

**XVIII CONGRESSO  
DI ONCOLOGIA TREVIGLIESE**

# Un incidente di percorso

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# NUTRIZIONE

Riccardo Caccialanza

UOC Dietetica e Nutrizione Clinica  
Fondazione IRCCS Policlinico San Matteo

[r.caccialanza@smatteo.pv.it](mailto:r.caccialanza@smatteo.pv.it)

 **SINPE**  
Società Italiana di Nutrizione Artificiale e Metabolismo  
Membro della Federazione delle Società Italiane di Nutrizione (FeSIN)



# Diet, nutrition, and cancer: past, present and future

*Susan T. Mayne<sup>1,2</sup>, Mary C. Playdon<sup>1</sup> and Cheryl L. Rock<sup>3</sup>*

## Key points

- Substantial experimental evidence indicates the potential importance of dietary and nutritional factors in cancer prevention, but identifying relationships between diet and cancer in observational epidemiological studies and intervention trials has proved challenging
- Study design issues, imprecise dietary assessments, and a lack of consideration of tumour heterogeneity generally attenuate relative-risk estimates in observational studies; dietary biomarkers and characterization of aetiological subtypes can help to better identify diet–cancer associations
- Interventional findings are constrained by the timing and brevity of intervention, nonlinear diet–cancer relationships, issues relating to baseline nutritional status, and magnitudes of change in diet that are generally insufficient to affect cancer outcomes
- Foods and eating patterns are complex, and assessment of dietary patterns, rather than the traditional reductionist approach focused on specific dietary factors, is a new and more-promising strategy for investigating relationships with cancer
- New technologies and advances in genetics, epigenetics and metabolomics, and consideration of the influence of the microbiome, will expand our understanding of the role of dietary factors in cancer risk and disease progression
- Effectively communicating the status of the evolving science, and evidence-based dietary recommendations for cancer prevention that are based on rigorous review processes should be emphasized in guidance for the public and individual patients

# Nutrition and Physical Activity Guidelines for Cancer Survivors

Cheryl L. Rock, PhD, RD<sup>1</sup>; Colleen Doyle, MS, RD<sup>2</sup>; Wendy Demark-Wahnefried, PhD, RD<sup>3</sup>; Jeffrey Meyerhardt, MD, MPH<sup>4</sup>;  
Kerry S. Courneya, PhD<sup>5</sup>; Anna L. Schwartz, FNP, PhD, FAAN<sup>6</sup>; Elisa V. Bandera, MD, PhD<sup>7</sup>;  
Kathryn K. Hamilton, MA, RD, CSO, CDN<sup>8</sup>; Barbara Grant, MS, RD, CSO, LD<sup>9</sup>;  
Marji McCullough, ScD, RD<sup>10</sup>; Tim Byers, MD, MPH<sup>11</sup>; Ted Gansler, MD, MBA, MPH<sup>12</sup>

Cancer survivors are often highly motivated to seek information about food choices, physical activity, and dietary supplements to improve their treatment outcomes, quality of life, and overall survival. To address these concerns, the American Cancer Society (ACS) convened a group of experts in nutrition, physical activity, and cancer survivorship to evaluate the scientific evidence and best clinical practices related to optimal nutrition and physical activity after the diagnosis of cancer. This report summarizes their findings and is intended to present health care providers with the best possible information with which to help cancer survivors and their families make informed choices related to nutrition and physical activity. The report discusses nutrition and physical activity guidelines during the continuum of cancer care, briefly highlighting important issues during cancer treatment and for patients with advanced cancer, but focusing largely on the needs of the population of individuals who are disease free or who have stable disease following their recovery from treatment. It also discusses select nutrition and physical activity issues such as body weight, food choices, food safety, and dietary supplements; issues related to selected cancer sites; and common questions about diet, physical activity, and cancer survivorship. CA Cancer J Clin 2012;62:242-274. © 2012 American Cancer Society.



CrossMark

# The integrating nutritional therapy in oncology (INTO) project: rationale, structure and preliminary results

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Riccardo Caccialanza,<sup>1</sup> Francesco De Lorenzo,<sup>2</sup> Paolo Pedrazzoli,<sup>3</sup> for the AIOM-SINPE-FAVO Working Group

Disinformation is a critical point with regard to nutrition for patients with cancer. Despite the lack of evidence-based data, hundreds of books and websites promote anticancer diets and nutritional supplements.

A close-up photograph of a person's hand holding a newspaper. The hand is positioned on the left side of the frame, with fingers spread, resting on the top edge of the paper. The newspaper is the central focus, showing its masthead and a large headline. The background is slightly out of focus, showing what appears to be a blue bag or container.

**TIMES**

TRENDS

# **Fasting may be the best way to combat cancer**

It Boosts Treatment, Tests On Mice Show

Chemotherapy does not harm fetuses

## Donne protagoniste di salute. Quella degli altri. E la nostra?

Steroidi anabolizzanti: l'abuso non è soltanto fra gli atleti

Il segreto di Pavlov nascosto nella chimica del cervello

Ecco perchè nel Cilento si vive più a lungo

Cocaina: un farmaco antitumorale per spezzare la dipendenza

"Sindrome da rientro", i disturbi del ritorno al dovere dopo le vacanze



# Tumori: la "dieta mima digiuno" potenzia le difese immunitarie

Nuovi studi sugli effetti protettivi della restrizione calorica e la sicurezza e praticabilità nell'uomo. A settembre esce il libro di Valter Longo sostenitore di questo regime



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Review

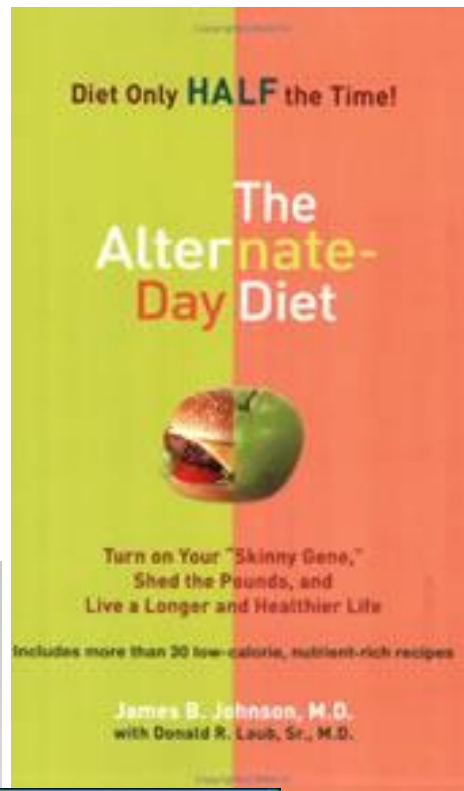
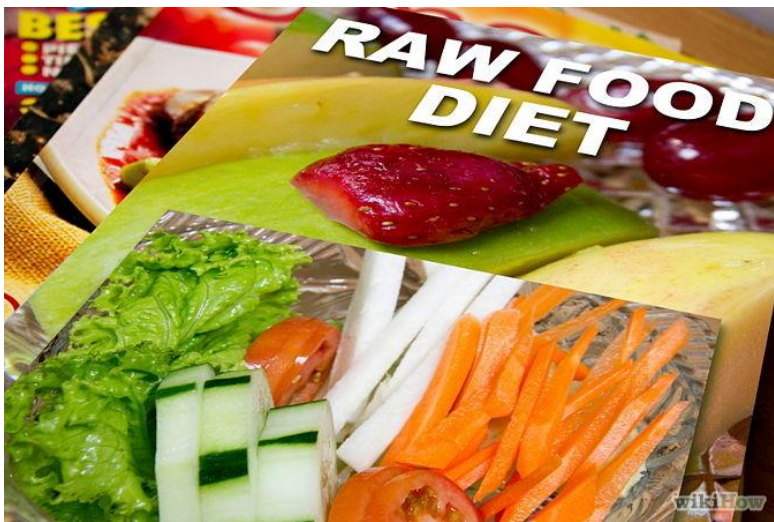
Protective effects of short-term dietary restriction in surgical stress and chemotherapy

Sebastian Brandhorst<sup>a</sup>, Eylul Harputlugil<sup>b</sup>, James R. Mitchell<sup>b,\*\*</sup>, Valter D. Longo<sup>a,c,\*</sup>

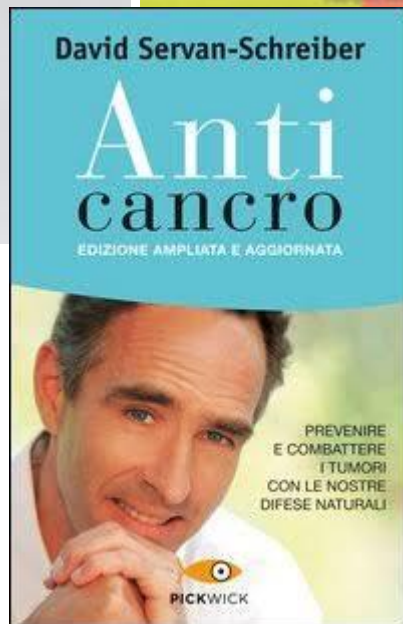
In cancer treatment, a few studies now begin to explore the fasting-induced protection against chemotoxicity-related side effects.

In cases where cancer progression could be monitored, no evidence was found that fasting interferes with chemotherapy efficacy or protects the tumors

Despite the findings outlined above, it is noteworthy that data on humans remain limited and not confirmed in well-conducted and sufficiently large randomized clinical trials.



L'era delle nuove diete.  
 Protagoniste: frutta e verdura





# Kit for fasting



# Kit for meditation



# Kit for evidence-based data?

# Does Nutrition Support Stimulate Tumor Growth in Humans?

Maurizio Bossola, MD; Fabio Pacelli, MD; Fausto Rosa, MD;  
Antonio Tortorelli, MD; and Giovan Battista Doglietto, MD

Many studies have been conducted to ascertain if nutrition support (NS), either as parenteral nutrition (PN) or enteral nutrition (EN), stimulates tumor growth and causes cancer progression, but after almost 30 years, the question remains at least in part unresolved. In this study, previous studies were reviewed to evaluate the effect of NS on tumor growth, tumor proliferation, tumor apoptosis, and cancer-related survival in humans. MEDLINE and PubMed were searched using combinations of the following keywords: *PN*, *EN*, *tumor growth*, *tumor proliferation*, *tumor apoptosis*, *arginine*, *ω-3 fatty acids*, and *glutamine*. Unfortunately, the effect of nutrition support on tumor growth has been assessed only in terms of tumor

proliferation, whereas the interferences on tumor apoptosis have never been determined. Overall, the results seem conflicting and inconclusive. Similarly, it remains unknown if PN or EN enriched with specific nutrients such as arginine, ω-3 fatty acids, and glutamine can affect tumor growth in humans. It is hoped that further studies will elucidate if NS with conventional or specific nutrients stimulates tumor proliferation, interferes with tumor apoptosis, and causes cancer progression. (*Nutr Clin Pract.* 2011;26:174-180)

**Keywords:** parenteral nutrition; enteral nutrition; neoplasms; cell proliferation; apoptosis

# LE DIMENSIONI DEL PROBLEMA

PERDITA DI PESO — 30-84% dei pazienti oncologici

PERDITA DI PESO >10% — 15% dei pazienti oncologici

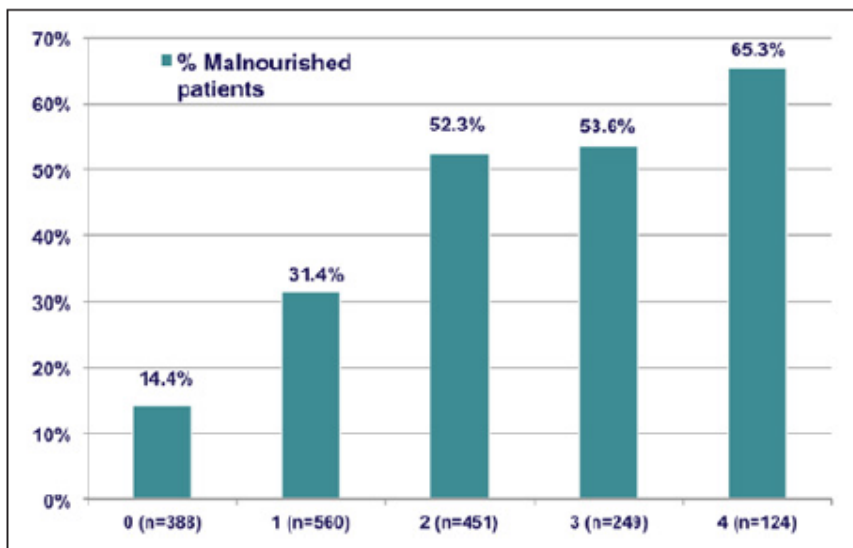
E' correlata al tipo di tumore ...

