FRESENIUS KABI
caring for life

Supportive care for better treatment outcome

Anorexia Management

Anorexia – involuntary loss of appetite or desire to eat[1,2]

Appetite disorders are highly prevalent among cancer patients, but are frequently underdiagnosed.

At the time of diagnosis a prevalence up to

50–66%

is reported[3]

In a mixed cancer population **undergoing chemotherapy**

46%

suffered from anorexia[4]

In advanced cancer patients with different primary cancer sites the incidence of anorexia was

66%[5]

Anorexia – often comes with cancer and is a major component of cancer cachexia[1,6]

Loss of appetite – often underdiagnosed and undertreated

Malnutrition assessment revealed	Poor documentation of two major risk factors for malnutrition	Low referral rate to dietitians
30% of patients malnourished	Loss of weight only in **19%** of patients	Only **7%** of patients with loss of weight
61% at risk of malnutrition	Loss of appetite only in **53%** of patients	Only **9%** of patients with loss of appetite

Study on recognition of malnutrition and risk of malnutrition by medical and nursing professionals in hospitalised patients[7]

Cancer anorexia is multifactorial[1,8,9]

Antitumor treatments
such as chemotherapy or radiotherapy

Inflammatory response
caused by the tumor

Distress and reduced desire to eat due to cancer diagnosis

Anorexia may impact patients' outcome

Anorexia is significantly associated with weight loss

- Results in reduced caloric intake[1,6,10]
- Anorexia is significantly associated with **weight loss ≥ 10%** (OR 13.4, $p < 0.001$)[4]

Anorexia negatively affects patients' outcome[1,6]

- Negative impacts on patients' perceptions and quality of life
- May lead to increased morbidity and mortality

Appetite loss is significantly associated with reduced survival[11]

Study on the association between reduced food intake, appetite loss and clinical outcome (n = 885; mixed cancers).

Modified from Solheim TS et al.[11]

Screening and assessment for anorexia and associated weight loss

ESPEN guidelines on nutrition support in cancer[10]

Screening

'To detect nutritional disturbances at an early stage, we recommend to regularly evaluate nutritional intake, weight change and BMI, beginning with cancer diagnosis and repeated depending on the stability of the clinical situation.' (STRONG)

Assessment

'In patients with abnormal screening, we recommend objective and quantitative assessment of nutritional intake, nutrition impact symptoms*, muscle mass, physical performance and the degree of systemic inflammation.' (STRONG)

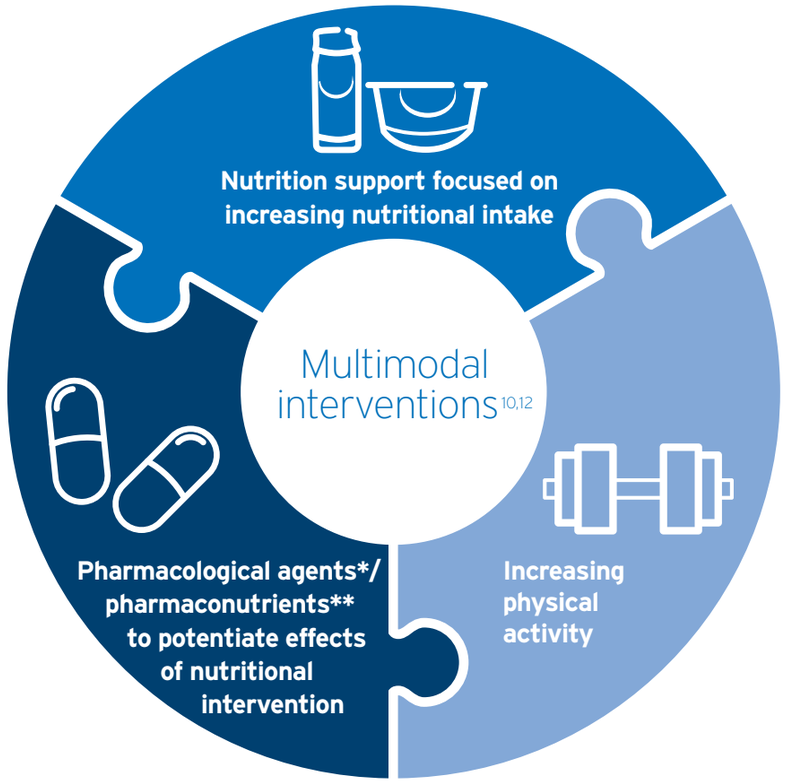
* e. g. anorexia

Self-assessment of appetite

	Not at all	A little bit	Somewhat	Quite a bit	Very much
I have a lack of appetite	☐	☐	☐	☐	☐
My interest in food drops as soon as I try to eat	☐	☐	☐	☐	☐
When I eat, I seem to get full quickly	☐	☐	☐	☐	☐
Most food tastes unpleasant to me	☐	☐	☐	☐	☐

