# Nutritional Counselling, cancer Outcome and Quality of Life!

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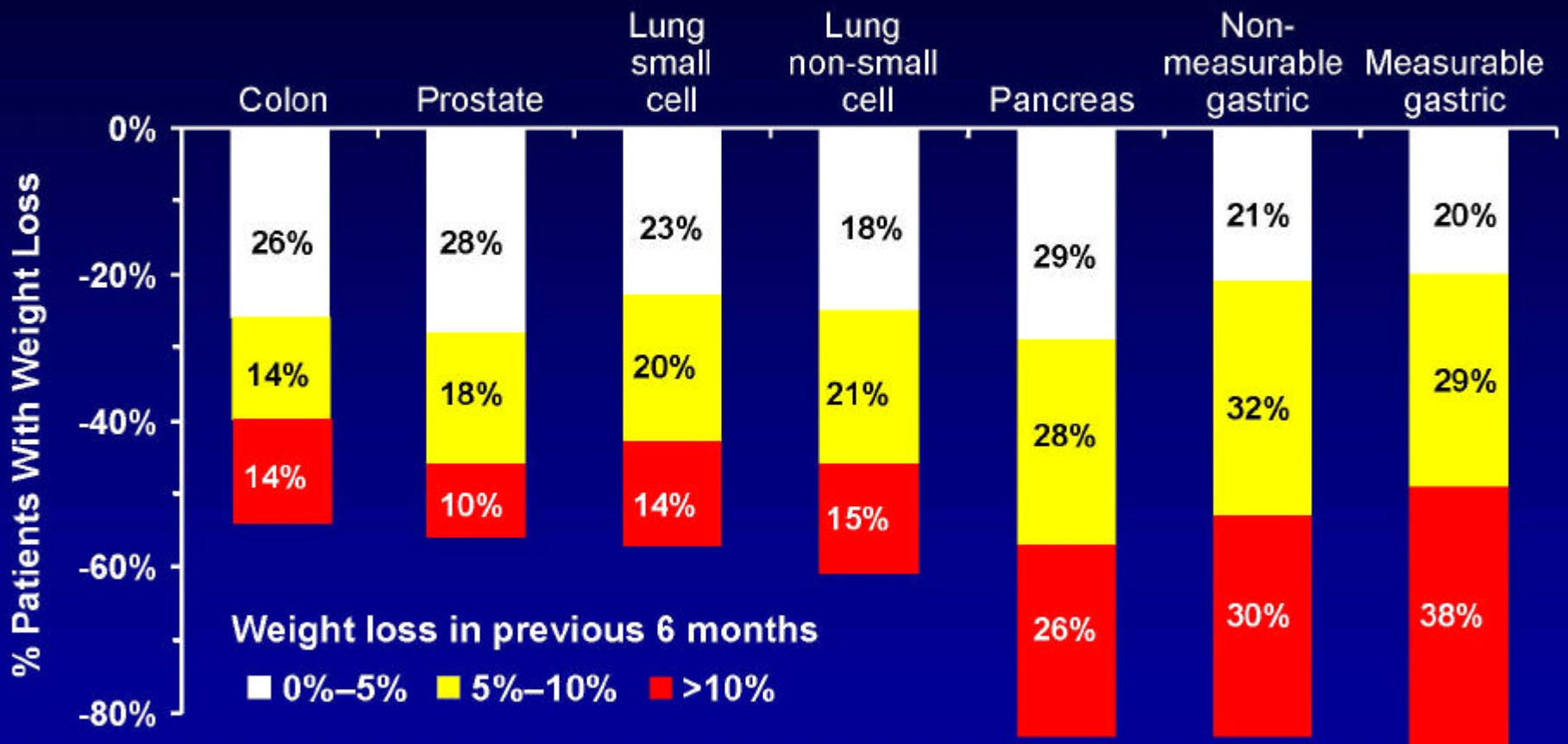
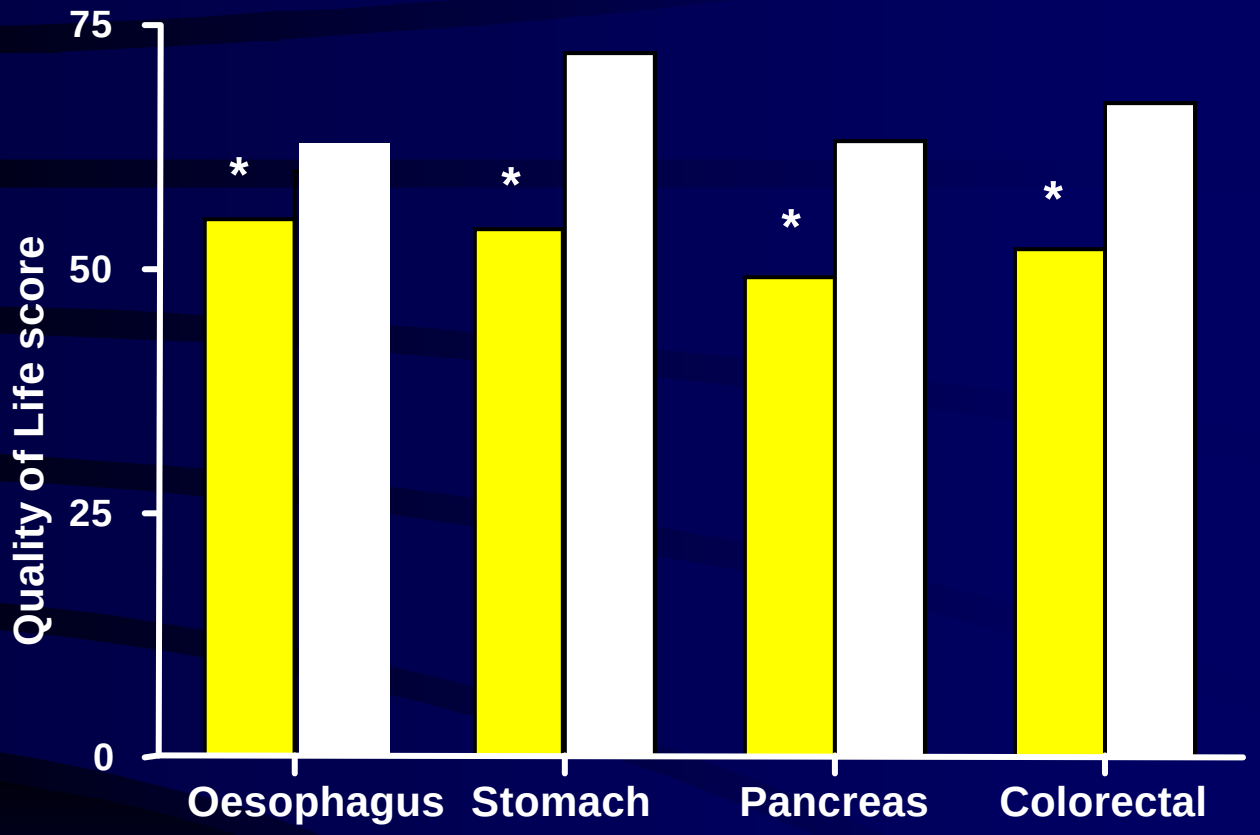
# Frequency/Severity of Weight Loss Associated With Cancer