...allo stadio di malattia ...

...ad altri fattori, quali il PS...

TABLE 4. Impact of Stage of Cancer on the Nutritional Status (mean value ± SD)

Nutritional parameter	Resectable GE	Unresectable GE	Resectable Non-GE	Unresectable Non-GE	Resectable Breast-cervix (29 pts)	Unresectable Breast-cervix (11 pts)
	Weight loss (%)					44
Arm circumference					81	81
Triceps skinfold (n)					99	99
Arm muscle circumference (cm)					83	83
Creatinine/height index					04	04
Total protein (g/dl)					00	00
Albumin (g/dl)					81	81
TIBC (µg/dl)					1.78†	1.78†
Cholinesterase (mU)					57	57
Total lymphocytes					45†	45†
Skin test (% of positive)					1.76*	1.76*
C <sub>3c</sub> (mg/dl)					16.5*	16.5*
C <sub>4c</sub> (mg/dl)					14.44	14.44



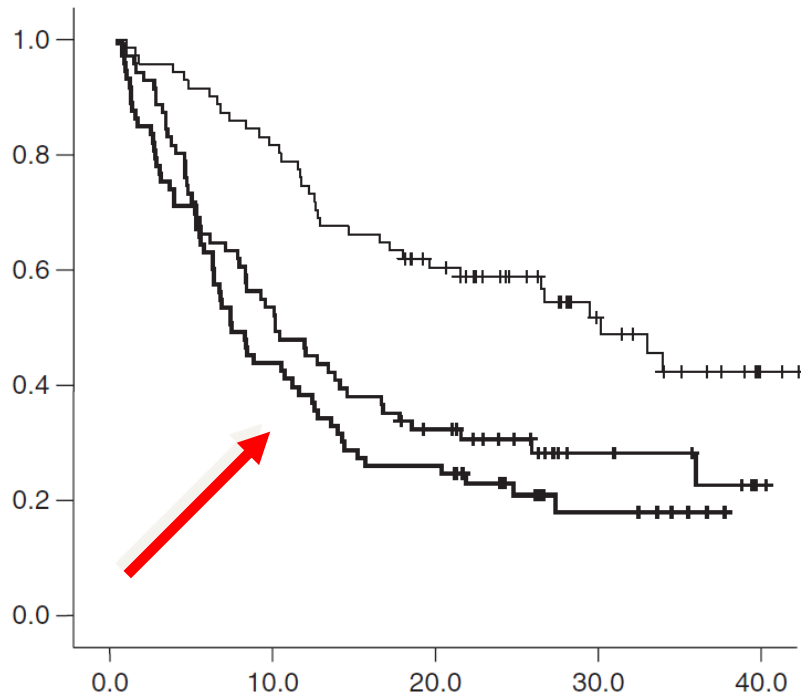
p ≤ 0.01.

Bozzetti F, Ann Surg, 1985

Nutrition, 2014

X Heburterne, Journal of Parenteral and Enteral Nutrition, 2014

# IMPATTO SULLA SOPRAVVIVENZA: CALO PONDERALE



Number at risk:

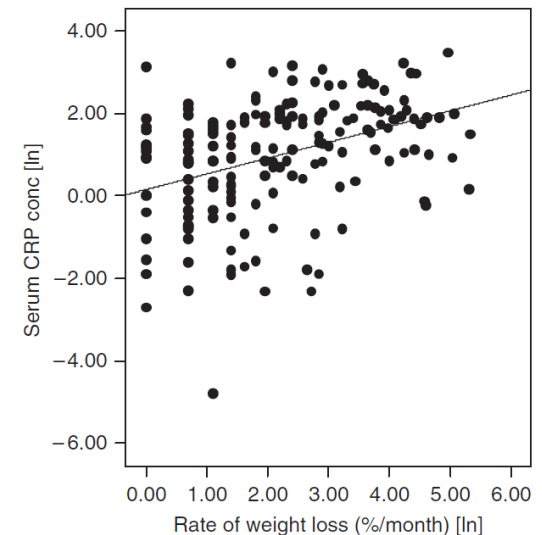
Lowest tertile	73	58	39	18	3
Middle tertile	73	38	21	7	1
Highest tertile	74	32	19	6	0

**Figure 1** Survival curve representing survival duration in the patient cohort from time of diagnosis stratified according to tertiles of rate of weight loss. Thin line = lowest rate of weight-loss tertile with a median survival of 30.2 months; middle line = middle rate of weight-loss tertile with a median survival of 10.2 months; thick line = highest rate of weight-loss tertile with a median survival of 7.5 months ( $P < 0.0001$ , log-rank test).

British Journal of Cancer (2009) 100, 63–69  
 © 2009 Cancer Research UK. All rights reserved 0007–0920/09 \$32.00  
[www.bjcancer.com](http://www.bjcancer.com)

The influence of systemic inflammation, dietary intake and stage of disease on rate of weight loss in patients with gastro-oesophageal cancer

DAC Deans<sup>1</sup>, BH Tan<sup>1</sup>, SJ Wigmore<sup>1</sup>, JA Ross<sup>1</sup>, AC de Beaux<sup>1</sup>, S Paterson-Brown<sup>1</sup> and KCH Fearon<sup>\*1</sup>  
<sup>1</sup>University Department of Surgery, Royal Infirmary, 51 Little France Crescent, Old Dalkeith Road, Edinburgh EH16 4SA, UK



**Figure 2** Scatter plot illustrating the positive correlation between elevated serum CRP concentrations and rate of weight loss measured at the time of diagnosis ( $P < 0.001$ ,  $r = 0.36$ ; Spearman's rank analysis). The y-axis represents serum CRP concentrations in  $\text{mg l}^{-1}$  and the x-axis represents the percentage body weight lost per month of symptoms. Given that the data are non-parametric, these values have undergone logarithmic transformation.

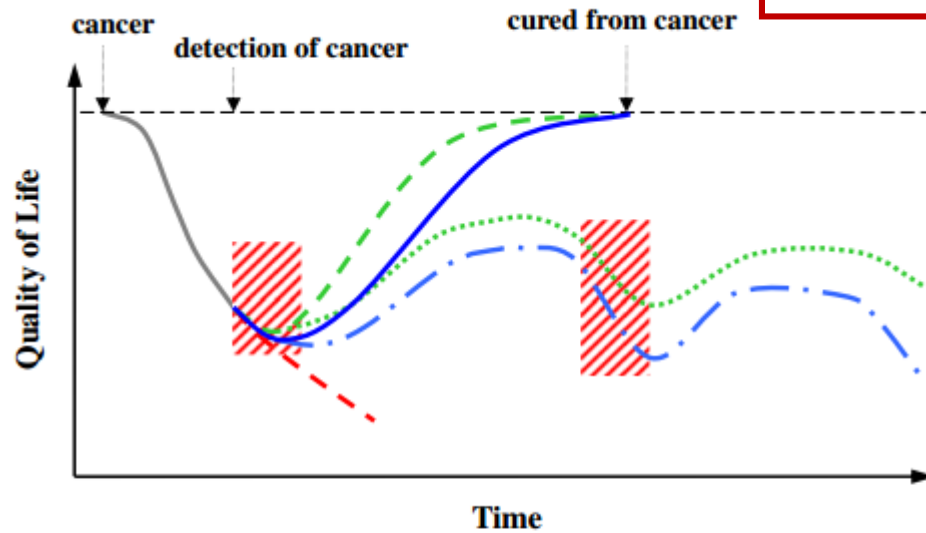
# IMPATTO SULLA QUALITÀ DI VITA

## Nutritional intervention and quality of life in adult oncology patients

Mónica María Marín Caro<sup>a</sup>, Alessandro Laviano<sup>b</sup>, Claude Pichard<sup>a,\*</sup>

<sup>a</sup>Clinical Nutrition, Geneva University Hospital, 1211 Geneva 14, Geneva, Switzerland

<sup>b</sup>Department of Clinical Medicine, University La Sapienza, Rome, Italy



- QoL of a healthy person
- - - - - no oncology treatment
- curative oncology treatment
- - - - - curative oncology treatment with nutritional intervention
- . . . . palliative oncology treatment
- ..... palliative oncology treatment with nutritional intervention
- ////// oncology treatment

# INFLUENZA DELLA MALNUTRIZIONE SULLA "CHEMIOTERAPIA"

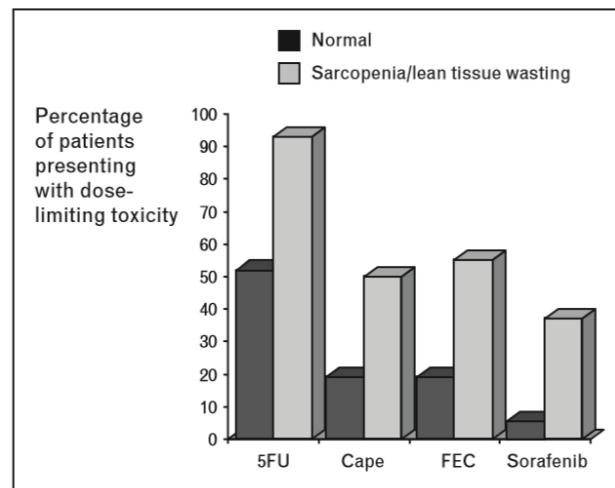
## Ridotta tolleranza al trattamento (considerazioni generali)

- ✓ Disfunzione del Sistema Immunitario e ↑ rischio di infezioni
- ✓ Incremento delle tossicità limitanti

### Two faces of drug therapy in cancer: drug-related lean tissue loss and its adverse consequences to survival and toxicity

Carla M.M. Prado<sup>a</sup>, Sami Antoun<sup>b</sup>, Michael B. Sawyer<sup>a</sup> and Vickie E. Baracos<sup>a</sup>

**Figure 1 Synopsis of results of four studies relating treatment toxicity during various antineoplastic therapies (fluoropyrimidines, anthracyclines and tyrosine kinase inhibitors), and depletion of skeletal muscle/lean body mass**



#### Purpose of review

A common feature of cancer patients is loss of lean tissue, specifically skeletal muscle, which may be the result of the tumor or a side-effect of chemotherapy or other drugs. Lean tissue loss in turn has important adverse implications for toxicity of antineoplastic therapy and, hence, cancer prognosis.

