Onkolojik Nutrisyon

Doç. Dr. Rıdvan SİVRİTEPE

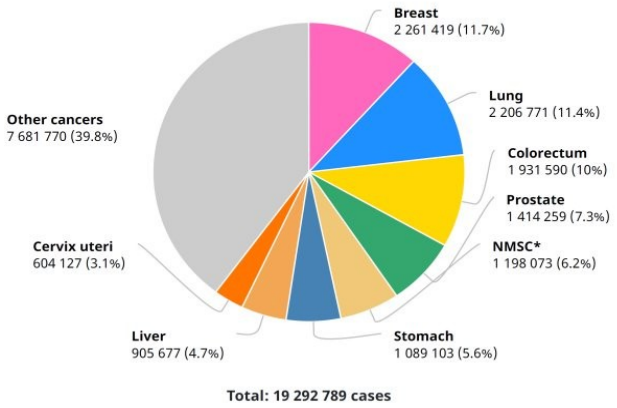
İstanbul Medipol Üniversitesi Tıp Fakültesi
İç Hastalıkları Ana Bilim Dalı
İstanbul

Neoplastik hastalıklar

1'i
Kanser

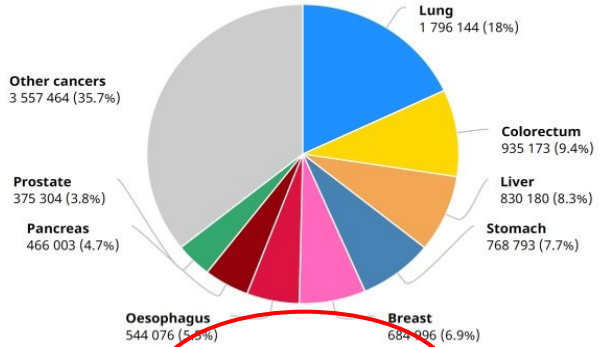
All cancers

Number of new cases in 2020, both sexes, all ages



Total: 19 292 789 cases

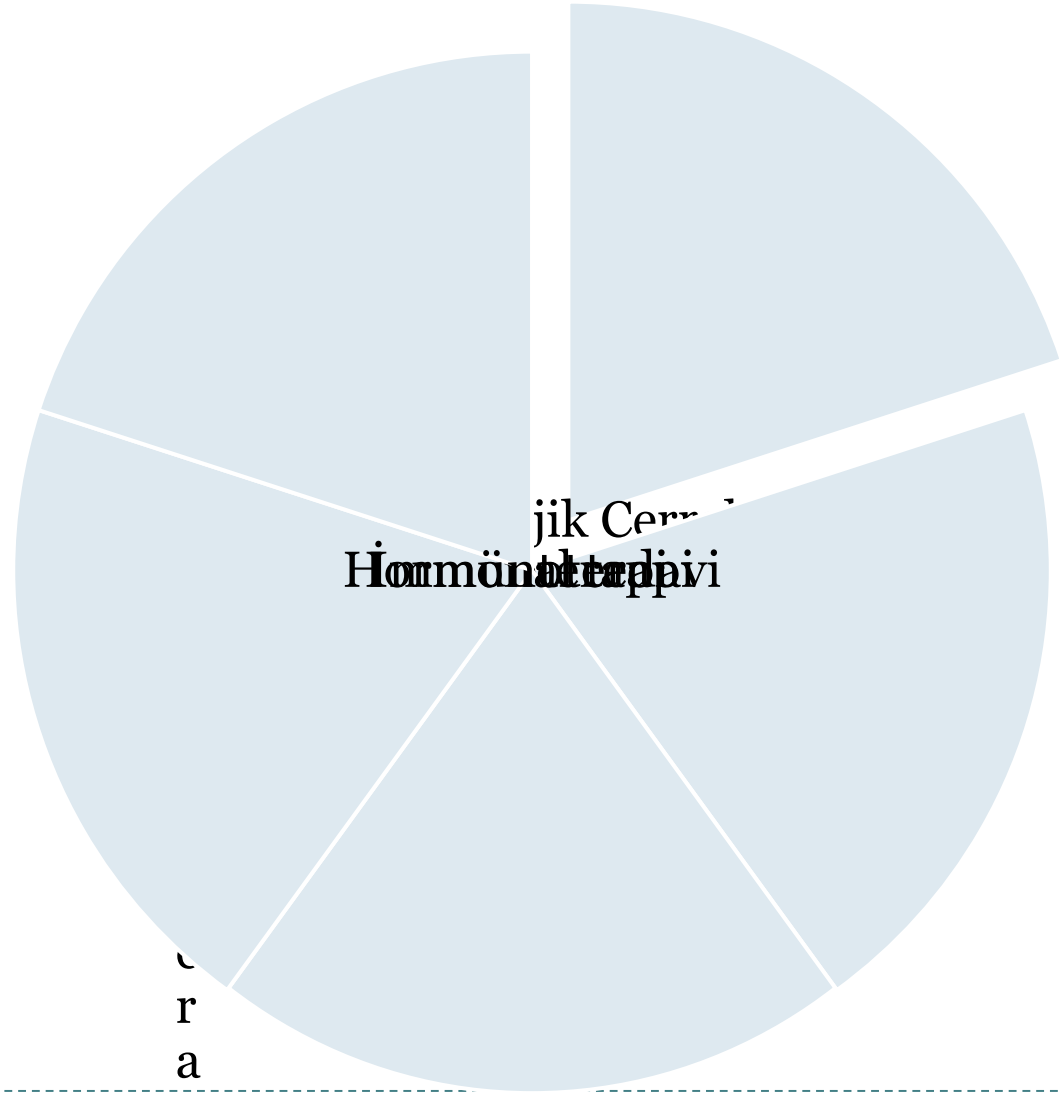
Number of deaths in 2020, both sexes, all ages



Total: 9 958 133 deaths

International Agency for Research on Cancer
World Health Organization

Onkolojik Tedaviler



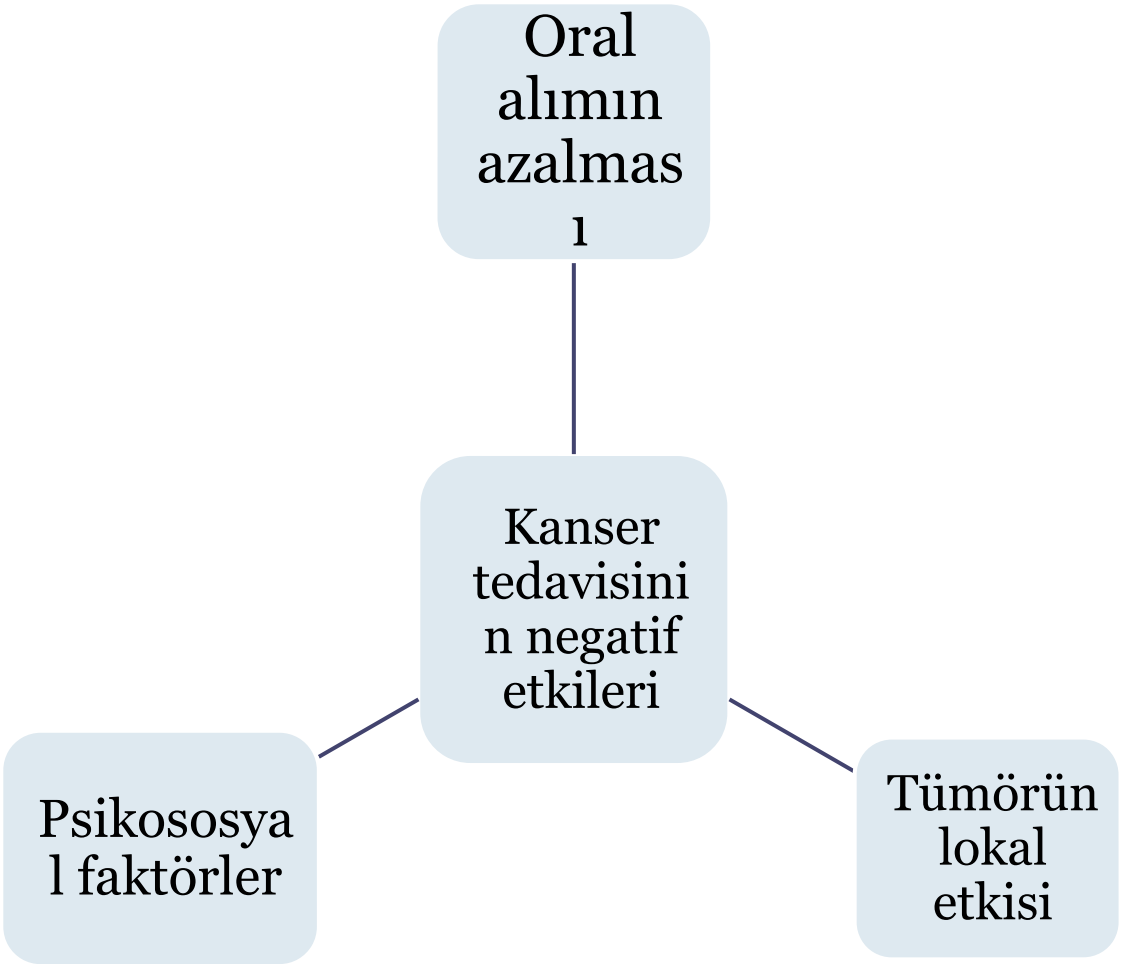
Onkolojik Tedaviler

Onkolojik Nutrisyon

Malnütrisyon

- %50-80'inde kanser ile ilişkili malnütrisyon
- Kansere bağlı tüm ölümlerin %20'si malnütrisyona bağlı
- Hastaların ancak %30 60'ı nutrisyonel destek tedavi almakta
- Hekimler %40'ı malnutrisyonu yanlış yönetiyor

Kanserin Nütrisyon Üzerine Etkisi



Onkolojik Nutrisyon

aspen
Clinical Guidelines

Journal of Parenteral and Enteral Nutrition
Volume 33 Number 5
September/October 2009 472-500

10.1177/0148607109341804
http://jpen.sagepub.com
hosted at
http://online.sagepub.com

A.S.P.E.N. Clinical Guidelines: Nutrition Support Therapy During Adult Anticancer Treatment and in Hematopoietic Cell Transplantation

David Allen August, MD[1]; Maureen B. Huhmann, DCN, RD, CSO[2]; and the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors

Financial disclosure: none declared.

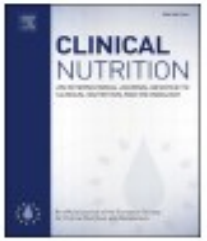
aspen
LEADING THE SCIENCE AND PRACTICE OF CLINICAL NUTRITION
American Society for Parenteral and Enteral Nutrition

Onkolojik Nutrisyon

Contents lists available at ScienceDirect

Clinical Nutrition

journal homepage: http://www.elsevier.com/locate/clnu



ESPEN Guideline

ESPEN practical guideline: Clinical Nutrition in cancer

Maurizio Muscaritoli [a, *], Jann Arends [b], Patrick Bachmann [c], Vickie Baracos [d], Nicole Barthelemy [e], Hartmut Bertz [b], Federico Bozzetti [f], Elisabeth Hütterer [g], Elizabeth Isenring [h], Stein Kaasa [i], Zeljko Krznaric [j], Barry Laird [k], Maria Larsson [l], Alessandro Laviano [a], Stefan Mühlebach [m], Line Oldervoll [n], Paula Ravasco [o], Tora S. Solheim [p], Florian Strasser [q], Marian de van der Schueren [r, s], Jean-Charles Preiser [t], Stephan C. Bischoff [u]

[a] Department of Translational and Precision Medicine University La Sapienza, Rome, Italy
[b] Department of Medicine I, Medical Center - University of Freiburg, Faculty of Medicine, University of Freiburg, Germany
[c] Centre Regional de Lutte Contre le Cancer Leon Berard, Lyon, France
[d] Department of Oncology, University of Alberta, Edmonton, Canada
[e] Centre Hospitalier Universitaire, Liege, Belgium
[f] University of Milan, Milan, Italy
[g] Division of Oncology, Department of Medicine I, Medical University of Vienna, Austria

2021

ESPEN
European Society for Clinical Nutrition and Metabolism

Tarama ve değerlendirme

- Teşhis anında nütrisyonu değerlendir
- Klinik duruma göre tekrarla

- Oral alımı
- Kilo değişimi
- Vücut kitle indeksini

} Düzenli olarak değerlendir — Recommendation B1-1

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in cancer. Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