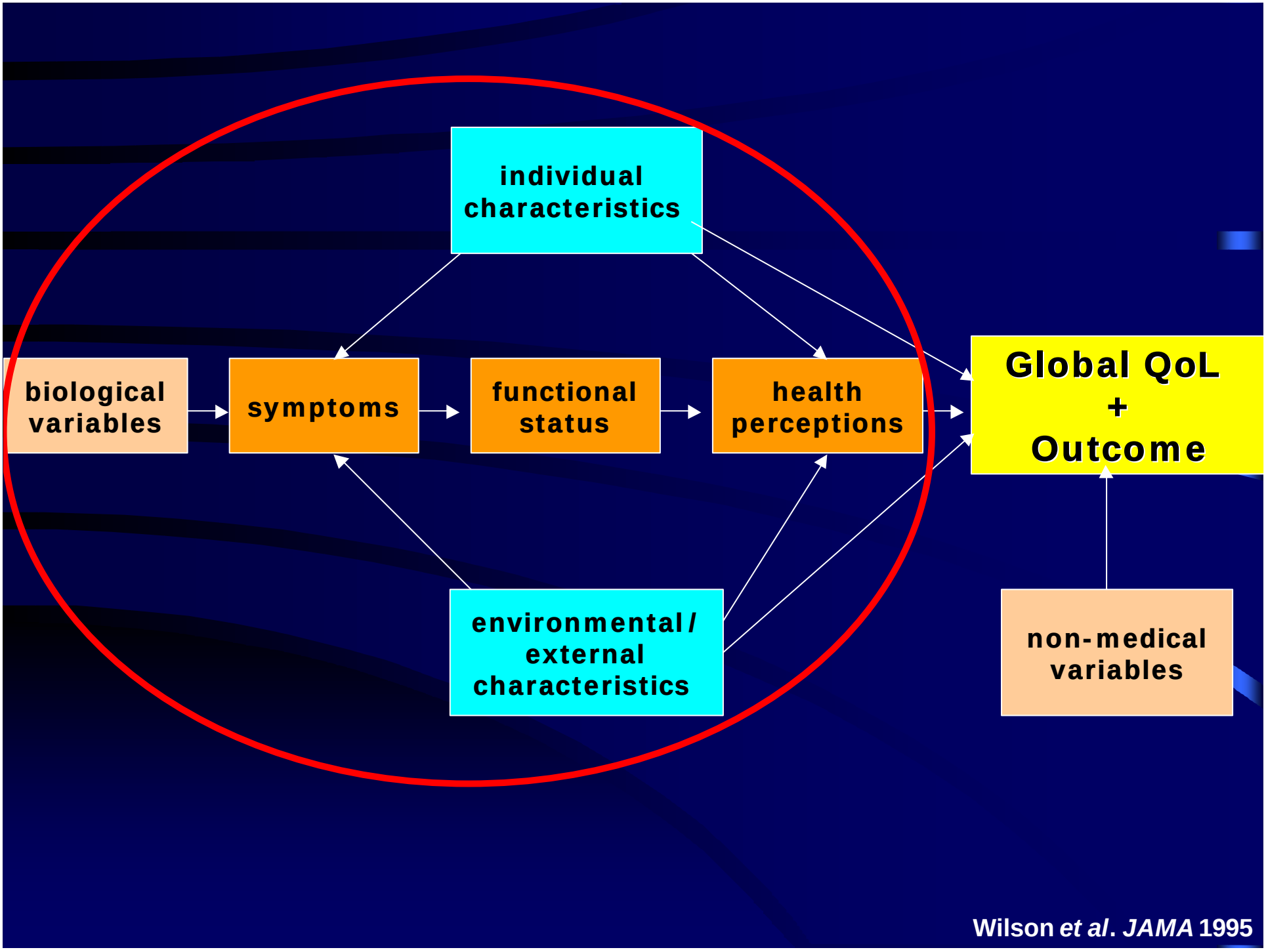

DeWys et al: *Am J Med* 1980;69:491.

# Weight loss and Quality of Life (QoL)




* p<0.01 comparison per group
p<0.0001 all groups combined

Andreyev *et al*. *Eur J Cancer* 1998


individual characteristics
biological variables
symptoms
functional status
health perceptions
Global QoL + Outcome
environmental / external characteristics
non-medical variables
Wilson *et al*. *JAMA* 1995

*Clinical Oncology* (2003) **15**: 443–450
doi:10.1016/S0936-6555(03)00155-9

*Original Article*

# Nutritional Deterioration in Cancer: The Role of Disease and Diet

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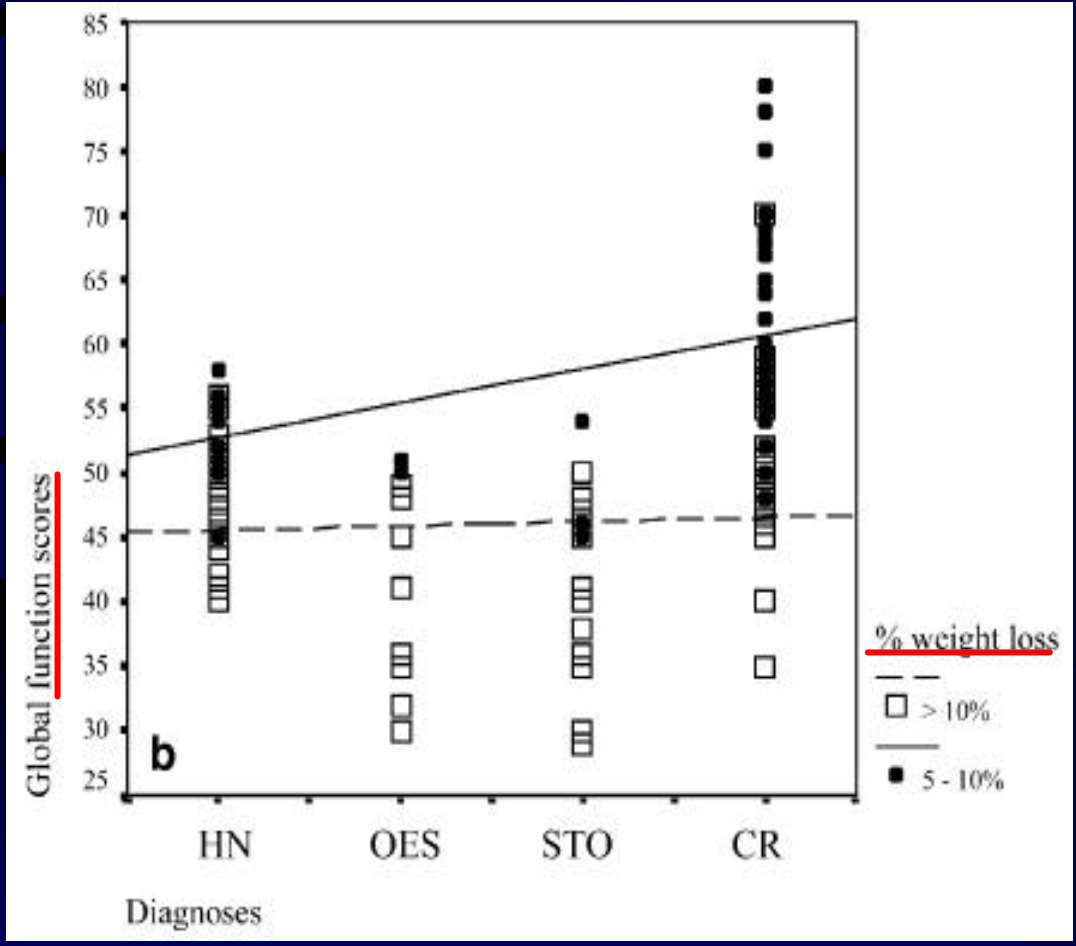
- **nutritional deterioration: multifactorial outcome determined by cancer & diet-related factors, all simultaneously evaluated in a general linear model;**
- **advanced stage was by far the most significantly associated with worse nutritional status;**
- **cancer location, duration of disease, protein/energy intake deficits & previous surgery/chemotherapy were also associated.**
- **Novel clinical evidence on the complex interactions between cancer and/or treatment-related variables & diet modifications, all exerting a combined effect on patients' wasting;**
- **Cancer location was the dominant factor influencing the wasting pattern and/or progression, though the tumour burden for the host was of major importance.**