Modified from Functional Assessment of Anorexia Cachexia Therapy (FAACT) questionnaire

Treatment of anorexia and associated weight loss



Nutrition intervention – guideline recommendations

ESPEN guidelines on nutrition support in cancer[10]

Ensuring adequate nutritional intake

'We recommend nutritional intervention to increase oral intake in cancer patients who are able to eat but are malnourished or at risk of malnutrition. This includes dietary advice, the treatment of symptoms and derangements impairing food intake (nutrition impact symptoms), and offering oral nutritional supplements.' (STRONG)

Modes of nutrition: When to escalate

'If a decision has been made to feed a patient, we recommend enteral nutrition if oral nutrition remains inadequate despite nutritional interventions (counselling, ONS), and parenteral nutrition if enteral nutrition is not sufficient or feasible.' (STRONG)

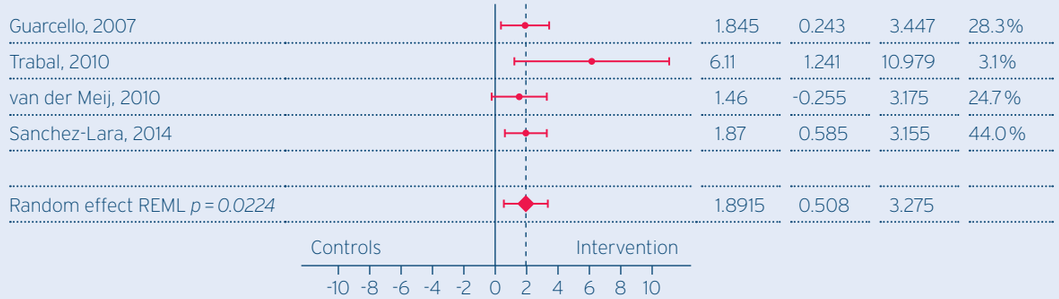
* e. g. corticosteroids, cannabinoids, progestins to increase appetite
** e. g. omega-3 fatty acids

Proven effect on nutritional intake and status

Intervention with high-energy ONS containing high protein levels and omega-3 PUFA during chemotherapy led to

- decrease in side effects[13]
  - **loss of appetite**
  - fatigue
  - neuropathy
- increased energy and protein intake[13]
- improvement in body weight response and skeletal muscle mass/lean body mass[14-16]
- positive effects on inflammation markers[13,15]
- improvement in quality of life and functional status[17]

High-protein omega-3 PUFA-enriched ONS significantly improve weight gain during chemo(radio)therapy[14]



Meta-analysis of the effects of oral nutritional intervention with high-protein, omega-3 PUFA-enriched oral nutritional supplement on body weight response.

Modified from de van der Schueren MAE et al.[14]

PUFA polyunsaturated fatty acid

Meta-analyses and systematic reviews confirm:

Oral nutrition intervention including oral nutritional supplements in cancer patients during chemo-(radio)therapy has a positive effect on nutritional intake and body weight[18]

ESPEN guidelines on nutrition support in cancer[10]

Omega-3 fatty acids to improve appetite and body weight

'In patients with advanced cancer undergoing chemotherapy and at risk of weight loss or malnourished, we suggest to use supplementation with long-chain omega-3 fatty acids or fish oil to stabilize or improve appetite, food intake, lean body mass and body weight.'

Management of anorexia by supportive nutrition

Key step in the dietary management of anorexia and cachexia:
Filling the gap between recommended and actual food intake[10,14,19]

Grade 1	Grade 2	Grade 3	Grade 4
Loss of appetite without alteration in eating habits	Oral intake altered without weight loss or malnutrition	Associated with substantial weight loss or malnutrition (e.g., inadequate oral caloric and/or fluid intake)	Life-threatening consequences Urgent intervention indicated