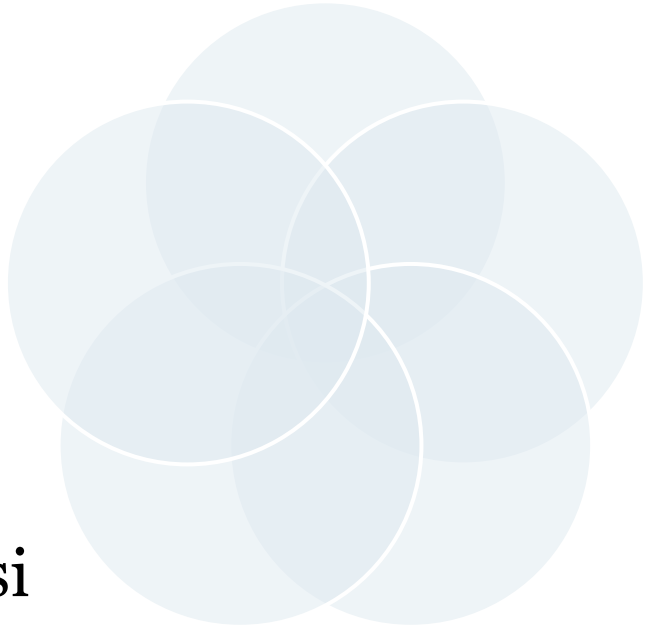
Tarama ve değerlendirme

Recommendation B1-2

Azalmış
besin alımı

Sistemik
inflamasyon

Kas Kitlesi



Yaşam kalitesi
bozuklukları

Azalmış
fiziksel
performans

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Tarama Araçları

Tarama Araçları

MUST

SGA NRS

MST MNA

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Tarama Araçları / ESPEN

Toplumda Yetişkinlerde

- Malnutrition Universal Screening Tool (MUST)

Hastanede Yetişkinlerde

- Nutritional Risk Screening (NRS)

Yaşlılar

- Mini Nutritional Assessment (MNA)

- Malnutrition Screening Tool (MST)

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

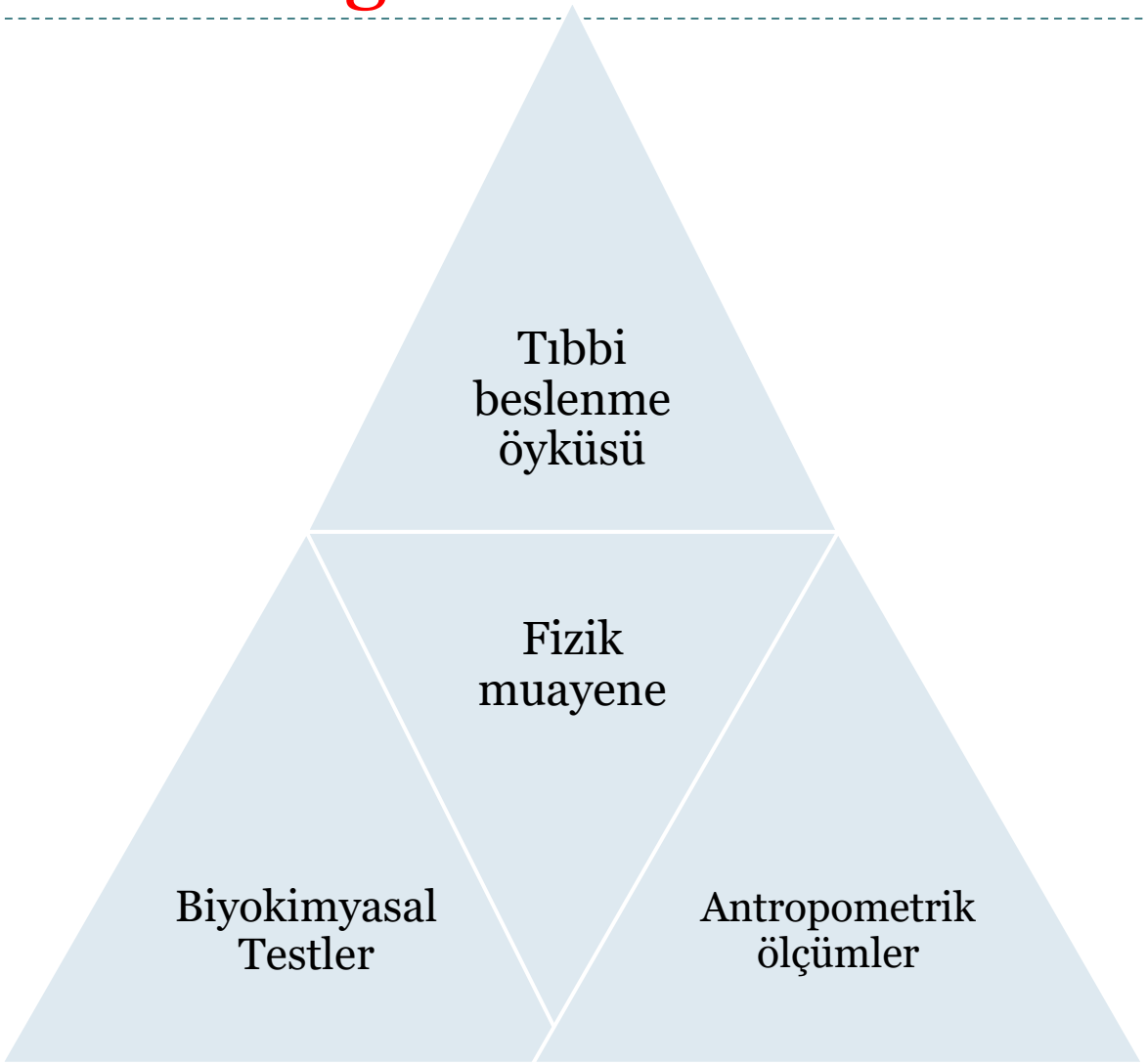
Tarama Araçları / ASPEN

- Subjective Global Assessment (SGA)
- Patient-Generated Subjective Global Assessment (PG-SGA)
- Nutrition Risk Index (NRI)

Huhmann MB, August DA. Review of American Society for Parenteral and Enteral Nutrition (ASPEN) clinical guidelines for nutrition support in cancer patients: nutrition screening and assessment. Nutr Clin Pract 2008;23(2):182–8.

Mueller C, Compher C, Ellen DM; American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors. A.S.P.E.N. clinical guidelines: Nutrition screening, assessment, and

Beslenmenin Değerlendirilmesi



Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in cancer. Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

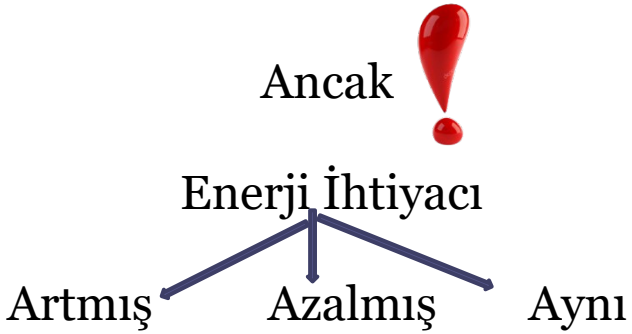
Enerji ve Substrat Gereksinimleri

- Gıda alımındaki azalmalar erken teşhis edilmeli
- Daha önceki enerji ve protein alımı
- Diyet öyküsü
- Oral alımı
- Kalitatif ve kantitatif olarak kaydedilmeli

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Enerji ve Substrat Gereksinimleri

- Kalori ihtiyacının artmış olduğu düşüncesi yaygın



Recommendation B2-1

- 25 ila 30 kcal/kg/gün arasında değiştiği varsayılır.

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in cance Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Enerji ve Substrat Gereksinimleri

- Protein alımının
  - 1 gr/kg/gün'ün üzerinde
  - 1,5 gr/kg/gün'e kadar olmalı

Recommendation B2-2

- Kas protein sentezi körelmez.

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Enerji ve Substrat Gereksinimleri

Recommendation B2-4

- Vitamin ve Mineraller → Tavsiye edilen günlük alım miktarı kadar ✓
  → Yüksek dozda mikro besinler ✗

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Enerji ve Substrat Gereksinimleri

How Many Cancer Patients Use Complementary and Alternative Medicine: A Systematic Review and Metaanalysis

Markus Horneber, MD[1], Gerd Bueschel, MD[2], Gabriele Dennert, MD, MPH[1], Danuta Less, MD[3], Erik Ritter, MD[1], and Marcel Zwahlen, PhD, MSc[4]

Abstract

Background. No comprehensive systematic review has been published since 1998 about the frequency with which cancer patients use complementary and alternative medicine (CAM). *Methods.* MEDLINE, AMED, and Embase databases were searched for surveys published until January 2009. Surveys conducted in Australia, Canada, Europe, New Zealand, and the United States with at least 100 adult cancer patients were included. Detailed information on methods and results was independently extracted by 2 reviewers. Methodological quality was assessed using a criteria list developed according to the STROBE guideline. Exploratory random effects metaanalysis and metaregression were applied. *Results.* Studies from 18 countries (152; >65 000 cancer patients) were included. Heterogeneity of CAM use was high and to some extent explained by differences in survey methods. The combined prevalence for "current use" of CAM across all studies was 40%. The highest was in the United States and the lowest in Italy and the Netherlands. Metaanalysis suggested an increase in CAM use from an estimated 25% in the 1970s and 1980s to more than 32% in the 1990s and to 49% after 2000. *Conclusions.* The overall prevalence of CAM use found was lower than often claimed. However, there was some evidence that the use has increased considerably over the past years. Therefore, the health care systems ought to implement clear strategies of how to deal with this. To improve the validity and reporting of future surveys, the authors suggest criteria for methodological quality that should be fulfilled and reporting standards that should be required.

Horneber M, Bueschel G, Dennert G, Less D, Ritter E, Zwahlen M. How many cancer patients use complementary and alternative medicine: a systematic review and metaanalysis. Int
Canc Ther 2012;11:187e203.

Enerji ve Substrat Gereksinimleri

- D Vitamini

ELSEVIER

The American Journal of Clinical Nutrition
Volume 98, Issue 3, September 2013, Pages 827-838

Plasma 25-hydroxyvitamin D concentration and lymphoma risk: results of the European Prospective Investigation into Cancer and Nutrition [1, 2, 3] [1, 2, 3, 4]

Anna Łuczyńska, Rudolf Kaaks, Sabine Rohrmann, Susen Becker, Jakob Linseisen, Brian Buijsse, Kim Overvad, Antonia Trichopoulou, Elisavet Valanou, Antonia Barmpitsioti, Giovanna Masala, Claudia Agnoli, Rosario Tumino, Salvatore Panico, H Bas Bueno-de-Mesquita, Fränzel JB van Duijnhoven, Petra HM Peeters, Roel Vermeulen, Elisabete Weiderpass,

heterogeneity = 0.03), which suggests the possibility of reverse causality. Further analysis restricted to participants with ≥2 y of follow-up time showed a significant association between 25(OH)D and chronic lymphocytic leukemia (CLL) (n = 161): adjusted incidence rate ratios were 0.40 (95% CI: 0.18, 0.90; P-trend = 0.05) and 0.31 (95% CI: 0.13, 0.76; P-trend = 0.03) for the top compared with the bottom season-standardized and season-specific quartiles, respectively. Data on dietary vitamin D

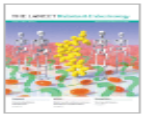
Łuczynska A, Kaaks R, Rohrmann S, Becker S, Linseisen J, Buijsse B, et al. Plasma 25-hydroxyvitamin D concentration and lymphoma risk: results of the European prospective investigation into cancer and nutrition. Am J Clin Nutr 2013;98:827e38.

Enerji ve Substrat Gereksinimleri

- D Vitamini

THE LANCET
Diabetes & Endocrinology

Volume 2, Issue 4, April 2014, Pages 307-320



Articles

The effect of vitamin D supplementation on skeletal, vascular, or cancer outcomes: a trial sequential meta-analysis

Mark J Bolland PhD [a], Andrew Grey MD [a], Greg D Gamble MSc [a], Prof Ian R Reid MD [a]

Discussion

Our analyses suggest that there is reliable existing evidence that supplementation of vitamin D with or without calcium does not reduce the incidence of myocardial infarction or ischaemic heart disease, stroke or cerebrovascular disease, cancer, total fractures, or hip fractures in community-dwelling individuals by more than 15%. Vitamin D with calcium reduced hip fracture incidence in two trials of institutionalised individuals. There is uncertainty as to whether vitamin D with or without...