#### Recent findings

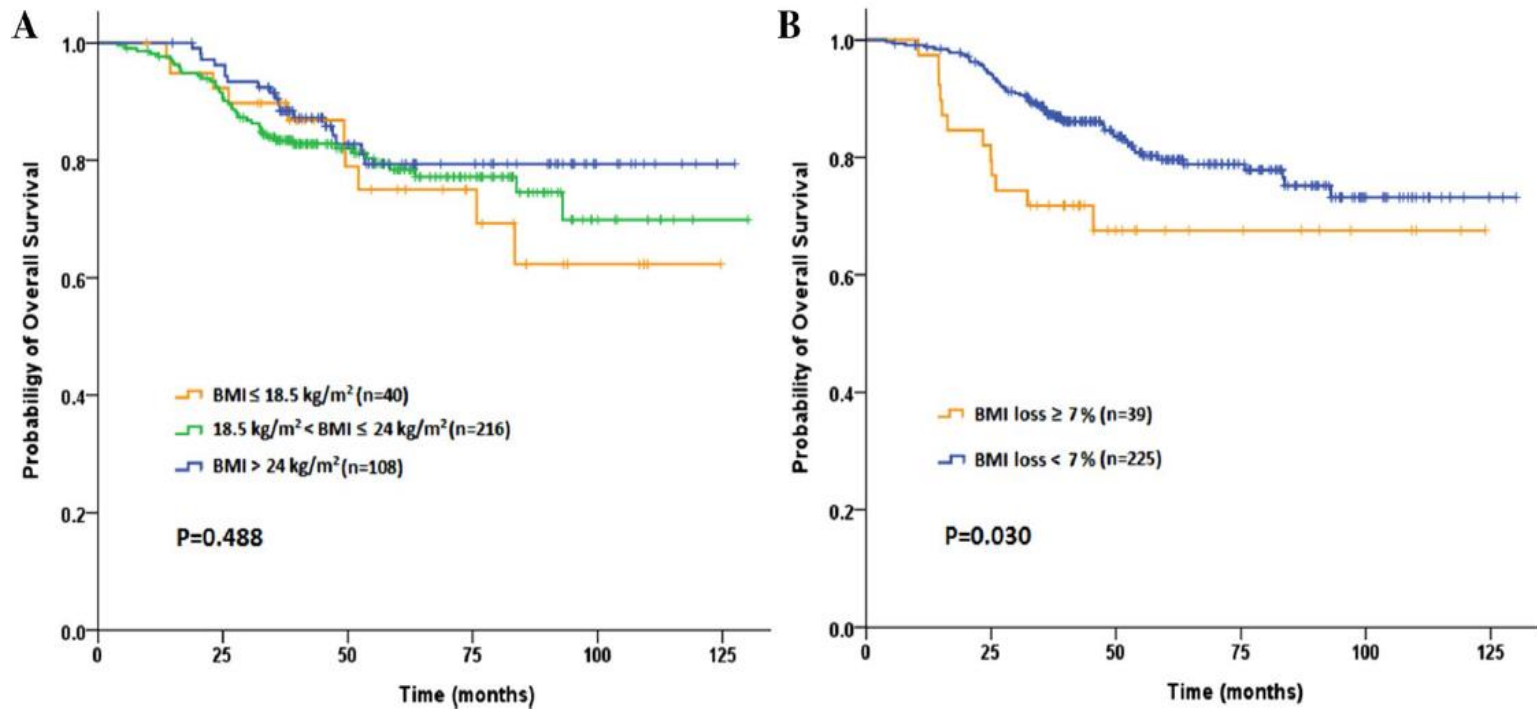
Contemporary cancer populations have heterogeneous proportions of lean tissue, regardless of body weight. Wasting of lean tissue during the cancer trajectory has been associated with tumor progression. Lean tissue depletion is an independent predictor of severe toxicity in patients treated with chemotherapeutic agents of diverse classes. Patients with lean tissue depletion behave as if overdosed and have toxicity of sufficient magnitude to require dose reductions, treatment delays or definitive termination of treatment. Muscle loss may occur due to a specific effect of a chemotherapy agent (i.e. sorafenib), androgen suppression therapy or other drugs (i.e. statins such as atorvastatin).

#### Summary

Lean tissue wasting occurs due to cancer progression and may be exacerbated by several drug classes. This loss of lean tissue is not proportional to changes in body weight and is prognostic of enhanced treatment toxicity and reduced survival.

## Severe weight loss during preoperative chemoradiotherapy compromises survival outcome for patients with locally advanced rectal cancer

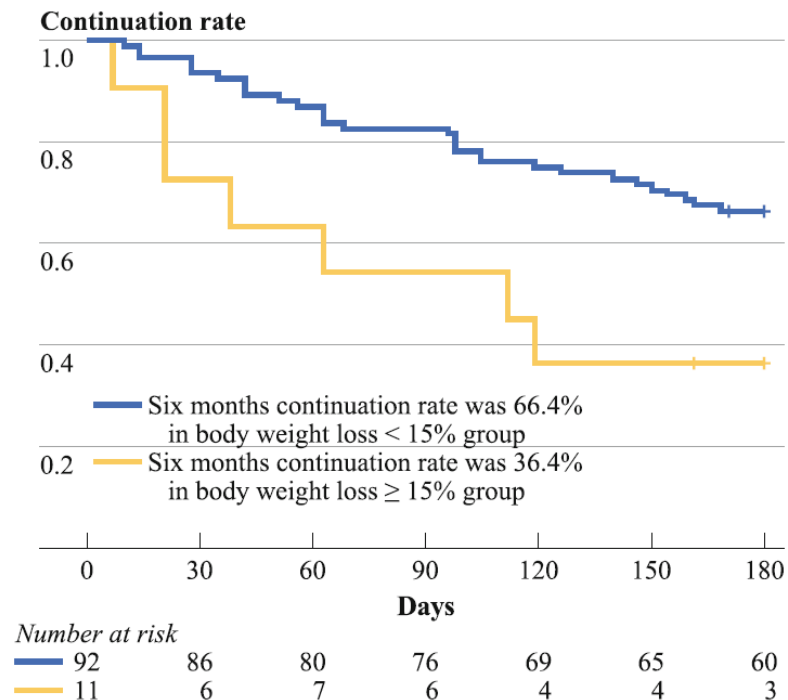
Junzhong Lin<sup>1</sup> · Jianhong Peng<sup>1</sup> · Aiham Qdaisat<sup>2</sup> · Liren Li<sup>1</sup> · Gong Chen<sup>1</sup> · Zhenhai Lu<sup>1</sup> · Xiaojun Wu<sup>1</sup> · Yuanhong Gao<sup>3</sup> · Zhifan Zeng<sup>3</sup> · Peirong Ding<sup>1</sup> · Zhizhong Pan<sup>1</sup>



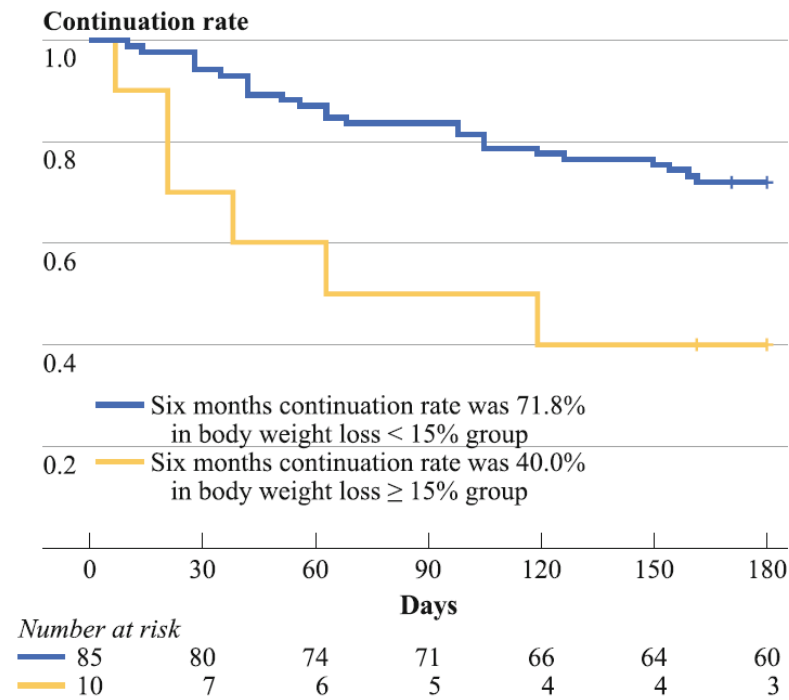
**Fig. 3** Kaplan–Meier curve comparing 3-year overall survival (OS) rate by a baseline BMI classification, b BMI loss during preoperative chemoradiotherapy in patients with locally advanced rectal cancer

## Body Weight Loss After Surgery is an Independent Risk Factor for Continuation of S-1 Adjuvant Chemotherapy for Gastric Cancer

Toru Aoyama, MD<sup>1,2</sup>, Takaki Yoshikawa, MD, PhD<sup>1,2</sup>, Junya Shirai, MD<sup>1,2</sup>, Tsutomu Hayashi, MD<sup>1,2</sup>, Takanobu Yamada, MD<sup>1,2</sup>, Kazuhito Tsuchida, MD<sup>1,2</sup>, Shinichi Hasegawa, MD<sup>1,2</sup>, Haruhiko Cho, MD<sup>1</sup>, Norio Yukawa, MD<sup>2</sup>, Takashi Oshima, MD, PhD<sup>3</sup>, Yasushi Rino, MD<sup>2</sup>, Munetaka Masuda, MD, PhD<sup>2</sup>, and Akira Tsuburaya, MD<sup>1</sup>



**FIG. 2** Comparison of the treatment continuation rates between the patients who experienced body weight loss of less than 15 % and those who lost more than 15 % of their body weight



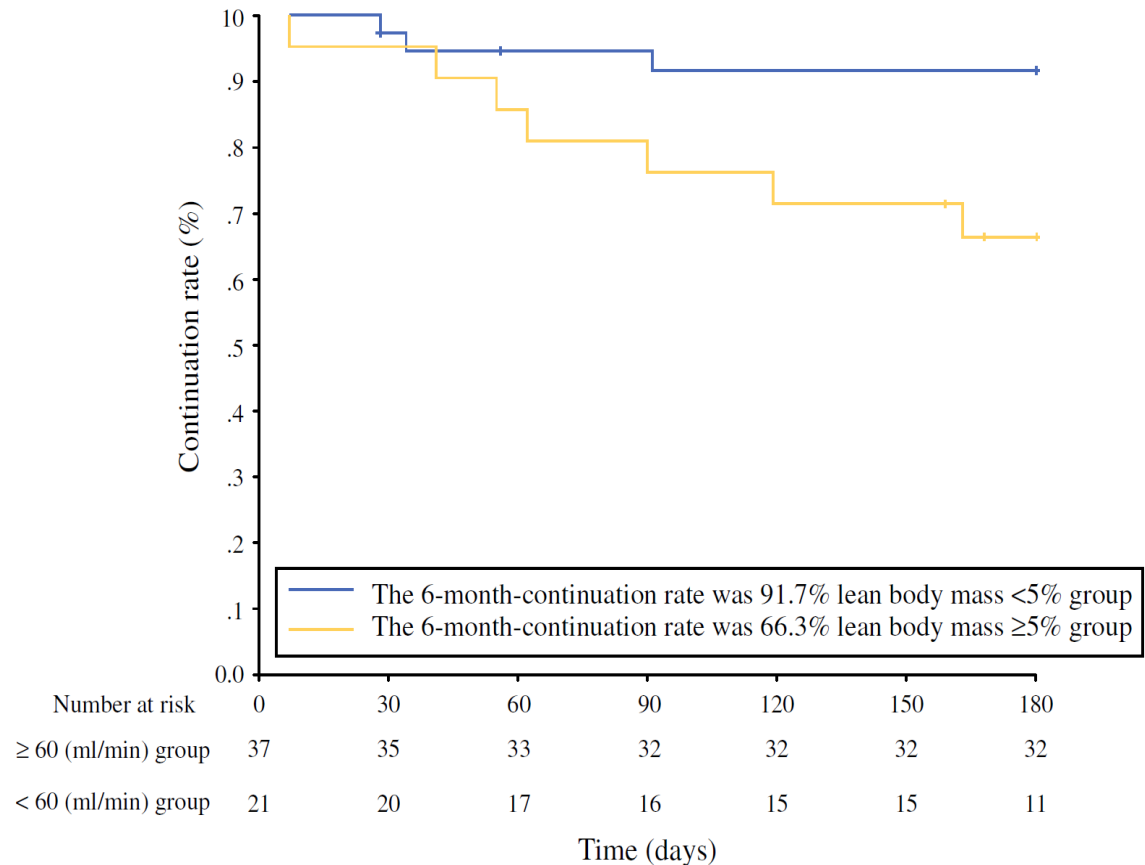
**FIG. 3** Comparison of the treatment continuation rates between the patients who experienced body weight loss of less than 15 % and those who lost more than 15 % of their body weight in the subset, excluding 8 patients who discontinued S-1 because of recurrence