Oral nutritional supplements indicated[19] → Tube feeding or PN indicated

Nutrition products for optimal support

ONS
see product overview

Tube feeding*
see product overview

* consider parenteral nutrition (PN) if necessary

Range of products for optimal nutrition support of your patients with anorexia

Product	Product features	Indication
Supportan DRINK 	• Oral nutritional supplement high in EPA (omega-3 PUFA) from fish oil: recommended daily dose of 2 g EPA per 400 ml • High-caloric, high protein • Adapted to the specific metabolic changes in cancer cachexia	Oral nutritional supplements to ensure adequate nutritional supply in patients with reduced oral intake.
Fresubin 2 kcal DRINK/ Fresubin 2 kcal Fibre DRINK 	• High-caloric, high protein oral nutritional supplement: 400 kcal and 20 g protein per 200 ml bottle • Available with fibre as well as without fibre	
Fresubin 3.2 kcal DRINK 	• Low volume high-caloric, high protein oral nutritional supplement: 125 ml bottle contains 400 kcal, 20 g protein and 10 µg vitamin D_3 • For good compliance due to reduced volume	
Fresubin 2 kcal Crème 	• Semi-solid oral nutritional supplement with a creamy consistency • High in calories and protein: 250 kcal and 12.5 g protein per 125 g cup	
Supportan 	• Tube feed high in EPA (omega-3 PUFA) from fish oil: recommended daily dose of 2 g EPA per 500 ml bag • Adapted to the specific metabolic changes in cancer cachexia	Tube feedings to ensure adequate nutritional supply in patients with weight loss or malnutrition when oral nutrition is not sufficient.
Fresubin 2 kcal HP/ Fresubin 2 kcal HP Fibre 	• High-caloric, high protein standard tube feed: 1000 kcal and 50 g protein per 500 ml bag • Available with prebiotic fibre as well as without fibre	

References

1. Laviano A et al. Cancer anorexia: clinical implications, pathogenesis, and therapeutic strategies. Lancet Oncol. 2003;4(11):686-94.
2. Muscaritoli M 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. 2010;29(2):154-9.
3. Lis CG et al. Can anorexia predict patient satisfaction with quality of life in advanced cancer? Support Care Cancer. 2009;17(2):129-35.
4. Sánchez-Lara K et al. Gastrointestinal symptoms and weight loss in cancer patients receiving chemotherapy. Br J Nutr. 2013;109(5):894-7.
5. Walsh D et al. The symptoms of advanced cancer: relationship to age, gender, and performance status in 1,000 patients. Support Care Cancer. 2000;8(3):175-9.
6. Molfino A et al. Contribution of anorexia to tissue wasting in cachexia. Curr Opin Support Palliat Care. 2010;4(4):249-53.
7. Adams N et al. Recognition by medical and nursing professionals of malnutrition and risk of malnutrition in elderly hospital patients. Nutr Diet. 2008;65(2):144-50.
8. Ezeoke CC, Morley JE. Pathophysiology of anorexia in the cancer cachexia syndrome. J Cachexia Sarcopenia Muscle. 2015;6(4):287-302.
9. Barajas Galindo DE et al. Appetite disorders in cancer patients: Impact on nutritional status and quality of life. Appetite. 2017;114:23-7.
10. Arends J et al. ESPEN guidelines on nutrition in cancer patients. Clin Nutr. 2017;36(1):11-48.
11. Solheim TS et al. Weight loss, appetite loss and food intake in cancer patients with cancer cachexia: three peas in a pod? - analysis from a multicenter cross sectional study. Acta Oncol. 2014;53(4):539-46.
12. Arends J et al. ESPEN expert group recommendations for action against cancer-related malnutrition. Clin Nutr. 2017;36(5):1187-96.
13. Sánchez-Lara K et al. Effects of an oral nutritional supplement containing eicosapentaenoic acid on nutritional and clinical outcomes in patients with advanced non-small cell lung cancer: randomised trial. Clin Nutr. 2014;33(6):1017-23.
14. de van der Schueren MAE et al. 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;29(5):1141-53.
15. Shirai Y et al. Fish oil-enriched nutrition combined with systemic chemotherapy for gastrointestinal cancer patients with cancer cachexia. Sci Rep. 2017;7(1):4826.
16. van der Meij BS et al. Oral nutritional supplements containing (omega-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):1774-80.
17. van der Meij BS et al. Oral nutritional supplements containing omega-3 polyunsaturated fatty acids affect quality of life and functional status in lung cancer patients during multimodality treatment: an RCT. Eur J Clin Nutr. 2012;66(3):399-404.
18. Baldwin C et al. Oral nutritional interventions in malnourished patients with cancer: a systematic review and meta-analysis. J Natl Cancer Inst. 2012;104(5):371-85.
19. ctep.cancer.gov/protocoldevelopment/electronic_applications/docs/CTCAE_v5_Quick_Reference_5x7.pdf (Accessed on November 2018)

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