Bolland MJ, Grey A, Gamble GD, Reid IR. The effect of vitamin D supplementation on skeletal, vascular, or cancer outcomes: a trial sequential metaanalysis. Lancet Diabetes & Endocrino 2014;2:307e20.

Enerji ve Substrat Gereksinimleri

- E Vitamini ve C Vitamini

The American Journal of Clinical Nutrition
Volume 100, Issue 3, September 2014, Pages 915-923

Vitamin E and C supplementation and risk of cancer in men: posttrial follow-up in the Physicians' Health Study II randomized trial [1, 2, 3, 4] [1, 2, 3, 4, 5]

Beginning in 1997, a total of 14,641 US male physicians aged ≥50 y were randomly assigned to receive 400 IU of vitamin E every other day, 500 mg of vitamin C daily, or their respective placebos. The vitamin E and vitamin C treatment ended in 2007, and observational follow-up continued through June 2011.

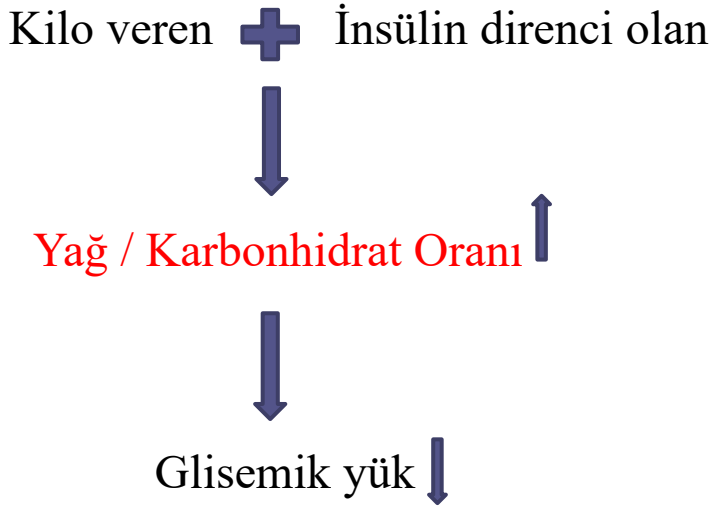
In this large-scale randomized trial in men, vitamin E and C supplementation had no immediate or long-term effects on the risk of total cancers, prostate cancer, or other site-specific cancers. This trial was registered at clinicaltrials.gov as NCT00270647.

Wang L, Sesso HD, Glynn RJ, Christen WG, Bubes V, Manson JE, et al. Vitamin E and C supplementation and risk of cancer in men: posttrial follow-up in the Physicians' Health Study randomized trial. Am J Clin Nutr 2014;100: 915e23.

Enerji ve Substrat Gereksinimleri

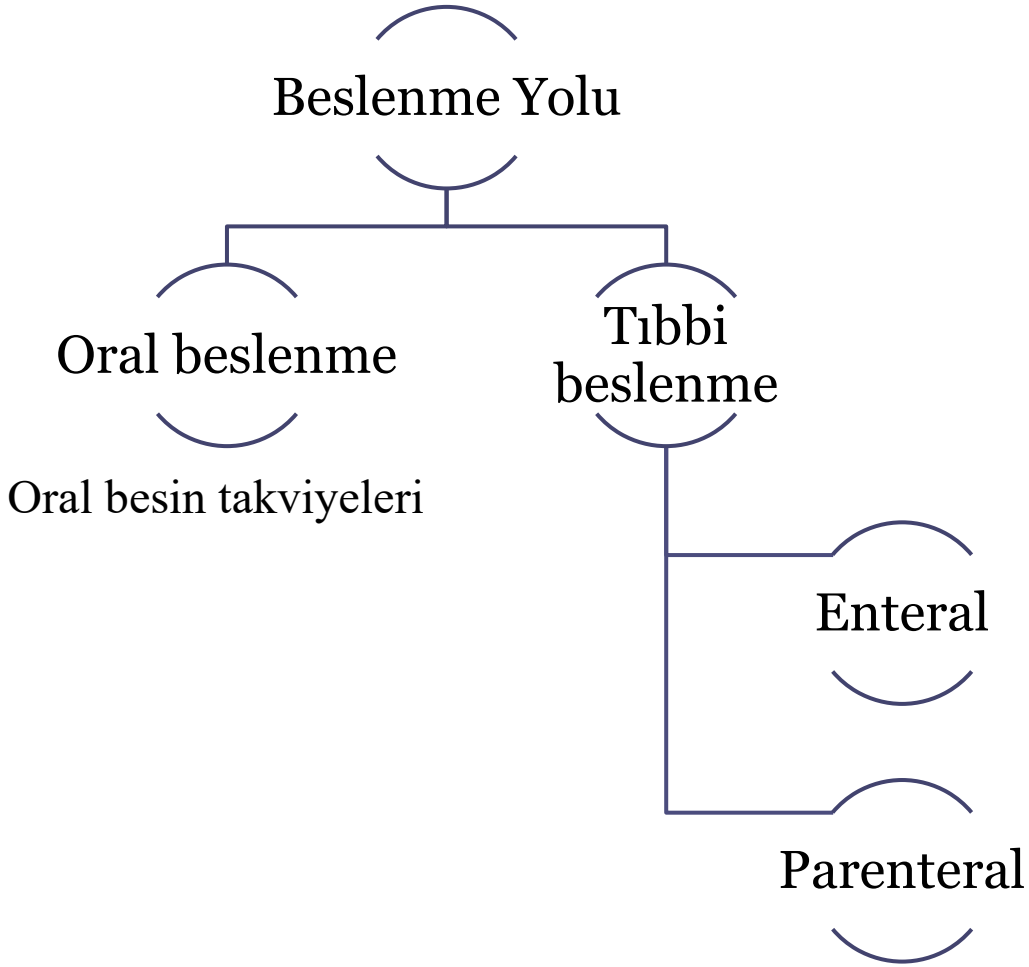
- Yağ / Karbonhidrat Oranı

Recommendation B2-3



Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri



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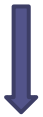
Beslenme Müdahaleleri

- Oral beslenme

  * Yemek yiyebilen ancak yetersiz beslenen



*Diyet tavsiyesi

*Gıda alımını bozan semptomların tedavisi

*Oral besin takviyeleri

Recommendation B3-1

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Oral beslenme

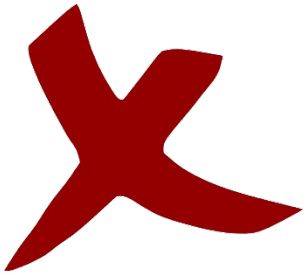
*Enerji alımını kısıtlayan diyet önerileri kullanılmamalı

Recommendation B3-2

*Klinik kanıtlara dayanmayan,

Kanıtlanmış etkinliği olmayan

Potansiyel olarak zararlı olan



* Kanseri tamamen iyileştiren

Nüksetmesini önleyen

} Hiçbir diyet yoktur

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Oral beslenme

Nüksetmesini önleyen

Beslenme Müdahaleleri

- Oral beslenme

Beslenme Müdahaleleri

- Oral beslenme

Beslenme Müdahaleleri

- Oral beslenme

Beslenme Müdahaleleri

- Oral beslenme

*Ketojenik Diyet ?

Schmidt *et al. Nutrition & Metabolism* 2011, **8**:54
http://www.nutritionandmetabolism.com/content/8/1/54

RESEARCH Open Access

Effects of a ketogenic diet on the quality of life in 16 patients with advanced cancer: A pilot trial

Melanie Schmidt, Nadja Pfetzer, Micheal Schwab, Ingrid Strauss and Ulrike Kämmerer*

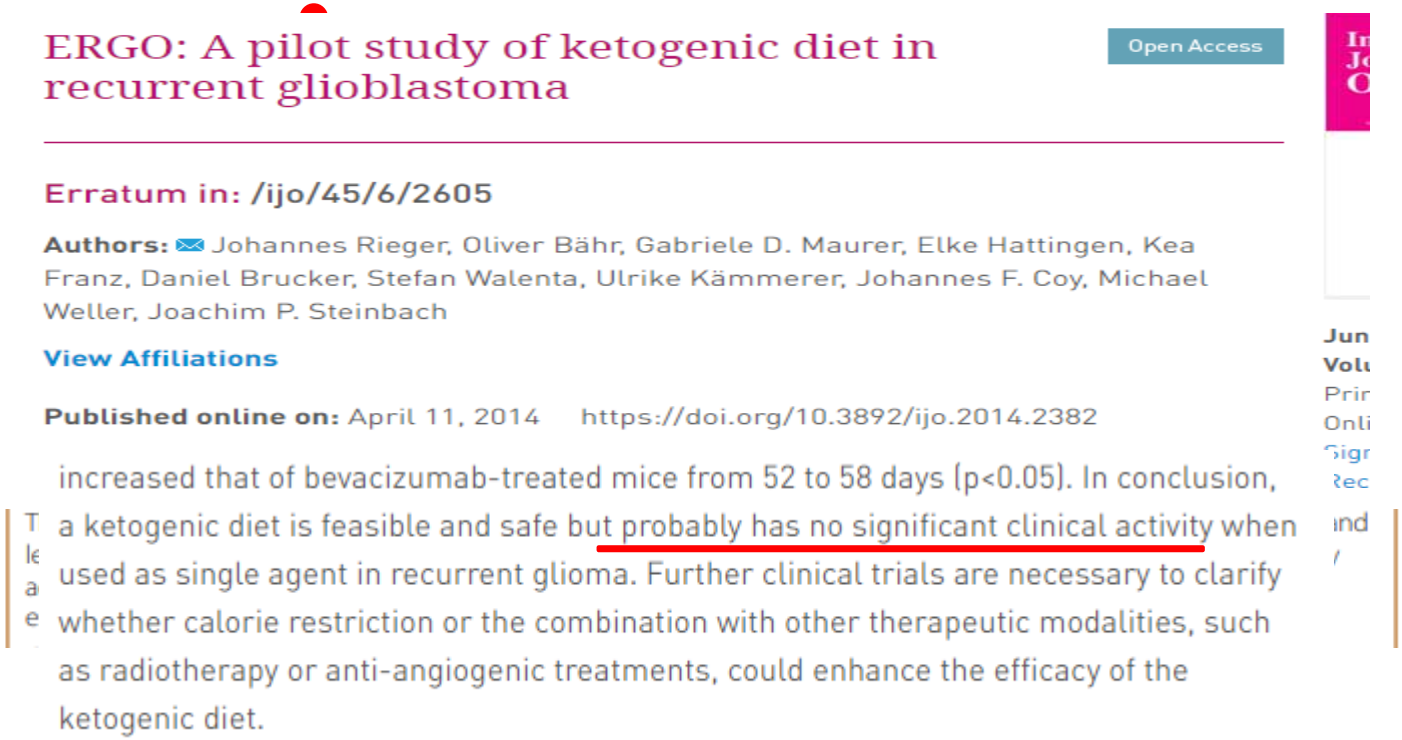
These five and the one who resumed chemotherapy after 6 weeks report an improved emotional functioning and less insomnia, while several other parameters of quality of life remained stable or worsened, reflecting their very advanced disease. Except for temporary constipation and fatigue, we found no severe adverse side effects, especially no changes in cholesterol or blood lipids.

Schmidt M, Pfetzer N, Schwab M, Strauss I, Kammerer U. Effects of a keto- € genic diet on the quality of life in 16 patients with advanced cancer: a pilot trial. Nutr Metabol 2011;8:54

Beslenme Müdahaleleri

- Oral beslenme

*Ketojenik Diyet ?



ERGO: A pilot study of ketogenic diet in recurrent glioblastoma

Open Access

Erratum in: /ijo/45/6/2605

Authors: Johannes Rieger, Oliver Bähr, Gabriele D. Maurer, Elke Hattingen, Kea Franz, Daniel Brucker, Stefan Walenta, Ulrike Kämmerer, Johannes F. Coy, Michael Weller, Joachim P. Steinbach

View Affiliations

Published online on: April 11, 2014 https://doi.org/10.3892/ijo.2014.2382

increased that of bevacizumab-treated mice from 52 to 58 days ($p<0.05$). In conclusion, a ketogenic diet is feasible and safe but probably has no significant clinical activity when used as single agent in recurrent glioma. Further clinical trials are necessary to clarify whether calorie restriction or the combination with other therapeutic modalities, such as radiotherapy or anti-angiogenic treatments, could enhance the efficacy of the ketogenic diet.

