutr, 27 (2008), pp. 793-799

AVANSERT KREFTSYDOM

Arends J. **Struggling with nutrition in patients with advanced cancer: nutrition and nourishment focusing on metabolism and supportive care.** Ann Oncol. 2018 Feb 1;29(suppl_2):ii27-ii34. doi: 10.1093/annonc/mdy093.

Keane N, Fragkos KC, Patel PS, Bertsch F, Mehta SJ, i Caro S and Rahman F. 2017. **Performance Status, Prognostic Scoring, and Parenteral Nutrition Requirements Predict Survival in Patients with Advanced Cancer Receiving Home Parenteral Nutrition.** Nutrition and Cancer, DOI: 10.1080/01635581.2018.1380206

Ganzini, L. (2006). **Artificial nutrition and hydration at the end of life: ethics and evidence.** Palliat Support Care 4(2): 135-143.

Friedli N, Baumann J, Hummel R, Kloter M, Odermatt J, Fehr R, Felder S, Baechli V, Geiser M, Deiss M, Tribolet P, Gomes F, Mueller B, Stanga Z, Schuetz P. **Refeeding syndrome is associated with increased mortality in malnourished medical inpatients: Secondary analysis of a randomized trial.** *Medicine (Baltimore)*. 2020 Jan;99(1):e18506. doi: 10.1097/MD.00000000000018506. PMID: 31895785

Matthews K, Hill J, Jeffrey S, Patterson S, Davis A, Ward W, Palmer M, Capra S. **A Higher-Calorie Refeeding Protocol Does Not Increase Adverse Outcomes in Adult Patients with Eating Disorders.** *J Acad Nutr Diet*. 2018 Aug;118(8):1450-1463. doi: 10.1016/j.jand.2018.01.023. Epub 2018 Apr 12.

Matthews, K. L., et al. (2018). **Dietitians' opinions regarding refeeding syndrome, clinical guidelines and extended scope of practice.** *Nutr Diet* 75(4): 397-405.

Matthews, K., et al. (2018). **Response to letter to the editor 'Mortality due to refeeding syndrome? You only find what you look for, and you only look for what you know'.** *European Journal of Clinical Nutrition* 72(2): 309-310.

Matthews, K. L., et al. (2018). **The accuracy and consistency of nutrition care process terminology use in cases of refeeding syndrome.** *Nutr Diet* 75(3): 331-336.

Matthews, K. L., et al. (2018). **Throw caution to the wind: is refeeding syndrome really a cause of death in acute care?** *European Journal of Clinical Nutrition* 72(1): 93-98.

Skipper A. **Refeeding Syndrome or Refeeding Hypophosphatemia: A Systematic Review of Cases.** *Nutrition in Clinical Practice*, 2012; 27:34-40

Hisham M Mehanna, Jamil Moledina, Jane Travis **Refeeding syndrome: what it is, and how to prevent and treat it.** *BMJ* 2008;336:1495-8

Brunelli, S. M. and S. Goldfarb (2007). **Hypophosphatemia: clinical consequences and management.** *Journal of the American Society of Nephrology* 18(7): 1999-2003.

PUBLIKASJONER FRA NUTRITION DAY DATA

Abby C. Sauer, Scott Goates, Ainsley Malone, et al. **Prevalence of Malnutrition Risk and the Impact of Nutrition Risk on Hospital Outcomes: Results From nutritionDay in the U.S.** *JPEN* First published: 22 January 2019 <https://doi.org/10.1002/jpen.1499>

Henriksen C, Gjelstad IM, Nilssen H, and Blomhoff R. **A low proportion of malnourished patients receive the required nutrition treatment — results from nutritionDay.** *Food Nutr Res*. 2017 Oct 25;61(1):1391667. doi: 10.1080/16546628.2017.1391667. eCollection 2017. PMID: 29151831

Bendavid, I., et al. (2017). **NutritionDay ICU: A 7 year worldwide prevalence study of nutrition practice in intensive care.** *Clinical Nutrition* 36(4): 1122-1129.

Streicher M, Themessl-Huber M, Schindler K, Sieber CC, Hiesmayr M, Volkert D. **nutritionDay in Nursing Homes – The Association of Nutritional Intake and Nutritional Interventions With 6-Month Mortality in Malnourished Residents.** J Am Med Dir Assoc (2017); 18:162-168

Schindler K, Pichard C, Sulz I, et al **nutritionDay: 10 years of growth.** Clin Nutr. (2016) Nov 11. pii: S0261-5614(16)31318-8.