## Loss of Lean Body Mass as an Independent Risk Factor for Continuation of S-1 Adjuvant Chemotherapy for Gastric Cancer

Toru Aoyama, MD<sup>1,2</sup>, Taiichi Kawabe, MD<sup>1,2</sup>, Hirohito Fujikawa, MD<sup>1,2</sup>, Tsutomu Hayashi, MD<sup>1,2</sup>, Takanobu Yamada, MD<sup>1,2</sup>, Kazuhito Tsuchida, MD<sup>1,2</sup>, Norio Yukawa, MD<sup>2</sup>, Takashi Oshima, MD, PhD<sup>2</sup>, Yasushi Rino, MD<sup>2</sup>, Munetaka Masuda, MD, PhD<sup>2</sup>, Takashi Ogata, MD, PhD<sup>1</sup>, Haruhiko Cho, MD<sup>1</sup>, and Takaki Yoshikawa, MD, PhD<sup>1,2</sup>

**FIG. 3** Comparison of the treatment continuation rates between patients who experienced a lean body-mass loss of <5 % and those who lost more than 5 % of their lean body mass





## Postoperative outcome after oesophagectomy for cancer: Nutritional status is the missing ring in the current prognostic scores

B. Filip<sup>a,b,c</sup>, M. Scarpa<sup>b,\*c</sup>, F. Cavallin<sup>b</sup>, M. Cagol<sup>b</sup>, R. Alfieri<sup>b</sup>,  
L. Saadeh<sup>b</sup>, E. Ancona<sup>b</sup>, C. Castoro<sup>b</sup>

<sup>a</sup> Department of Surgery, University of Medicine and Pharmacy, Iasi, Romania

<sup>b</sup> Surgical Oncology Unit, Veneto Institute of Oncology (IOV-IRCCS), Padua, Italy

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### Abstract

**Background:** Several prognostic scores were designed in order to estimate the risk of postoperative adverse events. None of them includes a component directly associated to the nutritional status. The aims of the study were the evaluation of performance of risk-adjusted models for early outcomes after oesophagectomy and to develop a score for severe complication prediction with special consideration regarding nutritional status.

**Methods:** A comparison of POSSUM and Charlson score and their derivatives, ASA, Lagarde score and nutritional index (PNI) was performed on 167 patients undergoing oesophagectomy for cancer. A logistic regression model was also estimated to obtain a new prognostic score for severe morbidity prediction.

**Results:** Overall morbidity was 35.3% (59 cases), severe complications (grade III–V of Clavien–Dindo classification) occurred in 20 cases. Discrimination was poor for all the scores. Multivariable analysis identified pulse, connective tissue disease, PNI and potassium as independent predictors of severe morbidity. This model showed good discrimination and calibration. Internal validation using standard bootstrapping techniques confirmed the good performance.

**Conclusions:** Nutrition could be an independent risk factor for major complications and a nutritional status coefficient could be included in current prognostic scores to improve risk estimation of major postoperative complications after oesophagectomy for cancer.



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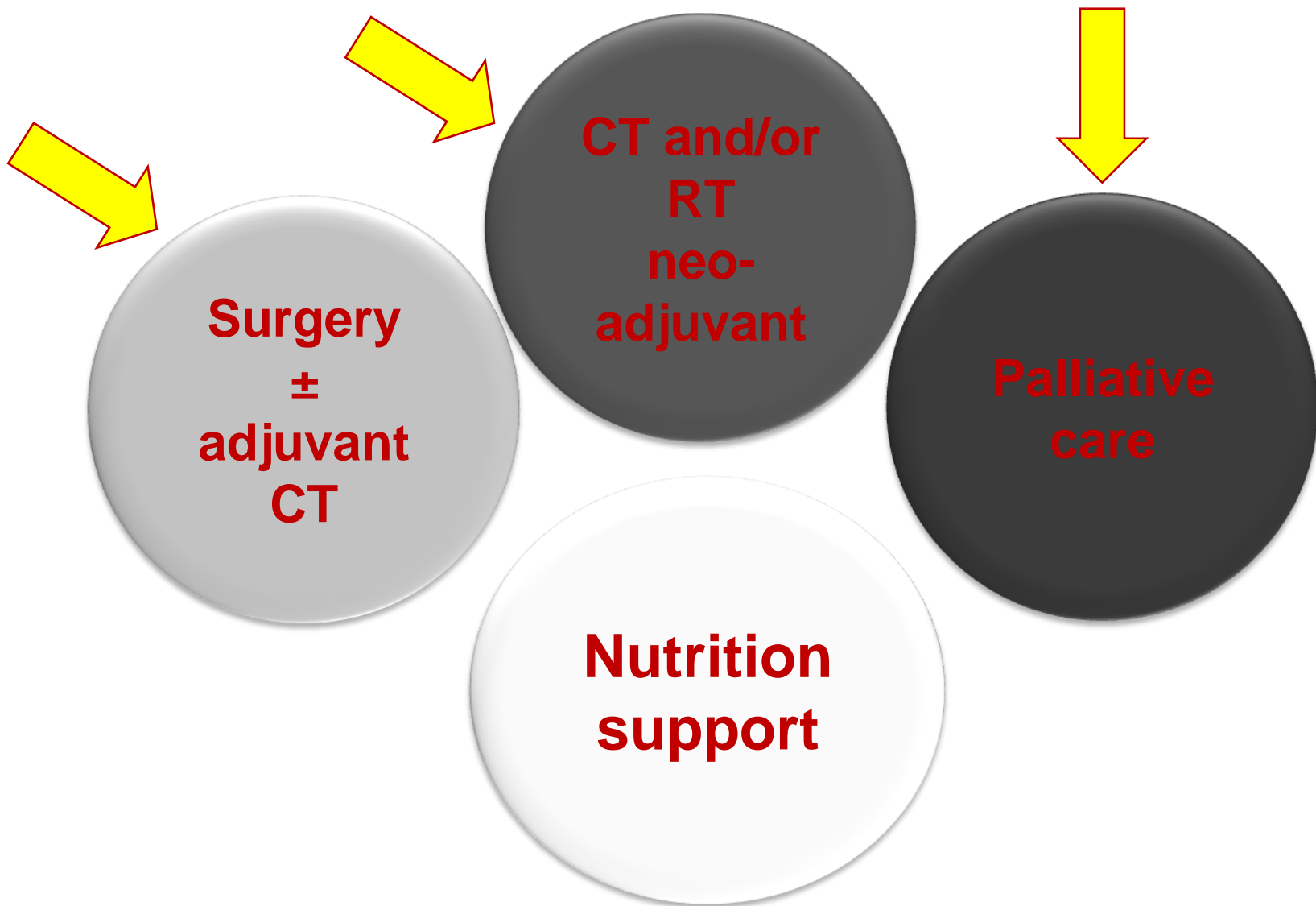
Invited editorial

### The oncology wall: Could Ali Baba have got to the nutrition treasure without using the correct words?

Evidence showing that **nutrition support is a relatively cheap adjuvant therapy** enhancing the efficacy and effectiveness of anti-tumour therapies may contribute to implement nutritional care into daily clinical practice

A. Laviano and K.C. Fearon

# Anti-cancer treatments & Nutrition





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ESPEN Guideline

### ESPEN guidelines on nutrition in cancer patients<sup>☆</sup>



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

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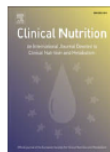
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Clinical Nutrition (2006) 25, 245–259



ESPEN GUIDELINES

### ESPEN Guidelines on Enteral Nutrition: Non-surgical oncology<sup>☆</sup>

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ESPEN Guidelines on Parenteral Nutrition: Non-surgical oncology

## Nutritional Support in Cancer Patients: A Position Paper from the Italian Society of Medical Oncology (AIOM) and the Italian Society of Artificial Nutrition and Metabolism (SINPE)

Riccardo Caccialanza<sup>1</sup>✉, Paolo Pedrazzoli<sup>2</sup>, Emanuele Cereda<sup>1</sup>, Cecilia Gavazzi<sup>3</sup>, Carmine Pinto<sup>4</sup>, Agostino Paccagnella<sup>5</sup>, Giordano Domenico Beretta<sup>6</sup>, Mariateresa Nardi<sup>7</sup>, Alessandro Laviano<sup>8</sup> and Vittorina Zagonel<sup>9</sup>

**TABLE 1.** Summary of the AIOM-SINPE practical recommendations for nutritional support in cancer patients

- Nutritional screening should be performed using validated tools (NRS 2002, MUST, MST, MNA) upon diagnosis and systematically repeated at regular time points in patients with cancer type, stage or treatment potentially affecting nutritional status.
- Patients at nutritional risk should be promptly referred for comprehensive nutritional assessment and support to clinical nutrition services or medical personnel with documented skills in clinical nutrition, specifically for cancer patients.
- Nutritional support should be actively managed and targeted for each patient according to nutritional conditions, clinical status, planned treatment and expected outcome. It should comprise nutritional counseling with the possible use of oral nutritional supplements and/or artificial nutrition (enteral nutrition, total or supplemental parenteral nutrition) according to spontaneous food intake, tolerance and effectiveness.
- Nutritional support and dietary modifications should aim to assist the maintenance or recovery of nutritional status by increasing or preserving protein and calorie intake. "Alternative hypocaloric anti-cancer diets" (e.g. macrobiotic or vegan diets) are not recommended.
- Nutritional support may be integrated into palliative care programs, according to individual-based evaluations, quality of life implications, life expectancy and patients' awareness.
- Home artificial nutrition should be prescribed and regularly monitored using defined protocols shared between oncologists and clinical nutrition specialists.
- Nutritional parameters should be considered as relevant outcomes or potential confounders in outcome assessment in clinical oncology research.
- Well-designed clinical trials are needed to improve the evidence in favour of nutritional support in different care settings for cancer patients.

## ESPEN Guidelines for Nutritional Screening

- Malnutrition Universal Screening Tool (MUST)
- Nutritional Risk Screening (NRS 2002)
- Mini Nutritional Assessment (MNA)
- Geriatric Nutrition Risk Index (GNRI)

# ESPEN : Nutritional Risk Screening

Kondrup et al. Clinical Nutrition 2003 - Nutritional risk screening (NRS 2002): a new method based on an analysis of 128 controlled clinical trials

Alterato stato nutrizionale		Gravità della patologia (≈ aumento dei fabbisogni)	
Assente Score 0	Stato nutrizionale normale	Assente Score 0	Fabbisogni nutrizionali normali
Lieve Score 1	<b>Perdita di peso &gt;5 %</b> in 3 mesi oppure Introiti alimentari tra 50-75% dei normali fabbisogni nelle settimane precedenti	Lieve Score 1	Traumi con fratture* Paziente cronico, in particolare con complicazioni acute: cirrosi*, COPD*. <i>Emodialisi cronica, diabete, oncologia</i>
Moderato Score 2	Perdita di peso >5 % in 2 mesi oppure <b>BMI 18,5-20</b> + alterate cond. generali oppure <b>Introiti alimentari tra 25-50% dei normali fabbisogni</b> nelle settimane precedenti	Moderato Score 2	Chirurgia addominale maggiore* Ictus* <i>Polmoniti gravi, onco-ematologia</i>
Grave Score 3	Perdita di peso >5 % in 1 mese (>15% in 3 mesi) oppure BMI < 18,5 + alterate cond. generali oppure Introiti alimentari tra 0-25% dei normali fabbisogni nelle settimane precedenti	Grave Score 3	Trauma cranico* Trapianto di midollo* <i>Pazienti della terapia intensiva (APACHE &gt; 10)</i>
Età se ≥ 70 anni aggiungere 1 score allo score totale		= Score corretto per età	

**Score ≥ 3 il paziente è a rischio nutrizionale e si deve stendere un programma nutrizionale**  
**Score < 3 rivalutazione periodica del paziente.** Se il paziente ha in programma un intervento di chirurgia maggiore deve essere steso un programma nutrizionale per prevenire un rischio nutrizionale