Rieger J, Bahr O, Maurer GD, Hattingen E, Franz K, Brucker D, et al. ERGO: a € pilot study of ketogenic diet in recurrent glioblastoma. Int J Oncol 2014;44: 1843e52.

Beslenme Müdahaleleri

- Oral beslenme

*Ketojenik Diyet 

ESPEN
European Society for Clinical Nutrition and Metabolism

*Düşük lezzetlilik

*Yetersiz enerji alımı 

*Kilo kaybı

Önermiyor

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi beslenme

  * Yeterince yemek yiyemiyorsa  Endike

Recommendation B3-3

*Hasta >3 gün yemek yiyemeyecekse

*Bir haftalık sürede → İhtiyacının <%50 si alacaksa

*İki haftadan uzun bir süre→ İhtiyacının %50-75'i alacaksa

Enteral Beslenme

Parenteral Beslenme

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi Beslenme

Enteral Beslenme

*Tüp ile beslenme

*NG, PEG, jejunostomi

*Üst GIS de besin transportunda bozukluk

*Aspirasyon, gastrointestinal şikayetler

Parenteral Beslenme

*Intravenöz nütrisyon

*Komplet GIS yetersizliği

*Bağırsakların >5-7 gün dinlendirilmesi gerektiğinde

*Enteral beslenmeyi tolere edememe

*Sepsis, mikrobiom-bağırsak bütünlüğünde bozukluk, metabolik problemler

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi Beslenme

Enteral Beslenme

Parenteral Beslenme

Klinik uygulama, Kontrendikasyonlar, Komplikasyonlar, Monitörizasyonu

Kanser hastaları = Benign hastalığı olanlar

Research

Open Access

Management of intestinal failure in Europe. A questionnaire based study on the incidence and management

Michael Staun*[1], Xavier Hebuterne[2], Jon Shaffer[3], Kent V Haderslev[1], Frederico Bozzetti[4], Marek Pertkiewicz[5], Ann Micklewright[6], Jose Moreno[7], Paul Thul[8] and Loris Pironi[9]

This study indicates that patients with intestinal failure are being managed across Europe in specialised units in the setting of both surgical and medical gastroenterology; the organizational structure of this service varies significantly between centres. The study reports on about 900 patients diagnosed with this diagnosis and shows that about 43% are discharged with per oral or enteral nutrition and 36% with parenteral nutrition. Mortality rate during a one-year observation period is about 10% and no patients were referred for intestinal transplantation. Not all patients are referred for treatment and not all centres have specific guidelines for management of intestinal failure, although they in general have much experience. More information

Staun M, Hebuterne X, Shaffer J, Haderslev KV, Bozzetti F, Pertkiewicz M, Micklewright A, Moreno J, Thul P, Pironi L. Management of intestinal failure in Europe. A questionnaire based study on the incidence and management. Dyn Med. 2007 Jul 4;6:7. doi: 10.1186/1476-5918-6-7. PMID: 17610741; PMCID: PMC1945021.

Beslenme Müdahaleleri

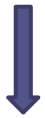
- Tıbbi Beslenme

*Refeeding Sendromu

*Uzun bir süre oral alım eksikliğinde

Recommendation B3-4

*Enteral veya parenteral beslenmeyi



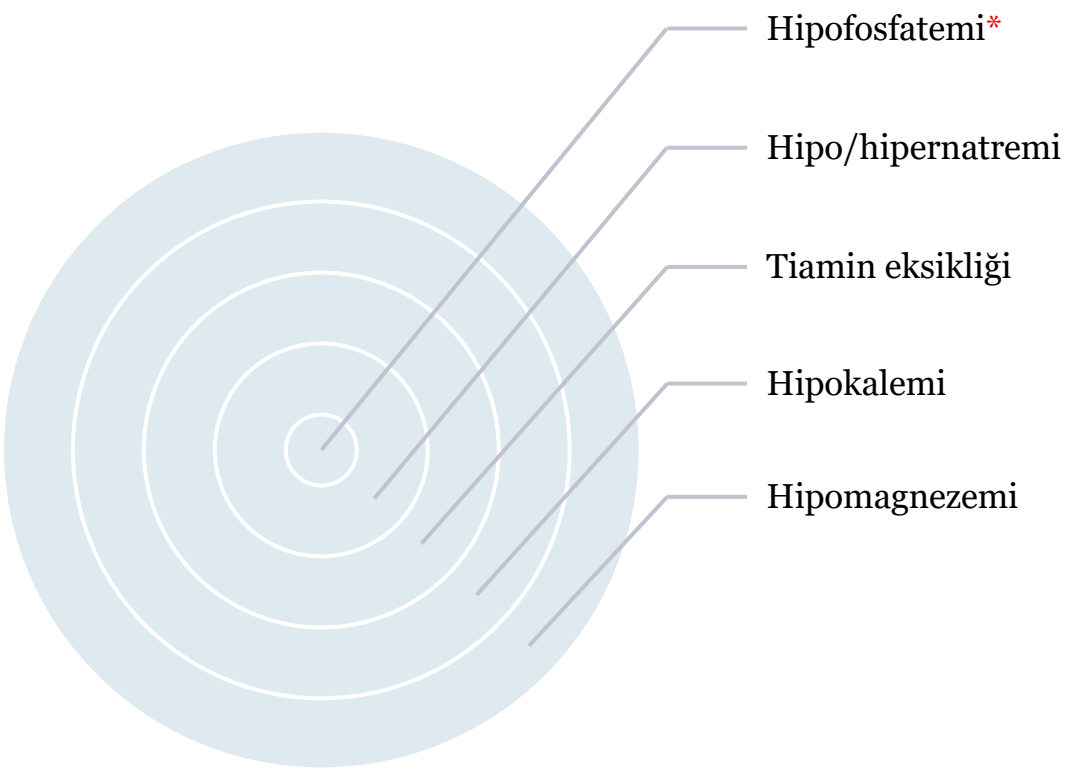
Birkaç gün içinde yavaş yavaş arttır

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi Beslenme

*Refeeding Sendromu



Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi Beslenme

  *Refeeding Sendromu

  * Dengeli bir mikro besin karışımı
  * B1 vitamini → 200-300 mg/gün
  * Potasyum → 24 mmol/kg/gün
  * Fosfat → 0,3-0,6 mmol/kg/gün
  * Magnezyum → Iv 0.2 mmol/kg/gün /// Oral 0.4 mmol/kg/gün

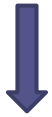
Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi Beslenme

*Kronik malnütrisyonu olan uygun hastalarda

Recommendation B3-5



Evde EN veya PN

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi Beslenme

*Ne zaman keselim?

* Sadece end-of-life

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Beslenme Müdahaleleri

- Tıbbi Beslenme

*Ne zaman keselim?

Open Access Article

A National Observational Study of the Prevalence and Use of Enteral Tube Feeding, Parenteral Nutrition and Intravenous Glucose in Cancer Patients Enrolled in Specialized Palliative Care

by Ylva Orrevall [1,2,3,*], Carol Tishelman [2,3,4], Johan Permert [1] and Staffan Lundström [2,5]

Table 2. Oral intake, indication * and evaluation of patients receiving enteral tube feeding, parenteral nutrition and intravenous glucose in relation to expected survival.

	Enteral Tube Feeding Only (*n* = 23)			Parenteral Nutrition (*n* = 94)			Intravenous Glucose (*n* = 26)		
	Palliative Care (*n* = 19)			Palliative Care (*n* = 86)			Palliative Care (*n* = 25)		
Stage of Disease	Predicted Survival Time		Potentially Curable (*n* = 4)	Predicted Survival Time		Potentially Curable (*n* = 8)	Predicted Survival Time		Potentially Curable (*n* = 1)
	≤1 Month (*n* = 3)	>1 Months (*n* = 16)		≤1 Month (*n* = 20)	>1 Months (*n* = 66)		≤1 Month (*n* = 14)	>1 Month (*n* = 11)	
Benefit of artificial nutrition according to team assessment									
Yes	2	16	4	8	57	7	12	9	1
Doubt benefit				10	0	1	1	1	

Orrevall Y, Tishelman C, Permert J, Lundström S. A national observational study of the prevalence and use of enteral tube feeding, parenteral nutrition and intravenous glucose in cancer patients enrolled in specialized palliative care. Nutrients. 2013 Jan 22;5(1):267-82. doi: 10.3390/nu5010267. PMID: 23340317; PMCID: PMC3571648.

Beslenme Müdahaleleri

- Tıbbi Beslenme

*Ne zaman keselim?

Restricted access | Research article | First published online January 29, 2018

Home Artificial Nutrition in Advanced Cancer Patients

Enrico Ruggeri ✉, Federica Agostini, [...], and Franco Pannuti (+3) View all authors and affiliations

Volume 99, Issue 2 | https://doi.org/10.1177/030089161309900216

The ANT Foundation assisted 29,348 patients in Bologna and its province from July 1990 to July 2012. Home artificial nutrition had been submitted to 618 patients (2.1%): enteral to 285/618 (46.1%) and parenteral to 333/618 (53.9%). Access routes for home artificial nutrition were: 39% nasogastric tube, 26% percutaneous endoscopic gastrostomy, 33% digiunostomy, and 2% gastrostomy. The central venous catheters used for home artificial nutrition were: 61% non-tunneled, 13 peripherally inserted, 8% partially tunneled, and 18% totally implanted. By July 2012, all the patients had died. Duration of life ≥6 weeks was 78% (484/618). Karnofsky performance status was related to survival (P <0.0001): one month after starting home artificial nutrition, it decreased in 73 patients (12%), was unchanged in 414 (67%), and increased in 131 (21%).

Ruggeri E, Agostini F, Fettucciari L, Giannantonio M, Pironi L, Pannuti F. Home artificial nutrition in advanced cancer patients. Tumori. 2013 Mar-Apr;99(2):218-24
doi: 10.1177/030089161309900216. PMID: 23748817.

Farmakobesin ve Farmakolojik Ajanlar

İştah Açıcılar

- Kortikosteroid
- Progestin
- Antidepresan
- Analjezikler

Sistemik enflamasyonu baskılayanlar

- Kortikosteroid
- NSAID

Kas kitlesi ve Anabolizmayı arttıranlar

- Progestin
- Androjen

Diğer

- Uzun Zincirli N-3 Yağ Asitleri
- Prokinetikler
- Amino asitler
- İnsülinler
- Kannabinoidler

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Kortikosteroid

- İlerlemiş hastalığı olan anorektik kanser hastalarında
- İştahı artırmak için
- 1-3 hafta
- Sarkopeni, insülin direnci, enfeksiyon

Recommendation B5-1

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Kortikosteroid

JOURNAL OF CLINICAL ONCOLOGY

Systematic Review of the Treatment of Cancer-Associated Anorexia and Weight Loss

Tugba Yavuzsen, Mellar P. Davis, Declan Walsh, Susan LeGrand, and Ruth Lagman

Only two drugs have evidence to support their use for anorexia (progestins and corticosteroids). There is strong evidence against the use of hydrazine sulfate. The outcomes of these trials have been mixed and patient population heterogeneous.

Yavuzsen T, Davis MP, Walsh D, LeGrand S, Lagman R. Systematic review of the treatment of cancer-associated anorexia and weight loss. J Clin Oncol. 2005 Nov 20;23(33):8500-11. doi: 10.1200/JCO.2005.01.8010. PMID: 16293879.

Farmakobesin ve Farmakolojik Ajanlar

* Kortikosteroid

-Antianorektik etkisi geçici

- Miyopati ve immünsupresyon

- İnsülin direnci

- Osteopeni

- Kısa yaşam beklentisi olan hastalar için daha uygun

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Progestinler

- Megestrol asetat ve Medroksiprogesteron asetat

- Anti-anorektik ✓

Recommendation B5-2

- İştah arttırıcı ✓

- Vücut ağırlığını arttırır ✓

- Yağsız kütleyi arttırmaz !