# Nutrition and QoL

**prospective cross-sectional study in 271 consecutive patients with cancer of the head-neck, oesophagus, stomach, colorectal.**




**cancer stage & location, weight loss and/or ↴ intake, were independent determinants of Quality of Life, with distinct contributions & relative weights**

Ravasco *et al*. *Support Care Cancer* 2004

☞ objective evidence that cancer, diet deficits, nutritional deterioration & therapeutic interventions are determinants of the patients' Quality of Life, but with distinct relative weights;

☞ chemotherapy & surgery were perceived by patients as of minor relevance; nutritional deficits and/or deterioration were intrinsic to cancer location & stage, to energy/protein intake deficits & to weight loss: independent determinants of QoL.

☞ These results concur with Keys et al landmark data revealing that semi-starvation impairs functional & psychological abilities, & corroborated our previous study demonstrating the relationship between progressive disease and wasting.

*Undernutrition* **in cancer**

⇙

**influences patients'** *clinical course*

⇙

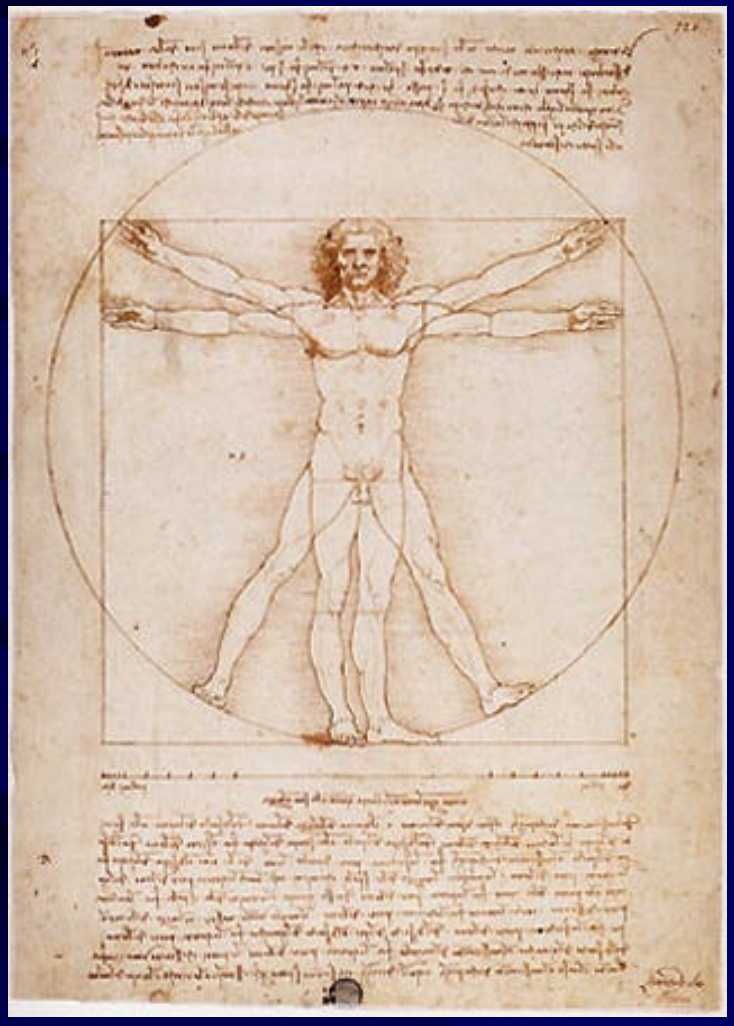
**indicator of** *poor prognosis*

*! morbidity and mortality* **!**

- **Reduces Quality of Life**
- **Impairs functional capacity and physical activity**
- **Impairs immune function**
- **Increases treatment related morbidity & reduces tolerance to treatment(s)**
- **May reduce treatment(s) response/efficacy**
- **May reduce survival**