Schindler K, Themessl-Huber M, Hiesmayr M, et al **To eat or not to eat? Indicators for reduced food intake in 91,245 patients hospitalized on nutritionDays 2006-2014 in 56 countries worldwide: a descriptive analysis** Am J Clin Nutr (2016); 104:1393-1402

Navarro DA, Boaz M, Krause I, et al **Improved meal presentation increases food intake and decreases readmission rate in hospitalized patients** Clin Nutr (2016); 35:1153-1158

Streicher M, Themessl-Huber M, Schindler k, Sieber CC, Hiesmayr M, Volkert D. **Who receives oral nutrition supplements in nursing homes? Results from the nutritionDay project.** Clin Nutr. 2016 Sep 17. pii: S0261-5614(16)31243-2.

Bendavid I, Singer P, Theilla M, et al **NutritionDay ICU: A 7 year worldwide prevalence study of nutrition practice in intensive care.** Clin Nutr. 2016 Aug 9. pii: S0261-5614(16)30178-9.

Wirth R, Streicher M, Smoliner C, Kolb C, Hiesmayr M, Thiem U, Sieber CC, Volkert D. **The impact of weight loss and low BMI on mortality of nursing home residents – Results from the nutritionDay in nursing homes.** Clin Nutr (2016); 35:900-906

Cereda E, Klersy C, Hiesmayr M, Schindler K, Singer P, Laviano A, Caccialanza R, for the NutritionDay Survey Collaborators. **Body mass index, age and in-hospital mortality: The NutritionDay multinational survey.** Clin Nutr. 2016 May 15. pii: S0261-5614(16)30087-5.

Frantal S, Pernicka E, Hiesmayr M, Schindler K, Bauer P. **Length bias correction in one-day cross-sectional assessments – The nutritionDay study.** Clin Nutr (2016); 35:522-527

Hiesmayr M, Frantal S, Schindler K, et al. **The Patient- And Nutrition-Derived Outcome Risk Assessment Score (PANDORA): Development of a Simple Predictive Risk Score for 30-Day In-Hospital Mortality Based on Demographics, Clinical Observation, and Nutrition** PLoS One. 2015 May 22;10(5):e0127316.

Lainscak M, Frakas J, Frantal S, Singer P, Bauer P, Hiesmayr M, Schindler K. **Self-rated health, nutritional intake and mortality in adult hospitalized patients.** Eur J Clin Invest (2014); 44:813-824

Tsaousi G, Panidis S, Stavrou G, Tsouskas J, Panagiotou D, Kotzampassi K. **Prognostic Indices of Poor Nutritional Status and Their Impact on Prolonged Hospital Stay in a Greek University Hospital.** BioMed Res Int, vol. 2014, Article ID 924270, 8 pages, 2014.

Zhang L, Wang X, Huang Y, Gao Y, Peng N, Zhu W, Li N, Li J. **NutritionDay 2010 audit in Jingling hospital of China.** Asia Pac J Clin Nutr (2013); 22:206-213

Schindler K, Pernicka E, Laviano A, et al **How nutritional risk is assessed and managed in European hospitals: A survey of 21 007 patients findings from the 2007-2008 cross sectional nutritionDay survey.** Clin Nutr 29 (2010) 552-559;

Hiesmayr M, Schindler K, Pernicka E, et al **Decreased food intake is a risk factor for mortality in hospitalised patients: The nutritionDay survey 2006.** Clin Nutr 28 (2009) 484-491

Valentini L, Schindler K, Schlaffer R, et al. **The first nutritionDay in nursing homes: participation may improve malnutrition awareness.** Clin Nutr 28 (2009) 109-116.

DIVERSE

Jones D.J., Baldwin C., Lal S., Stanmore E., Farrer K., Connolly E., Weekes C.E., Anderson L., Murphy J., Gillespie L., Welsh N., Ogden M., McDevitt M., Day R., Lynne S., Paulden P., Gronlund T. & Burden S.T. (2019) **Priority setting for adult malnutrition and nutritional screening in healthcare: a James Lind Alliance.** J Hum Nutr Diet. <https://doi.org/10.1111/jhn.12722>

Kuchnia AJ, Teigen L, Nagel E, Ligthart-Melis G, Mulasi U, Weijs P, Earthman CP. **Protein in the Hospital: Gaining Perspective and Moving Forward.** JPEN J Parenter Enteral Nutr. 2018 Jan 22. doi: 10.1002/jpen.1068. [Epub ahead of print]

Kristin Halvorsen, Helene Kjøllesdal Eide, Kjersti Sortland and Kari Almendingen
Documentation and communication of nutritional care for elderly hospitalized patients: perspectives of nurses and undergraduate nurses in hospitals and nursing homes BMC Nursing (2016) 15:70

Iversen Per O, Ha Lisa, Blomhoff Rune, Hauge Truls, Veierød Marit B. **Baseline oxidative defense and survival after 5-7 years among elderly stroke patients at nutritional risk: Follow-up of a randomized, nutritional intervention trial.** Clin Nutr 2014 Jul 25. Epub ahead of print. PMID:25108573

Leistra E, Willeboordse F, van Bokhorst-de van der Schueren MA, Visser M, Weijs PJ, Haans-van den Oord A, Oostenbrink J, Evers AM, Kruijenga HM. **Predictors for achieving protein and energy requirements in undernourished hospital patients.** Clin Nutr. 2011 Aug;30(4):484-9. doi: 10.1016/j.clnu.2011.01.008. Epub 2011 Mar 3.