- Tromboembolizm ⚡

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Uzun Zincirli N-3 Yağ Asitleri / Balık Yağı

- İlerlemiş kanser hastalarında
- İştahı ⬆
- Gıda alımını ⬆
- Yağsız vücut kütlesini ⟷
- Vücut ağırlığını ⟷

Recommendation B5-7

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Uzun Zincirli N-3 Yağ Asitleri / Balık Yağı

Cochrane Database of Systematic Reviews | Review - Intervention

Eicosapentaenoic acid (EPA, an omega-3 fatty acid from fish oils) for the treatment of cancer cachexia

Ann Dewey, Chris Baughan, Taraneh P Dean, Bernie Higgins, Ian Johnson Authors' declarations of interest

Version published: 24 January 2007 Version history

https://doi.org/10.1002/14651858.CD004597.pub2

There were insufficient data to establish whether oral EPA was better than placebo. Comparisons of EPA combined with a protein energy supplementation versus a protein energy supplementation (without EPA) in the presence of an appetite stimulant (Megestrol Acetate) provided no evidence that EPA improves symptoms associated with the cachexia syndrome often seen in patients with advanced cancer.

Dewey A, Baughan C, Dean TP, Higgins B, Johnson I. Eicosapentaenoic acid (EPA, an omega-3 fatty acid from fish oils) for the treatment of cancer cachexia. Cochrane Database of Systematic Revie 2007, Issue 1. Art. No.: CD004597. DOI: 10.1002/14651858.CD004597.pub2. Accessed 23 April 2023.

Farmakobesin ve Farmakolojik Ajanlar

* Uzun Zincirli N-3 Yağ Asitleri / Balık Yağı

N−3 fatty acids, cancer and cachexia: a systematic review of the literature

Ramón Colomer [1], José M Moreno-Nogueira, Pedro P García-Luna, Pilar García-Peris, Abelardo García-de-Lorenzo, Antonio Zarazaga, Luis Quecedo, Juan del Llano, Luis Usán, César Casimiro

According to our systematic review, in neoplastic diseases the provision of diets supplemented with *n*-3 FA showed measurable benefits in the different biochemical, clinical and functional parameters considered. The majority of the studies support with varying grades of recommendations supplementation with diets rich in *n*-3 FA in this type of patients. Elia *et al.* (2006) reached similar conclusions in their systematic review for enterally fed patients as well as those taking oral supplements with a decrease in the complications, especially the infectious ones, as well as a decrease in hospital stays and an improvement in the inflammatory markers.

Colomer R, Moreno-Nogueira JM, García-Luna PP, García-Peris P, García-de-Lorenzo A, Zarazaga A, Quecedo L, del Llano J, Usán L, Casimiro C. N-3 fatty acids, cancer and cachexia: a systematic review of the literature. Br J Nutr. 2007 May;97(5):823-31. doi: 10.1017/S000711450765795X. PMID: 17408522.

Farmakobesin ve Farmakolojik Ajanlar

* Uzun Zincirli N-3 Yağ Asitleri / Balık Yağı

Contents lists available at ScienceDirect

Clinical Nutrition

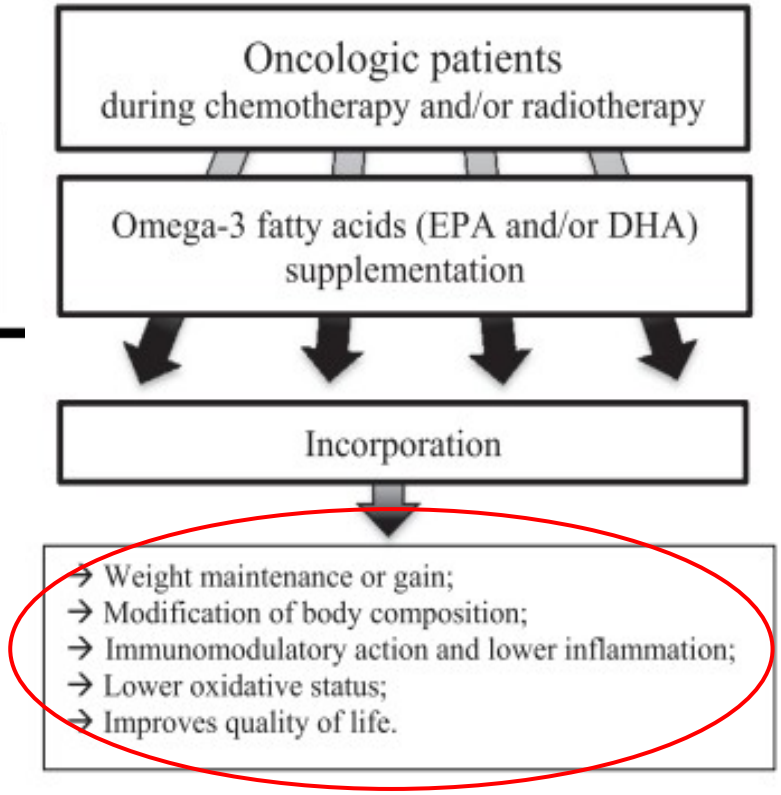
journal homepage: http://www.elsevier.com/locate/clnu

Review

Omega-3 supplements for patients in chemotherapy and/or radiotherapy: A systematic review

Juliana de Aguiar Pastore Silva [a], Maria Emilia de Souza Fabre [b], Dan Linetzky Waitzberg [c, *]

[a] Antonio Prudente Foundation, A. C. Camargo Cancer Center, São Paulo, Brazil
[b] Oncologic Research Center, Florianopolis, Santa Catarina, Brazil
[c] Departament of Gastroenterology, LIM 35, University of Sao Paulo Medical School, Brazil



de Aguiar Pastore Silva J, Emilia de Souza Fabre M, Waitzberg DL. Omega-3 supplements for patients in chemotherapy and/or radiotherapy: A systematic review Clin Nutr. 2015 Jun;34(3):359-66.

Farmakobesin ve Farmakolojik Ajanlar

* Uzun Zincirli N-3 Yağ Asitleri / Balık Yağı

-Periferik nöropati üzerine koruyucu etki ✓

Research article | Open Access | Published: 15 August 2012

Omega-3 fatty acids are protective against paclitaxel-induced peripheral neuropathy: A randomized double-blind placebo controlled trial

Zohreh Ghoreishi, Ali Esfahani, Abolghasem Djazayeri, Mahmoud Djalali, Banafsheh Golestan, Hormoz Ayromlou, Shahriar Hashemzade, Mohammad Asghari Jafarabadi, Vahid Montazeri, Seyed Ali Keshavarz

From: Omega-3 fatty acids are protective against paclitaxel-induced peripheral neuropathy: A randomized double-blind placebo controlled trial

	Peripheral neuropathy				
	Normal	Mild	Moderate	Severe	Total
Omega- 3 supplemented group	21(70%)	4(13.3%)	5(16.7%)	0%	30(100%)
Placebo received group	11(40.7%)	10(37%)	5(18.5%)	1(3.7%)	27(100%)

A significant difference in PN incidence (OR = 0.3, .95% CI = (0.10 - 0.88), p = 0.029).

A significant difference in PN incidence (OR = 0.3, .95% CI = (0.10 - 0.88), p = 0.029).

Ghoreishi Z, Esfahani A, Djazayeri A, Djalali M, Golestan B, Ayromlou H, Hashemzade S, Asghari Jafarabadi M, Montazeri V, Keshavarz SA, Darabi M. Omega-3 fa acids are protective against paclitaxel-induced peripheral neuropathy: a randomized double-blind placebo controlled trial. BMC Cancer. 2012 Aug 15;12:355. do 10.1186/1471-2407-12-355. PMID: 22894640; PMCID: PMC3459710.

Farmakobesin ve Farmakolojik Ajanlar

* Uzun Zincirli N-3 Yağ Asitleri / Balık Yağı

-Periferik nöropati üzerine koruyucu etki ✓

ELSEVIER journal homepage: http://www.elsevier.com/locate/clnu

Randomized control trials

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☆

Karla Sánchez-Lara [a], Jenny G. Turcott [a], Eva Juárez-Hernández [a], Carolina Nuñez-Valencia [a], Geraldine Villanueva [a], Patricia Guevara [b],

Table 4
Global, functional and symptom scales of Health-Related Quality of Life, differences within (Friedman test) and between ONS-EPA and C groups (*t*-student).

		Control	Δ	ONS-epa	Δ	p^{**}
Neuropathy	T0	11.7 ± 22	20.1 ± 13	19.9 ± 29	1 ± 0.4	**0.05**
	T1	20.5 ± 16		22.0 ± 27		
	T2	31.8 ± 30		20.9 ± 25		

Sánchez-Lara K, Turcott JG, Juárez-Hernández E, Nuñez-Valencia C, Villanueva G, Guevara P, De la Torre-Vallejo M, Mohar A, Arrieta O. 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 Dec;33(6):1017-23. doi: 10.1016/j.clnu.2014.03.006. Epub 2014 Apr 4. PMID: 24746976.

Farmakobesin ve Farmakolojik Ajanlar

* Uzun Zincirli N-3 Yağ Asitleri / Balık Yağı

- İbrutinib 

- Burun kanamaları

Ibrutinib-associated bleeding; pathogenesis, management, and risk reduction strategies.

Joseph J. Shatzel, MD[1], Sven R. Olson, MD[1], Derrick L. Tao, BS[1], Owen J. T. McCarty, Ph.D[1,2], Alexey V. Danilov, MD, Ph.D[1], and Thomas G. DeLoughery, MD, MACP, FAWM[1]

[1]Division of Hematology and Medical Oncology, Oregon Health & Science University, Knight

anticoagulant or antiplatelet therapy. In addition, the potential cardiovascular protective effects of ibrutinib monotherapy in patients at risk for vascular disease is unknown. Patients should be cautioned against using nonsteroidal anti-inflammatory drugs, fish oils, vitamin E, and aspirin-containing products, and consider replacing ibrutinib with a different agent if dual antiplatelet therapy is indicated. Patients should not take vitamin K antagonists concurrently with ibrutinib;

Shatzel JJ, Olson SR, Tao DL, McCarty OJT, Danilov AV, DeLoughery TG. Ibrutinib-associated bleeding: pathogenesis, management and risk reduction strategies. J Thromb Haemost. 2017 May;15(5):835-847. doi: 10.1111/jth.13651. Epub 2017 Mar 27. PMID: 28182323; PMCID: PMC6152914.

Farmakobesin ve Farmakolojik Ajanlar

* Prokinetikler

- Metoklopramid – Domperidon

- Erken doygunluğu olan ✓

Recommendation B5-8

- Kabızlığı olan ✓

- Metoklopramid → Merkezi sinir sistemi üzerine YE ❗

- Domperidon → Kalp ritmi üzerine YE ❗

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Prokinetikler

- Metoklopramid – Domperidon

- Gastrik boşalmayı uyarır ✓

A Double-Blind, Crossover Study of Controlled-Release Metoclopramide and Placebo for the Chronic Nausea and Dyspepsia of Advanced Cancer

Eduardo Bruera, MD • Michelle Belzile, BScN • Catherine Neumann, MSc • Zoltan Harsanyi, MBA • Najib Babul, PharmD • Andrew Darke, PhD

receive either controlled-release metoclopramide 40 mg every 12 hours or matching placebo for a period of 4 days. On day 5,

	CRMa	Placeboa
Nausea intensity (100-mm VAS)b	12 ± 10b	17 ± 12b
Vomiting intensity (100-mm VAS)	9 ± 9	14 ± 13

a Values are mean ± SD.
b $P = 0.0426$.
c $P = 0.071$.

Bruera E, Belzile M, Neumann C, Harsanyi Z, Babul N, Darke A. A double-blind, crossover study of controlled-release metoclopramide and placebo for the chroni nausea and dyspepsia of advanced cancer. J Pain Symptom Manage. 2000 Jun;19(6):427-35. doi: 10.1016/s0885-3924(00)00138-x. PMID: 10908823.

Farmakobesin ve Farmakolojik Ajanlar

* Amino asitler

› Clin Nutr. 2012 Oct;31(5):765-73. doi: 10.1016/j.clnu.2012.05.003. Epub 2012 May 29.

Normal protein anabolic response to hyperaminoacidemia in insulin-resistant patients with lung cancer cachexia

Aaron Winter [1], Jacqueline MacAdams, Stéphanie Chevalier

NSCLC patients with moderate cachexia showed considerable insulin resistance of glucose and of whole-body protein anabolism. Their anabolic protein response was stimulated normally by hyperaminoacidemia. Thus, ample provision of amino acids is a feasible strategy to overcome the protein anabolic failure of cancer cachexia.

