Erfolgreiches Ernährungsmanagement Die Rolle von protein- und energiereichen Ernährungssupplementen

- **Prof Dr Philipp Schütz, MD, PhD**
- **Head of Internal Medicine & Emergency Medicine, Kantonsspital Aarau, Switzerland.**

Nestlé HealthScience

Was sind unsere Erfolgsfaktoren?

Interdisziplinarität !

GESKES: CAS und iSP

Was sind unsere Erfolgsfaktoren?

Determination of therapy goal together with the patient and relatives

Assessment of pathophysiology

Evidenz-basierte Entscheidungen

PATIENTS' VALUES AND PREFERENCE

RELEVANT SCIEN-TIFIC EVIDENCE

CLINICAL JUDGEMENT

- Is there evidence that guides us in our clinical decision?
- Can we influence clinical outcome with a nutritional intervention?
- Why is showing this important?

Pillars for an evidence-based clinical decision. Own illustration; copyright photos: Philipp Schuetz

Feeding

CHoosing wisely

The clinical nutrition concept today

«Covering nutritional needs»

Original Investigation | Nutrition, Obesity, and Exercise

Association of Nutritional Support With Clinical Outcomes Among Medical Inpatients Who Are Malnourished or at Nutritional Risk

An Updated Systematic Review and Meta-analysis

Filomena Gomes, PhD; Annic Baumgartner, MD; Lisa Bounoure, PhD; Martina Bally, MD; Nicolaas E. Deutz, MD; Jeffrey L. Greenwald, MD; Zeno Stanga, MD; Beat Mueller, MD; Philipp Schuetz, MD, MPH

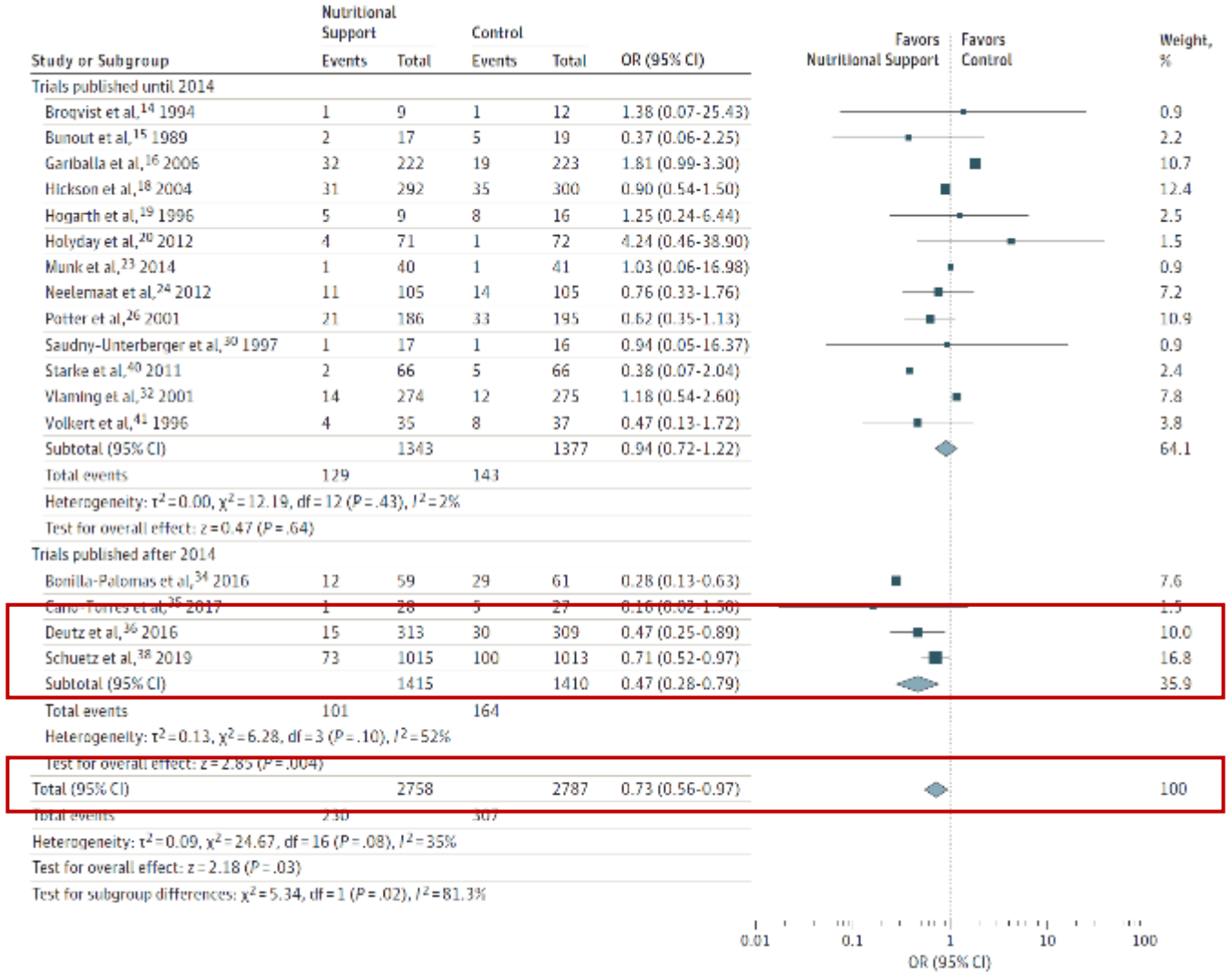
OVERALL EFFECT:

27 % reduction in mortality

Trials after 2014:

53 % reduction in mortality

Figure 1. Forest Plot Comparing Nutritional Intervention vs Control for Mortality, Stratified by Publication Year



A Mantel-Haenszel random-effects model was used. Squares indicate mean values, with the size of squares reflecting the weight and the lines indicating 95% CIs. Diamonds indicate pooled estimates, with horizontal points of the diamonds indicating 95% CIs. OR indicates odds ratio.

JAMA Netw Open 2019 Nov 1;2(11):e1915138.

EFFORT: effect of early nutritional therapy on frailty, functional outcomes and recovery of malnourished medical inpatients trial

THE LANCET

FNSNF
Swiss National Science Foundation

Individualised nutritional support in medical inpatients at nutritional risk: a randomised clinical trial EFFORT Trial

Philipp Schuetz, Rebecca Fehr, Valerie Baechli, Martina Geiser, Manuela Deiss, Filomena Gomes, Alexander Kutz, Pascal Tribolet, Thomas Bregenzer, Nina Braun, Claus Hoess, Vojtech Pavlicek, Sarah Schmid, Stefan Bilz, Sarah Sigrist, Michael Brändle, Carmen Benz, Christoph Henzen, Silvia Mattmann, Robert Thomann, Claudia Brand, Jonas Rutishauser, Drahomir Aujesky, Nicolas Rodondi, Jacques Donzé, Zeno Stanga, Beat Mueller**