**Ravasco P et al *Radioth & Oncol* 2006; 81 (suppl 1): S149 & ESPEN Abstract Book 2006: 125**

# Nutrition

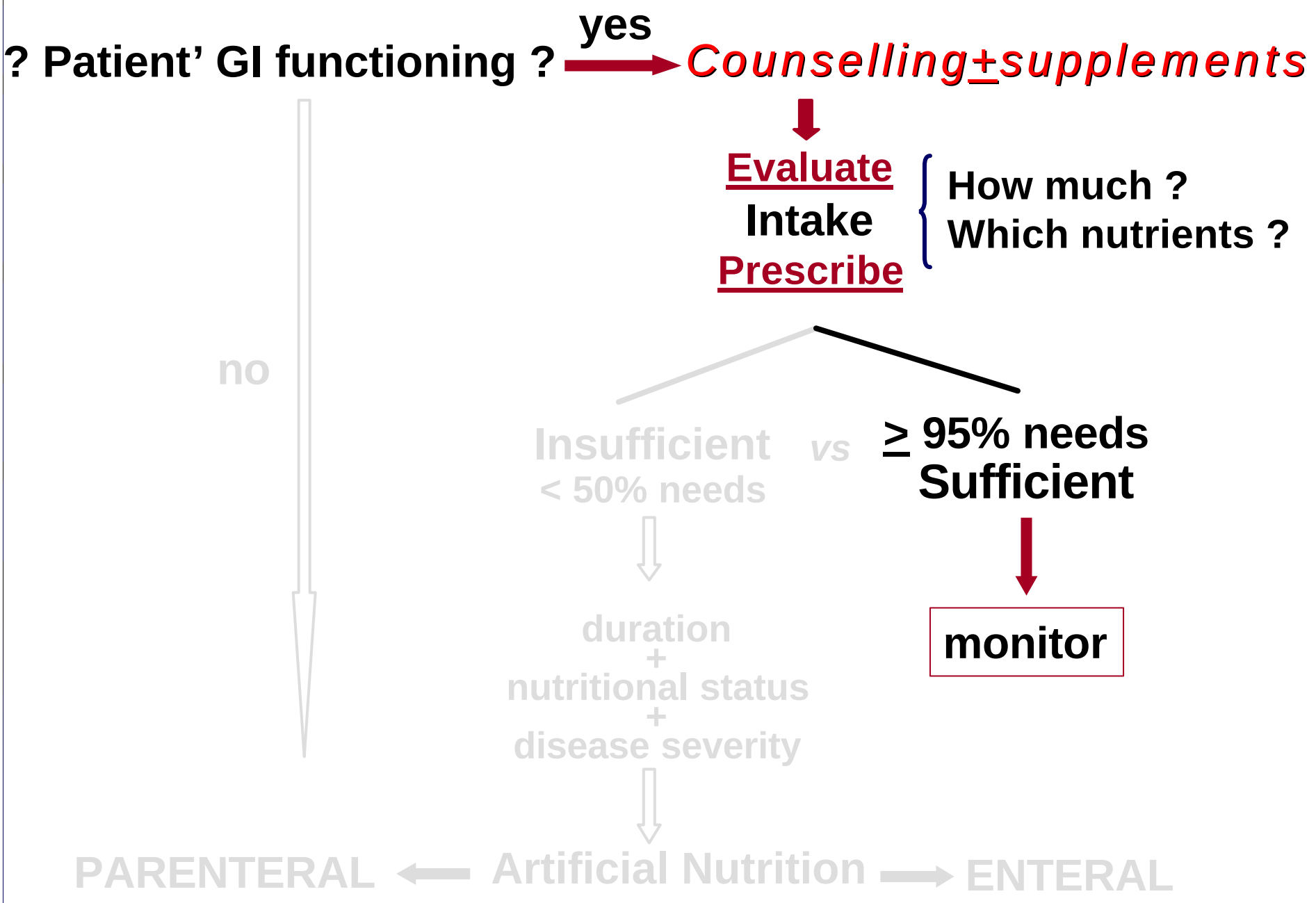


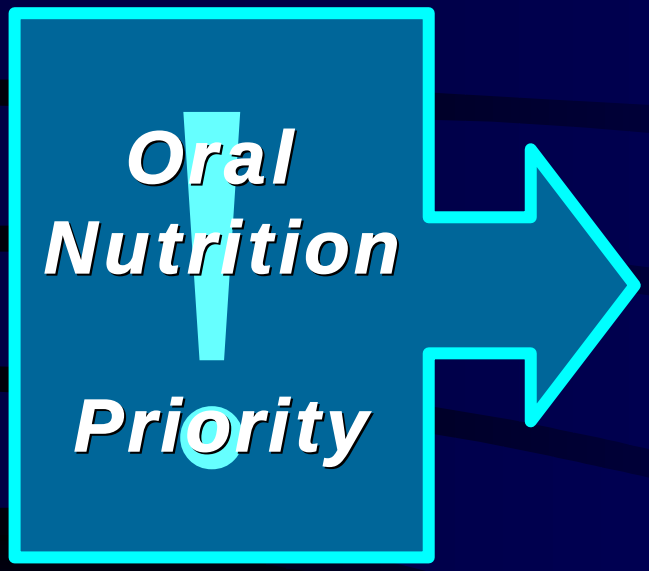
***Patient-centred outcomes***

*The diet* **is the only factor that the patient feels he/she can** *control*

*Food intake* **is recognised by the patient as** *essential* **to maintain** *activity, energy & function*

# DECISION-MAKING

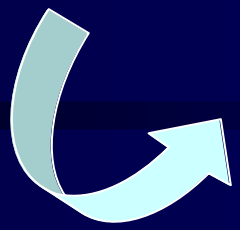





- Always the preferred route
- Patient's daily routine
- Autonomy
- Pleasure
- Family
- Psychological modulation
- Improve QoL + acute / late morbidity

# Quality in Nutrition

## Nutrition professionals



Training

Skills

Expertise

Differentiation
Clinical Nutrition

- Empathy
- Values dimensions determinant for patients
- Only timely, adequate & sustained / reinforced intervention is effective

Patient is the priority

Criteria
Quality / Accreditation

www.coe.int

Council of Europe

*Resolution ResAP(2003)3 on food and nutritional care in hospitals 2003*

# Evidence based nutritional counselling

- Assessment nutritional status **&**
  **NUTRITIONAL INTAKE** **– Structured Questionnaire**
- Dietary preferences / habits / intolerances
- Diary meal distribution
- Psychological status, autonomy (cooperative? needs support?)
- Symptom' assessment (GI, dysphagia, anorexia, pain, …)

**INDIVIDUALISED DIET**

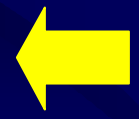
- Inform the patient / family
  importance of the diet / food
  types / amounts
- Intake ~ requirements
  energy/macro/micronutrients

# Individualised counselling

- **Therapeutic diets** modified to fulfill specific requirements:
  - digestion / absorption
  - disease stage and progression
  - psychological factors
  - symptom modulation

- **Mantain** (as possible) the usual dietary pattern

- **Prescription**
  - type
  - amounts
  - frequency



Patient
Disease
Therapeutic goals

# *Resolution ResAP(2003)3*

## 1. Nutritional assessment and treatment

### 1.1 Nutritional risk screening

- nutritional status & severity of disease
- method: evidence-based, validated, easy to use & understand
- routine and systematic use
- **at risk** patient → thorough assessment
  nutritional treatment
  monitoring / adjustments

...

# *Resolution ResAP(2003)3*

## 1.2 Identification of causes of undernutrition

- which causes are involved ?
- avoid dietary restrictions !
- undernutrition is a clinical diagnosis

...

# Resolution ResAP(2003)3

## 1.3 Nutritional support

- integral part of treatment
- nutritional treatment plan reviewed and adjusted if appropriate, on a weekly basis
- targeted to the individual patient

...

* *Randomised trials* evaluating the effect of ordinary food on clinical outcome should be given high priority

# 1st intervention trials of nutritional therapy

## regular foods / therapeutic diets ⟹ outcomes

ELSEVIER

Radiotherapy and Oncology 67 (2003) 213–220

RADIOTHERAPY & ONCOLOGY
JOURNAL OF THE EUROPEAN SOCIETY FOR THERAPEUTIC RADIOLOGY AND ONCOLOGY

www.elsevier.com/locate/radonline

Does nutrition influence quality of life in cancer patients undergoing radiotherapy?

Paula Ravasco[a,*], Isabel Monteiro-Grillo[a,b], Maria Ermelinda Camilo[a]

[a]*Centre of Nutrition and Metabolism, Institute of Molecular Medicine of the Faculty of Medicine of the University of Lisbon, Lisbon, Portugal*
[b]*Radiotherapy Department of the Santa Maria Hospital, Avenida Prof. Egas Moniz, 1649-028 Lisbon, Portugal*

- **Individualised nutritional counselling + monitoring**, according to nutritional status & symptoms, **significantly improved** the patients' **nutritional intake** & **QoL**

- The improvement in **QoL' functional dimensions** was **correlated** with **adequate / improved nutritional intake**

*Head & Neck* 2005; 27: 659-668

# IMPACT OF NUTRITION ON OUTCOME: A PROSPECTIVE RANDOMIZED CONTROLLED TRIAL IN PATIENTS WITH HEAD AND NECK CANCER UNDERGOING RADIOTHERAPY

Paula Ravasco, MD,[1] Isabel Monteiro-Grillo, MD, PhD,[1,2]
Pedro Marques Vidal, MD, PhD,[1] Maria Ermelinda Camilo, MD, PhD[1]

[1] Unidade de Nutrição e Metabolismo, Instituto de Medicina Molecular Faculdade de Medicina da Universidade de Lisboa, Avenida Prof. Egas Moniz, 1649-028 Lisboa, Portugal. E-mail: p.ravasco@fm.ul.pt
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JOURNAL OF CLINICAL ONCOLOGY

ORIGINAL REPORT

# Dietary Counseling Improves Patient Outcomes: A Prospective, Randomized, Controlled Trial in Colorectal Cancer Patients Undergoing Radiotherapy

*Paula Ravasco, Isabel Monteiro-Grillo, Pedro Marques Vidal, and Maria Ermelinda Camilo*

- Prospective randomised controlled trial to investigate the impact of nutritional counselling or supplements, on **nutritional intake**, **nutritional status**, **morbidity** & **QoL** during radiotherapy (RT) & at 3 months.