Winter A, MacAdams J, Chevalier S. Normal protein anabolic response to hyperaminoacidemia in insulin-resistant patients with lung cancer cachexia. Clin Nutr. 2012 Oct;31(5):765-73. doi: 10.1016/j.clnu.2012.05.003. Epub 2012 May 29. PMID: 22647419.

Farmakobesin ve Farmakolojik Ajanlar

* Lösin

- β-Hidroksi-β-metil bütirat

- 3 g/gün dozu → Anti-katabolik ajan 

Berk L, James J, Schwartz A, Hug E, Mahadevan A, Samuels M, Kachnic L; RTOG. A randomized, double-blind, placebo-controlled trial of a beta-hydroxyl beta-methyl butyrate, glutamine, and arginine mixture for the treatment of cancer cachexia (RTOG 0122). Support Care Cancer. 2008 Oct;16(10):1179-88. doi: 10.1007/s00520-008-0403-7. Epub 2008 Feb 22. PMID: 18293016.

Farmakobesin ve Farmakolojik Ajanlar

* Glutamin

- Serbest amino asit
- Bağırsak hücrelerinin rejenerasyonunda önemli rol
- Bariyerinin korunmasını sağlar

Recommendation C2-4

- Radyasyona bağlı enterit ?
- Tutarlı klinik veri yok ✗
- Önerilmez ✗

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Glutamin

- Iv Glutamin & Plasebo

- 0,3 g/kg/gün; 29 hasta

Double-blinded, placebo-controlled trial on intravenous l-alanyl-l-glutamine in the incidence of oral mucositis following chemoradiotherapy in patients with head-and-neck cancer

Leandro C.A. Cerchietti, M.D. • Alfredo H. Navigante, M.D., Ph.D. • Maribel A. Lutteral, M.D. • ...

Table 2. Effect of glutamine on several outcomes

Endpoint	Placebo (n = 15)	Glutamine (n = 14)	p value
Intensity of objective mucositis developed (mean 3 highest OMS)	1.33 (± 0.4)	0.82 (± 0.3)	0.044†
Patients with severe objective mucositis (OMS >1.49)	10 (67%)	2 (14%)	0.007‡
Patients with mucositis WHO Grade 4*	5 (33%)	0 (0%)	0.042‡
Need for feeding tube	9 (60%)	2 (14%)	0.020‡

Cerchietti LC, Navigante AH, Lutteral MA, Castro MA, Kirchuk R, Bonomi M, Cabalar ME, Roth B, Negretti G, Sheinker B, Uchima P. Double-blinded, placebo-controlled trial on intravenous L-alanyl-L-glutamine in the incidence of oral mucositis following chemoradiotherapy in patients with head-and-neck cancer. Int J Radiat Oncol Biol Phys. 2006 Aug 1;65(5):1330-7. doi: 10.1016/j.ijrobp.2006.03.042. Epub 2006 Jun 9. PMID: 16765532.

Farmakobesin ve Farmakolojik Ajanlar

* Glutamin

- Gargara Glutamin & Plasebo

- 16 gr/gün; 17 hasta

ORAL GLUTAMINE TO ALLEVIATE RADIATION-INDUCED ORAL MUCOSITIS: A PILOT RANDOMIZED TRIAL

ENG-YEN HUANG, M.D., STEPHEN WAN LEUNG, M.D., M.S., CHONG-JONG WANG, M.D., HUI-CHUN CHEN, M.D., LI-MIN SUN, M.D., FU-MIN FANG, M.D., SHYH-AN YEH, M.D.,

Table 3. Mean data of measured parameters between the two arms

	Glutamine (n = 8)	Placebo (n = 9)	p value
Objective mucositis Fraction number†			
≥ Grade 1	16.6	19.3	0.0097*
≥ Grade 2	5.8	12.3	0.0232*
≥ Grade 3	0	4.3	0.0168*
Maximum grade	1.6	2.6	0.0058*

Huang EY, Leung SW, Wang CJ, Chen HC, Sun LM, Fang FM, Yeh SA, Hsu HC, Hsiung CY. Oral glutamine to alleviate radiation-induced oral mucositis: a pilot randomized trial. Int J Radiat Oncol Biol Phys. 2000 Feb 1;46(3):535-9. doi: 10.1016/s0360-3016(99)00402-2. PMID: 10701731.

Farmakobesin ve Farmakolojik Ajanlar

* Glutamin

- Kök hücre nakli olan hastalarda → Glutamin kullanımı → Daha yüksek nüks

Standardized parenteral alanyl-glutamine dipeptide supplementation is not beneficial in autologous transplant patients: a randomized, double-blind, placebo controlled study

This study shows that glutamine supplementation produced modest benefit in terms of large bowel mucositis, measured as number of days with diarrhoea. However, it did not have any effect either on oral mucositis, scored according to the Nebraska Oral Assessment system, or on small bowel mucositis, as evident from the D-xylose absorption test. Furthermore, patients on glutamine spent more days on parenteral opioids and had slightly longer hospital stays after stem cell infusion. Interestingly, there was also an excess of relapses and deaths in the glutamine group. The cost of antibiotics and of total supportive care was significantly higher in glutamine-supplemented patients – the price of alanyl-glutamine supplementation itself adding substantially to the increased resource utilization.

Pytlík R, Benes P, Patorková M, Chocenská E, Gregora E, Procházka B, Kozák T. Standardized parenteral alanyl-glutamine dipeptide supplementation is not beneficial in autologous transplant patients: a randomized, double-blind, placebo controlled study. Bone Marrow Transplant. 2002 Dec;30(12):953-61. doi: 10.1038/sj.bmt.1703759. PMID: 12476290.

Farmakobesin ve Farmakolojik Ajanlar

ORIGINAL ARTICLE

*Sitrülin, Ornitin ve Tirozin?

Serum Amino Acid Levels and Mortality in Patients Undergoing Percutaneous Endoscopic Gastrostomy

Ridvan Sivritepe[1], Sema Ucak Basat[2] and Neslihan Gokmen[3]

[1]Department of Internal Medicine, Faculty of Medicine, Istanbul Medipol University Pendik Hospital, Istanbul, Turkey
[2]Department of Internal Medicine, University of Health Sciences Umraniye Training and Research Hospital, Istanbul, Turkey
[3]Department of Basic Sciences, Istanbul Technical University, Istanbul, Turkey

Table II: Comparison of all amino acids in all patients according to baseline levels.

	0th month	3rd months	6th months	12th months	p[1]	p[2]	p
	Avg±S.D/ Median (IQR)	Avg±S.D / Median (IQR)	Avg±S.D / Median (IQR)	Avg±S.D / Median (IQR)			
Glycine (µmol/L)	109.7±127.9/ 83 (63.4-100.8)	91.3±50.2/ 71.5 (67.4-94.8)	103.59±55.18/ 86.2 (70.4-109)	87.13±55.54/ 78.6 (53.8-88)	0.533	0.983	0.8
Alanine (µmol/L)*	189.7±182.2/ 134.2 (109.1-214)	202.13±140.65/ 146.5 (113.3-242.6)	233.83±166.6/ 168 (136.4-266.57)	225.53±98.56/ 219.8 (140.2-275)	0.838	0.086	0.1
Alpha amino butyridine(µmol/L)	189±128.8/ 171.7 (137.4-222.6)	198.56±63.46/ 204.8 (153.6-244.1)	244.76±103.63/ 222.55 (192.7-241)	226.12±70.49/ 238 (191.1-255)	0.378	0.776	0.0
Serine (µmol/L)	120.9±98.7/ 99 (79.3-129.9)	118.49±60.95/ 104.2 (66.9-144.5)	123.4±67.48/ 105.7 (74.5-144)	96.79±29.38/ 102.4 (81.4-116)	0.465	0.5	0.0
Proline(µmol/L)	55.8±40.3/ 46.7 (29.7-63.4)	59.66±51.47/ 44.8 (28.9-74.5)	73.13±63.4/ 48.85 (36.7-98.9)	79.36±77.55/ 48.7 (29-68.9)	0.584	0.248	0.1
Valine(µmol/L)	70.2±97.2/ 51.8 (40.9-74)	65.05±28.79/ 59 (46.84-74.8)	69.85±34.6/ 60.95 (47-71.2)	70.5±35.2/ 62 (52.5-82.4)	0.627	0.157	0.0
Threonine (µmol/L)	106.75±120.79/ 91.1 (70.1-113)	105.21±30.78/ 103.2 (91.3-123.4)	117.3±37.05/ 111.75 (102-129.4)	101.9±32.3/ 108 (100-112)	0.808	0.42	0.2
Taurine(µmol/L)	41.6±23.1/ 35 (26.8-50)	48.29±23.48/ 44 (31.1-72.1)	47.73±19.07/ 42.25 (38-64)	50.39±24.6/ 48 (37.57-60)	0.808	0.248	0.4
Isoleucine (µmol/L)	9.5±17.3/ 4.5 (2.9-6.2)	6.23±2.6/ 5.6 (4.1-7.9)	6.69±2.33/ 6.89 (5-8.4)	5.95±3.03/ 4.8 (4.6-6.9)	0.301	0.327	0.3
Leucine(µmol/L)*	376.3±160.2/ 375 (280.8-467)	441.34±187.18/ 448.7 (289.2-550.8)	524.3±214.5/ 536 (445-624.8)	482.84±194.79/ 481 (423.1-654)	0.479	0.188	0.8
Asparagine (µmol/L)*	80.1±131.1/ 58.9 (38-84.1)	68.19±21.79/ 76.1 (46.4-87.3)	77.87±37.06/ 70.7 (53.1-91.4)	72.2±33.1/ 71.8 (49-93)	0.364	0.654	0.2
Aspartic Acid (µmol/L)	30.9±66.7/ 19.2 (11.9-27.6)	22.88±14.71/ 19.1 (14.9-27.2)	24.37±16.71/ 18.45 (16.4-25.4)	21.34±14.05/ 19.5 (14.5-23.6)	0.235	0.133	0.
Glutamine (µmol/L)	62.9±76.5/ 51.4 (41.1-65.4)	63.03±23.57/ 60.4 (45.7-73.6)	74.27±25.29/ 69.2 (60.35-91.6)	69.46±23.84/ 73 (52.6-82.5)	0.171	0.012	0.1
Glutamic acid (µmol/L)	87.8±96.4/ 67.8 (54.3-89)	76.83±26.8/ 74.9 (61.5-94.6)	75.65±32.04/ 66.3 (57.8-95.4)	76.58±39.17/ 66 (57.28-92)	0.574	0.647	0.2
Methionine (µmol/L)	75.1±146.9/ 47.2 (25.2-67.9)	72.24±54.88/ 54.4 (25-106.5)	77.05±35.25/ 65.7 (58.7-79.6)	86.26±42.72/ 80 (66.4-84.5)	0.749	0.913	0.0
Histidine (µmol/L)	21.79±16.63/ 17.8 (12.4-24.8)	36.76±23.27/ 33.8 (19-50.1)	44.43±21.37/ 38.75 (30.5-49.8)	47.41±19.74/ 43.21 (32.2-58.4)	0.024	0.018	0.0
Phenylalanine (µmol/L)	45.5±13.4/ 44.7 (36.5-56.1)	58.42±21.42/ 52.2 (44-68.4)	63.76±36.43/ 53 (49-59.1)	56.07±24.2/ 52.4 (48-57)	0.988	0.811	0.9
Arginine (µmol/L)	33.6±25.1/ 30.5 (20.4-38.9)	33.97±10.15/ 36.9 (23.6-42.3)	39.59±11.57/ 39.6 (38-49.23)	38.7±9.9/ 42.1 (37.6-42.5)	0.761	0.145	0.1
Citrulline(µmol/L)	82.3±36.3/ 81.4 (56.4-98.3)	93.68±63.45/ 90.1 (53.99-103.3)	108.8±43.07/ 104.35 (84.5-138.2)	127.07±49.26/ 117.9 (95.83-156.4)	0.003	<0.001	0.0
Tyrosine (µmol/L)	165.4±132.3/ 132.4 (105.4-158)	175.36±87.14/ 149.8 (107.7-231.2)	172.85±55.65/ 148.8 (137.8-194.5)	162.27±34.95/ 162.4 (139.81-188)	0.026	0.02	0.0
Tryptophan (µmol/L)	0.2±0.2/ 0.1 (0.1-0.1)	0.2±0.3/ 0.1 (0.1-0.1)	0.1±0.1/ 0.1 (0.1-0.1)	0.1±0.1/ 0.1 (0.1-0.1)	0.976	0.327	0.1
Ornithine (µmol/L)	12.2±5.5/ 0 (0-5)	15.7±3.9/ 8 (0-12)	18.1±3.5/ 8 (5-10)	20.3±3.6/ 10 (8-14)	0.326	0.010	0.0
Lysine (µmol/L)	2±1/ 3 (2-3)	1±1/ 1 (0-2)	0±1/ 0 (0-0)	0±0 / 0 (0-0)	0.429	0.112	0.1
Arginineo succinic Acid (µmol/L)	22.4±3.4/ 20 (18-23)	22.1±3.3/ 22 (20-24)	23.2±3.5/ 23 (21-25)	24.3±3.4/ 25 (22-25)	0.44	0.128	0.1

*Avg: Average, SD: Standard deviation, IQR: 25th percentile-75th percentile. Wilcoxon test, *Paired Samples t test, [1]0th month -3rd month, [2]0th month- 6th month, [3]0th month -12th month.*

Sivritepe R, Basat SU, Gokmen N. Serum Amino Acid Levels and Mortality in Patients Undergoing Percutaneous Endoscopic Gastrostomy. J Coll Physicians Surg Pak. 2021 Nov;31(11):1278-1284. doi: 10.29271/jcpsp.2021.11.1278. PMID: 34689483.