# ESPEN : Nutritional Risk Screening

Kondrup et al. *Clinical Nutrition* 2003 Nutritional risk screening (NRS 2002): a new method based on an analysis of 128 controlled clinical trials

Alterato stato nutrizionale		Gravità della patologia (≈ aumento dei fabbisogni)	
Assente Score 0	Stato nutrizionale normale	Assente Score 0	Fabbisogni nutrizionali normali
Lieve Score 1	Perdita di peso >5 % in 3 mesi oppure Introiti alimentari tra 50-75% dei normali fabbisogni nelle settimane precedenti	Lieve Score 1	Traumi con fratture* Paziente cronico, in particolare con complicazioni acute: cirrosi*, COPD*. <i>Emodialisi cronica, diabete, oncologia</i>
Moderato Score 2	Perdita di peso >5 % in 2 mesi oppure BMI 18,5-20 + alterate cond. generali oppure Introiti alimentari tra 25-50% dei normali fabbisogni nelle settimane precedenti	Moderato Score 2	Chirurgia addominale maggiore* Ictus* <i>Polmoniti gravi, onco-ematologia</i>
Grave Score 3	Perdita di peso >5 % in 1 mese (>15% in 3 mesi) oppure BMI < 18,5 + alterate cond. generali oppure Introiti alimentari tra 0-25% dei normali fabbisogni nelle settimane precedenti	Grave Score 3	Trauma cranico* Trapianto di midollo* <i>Pazienti della terapia intensiva (APACHE &gt; 10)</i>

Età se ≥ 70 anni aggiungere 1 score allo score totale = Score corretto per età

Score ≥ 3 il paziente è a rischio nutrizionale e si deve stendere un programma nutrizionale.  
Score < 3 rivalutazione settimanale del paziente. Se il paziente ha in programma un intervento di chirurgia maggiore deve essere steso un programma nutrizionale per prevenire un rischio nutrizionale



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Nutrition

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Brief report

## Awareness and consideration of malnutrition among oncologists: Insights from an exploratory survey



Riccardo Caccialanza M.D.<sup>a</sup>, Emanuele Cereda M.D., Ph.D.<sup>a</sup>, Carmine Pinto M.D.<sup>b</sup>,  
Paolo Cotogni M.D., M.Sc.<sup>c</sup>, Gabriella Farina M.D.<sup>d</sup>, Cecilia Gavazzi M.D.<sup>e</sup>,  
Chiara Gandini M.D.<sup>f</sup>, Mariateresa Nardi M.D.<sup>g</sup>, Vittorina Zagonel M.D.<sup>h</sup>,  
Paolo Pedrazzoli M.D.<sup>f,\*</sup>

**Table 2**

Cross-tabulation of answers to the questions

Questionnaire items	%
<u>1. Do nutritional assessment and support play a role in the daily care of cancer patients?</u>	
Yes, they are integral part of the therapeutic program since diagnosis	28
They play an important role, but they are not performed on a routine basis	56
They play a secondary role compared to cancer treatments	16
Not at all	1
<u>2. How would you rate the role of nutritional status in the practicability of/tolerance to cancer treatment?</u>	
Crucial	47
Rather important, often decisive	50
Little important, rarely decisive	3
Useless	0
<u>3. When is nutritional assessment performed?</u>	
<u>During the first visit and all the follow-up visits</u>	21
During the first visit, then only when the patient reports weight loss and/or the reduction of food intake	30
Only during the first visit	6
Only when the patient reports weight loss and/or the reduction of food intake	46
Not at all	3

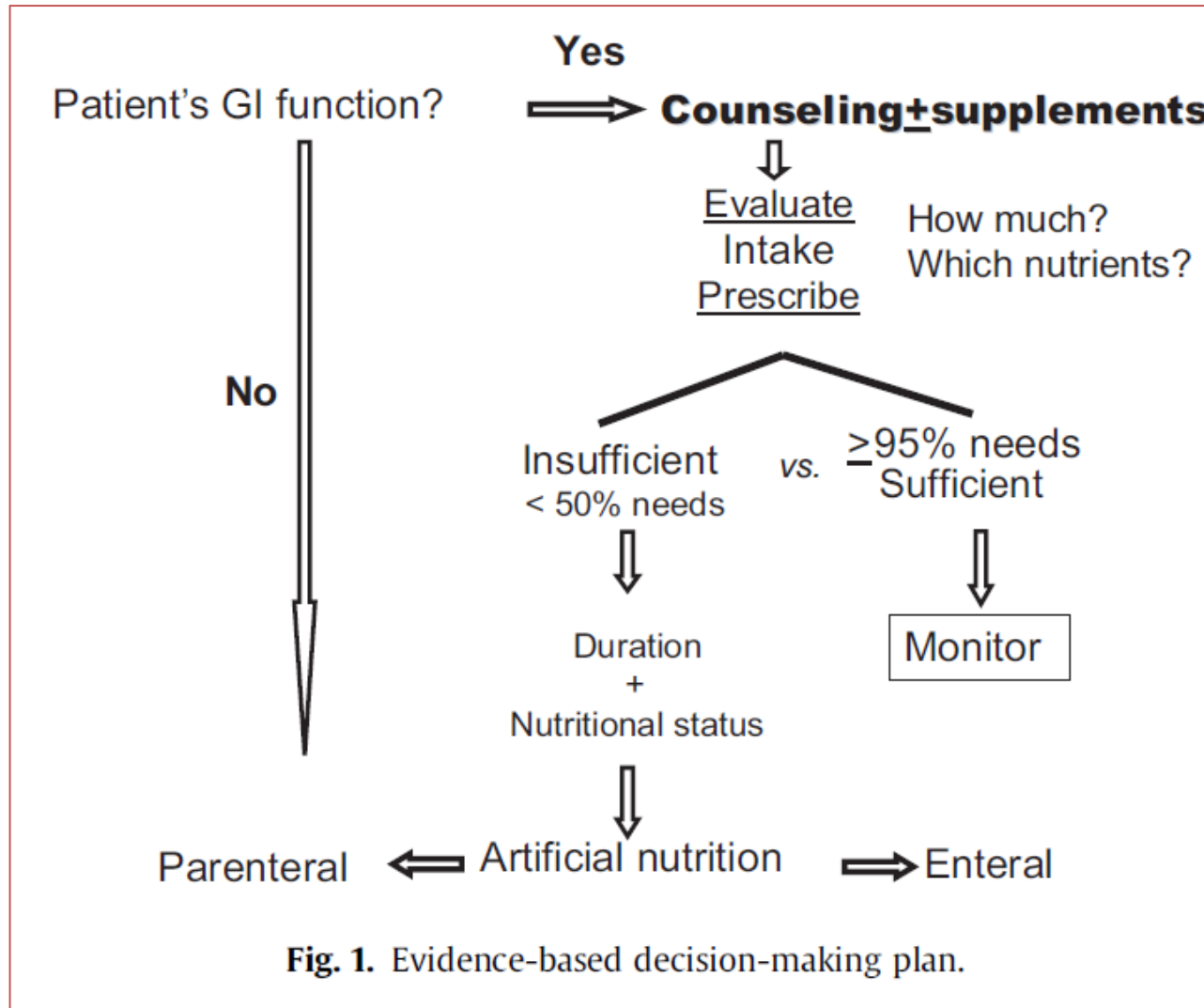
# Nutritional approaches in cancer: Relevance of individualized counseling and supplementation



Paula Ravasco M.Sc., R.D., M.D., Ph.D. \*

*P. Ravasco / Nutrition 31 (2015) 603–604*

*Laboratório de Nutrição of the Faculdade de Medicina de Lisboa and Hospital Universitário de Santa Maria, Lisboa, Portugal*

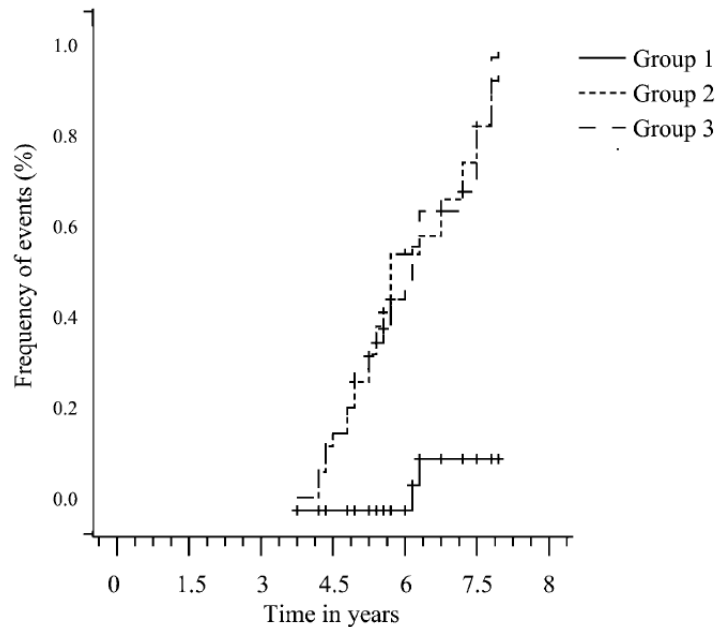


**Fig. 1.** Evidence-based decision-making plan.

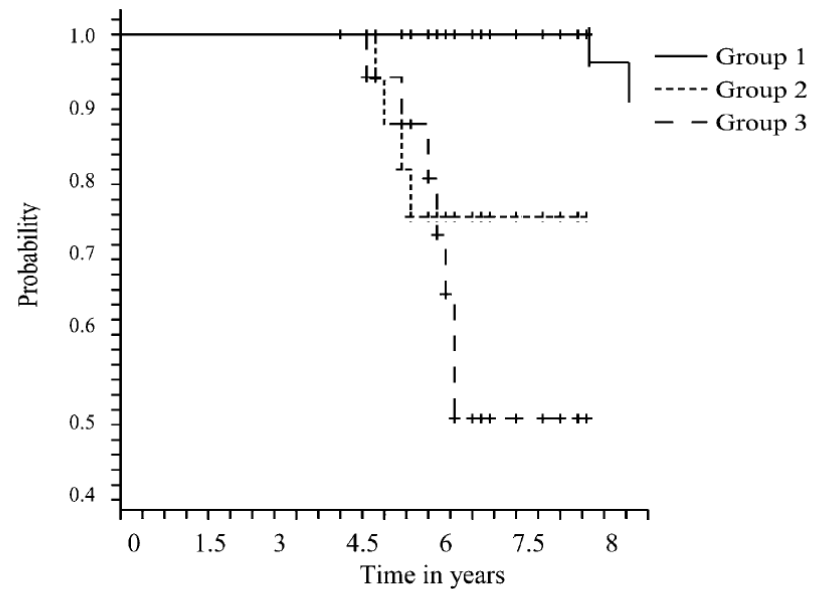
# Individualized nutrition intervention is of major benefit to colorectal cancer patients: long-term follow-up of a randomized controlled trial of nutritional therapy<sup>1-3</sup>

Paula Ravasco, Isabel Monteiro-Grillo, and Maria Camilo

*Am J Clin Nutr* 2012;96:1346–53.