- 111 ambulatory patients with colorectal cancer were stratified by cancer stage and block randomised: 37 patients (**G1**) received **individualised nutritional counselling** based on regular foods, 37 (**G2**) **dietary supplements** & 37 (**G3**) **standard of care**.

# Methods

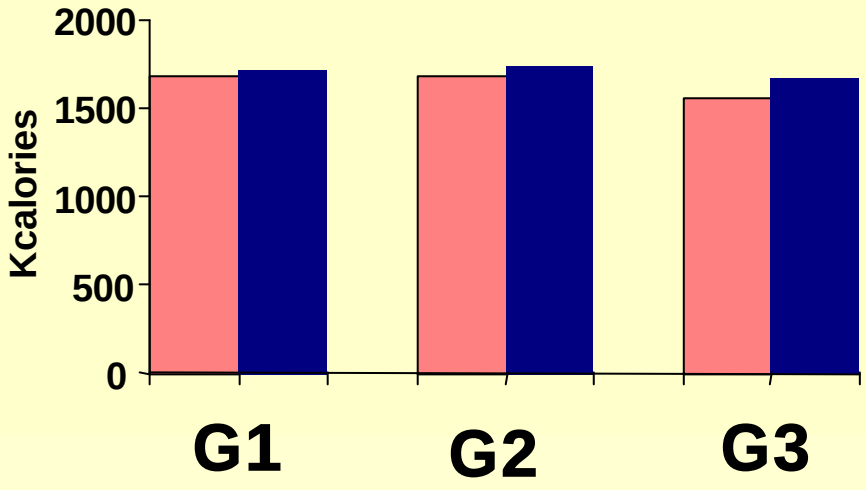
- Based on a pilot study for dietary intake evaluation, which identified protein as the main nutritional deficit, dietary supplements were selected: protein-dense polimeric, 400mL per day: 40g protein+400 kcal

- Compliance was weekly monitored.

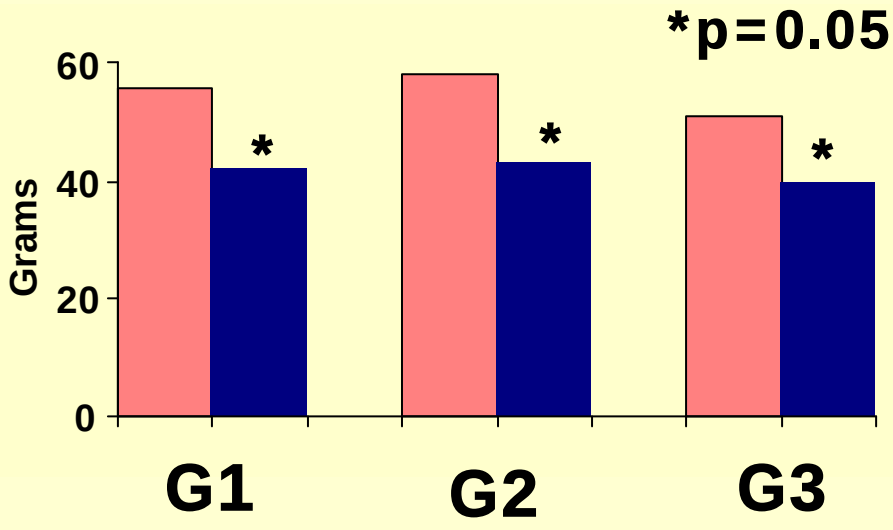
- Intake (diet history), nutritional status (Patient Generated - Subjective Global Assessment), RT-induced morbidity (RTOG) & QoL (EORTC) were evaluated at the onset, at the end and 3 months after RT.

# Baseline nutritional intake

## Energy




## Protein



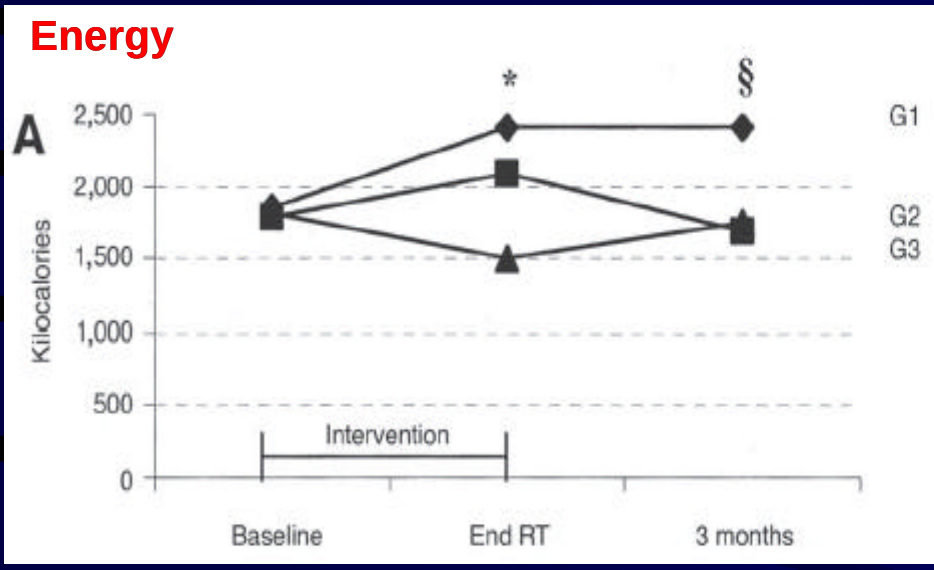

Requirements

Intake

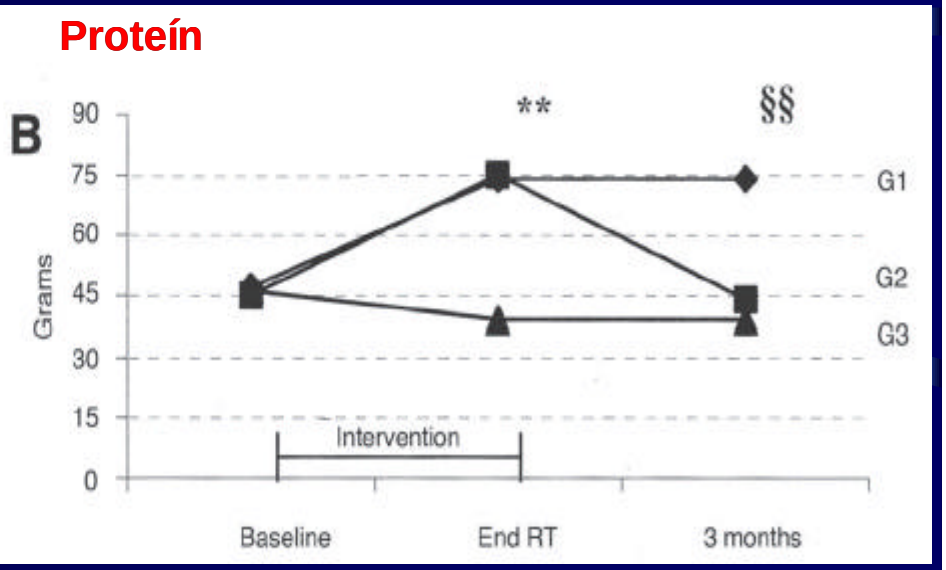
**G1 counselling G2 supplements G3 standard**