Farmakobesin ve Farmakolojik Ajanlar

*Sitrülin, Ornitin ve Tirozin?

ORIGINAL ARTICLE

Serum Amino Acid Levels and Mortality in Patients Undergoing Percutaneous Endoscopic Gastrostomy

Ridvan Sivritepe[1], Sema Ucak Basat[2] and Neslihan Gokmen[3]

[1]Department of Internal Medicine, Faculty of Medicine, Istanbul Medipol University Pendik Hospital, Istanbul, Turkey
[2]Department of Internal Medicine, University of Health Sciences Umraniye Training and Research Hospital, Istanbul, Turkey
[3]Department of Basic Sciences, Istanbul Technical University, Istanbul, Turkey

Table II: Comparison of all ar

	A
Glycine (µmol/L)	109
Alanine (µmol/L)*	189.
Alpha amino butyridine(µmol/L)	189±
Serine (µmol/L)	12(
Proline(µmol/L)	55
Valine(µmol/L)	7(
Threonine (µmol/L)	106.
Taurine(µmol/L)	4
Isoleucine (µmol/L)	
Leucine(µmol/L)*	376
Asparagine (µmol/L)*	80
Aspartic Acid (µmol/L)	30
Glutamine (µmol/L)	62
Glutamic acid (µmol/L)	8
Methionine (µmol/L)	75.
Histidine (µmol/L)	21.
Phenylalanine (µmol/L)	45
Arginine (µmol/L)	33
Citrulline(µmol/L)	82
Tyrosine (µmol/L)	165.
Tryptophan(µmol/L)	
Ornithine (µmol/L)	
Lysine (µmol/L)	
Arginineo succinic Acid (µmol/L)	

Avg: Average, SD: Standard deviation,

	Patients who survived (n=13) Median (IQR: 25th percentile-75th percentile)	p*
Citrulline 0th Month	17.8 (11.8-21.0) µmol/L	
Citrulline 3rd Months	26.4 (20.8-45.1) µmol/L	<0.001
Citrulline 6th Months	31.9 (29.5-46.8) µmol/L	
Citrulline 12th Months	43.21 (32.2-58.4) µmol/L	-
Tyrosine 0th Month	37.8 (35.5-46.1) µmol/L	
Tyrosine 3rd Months	45.8 (42.1-64.8) µmol/L	0.036
Tyrosine 6th Months	50.2 (49.0-59.1) µmol/L	
Tyrosine 12th Months	52.4 (48.0-57.0) µmol/L	-
Ornithine 0th Month	77.5 (55.4-97.7) µmol/L	
Ornithine 3rd Months	62.0 (51.0-103.3) µmol/L	0.011
Ornithine 6th Months	104.7 (84.5-155.0) µmol/L	
Ornithine 12th Months	117.9 (95.8-156.4) µmol/L	-

*Friedman p (0 vs. 6th); **Wilcoxon test (0 vs. 6th).

months / Median (IQR)	p¹	p²	p
4/ 78.6 (53.8-88)	0.533	0.983	0.8
/ 219.8 (140.2-275)	0.838	0.086	0.1
9/ 238 (191.1-255)	0.378	0.776	0.0
/ 102.4 (81.4-116)	0.465	0.5	0.0
5/ 48.7 (29-68.9)	0.584	0.248	0.1
/ 62 (52.5-82.4)	0.627	0.157	0.0
3/ 108 (100-112)	0.808	0.42	0.2
6/ 48 (37.57-60)	0.808	0.248	0.4
3/ 4.8 (4.6-6.9)	0.301	0.327	0.3
79/ 481 (423.1-654)	0.479	0.188	0.8
1/ 71.8 (49-93)	0.364	0.654	0.2
/ 19.5 (14.5-23.6)	0.235	0.133	0.
4/ 73 (52.6-82.5)	0.171	0.012	0.1
17/ 66 (57.28-92)	0.574	0.647	0.2
2/ 80 (66.4-84.5)	0.749	0.913	0.0
/ 43.21 (32.2-58.4)	0.024	0.018	0.0
.2/ 52.4 (48-57)	0.988	0.811	0.9
42.1 (37.6-42.5)	0.761	0.145	0.1
117.9 (95.83-156.4)	0.003	<0.001	0.0
162.4 (139.81-188)	0.026	0.02	0.0
/ 0.1 (0.1-0.1)	0.976	0.327	0.1
.6/ 10 (8-14)	0.326	0.010	0.0
) / 0 (0-0)	0.429	0.112	0.1
4/ 25 (22-25)	0.44	0.128	0.1

onth, [3]0th month -12th month.

Sivritepe R, Basat SU, Gokmen N. Serum Amino Acid Levels and Mortality in Patients Undergoing Percutaneous Endoscopic Gastrostomy. J Coll Physicians Surg Pak. 2021 Nov;31(11):1278-1284. doi: 10.29271/jcpsp.2021.11.1278. PMID: 34689483.

Farmakobesin ve Farmakolojik Ajanlar

* Dallı zincirli AA / Standart AA

- Yeterli klinik veri yok 

- Önerilmiyor

Recommendation B5-5

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* İnsülinler

- Uzun süreli insülin tedavisi → Yağsız vücut kütlesi üzerine etkisi

CANCER THERAPY: CLINICAL | MAY 01 2007

Insulin Treatment in Cancer Cachexia: Effects on Survival, Metabolism, and Physical Functioning FREE

Kent Lundholm; Ulla Körner; Lena Gunnebo; Petra Sixt-Ammilon; Marita Fouladiun; Peter Daneryd; Ingvar Bosaeus

Experimental Design: One hundred and thirty-eight unselected patients with mainly advanced gastrointestinal malignancy were randomized to receive insulin (0.11 ± 0.05 units/kg/d) plus best

Results: Patient characteristics at randomizations were almost identical in study and control groups. Insulin treatment for 193 +/- 139 days (mean +/- SD) significantly stimulated carbohydrate intake, decreased serum-free fatty acids, increased whole body fat, particularly in trunk and leg compartments, whereas fat-free lean tissue mass was unaffected. Insulin treatment improved metabolic efficiency during exercise, but did not increase maximum exercise capacity and

Lundholm K, Körner U, Gunnebo L, Sixt-Ammilon P, Fouladiun M, Daneryd P, Bosaeus I. Insulin treatment in cancer cachexia: effects on survival, metabolism, an physical functioning. Clin Cancer Res. 2007 May 1;13(9):2699-706. doi: 10.1158/1078-0432.CCR-06-2720. PMID: 17473202.

Farmakobesin ve Farmakolojik Ajanlar

* Non-steroidal antiinflamatuar ilaçlar

- Fiziksel performansı ⬆
- Yaşam kalitesini ⬆
- İnflamatuar parametreler üzerine olumlu etki ✓

Results of a pilot study of the effects of celecoxib on cancer cachexia in patients with cancer of the head, neck, and gastrointestinal tract

Victor Lai [1], Jonathan George, Luther Richey, Hong J Kim, Trinitia Cannon, Carol Shores, Marion Couch

A prospective randomized study of megestrol acetate and ibuprofen in gastrointestinal cancer patients with weight loss

D C McMillan [1], S J Wigmore, K C Fearon, P O'Gorman, C E Wright, C S McArdle

Randomized phase III clinical trial of a combined treatment with carnitine + celecoxib ± megestrol acetate for patients with cancer-related anorexia/cachexia syndrome

Clelia Madeddu [1], Mariele Dessì, Filomena Panzone, Roberto Serpe, Giorgia Antoni,

Lai V, George J, Richey L, Kim HJ, Cannon T, Shores C, Couch M. Results of a pilot study of the effects of celecoxib on cancer cachexia in patients with cancer of the head, neck, and gastrointestinal tract. Head Neck. 2008 Jan;30(1):67-74. doi: 10.1002/hed.20662. PMID: 17615567.
Madeddu C, Dessì M, Panzone F, Serpe R, Antoni G, Cau MC, Montaldo L, Mela Q, Mura M, Astara G, Tanca FM, Macciò A, Mantovani G. Randomized phase III clinical trial of a combined treatment with carnitine + celecoxib ± megestrol acetate for patients with cancer-related anorexia/cachexia syndrome. Clin Nutr. 2012 Apr;31(2):176-82. doi: 10.1016/j.clnu.2011.10.005. Epub 2011 Nov 1. PMID: 22047681.
McMillan DC, Wigmore SJ, Fearon KC, O'Gorman P, Wright CE, McArdle CS. A prospective randomized study of megestrol acetate and ibuprofen in gastrointestinal cancer patients with weight loss. Br J Cancer. 1999 Feb;79(3-4):495-500. doi: 10.1038/sj.bjc.6690077. PMID: 10027319; PMCID: PMC2362415.

Farmakobesin ve Farmakolojik Ajanlar

* Non-steroidal antiinflamatuar ilaçlar

  - Yeterli tutarlı klinik veri yok ✗

  - Önerilmez ✗

Recommendation B5-6

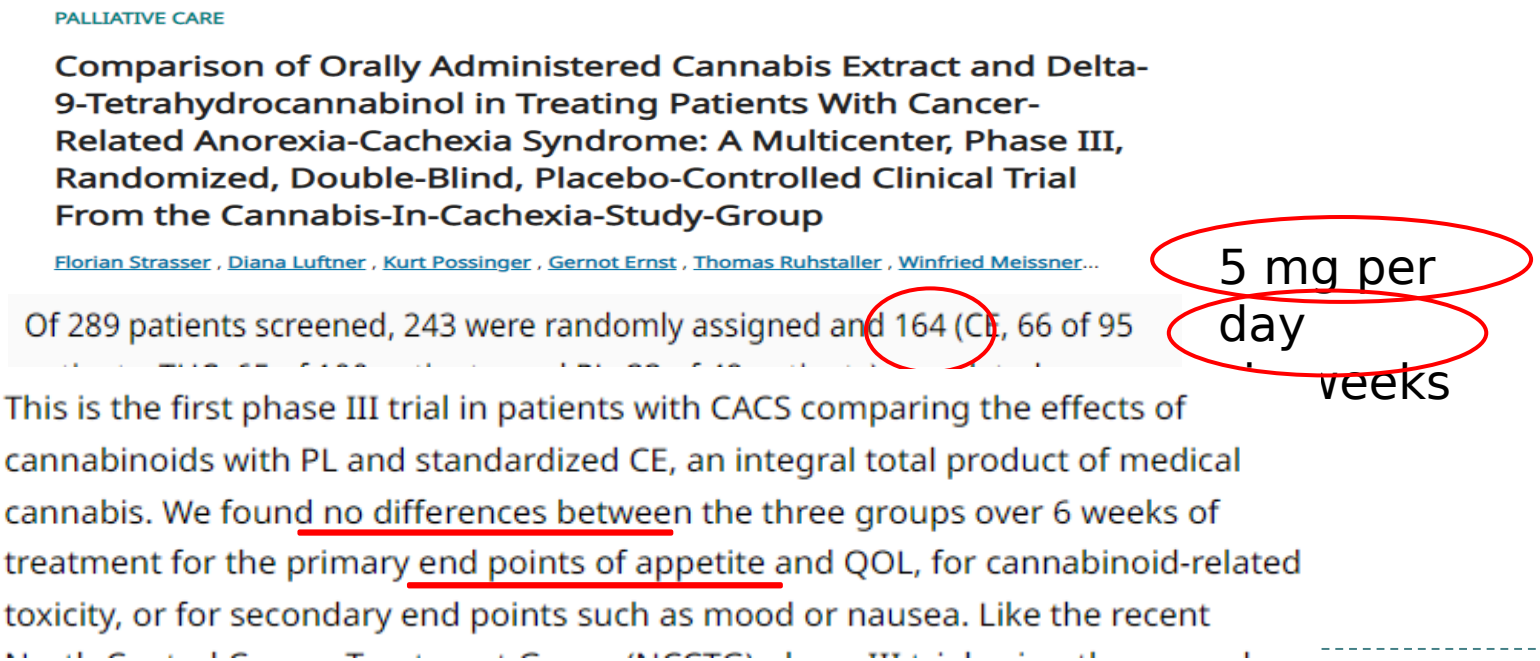
Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Kannabinoidler

- Tetrahidrokanabinol → Esrarın psikoaktif bileşeni

- Ticari olarak → Dronabinol



PALLIATIVE CARE

Comparison of Orally Administered Cannabis Extract and Delta-9-Tetrahydrocannabinol in Treating Patients With Cancer-Related Anorexia-Cachexia Syndrome: A Multicenter, Phase III, Randomized, Double-Blind, Placebo-Controlled Clinical Trial From the Cannabis-In-Cachexia-Study-Group

Florian Strasser , Diana Luftner , Kurt Possinger , Gernot Ernst , Thomas Ruhstaller , Winfried Meissner...