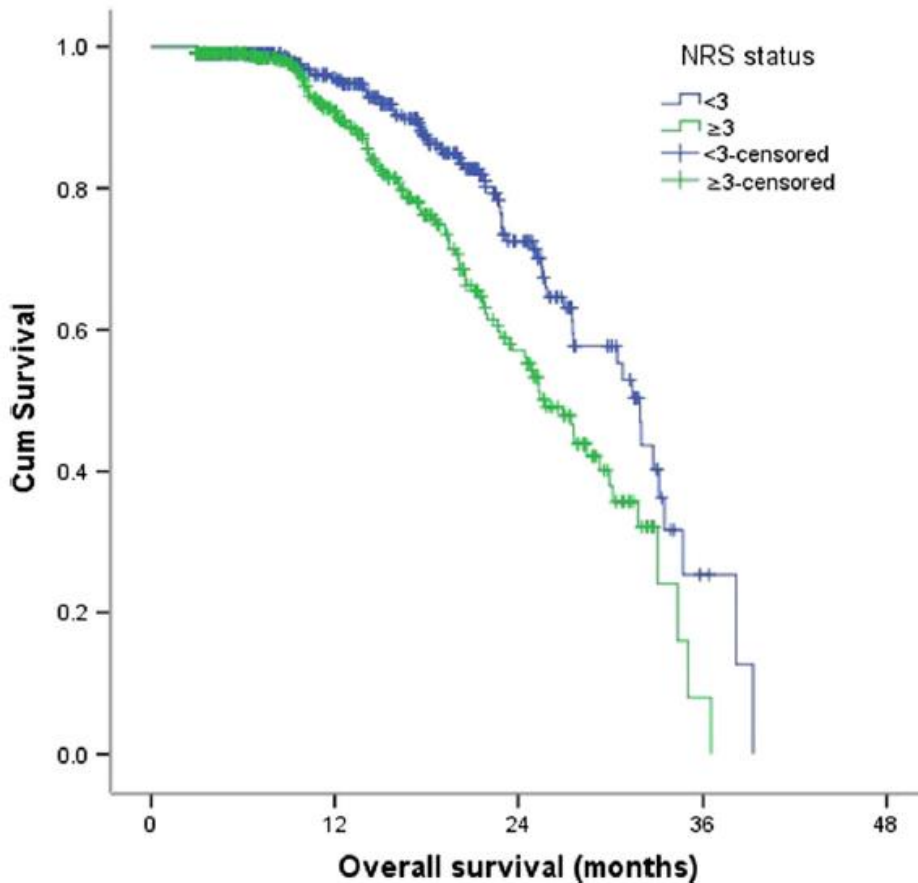


**FIGURE 3.** Incidence of late radiotherapy toxicity symptoms were calculated with Kaplan-Meier and log-rank tests and by Cox regression: group 1 ( $n = 34$ ), individualized counseling; group 2 ( $n = 29$ ), supplements + usual diet; group 3 ( $n = 26$ ), usual diet. The incidence of late symptoms in the 3 groups was as follows: group 3  $\approx$  group 2  $>$  group 1 ( $P = 0.002$ ). For all analyses, within-group and between-group comparisons were adjusted for cancer stage, age, follow-up time, disease recurrence, adjuvant treatments, survival, and number of patients in each group.

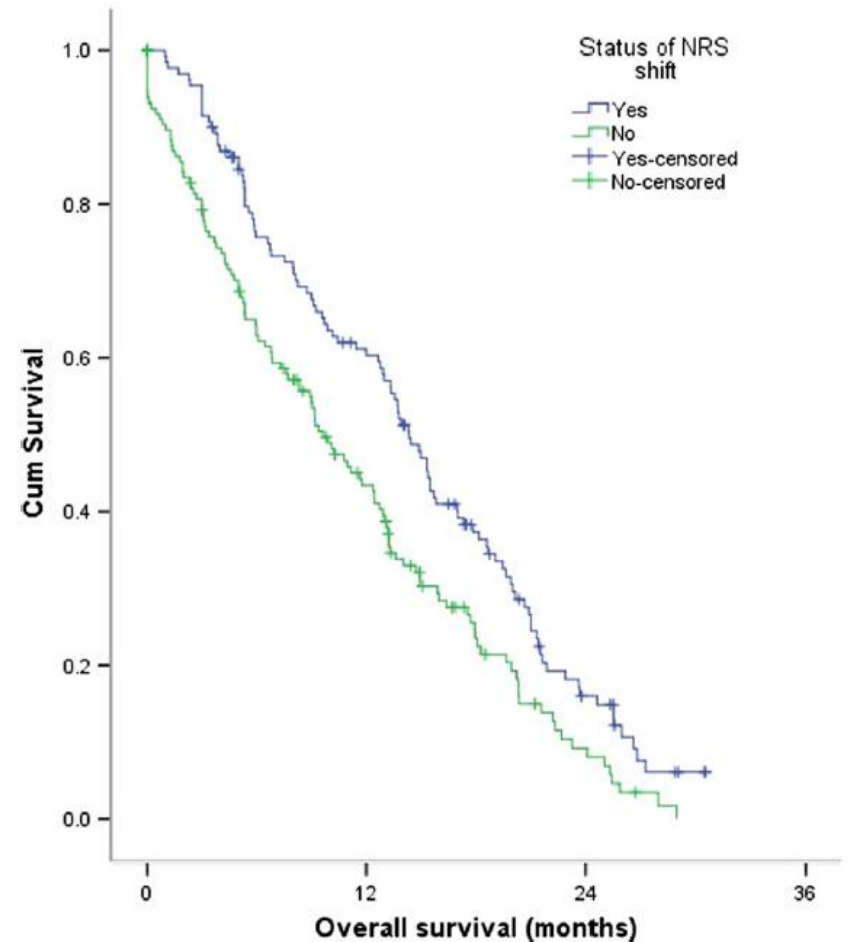


**FIGURE 1.** Disease-specific survival was calculated by Kaplan-Meier and log-rank tests, and the patients were divided by randomization group: group 1 ( $n = 34$ ), individualized counseling; group 2 ( $n = 29$ ), supplements + usual diet; group 3 ( $n = 26$ ), usual diet. Survival time in group 3  $<$  group 2  $<$  group 1 ( $P < 0.05$ ). For all analyses, within-group and between-group comparisons were adjusted for cancer stage, age, follow-up time, disease recurrence, adjuvant treatments, survival, and number of patients in each group.

# Nutrition support can bring survival benefit to high nutrition risk gastric cancer patients who received chemotherapy



**Fig. 2** Kaplan–Meier curves of gastric cancer patients in NRS $\geq$ 3 and NRS<3 in the first study period. The median survival was significantly higher in NRS<3 patients (31.9 vs. 25.7 months,  $P<0.001$ )



**Fig. 3** Kaplan–Meier curves of gastric cancer patients with or without NRS shift in the second period. The median survival was 14.3 and 9.6 months for patients with and without NRS shift,  $P=0.001$

# Impact of home enteral nutrition in malnourished patients with upper gastrointestinal cancer: A multicentre randomised clinical trial

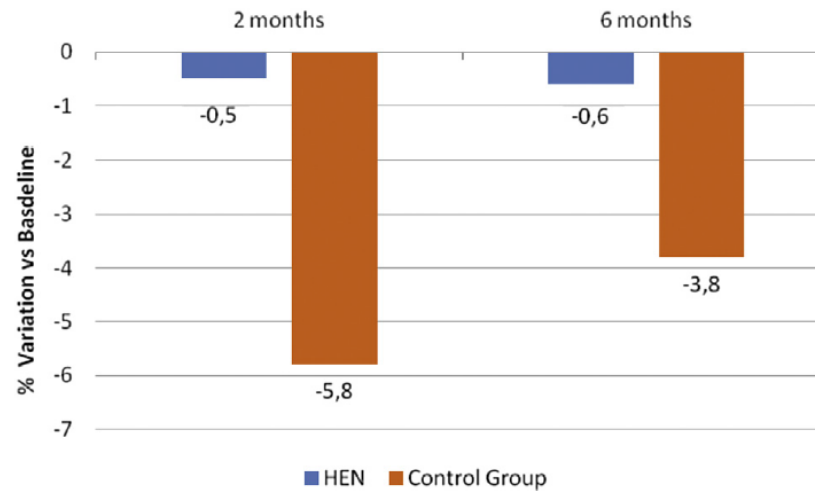


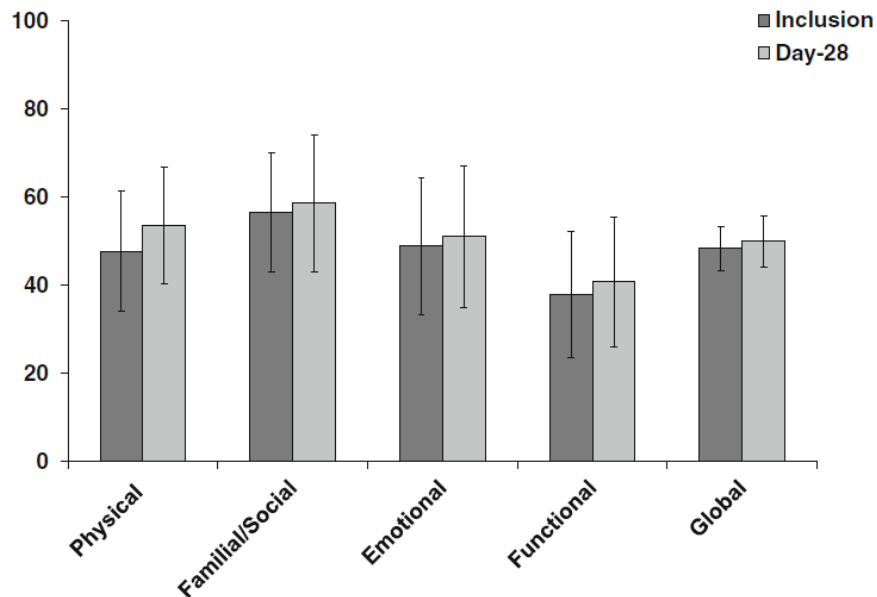
Fig. 1. Percentage variation in body weight over the study.

**Patients and methods:** Patients with upper GI cancer and candidate to major surgery were included in the protocol when the nutritional risk screening (NRS 2002) score was  $\geq 3$ . All patients were supported with enteral nutrition through a jejunostomy after surgery and randomly assigned to continue enteral nutrition or receiving nutritional counselling after discharge. Nutritional and performance status, quality of life (QoL) and tolerance to cancer treatment have been evaluated at 2 and 6 months after discharge.

**Results:** Seventy-nine patients were randomised; 38 continued enteral nutrition at home and 41 patients received nutritional counselling only. After 2 months, patients on HEN maintained their mean body weight, while patients in the nutritional counselling group showed a weight loss of 3.6 kg. Patients supported on HEN had a higher chance to complete chemotherapy as planned (48% versus 34%). QoL was not worsened by HEN. No complications were reported.

## Home parenteral nutrition improves quality of life and nutritional status in patients with cancer: a French observational multicentre study

S. Culine · C. Chambrier · A. Tadmouri · P. Senesse ·  
P. Seys · A. Radji · M. Rotarski · A. Balian · P. Dufour



Paired t-test was performed on 412 patients (\*\**p* < 0.0001).