# Nutritional intake

**Energy**




**Proteín**




✍ **adding nutritional supplements *per se* was not as effective as individualised nutritional counselling.**

# RT-induced Morbidity: patients

| *Symptoms Grades 1+2* | *G1* | | *G2* **suppl** | | *G3* **standard** | |
|---|---|---|---|---|---|---|
| | *End* | *3-mts* | *End* | *3-mts* | *End* | *3-mts* |
| **Anorexia** | **33** | **7** | **33** | **8** | **34** | **22** |
| **Nausea / Vomiting** | **34** | **0** | **33** | **10** | **34** | **15** |
| **Diarrhoea** | **34** | **0** | **34** | **12** | **35** | **28** |

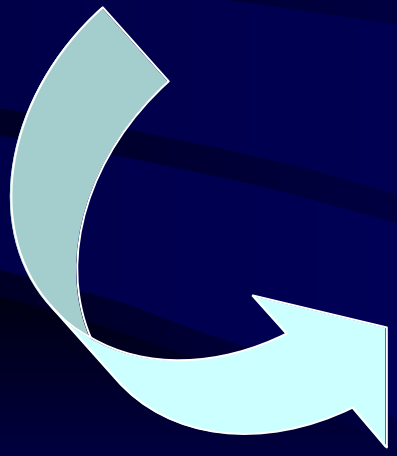
**? groups ? symptoms end RT *vs* 3 months** $p<0.001$

# QoL

* Improvement  ** Deterioration

| Items | G1 | | | G2 suppl | | | G3 standard | | |
|---|---|---|---|---|---|---|---|---|---|
| | Start | End | 3-months | Start | End | 3-months | Start | End | 3-months |
| *Function scales* | | * | | | * | | | ** | |
| Global QoL | 48 | 75 | 82 | 46 | 70 | 62 | 47 | 35 | 30 |
| Physical function | 49 | 74 | 79 | 48 | 65 | 60 | 45 | 25 | 22 |
| Role function | 50 | 78 | 80 | 52 | 65 | 58 | 48 | 20 | 19 |
| Emotional function | 55 | 79 | 83 | 50 | 48 | 50 | 51 | 38 | 28 |
| Social function | 52 | 82 | 85 | 51 | 48 | 51 | 49 | 30 | 26 |
| Cognitive function | 64 | 73 | 70 | 62 | 62 | 54 | 62 | 55 | 46 |
| *Symptom scales* | | ** | * | | ** | * | | ** | |
| Fatigue | 30 | 55 | 26 | 31 | 75 | 78 | 29 | 78 | 79 |
| Pain | 25 | 63 | 15 | 22 | 74 | 30 | 23 | 78 | 73 |
| Nausea / vomitting | 15 | 50 | 10 | 14 | 71 | 37 | 12 | 72 | 68 |
| *Individual items* | | ** | * | | ** | | | ** | |
| Dispnea | 5 | 8 | 8 | 6 | 7 | 13 | 5 | 6 | 15 |
| Insomnia | 30 | 40 | 29 | 28 | 55 | 75 | 32 | 60 | 78 |
| Anorexia | 45 | 57 | 48 | 40 | 59 | 72 | 42 | 65 | 75 |
| Constipation | 12 | 10 | 10 | 11 | 9 | 8 | 9 | 8 | 8 |
| Diarrhoea | 38 | 45 | 39 | 35 | 81 | 72 | 33 | 92 | 78 |
| Financial impact | 14 | 14 | 14 | 11 | 11 | 11 | 12 | 12 | 12 |