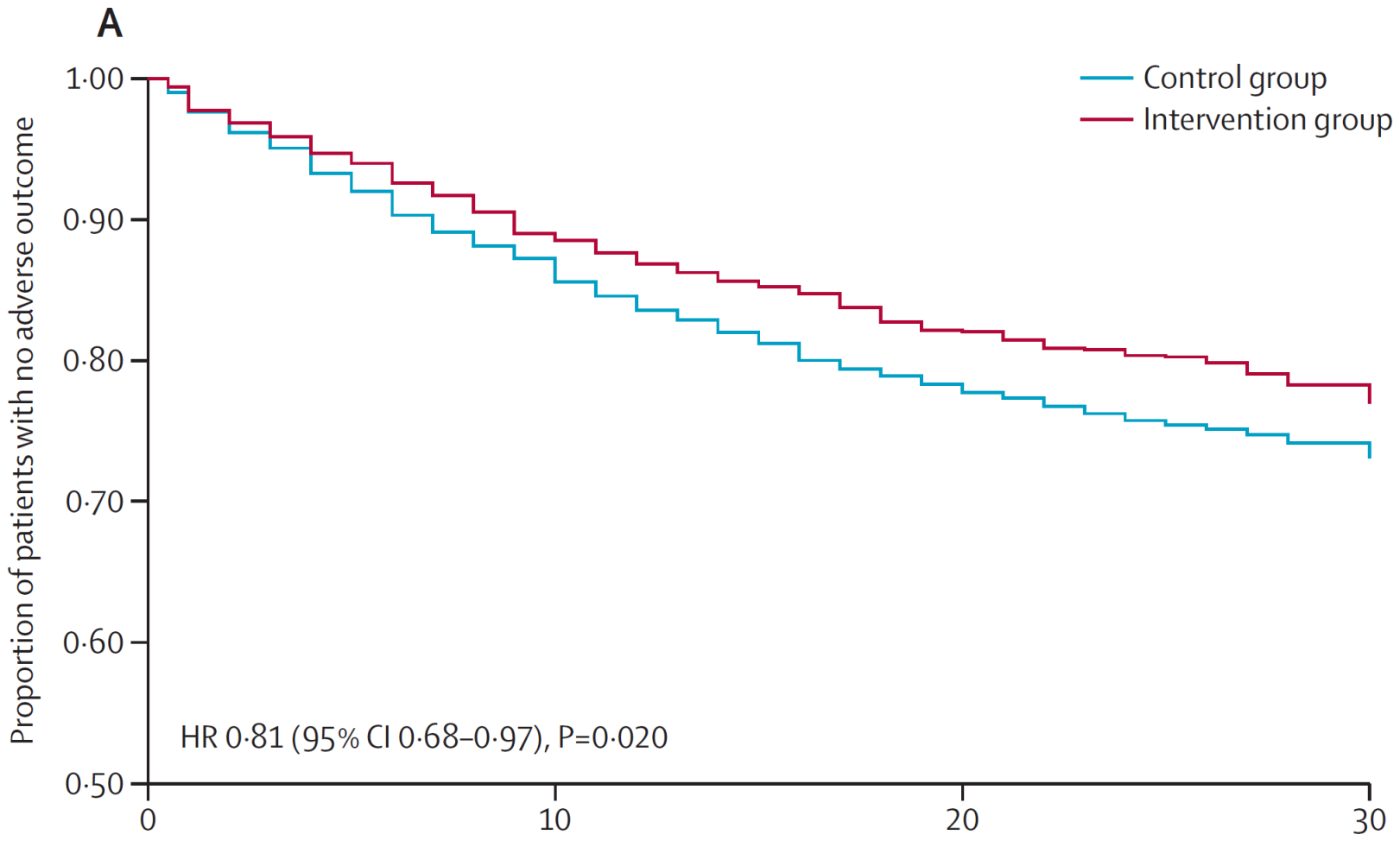
Summary

Background Guidelines recommend the use of nutritional support during hospital stays for medical patients (patients not critically ill and not undergoing surgical procedures) at risk of malnutrition. However, the supporting evidence for this recommendation is insufficient, and there is growing concern about the possible negative effects of nutritional therapy during acute illness on recovery and clinical outcomes. Our aim was thus to test the hypothesis that protocol-