**Fig. 2** Changes in FACT-G scores assessed by the patients between the inclusion and day 28

**Table 3** Changes in nutritional status between the inclusion and day 28

	Inclusion	Day 28	<i>P</i>
Weight (kg)	59.6±12.5	61.1±12.5	<0.001
BMI	20.9±4.0	21.4±3.9	<0.001
NRI	84.9±14.3	87.5±14.9	<0.001
MUAC (cm)	23.3±6.0	23.6±7.0	0,19
Serum albumin (g/l)	31.2±8.2	32.2±8.5	<0.001
Glycaemia (mg/dl)	111±36	119±50	0.022
Serum haemoglobin (mg/dl)	11.07±1.75	10.75 ±1.61	0.0048
CRP (mg/dl)	44.65±105.43	32.86±77.47	0.193

Results are presented by mean±SD. Paired *t*-tests were performed for these comparisons

## Peripherally inserted central catheters in patients: 5-year results of a prospective

Paolo Cotogni · Cristina Barbero · Cristina Garrino · Claudia Degioro · Baudolino Mussa · Antonella De Francesco · Mauro Pittiruti

**Table 2** Complications of 269 peripherally inserted central catheters (PICCs)

Duration (day), median (range)	184 (15–1,384)
Infectious complications	
Local infection, <i>n</i>	6
<i>n</i> /1,000 catheter days	0.11
CRBSI, <i>n</i>	3
<i>n</i> /1,000 catheter days	0.05
Total, <i>n</i> (%)	9 (3.3)
Venous thrombosis, <i>n</i> (%)	3 (1.1)
<i>n</i> /1,000 catheter days	0.05
Mechanical complications	
Catheter dislocation, <i>n</i> (%)	19 (7.1)
Rupture of external tract, <i>n</i> (%)	4 (1.5)
Lumen occlusion, <i>n</i> (%)	12 (4.5)
Total, <i>n</i> (%)	35 (13.1)
<i>n</i> /1,000 catheter days	0.63
Overall complications, <i>n</i> (%)	47 (17.5)
<i>n</i> /1,000 catheter days	0.85
Causes of removal, <i>n</i> (%)	
Catheter complications	19 (7)
End of IV therapy	85 (32)
Death	165 (61)
Removal ratio <sup>a</sup> , <i>n</i> (%)	19/47 (40)

CRBSI catheter-related bloodstream infection, IV intravenous

<sup>a</sup> Ratio between number of removals because of catheter complications and number of total complications



## Prevalence of Malnutrition and Current Use of Nutrition Support in Patients With Cancer

Xavier Hébuterne, MD, PhD<sup>1</sup>; Etienne Lemarié, MD<sup>2</sup>; Mauricette Michallet, MD, PhD<sup>3</sup>; Claude Beauvillain de Montreuil, MD<sup>4</sup>; Stéphane Michel Schneider, MD, PhD<sup>1</sup>; and François Goldwasser, MD, PhD<sup>5</sup>

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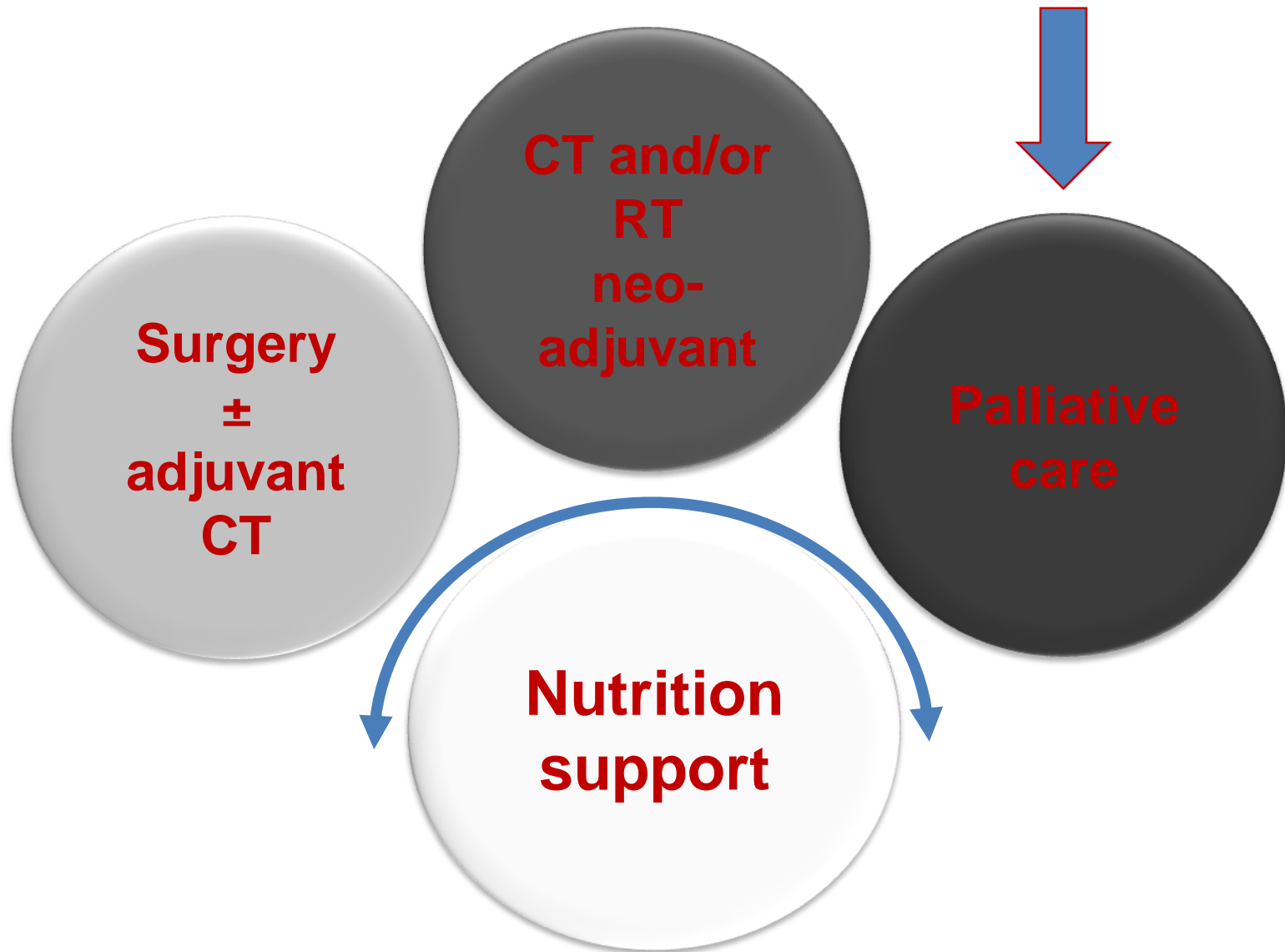


**Table 4.** Nutrition Support.

Disease Site (n)	% of Patients With Nutrition Support	% of Malnourished Patients With Nutrition Support	% of Non-Malnourished Patients With Nutrition Support	% Receiving Oral Supplements	% Receiving Enteral Nutrition	% Receiving Parenteral Nutrition
Blood (377)	34.5	44.5	29.3	20.3	9.5	16.2
Head and neck (366)	63.7	76.5	51.3	36.4	40.4	6.1
Lung (247)	42.9		32.6	38.8	11.1	8.1
Breast (229)	14.8		9.89	12.3	5.2	4.1
Colon/rectum (191)	30.4		23.3	21.5	5.8	10.9
Esophagus/stomach (103)	65.0		46.3	47.8	25.8	19.6
Uterus/ovaries (87)	32.2		25.0	14.7	6.8	21.3
Prostate (72)	13.9		9.7	13.0	1.5	4.5
Pancreas (42)	66.7		42.9	55.0	6.3	24.3
Kidney/bladder (29)	41.4		14.3	28.6	15.4	7.7
Others (160)	31.9		23.7	19.1	10.6	10.2
Total (1903)	39.8	57.6	28.4	24.2	13.8	9.6

**57%**

# Anti-cancer treatments & Nutrition



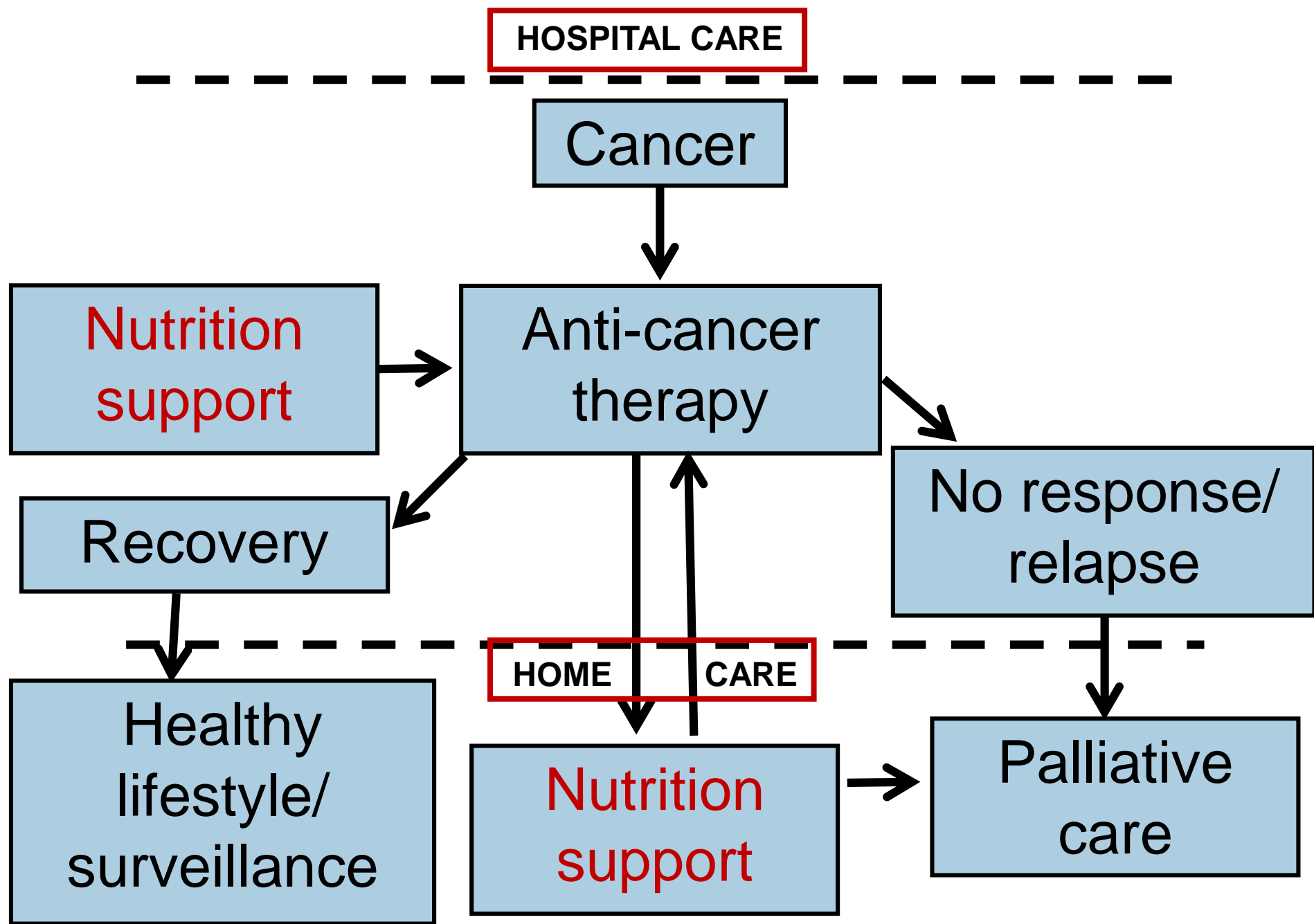


C6 – 1	Incurable patients: screening and assessment
Strength of recommendation <b>STRONG</b>	<i><u>We recommend to routinely screen all advanced, incurable cancer patients - whether receiving or not receiving anti-cancer treatment - for inadequate nutritional intake, weight loss and low body mass index, and if found <b>at risk</b>, to assess these patients further.</u></i>
Level of evidence	Low

of death due to malnutrition

**HPN** is not recommended  
for cancer patients with ...

- ✓ *severe organ dysfunction*
- ✓ *short life-expectancy* (less than 2-3 months)
- ✓ *diffuse/multiple metastasis*
- ✓ *Karnofsky score <50 (ECOG > 2)*
- ✓ *symptoms that are not controlled*



*The Continuum of Nutrition Care in Cancer Patients*

# The integrating nutritional therapy in oncology (INTO) project: rationale, structure and preliminary results



CrossMark



Riccardo Caccialanza,<sup>1</sup> Francesco De Lorenzo,<sup>2</sup> Paolo Pedrazzoli,<sup>3</sup> for the AIOM-SINPE-FAVO Working Group

## Iniziative in corso:

- *Survey sulla presenza dei Servizi di Nutrizione Clinica rispetto alle Strutture di Oncologia;*
- *Corsi di formazione itineranti;*
- *Promozione della Carta dei Diritti del Paziente Oncologico all'appropriate e tempestivo Supporto Nutrizionale;*
- *Survey sulle diete inappropriate in oncologia;*
- *Studio osservazionale, longitudinale, multicentrico, per valutare il valore prognostico dell'angolo di fase nei pazienti con nuova diagnosi di malattia oncologica solida avanzata, candidati a chemioterapia di prima linea o chemioterapia neoadiuvante (ONCO-BIVA Screening);*

## Iniziative in programma:

- *Campagna stampa;*
- *Canale d'informazione a mezzo web;*
- *Survey sull'alimentazione nei pazienti lungo-sopravvissenti;*
- *Elaborazione dei PDTA sulla gestione del supporto nutrizionale nelle diverse neoplasie;*
- *Elaborazione dei criteri minimi per gli operatori sanitari che si occupano di nutrizione in oncologia;*
- *Position paper sulla prevenzione alimentare secondaria;*
- *Elaborazione di trial multicentrici sull'efficacia del supporto nutrizionale nelle diverse neoplasie.*

## Nutritional Support in Cancer Patients: A Position Paper from the Italian Society of Medical Oncology (AIOM) and the Italian Society of Artificial Nutrition and Metabolism (SINPE)

Riccardo Caccialanza<sup>1</sup>, Paolo Pedrazzoli<sup>2</sup>, Emanuele Cereda<sup>1</sup>, Cecilia Gavazzi<sup>3</sup>, Carmine Pinto<sup>4</sup>, Agostino Paccagnella<sup>5</sup>, Giordano Domenico Beretta<sup>6</sup>, Mariateresa Nardi<sup>7</sup>, Alessandro Laviano<sup>8</sup> and Vittorina Zagonel<sup>9</sup>

**TABLE 1.** Summary of the AIOM-SINPE practical recommendations for nutritional support in cancer patients

- Nutritional screening should be performed using validated tools (NRS 2002, MUST, MST, MNA) upon diagnosis and systematically repeated at regular time points in patients with cancer type, stage or treatment potentially affecting nutritional status.