**Individualised nutritional counselling and education were, *per se*, *major* determinants to improve *outcomes***



**nutritional**

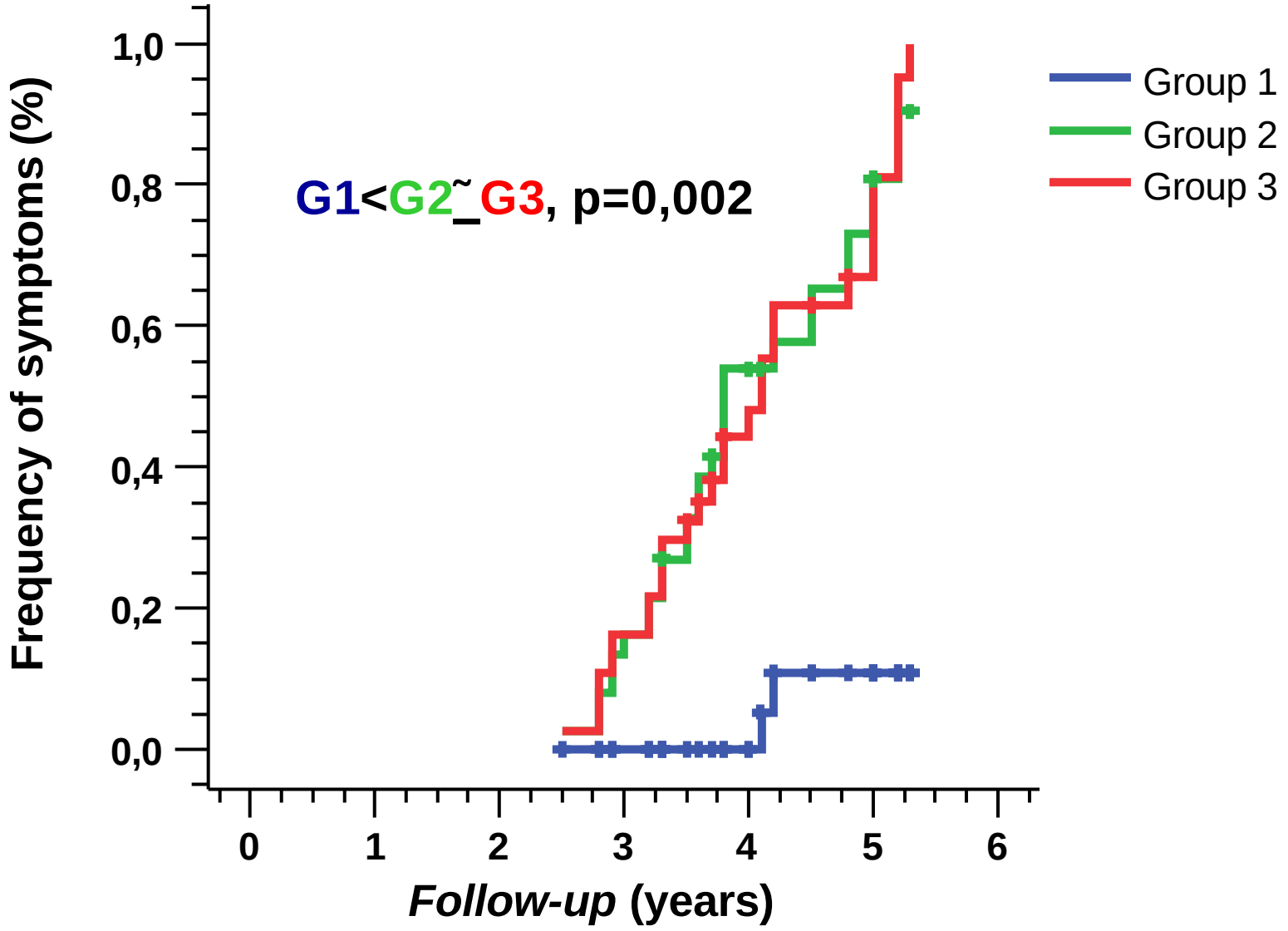
**clinical**

**functional**

**QoL**

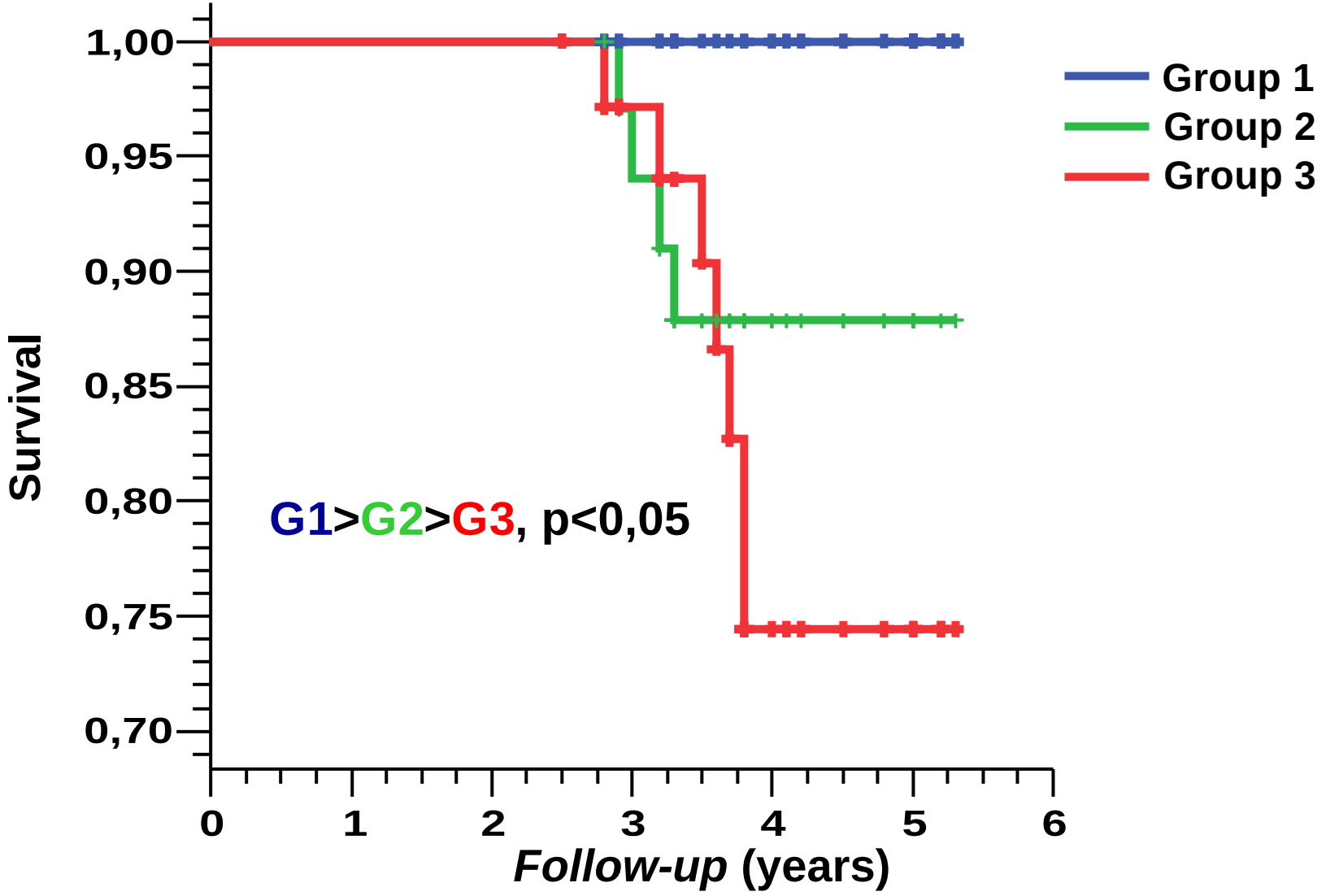
# Late RT toxicity

## Diarrhoea, abdominal distention, flatulence




Ravasco P *et al. Clin Nutr* 2008; 3(suppl 1):92 & *Radioth & Oncol* 2006; 81(suppl 1):S149

# Survival




Ravasco P *et al. Clin Nutr* 2008; 3(suppl 1):92 & *Radioth & Oncol* 2006; 81(suppl 1):S149

# Quality of Life

*G1*

**highest QoL scores similar to those at 3-mts follow-up**

**QoL ⟷ adequate nutritional intake + status p<0.05**

*G2+G3*

**all QoL scores worsened *vs* 3 mts follow-up p<0.05**

**Worse QoL ⟷ deterioration nutritional intake+status p<0.01**

*G1>G2~G3* **p<0.002**

Ravasco P *et al. Clin Nutr* 2008; 3(suppl 1):92

First results of a long term *follow-up*, designed to evaluate the possible efficacy of adjuvant therapeutic diets

**Early & timely individualised nutritional counselling and education had a sustained effect on *outcomes***

nutritional

clinical

functional

QoL

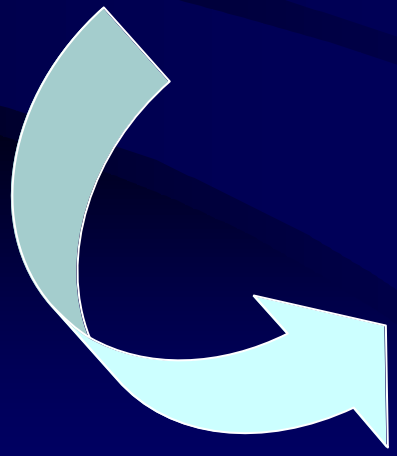
and probably prognosis

*J Am Diet Assoc* **2007**

# Nutrition Support Using the American Dietetic Association Medical Nutrition Therapy Protocol for Radiation Oncology Patients Improves Dietary Intake Compared with Standard Practice

ELISABETH A. ISENRING, PhD, AdvAPD(Aus); JUDITH D. BAUER, PhD, MHSc, AdvAPD(Aus); SANDRA CAPRA, PhD, MSocSc, FDAA(Aus)

**In patients with GI tract cancer submitted to RT, individualised nutritional counselling *vs* standard practice, improved *outcomes***