Published Online
April 25, 2019
http://dx.doi.org/10.1016/S0140-6736(18)32776-4

See Online/Comment

EFFORT – Individualized nutritional support improved clinical outcome



Number at risk

Control group	1013	882	791	749
Intervention group	1015	895	825	786

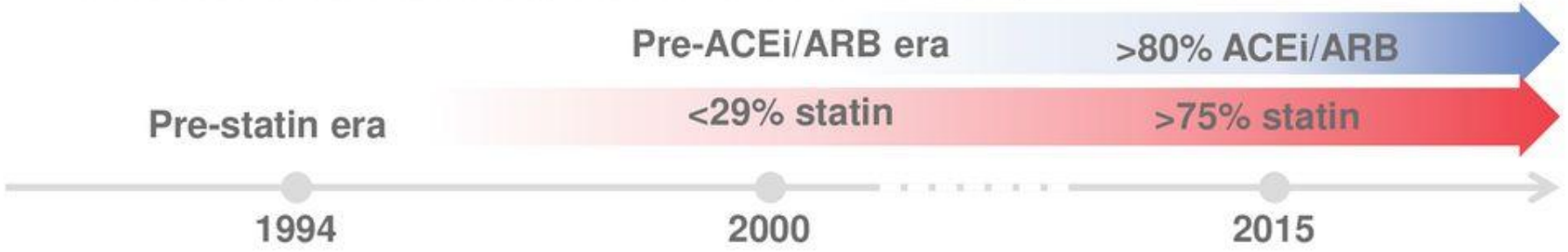
COMPLICATIONS

26.9% (Controls) vs 22.9% (Intervention)

Number needed to treat (NNT): 25

Number needed to treat (NNT) to prevent one death across major trials in patients with high CV risk (lower the NNT, the better)

Simvastatin[1]	Ramipril[2]	Empagliflozin
for 5.4 years	for 5 years	for **5** years
30	**56**	**25**
High CV risk 5% diabetes, 26% hypertension	**High CV risk** 38% diabetes, 46% hypertension	**T2DM with high CV risk** 92% hypertension



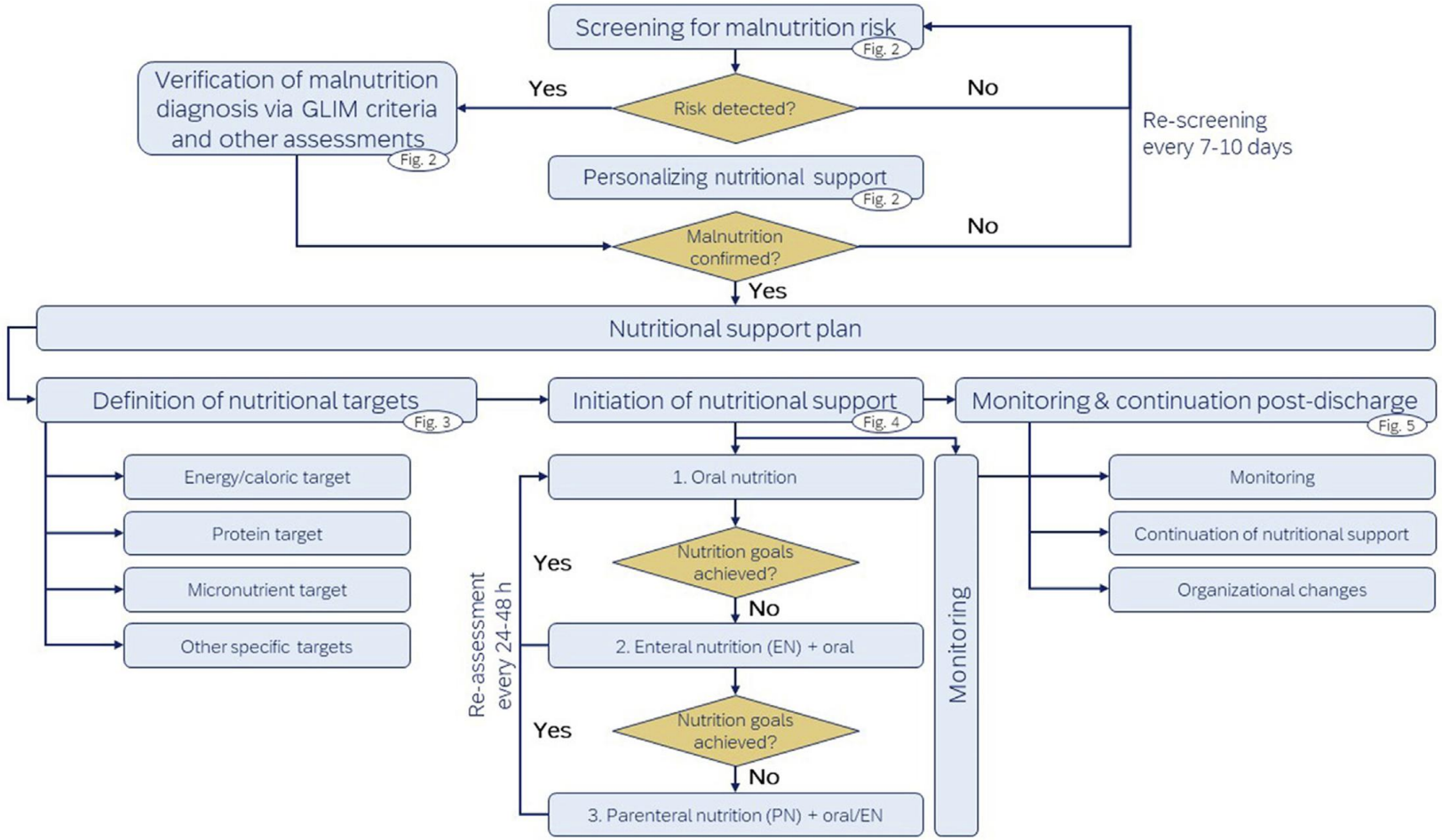
CV, cardiovascular; ACEi, angiotensin-converting enzyme inhibitor; ARB, angiotensin receptor blocker.