Of 289 patients screened, 243 were randomly assigned and 164 (CE, 66 of 95

5 mg per day

weeks

This is the first phase III trial in patients with CACS comparing the effects of cannabinoids with PL and standardized CE, an integral total product of medical cannabis. We found no differences between the three groups over 6 weeks of treatment for the primary end points of appetite and QOL, for cannabinoid-related toxicity, or for secondary end points such as mood or nausea. Like the recent

Cannabis-In-Cachexia-Study-Group; Strasser F, Luftner D, Possinger K, Ernst G, Ruhstaller T, Meissner W, Ko YD, Schnelle M, Reif M, Cerny T. Comparison of orally administered cannabis extract and delta-9-tetrahydrocannabinol in treating patients with cancer-related anorexia-cachexia syndrome: a multicenter, phase III, randomized, double-blind, placebo-controlled clinical trial from the Cannabis-In-Cachexia-Study-Group. J Clin Oncol. 2006 Jul 20;24(21):3394-400. doi: 10.1200/JCO.2005.05.1847. PMID: 16849753

Farmakobesin ve Farmakolojik Ajanlar

* Kannabinoidler

Delta-9-tetrahydrocannabinol may palliate altered chemosensory perception in cancer patients: results of a randomized, double-blind, placebo-controlled pilot trial

T.D. Brisbois • I.H. de Kock • S.M. Watanabe • ... N. MacDonald • V.E. Baracos • W.V. Wismer • •

Show all authors

Adult advanced cancer patients, with poor appetite and chemosensory alterations, were recruited from two sites and randomized in a double-blinded manner to receive either THC (2.5 mg, Marinol®; Solvay Pharma Inc., *n* = 24) or placebo oral capsules (*n* = 22) twice daily for 18 days. Twenty-one patients

	THC (*n* = 11)				Placebo (*n* = 10)				Between-posttreatment groups	Within-THC group
	Baseline		Posttreatment		Baseline		Posttreatment			
	Mean	SE	Mean	SE	Mean	SE	Mean	SE	*P*	*P*
Appetite										
Average premeal SLIM appetite score	49.4[a]	3.3	60.7[b]	3.4	51.7[a]	3.4	50.9[a]	3.4	0.05	0.03
Taste and Smell Survey scores										
Total chemosensory complaints/16	7.3[a]	0.4	5.7[b]	0.4	7.3[a]	0.4	6.4[ab]	0.4	0.225	0.008
Chemosensory enhancement/5	1.3[a]	0.2	2.5[b]	0.2	1.3[a]	0.2	1.8[a]	0.2	0.018	<0.001

Brisbois TD, ...nabinol may palli... altered chemosensory perception in cancer patients: results of a randomized, double-blind, placebo-controlled pilot trial. Ann Oncol. 2011 Sep;22(9):2086-2093. doi: 10.1093/annonc/mdq727. Epub 2011 Feb 22. PMID: 21343383.

Farmakobesin ve Farmakolojik Ajanlar

* Kannabinoidler

- Yeterli tutarlı klinik veri yok ✗
- Önerilmez ✗

Recommendation B5-3

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Farmakobesin ve Farmakolojik Ajanlar

* Androjenik Steroidler

- Proteolizi azaltır mı?
- Protein sentezini uyar mı?
- Nandrolon dekanoat, Oksandrolon ve Fluoksimesteron

Farmakobesin ve Farmakolojik Ajanlar

* Androjenik Steroidler

Influence of nandrolone decanoate on weight loss in advanced non-small cell lung cancer

R T Chlebowski, J Herrold, I Ali, E Oktay, J S Chlebowski, A T Ponce, D Heber, J B Block

intravenously, all given every 28 days. In addition, patients were randomized to receive either nandrolone decanoate 200 mg intramuscularly weekly for 4 weeks or no additional therapy. Patient

months without and 8.2 months with nandrolone decanoate). There was a trend for less severe weight loss on the nandrolone decanoate arm (average weight loss 0.8 +/- 0.15 kg versus 0.21 +/- 0.18 kg, respectively), with half as many patients experiencing weight loss on nandrolone decanoate (25% versus 12%). A separate concurrent study has demonstrated decreased free testosterone levels in 66%

Chlebowski RT, Herrold J, Ali I, Oktay E, Chlebowski JS, Ponce AT, Heber D, Block JB. Influence of nandrolone decanoate on weight loss in advanced non-small cell lung cancer. Cancer. 1;58(1):183-6. doi: 10.1002/1097-0142(19860701)58:1<183::aid-cncr2820580131>3.0.co;2-3. PMID: 3518910.

Farmakobesin ve Farmakolojik Ajanlar

* Androjenik Steroidler

475 patients

Randomized Comparison of Megestrol Acetate Versus Dexamethasone Versus Fluoxymesterone for the Treatment of Cancer Anorexia/Cachexia

By Charles L. Loprinzi, John W. Kugler, Jeff A. Sloan, James A. Mailliard, James E. Krook, Mary B. Wilwerding,

Megestrol acetate 800 mg Fluoxymesterone 10 mg
Dexamethasone 0. 75 mg

Baseline: appetite rating, % of patients	(n = 151)	(n = 149)	(n = 154)	.2
Very poor	32	28	30	
Poor	42	42	34	
Fair	22	24	28	
Good	3	5	6	
Very good	1	2	2	

Loprinzi CL, Kugler JW, Sloan JA, Mailliard JA, Krook JE, Wilwerding MB, Rowland KM Jr, Camoriano JK, Novotny PJ, Christensen BJ. Randomized comparison of megestrol acetate versus dexamethasone versus fluoxymesterone for the treatment of cancer anorexia/cachexia. J Clin Oncol. 1999 Oct;17(10):3299-306. doi: 10.1200/JCO.1999.17.10.3299. PMID: 10506633.

Farmakobesin ve Farmakolojik Ajanlar

* Androjenik Steroidler

Recommendation B5-4

- Yeterli tutarlı klinik veri yok ✗
- Önerilmez ✗

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Egzersiz

- Fiziksel aktivite → İyi tolerasyon
- Güvenli
- İleri evrede bile yapılabilir
- 10–60 dakikalık seanslar
- Haftada 3 seans
- Orta yoğunluklu → Kalp atış hızında %50–75 artış

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Egzersiz

- 34 RKÇ→Meta analiz
  - * Özbakımda ↑
  - * Aerobik kapasitede ↑
  - * Kas gücünde ↑
  - * Yaşam kalitesinde ↑
  - * Benlik saygısında ↑
  - * Yorgunluk ↓
  - * Kaygıda ↓

Physical activity for cancer survivors: meta-analysis of randomised controlled trials

Daniel Y T Fong,[1] Judy W C Ho,[2] Bryant P H Hui,[3] Antoinette M Lee,[4] Duncan J Macfarlane,[5] Sharron S K Leung,[1] Ester Cerin,[5] Wynnie Y Y Chan,[6] Ivy P F Leung,[7] Sharon H S Lam,[8] Aliki J Taylor,[9] Kar-keung Cheng[9]

Based on our review of 48 outcomes reported from 34 randomised controlled trials in patients with cancer, physical activity was shown to be associated with clinically important positive effects on physical functions and quality of life in patients who had completed their treatment for cancer. All of these benefits were applicable to patients with breast cancer. When we included studies of other types such as prostate, gynaecological, colorectal, gastric, and lung cancers, there was evidence of clinically important benefits on peak oxygen consumption, peak power output, and quality of life, which included physical and social functioning domains. Further randomised controlled trials on patients with cancers other than of the breast are needed to further assess the efficacy of physical activity on other health outcomes.

Fong DY, Ho JW, Hui BP, Lee AM, Macfarlane DJ, Leung SS, Cerin E, Chan WY, Leung IP, Lam SH, Taylor AJ, Cheng KK. Physical activity for cancer survivors: meta-analysis of randomised controlled trials. BMJ. 2012 Jan 30;344:e70. doi: 10.1136/bmj.e70. PMID: 22294757; PMCID: PMC3269661.

Egzersiz

- Kas kütlesini ⬆ ✓
- Fiziksel işlevi ⬆ ✓
- Metabolizmayı desteklemek için ✓

ESPEN

Fiziksel aktivite öneriyor

Recommendation B4-1

- Hastalar motive edilmeli 

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Egzersiz

- Kişiye özel direnç egzersizi ✓

Recommendation B4-2

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Egzersiz

- Kişiye özel direnç egzersizi 

Effect of physical exercise on muscle mass and strength in cancer patients during treatment—A systematic review

G.B. Stene [a b e], J.L. Helbostad [b c], T.R. Balstad [a d], I.I. Riphagen [d], S. Kaasa [a e],

In this systematic review of 16 trials with cancer patients during active treatment, both aerobic and resistance exercise, and a combination of these, improves upper and lower body muscle strength more than usual care. Muscle mass was reported in only six trials and shows a tendency towards an effect of physical exercise on maintaining muscle mass during treatment. There are some indications that resistance exercise (RE) is more effective than aerobic exercise (AE) both on muscle mass and…

Stene GB, Helbostad JL, Balstad TR, Riphagen II, Kaasa S, Oldervoll LM. Effect of physical exercise on muscle mass and strength in cancer patients during treatment--a systematic review. Crit Rev Oncol Hematol. 2013 Dec;88(3):573-93. doi: 10.1016/j.critrevonc.2013.07.001. Epub 2013 Aug 9. PMID: 23932804.

Özetle..

- Tanı anında beslenme durumu taranmalı
- Malnütrisyona ait bulgu ve semptomlar → En erken donemde tanınmalı
- Kas kütlesi ve fonksiyonları yönelik → Uygun görüntüleme
- Kanser ilişkili sistemik inflamasyon biyobelirtecleri değerlendirilmeli
- Nutrisyonel ve metabolik destek sağlanmalı
- Besinler tümörü beslemez
- Kanıtı olmayan spesifik diyetlerden kaçınılmalı
- Fiziksel performansları izlenmeli
- Yeni ajanlar ve yeni kılavuz önerileri devam etmekte..

Muscaritoli M, Arends J, Bachmann P, Baracos V, Barthelemy N, Bertz H, Bozzetti F, Hütterer E, Isenring E, Kaasa S, Krznaric Z, Laird B, Larsson M, Laviano A, Mühlebach S, Oldervoll L, Ravasco P, Solheim TS, Strasser F, de van der Schueren M, Preiser JC, Bischoff SC. ESPEN practical guideline: Clinical Nutrition in canc Clin Nutr. 2021 May;40(5):2898-2913. doi: 10.1016/j.clnu.2021.02.005. Epub 2021 Mar 15. PMID: 33946039.

Teşekkürler…