**nutritional**

**functional**

**QoL**

# Evidence grade *A*

*Intensive dietary counselling*

**with regular foods ± oral nutritional supplements**

↴ *diet intake,*

*prevents therapy-associated weight loss,*

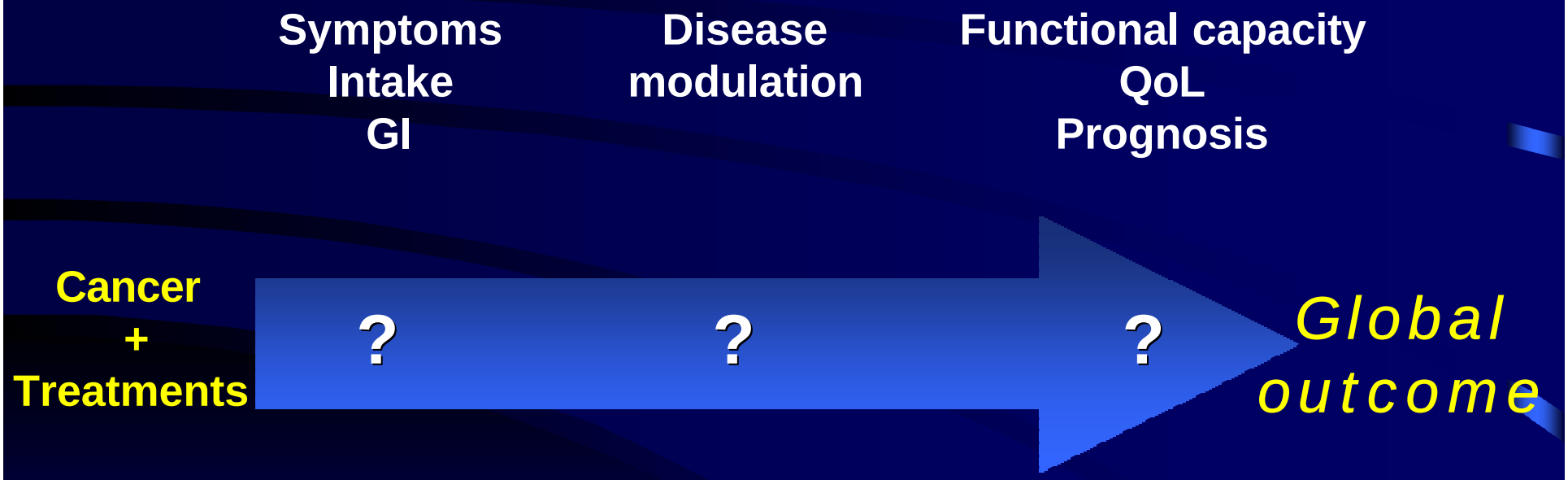
*prevents treatment interruption*

**in GI or head-neck cancer patients undergoing RT ± CT**

ESPEN Guidelines. *Clin Nutr* 2006; 25: 245-259; Ravasco P *et al. J Clin Oncol* 2005; 23: 2431-1438


Specific
nutrients

# *"New era in cancer management"*
# Nutrition and outcomes

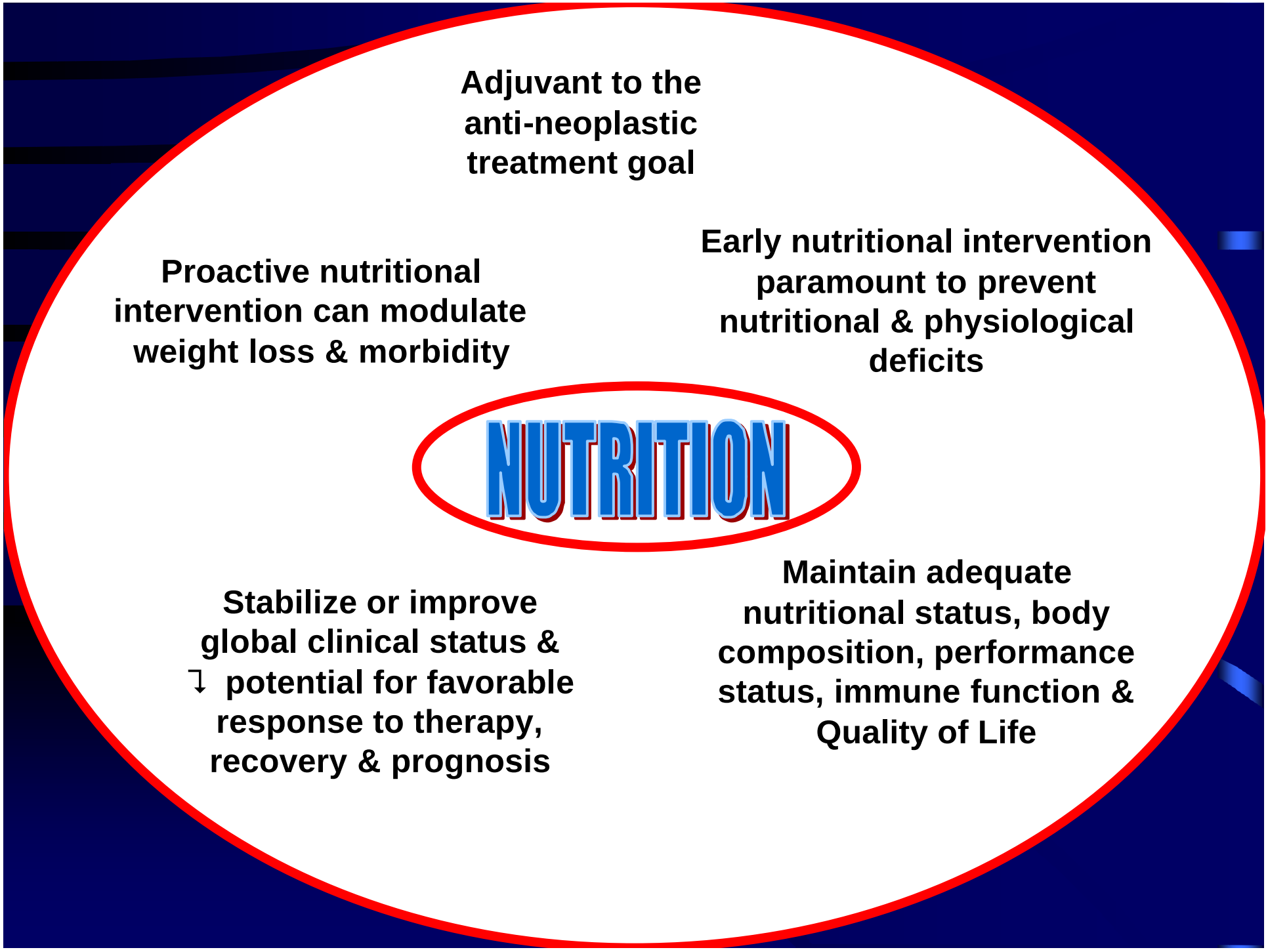



Somerfield *et al*. *JCO* 2003

Therapeutical approach

# Multiprofessional

# NUTRITION


Adjuvant to the anti-neoplastic treatment goal
Early nutritional intervention paramount to prevent nutritional & physiological deficits
Proactive nutritional intervention can modulate weight loss & morbidity
NUTRITION
Maintain adequate nutritional status, body composition, performance status, immune function & Quality of Life
Stabilize or improve global clinical status & ↴ potential for favorable response to therapy, recovery & prognosis

*It is our obligation to provide and integrate Nutrition in the overall treatment, mandatory to sustain life throughout the patient's disease journey…*

**John Hunter,** *1794*

*and to significantly improve Outcomes !*