1. 4S investigator. Lancet 1994; 344: 1383-89, http://www.trialresultscenter.org/study2590-4S.htm;
2. HOPE investigator N Engl J Med 2000;342:145-53, http://www.trialresultscenter.org/study2606-HOPE.htm

Clinical practice guidelines to standardize nutritional support

C. Wunderle, F. Gomes, P. Schuetz et al.

Clinical Nutrition 43 (2024) 674–691



ESPEN
The European Society for Clinical Nutrition and Metabolism

ABOUT GUIDELINES EDUCATION

Fig. 1. Nutritional support for polymorbid medical inpatients. EN, enteral nutrition; GLIM, Global Leadership Initiative on Malnutrition; PN, parenteral nutrition.

Was sind unsere Erfolgsfaktoren?

«Individualized Nutrition»

Müssen wir das Geschlecht berücksichtigen für die Individuelle Ernährung?

The American Journal of Clinical Nutrition 120 (2024) 1225–1232

ASN EST. 1928 American Society for Nutrition Excellence in Nutrition Research and Practice

The American Journal of CLINICAL NUTRITION

journal homepage: https://ajcn.nutrition.org/

Original Research Article

Sex differences in clinical presentation, treatment response, and side effects of nutritional therapy among patients at nutritional risk: a secondary analysis of the randomized clinical trial EFFORT

Carla Wunderle [1,†], Sandra S Suter [1,†], Nele Endner [1], Eliane Haenggi [1], Nina Kaegi-Braun [2], Pascal Tribolet [1,3,4], Zeno Stanga [5], Beat Mueller [1,6], Philipp Schuetz [1,6,*]

[1] *Medical University Department, Division of General Internal and Emergency Medicine, Division of Endocrinology and Diabetes, Kantonsspital Aarau, Aarau, Switzerland;* [2] *Department of Bioscience and Nutrition, Karolinska Institutet, Stockholm, Sweden;* [3] *Department of Health Professions, Bern University of Applied Sciences, Bern, Switzerland;* [4] *Faculty of Life Sciences University of Vienna, Vienna, Austria;* [5] *Division of Diabetes, Endocrinology, Nutritional Medicine, and Metabolism, Inselspital Bern, Bern University Hospital, University of Bern, Bern, Switzerland;* [6] *Medical Faculty of the University of Basel, Basel, Switzerland*