- Patients at nutritional risk should be promptly referred for comprehensive nutritional assessment and support to clinical nutrition services or medical personnel with documented skills in clinical nutrition, specifically for cancer patients.

- Nutritional support should be actively managed and targeted for each patient according to nutritional conditions, clinical status, planned treatment and expected outcome. It should comprise nutritional counseling with the possible use of oral nutritional supplements and/or artificial nutrition (enteral nutrition, total or supplemental parenteral nutrition) according to spontaneous food intake, tolerance and effectiveness.

- Nutritional support and dietary modifications should aim to assist the maintenance or recovery of nutritional status by increasing or preserving protein and calorie intake. "Alternative hypocaloric anti-cancer diets" (e.g. macrobiotic or vegan diets) are not recommended.

- Nutritional support may be integrated into palliative care programs, according to individual-based evaluations, quality of life implications, life expectancy and patients' awareness.

- Home artificial nutrition should be prescribed and regularly monitored using defined protocols shared between oncologists and clinical nutrition specialists.

- Nutritional parameters should be considered as relevant outcomes or potential confounders in outcome assessment in clinical oncology research.

- Well-designed clinical trials are needed to improve the evidence in favour of nutritional support in different care settings for cancer patients.

## Nutritional support for cancer patients: still a neglected right?

Riccardo Caccialanza<sup>1</sup> · Francesco De Lorenzo<sup>2</sup> · Luca Gianotti<sup>3</sup> · Vittorina Zagonel<sup>4</sup> · Cecilia Gavazzi<sup>5</sup> · Gabriella Farina<sup>6</sup> · Paolo Cotogni<sup>7</sup> · Saverio Cinieri<sup>8</sup> · Emanuele Cereda<sup>1</sup> · Paolo Marchetti<sup>9</sup> · Mariateresa Nardi<sup>10</sup> · Elisabetta Iannelli<sup>2</sup> · Claudia Santangelo<sup>2</sup> · Francesca Tracò<sup>2</sup> · Carmine Pinto<sup>11</sup> · Paolo Pedrazzoli<sup>12</sup>

**Table 1** Cancer Patients' Bill of Rights for appropriate and prompt Nutritional Support

1. Right to correct information and nutritional counseling: every cancer patient has the right to comprehensive evidence-based clinical information on her/his nutritional status, possible associated consequences and available nutritional therapeutic options; nutritional counseling to adapt her/his diet to suit ensuing medical, surgical or radiotherapeutic treatment.
2. Right to nutritional screening and assessment: every cancer patient has the right to nutritional screening to reduce the risk of malnutrition, using validated tools, both at diagnosis and at regular time points, while ensuring that the cancer type and stage are taken into account along with any treatment likely to affect nutritional status. Every cancer patient at nutritional risk, has the right to prompt referral for comprehensive nutritional assessment and support to Clinical Nutrition Services or to medical personnel with documented skills in clinical nutrition. Nutritional assessment must be an integral part of any diagnostic-therapeutic regimes developed by Oncology Units.
3. Right to dietary prescriptions: every cancer patients at nutritional risk or malnutrition has the right to receive personalized dietary prescriptions by medical personnel with documented skills in clinical nutrition.
4. Right to oral nutritional supplements: every cancer patient at nutritional risk has the right, according to clinical conditions and specific nutrient deficiencies, to receive oral nutritional supplements, including vitamins and minerals.
5. Right to appropriate and prompt artificial nutrition: artificial nutrition is a complex therapeutic procedure that requires specific medical skills, as it may be associated with severe complications if not carried out according to evidence-based standard operating protocols. Every cancer patient at nutritional risk, who is unable maintain an adequate nutritional status despite nutritional counseling and oral nutritional support, has the right to receive appropriate and swift artificial nutrition in every health care setting, as part of continuing care.
6. Right to appropriate and safe home artificial nutrition: every cancer patient, who needs to continue artificial nutrition after hospital discharge, has the right to receive appropriate and safe home artificial nutrition, prescribed by Clinical Nutrition Services or medical personnel with documented skills in clinical nutrition.
7. Right to nutritional support monitoring: every cancer patient requiring nutritional support has the right to periodic reassessment of treatment adequacy and efficacy using established integrated health care regimes which ensure the collaboration of both Oncologists and Clinical Nutritionists.
8. Right to treatment for overweight-related health problems during or after cancer treatment: every cancer patient has the right to be referred to Clinical Nutrition Services, during or after oncologic rehabilitation programs, so that ideal body weight can be recovered or maintained, to avoid the negative impact of increased weight on prognosis and the clinical course of many cancer types.
9. Right to psychological support: malnutrition and overweight considerably affect body image and can cause problems within families. Any patient likely to experience such problems has the right to receive appropriate and swift psychological support.
10. Right to participate in clinical nutrition trials: every cancer patient has the right to be enrolled in clinical studies on nutritional support at different stages of the disease.

# CARTA dei DIRITTI DEL PAZIENTE ONCOLOGICO

## ALL' APPROPRIATO E TEMPESTIVO SUPPORTO NUTRIZIONALE

### 1-Diritto alla corretta informazione e al counseling nutrizionale

Ogni malato oncologico ha diritto a ricevere da parte di personale sanitario con documentate e riconosciute competenze di nutrizione clinica:

- informazioni esaustive, corrette e basate sulle evidenze cliniche riguardo al proprio stato di nutrizione, alle possibili conseguenze a esso associate e alle diverse opzioni terapeutiche nutrizionali;
- un counseling nutrizionale che fornisca indicazioni su come adeguare la propria alimentazione ai principi universalmente riconosciuti come utili nella prevenzione primaria e secondaria dei tumori, in relazione anche alle eventuali comorbidità, terapie mediche, chirurgiche o radioterapiche previste.

### 2-Diritto allo screening e alla valutazione dello stato nutrizionale

Ogni malato oncologico ha diritto allo screening nutrizionale finalizzato a individuare l'eventuale presenza del rischio di malnutrizione. Lo screening deve essere eseguito con strumenti validati alla diagnosi e ripetuto sistematicamente da parte dell'equipe curante a intervalli regolari, nel caso di neoplasie, che, per tipologia, stadio o trattamento, possono influenzare negativamente lo stato di nutrizione. Ogni malato a rischio di malnutrizione ha diritto alla valutazione completa e tempestiva del proprio stato nutrizionale da parte di personale sanitario afferente ai Servizi di Nutrizione Clinica o, comunque, con documentate e riconosciute competenze di nutrizione clinica. La valutazione nutrizionale deve essere parte integrante dei percorsi diagnostico-terapeutici e assistenziali elaborati dalle strutture oncologiche.

### 3-Diritto alle prescrizioni nutrizionali

Ogni malato oncologico malnutrito e con calo ponderale ha diritto alla prescrizione di un supporto nutrizionale appropriato da parte di personale medico afferente ai Servizi di Nutrizione Clinica o con documentate e riconosciute competenze di nutrizione clinica.

### 4-Diritto all'accesso all'integrazione nutrizionale orale

Ogni malato oncologico a rischio di malnutrizione ha diritto, in relazione alle condizioni cliniche e carenze presenti, su prescrizione di personale medico afferente ai Servizi di Nutrizione Clinica o con documentate e riconosciute competenze di nutrizione clinica, all'accesso gratuito agli integratori nutrizionali orali, compresi i supporti vitaminici e minerali.

### 5-Diritto a ricevere una nutrizione artificiale appropriata e tempestiva

La nutrizione artificiale è una metodica terapeutica complessa che richiede competenze mediche specifiche e che può presentarsi, se non condotta secondo criteri di qualità e sicurezza, con complicanze anche gravi. Ogni malato oncologico a rischio di malnutrizione, non in grado di mantenere un soddisfacente stato di nutrizione attraverso il counseling nutrizionale ed eventuali integrazioni, ha diritto a ricevere sia in ospedale, sia nelle strutture residenziali, nell'ambito di un progetto di continuità assistenziale, un appropriato e tempestivo supporto di nutrizione artificiale, su prescrizione di personale medico afferente ai Servizi di Nutrizione Clinica o con documentate e riconosciute competenze di nutrizione clinica.

### 6-Diritto a ricevere una nutrizione artificiale domiciliare appropriata e sicura

Ogni malato oncologico che necessita di proseguire il supporto di nutrizione artificiale oltre i termini della degenza ospedaliera ha diritto a ricevere un trattamento di nutrizione artificiale domiciliare appropriato e sicuro, su prescrizione di personale medico afferente ai Servizi di Nutrizione Clinica o con documentate e riconosciute competenze di nutrizione clinica.

### 7-Diritto al monitoraggio del supporto nutrizionale

Ogni malato oncologico che necessita di un supporto nutrizionale ha diritto a ricevere la periodica rivalutazione dell'appropriatezza e dell'efficacia del trattamento da parte dell'oncologo e di personale sanitario afferente ai Servizi di Nutrizione Clinica o con documentate e riconosciute competenze di nutrizione clinica, nel contesto di percorsi sanitari integrati e condivisi da équipes multidisciplinari.

### 8-Diritto alla cura del sovrappeso associato alle terapie

Ogni malato oncologico ha diritto all'accesso gratuito ai Servizi di Nutrizione Clinica nell'ambito dei percorsi di riabilitazione oncologica durante e dopo i trattamenti attivi, al fine di recuperare il proprio peso ideale, anche in considerazione dell'impatto del sovrappeso sulla prognosi e sul decorso clinico di molte patologie neoplastiche.


### 9-Diritto al supporto psicologico

La malnutrizione per difetto e il sovrappeso incidono in modo rilevante sull'immagine corporea del malato e spesso innescano dinamiche intrafamiliari importanti. Ogni malato a rischio di variazioni significative del proprio stato nutrizionale ha diritto a un appropriato e tempestivo supporto psicologico gratuito.

### 10-Diritto a partecipare a studi clinici controllati in tema di nutrizione clinica

Ogni malato oncologico ha diritto, se lo desidera, a essere inserito in studi clinici controllati volti a contrastare la malnutrizione nelle diverse fasi della malattia.



	PERCORSO DIAGNOSTICO TERAPEUTICO ASSISTENZIALE TERRITORIALE	Approvazione
	Supporto nutrizionale	Revisione n. 0

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## SUPPORTO NUTRIZIONALE

### Fondazione IRCCS Policlinico S. Matteo di Pavia

Dr. Riccardo Caccialanza

Dr. Paolo Pedrazzoli

### ASST di Pavia

Inf. Coord. Maria Addis

Dr.ssa Laura Daprada

Dr. Luigi Magnani

Dr. Luigi Negri

Dr.ssa Giancarla Patrini

**"...one of the greatest opportunities to improve patient outcomes will probably come not from discovering new treatments but from more effective delivery of existing therapies."**

***Pronovost PJ et al., Lancet 2004; 363:1061-7***