Definisjoner og kriterier på underernæring

Cederholm et al 2015

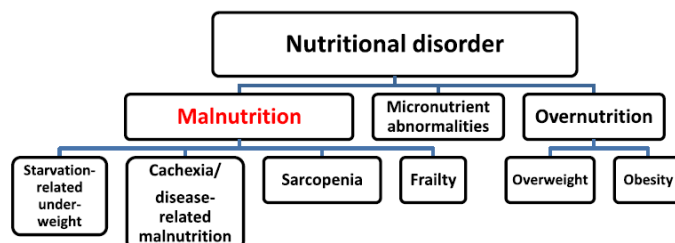


Fig. 3. A conceptual tree of nutritional disorders.

Fact box:

Two alternative ways to diagnose malnutrition.

Before diagnosis of malnutrition is considered it is mandatory to fulfil criteria for being “at risk” of malnutrition by any validated risk screening tool.

Alternative 1:

BMI <18.5 kg/m²

Alternative 2:

Weight loss (unintentional) > 10% indefinite of time, or >5% over the last 3 months **combined with** either

BMI <20 kg/m² if <70 years of age, or <22 kg/m² if 70 years of age or FFMI <15 and 17 kg/m² in women and men, respectively.

Cederholm et al 2017

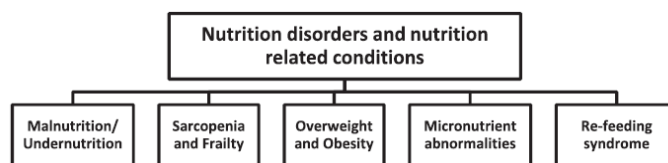


Fig. 1. Overview of nutrition disorders and nutrition-related conditions.

T. Cederholm et al. / Clinical Nutrition 36 (2017) 49–64

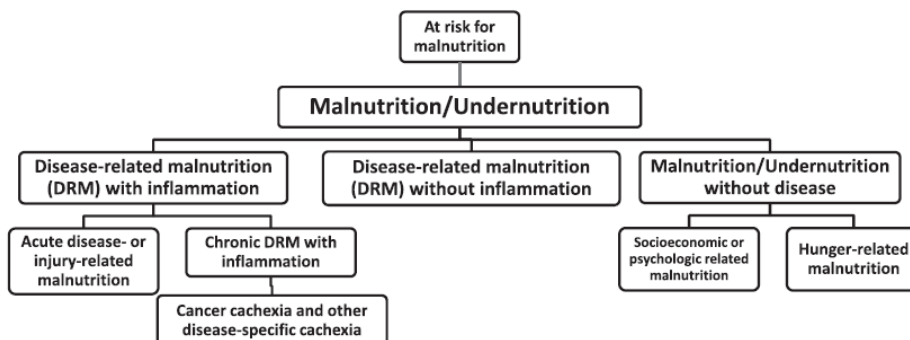


Fig. 2. Diagnoses tree of malnutrition; from at risk for malnutrition, basic definition of malnutrition to aetiology-based diagnoses

GLIM kriteriene

Moderat underernæring

Det kreves at minst et kriterium for etiologi og et kriterium for fenotype er oppfylt.

Etiologi

- Redusert matinntak eller opptak. < 50 % av energibehov > 1 uke eller enhver reduksjon i > 2 uker eller en kronisk magetarmtilstand som negativt påvirker fordøyelse eller absorpsjon
- Inflammasjon. Akutt sykdom, skade eller kronisk sykdom

Fenotype

- Vekttap 5 - 10 % i løpet av siste 6 måneder eller 10 - 20 % i mer enn 6 måneder
 - BMI. < 20 hvis < 70 år, < 22 hvis >70 år
 - Redusert muskelmasse. Mild til moderat underskudd.
-

Alvorlig underernæring

Det kreves at minst et kriterium for etiologi og et kriterium for fenotype er oppfylt.

Etiologi

- Redusert matinntak eller opptak. < 50 % av energibehov > 1 uke eller enhver reduksjon i > 2 uker eller en kronisk magetarmtilstand som negativt påvirker fordøyelse eller absorpsjon
- Inflammasjon. Akutt sykdom, skade eller kronisk sykdom

Fenotype

- Vekttap > 10 % i løpet av siste 6 måneder eller > 20 % i mer enn 6 måneder
- BMI. < 18.5 hvis < 70 år, < 20 hvis > 70 år
- Redusert muskelmasse. Alvorlig underskudd.