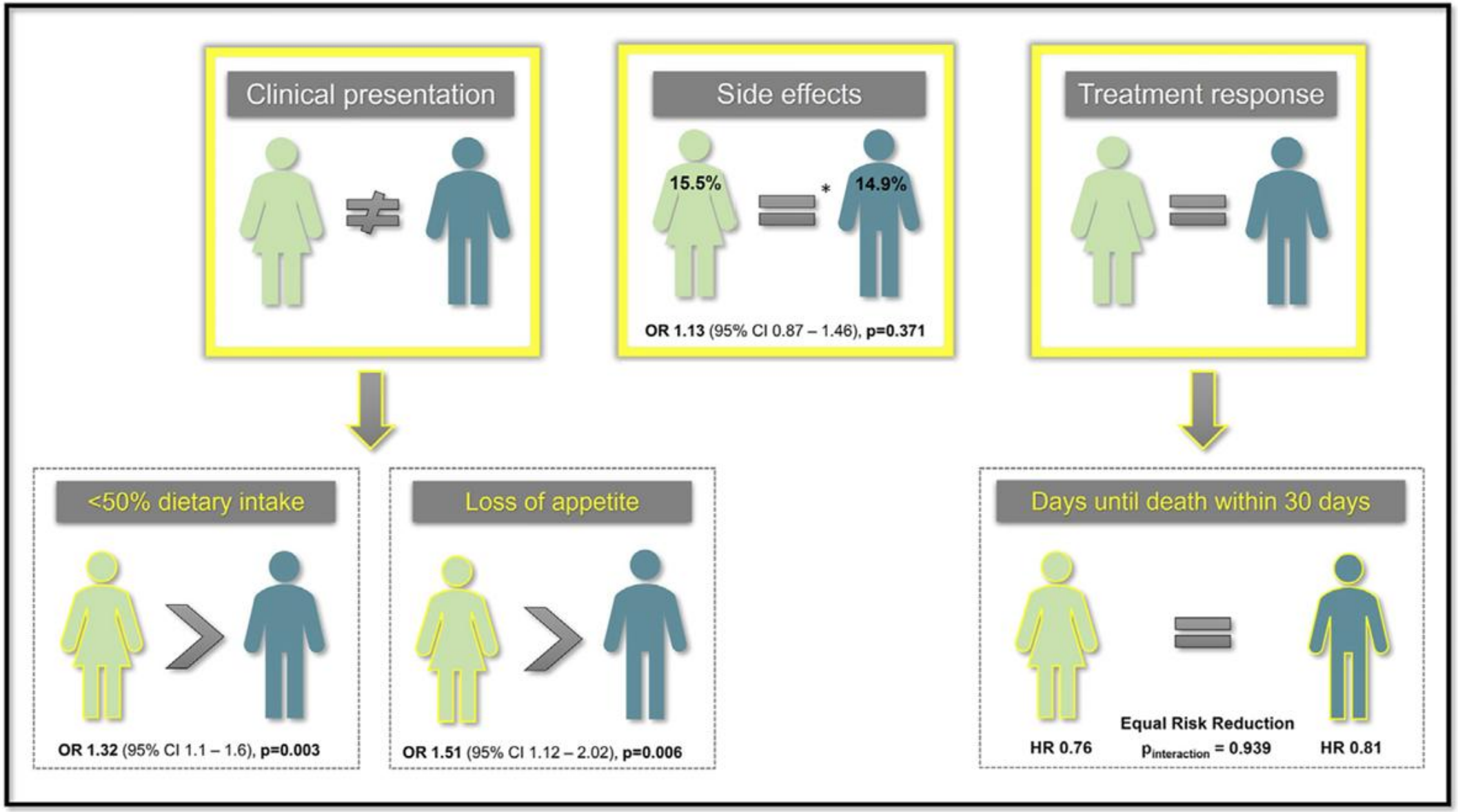


FIGURE 2. Main findings of this analysis. HR, hazard ratio; OR, odds ratio.

Toolbox for Individualized and Evidence-Based Nutritional Management

clinicalnutrition.science

NutriScreen	Nutritional Screening and Diagnostics Tool
NutriCalc	Calculator for individual Energy and Protein Targets
NutriGo	Dietary Guidelines for Special Clinical Situations
NutriPro	Comprehensive Product Database (Beta-version, Page under construction)
NutriRisk	Causes & Consequences of Malnutrition with Risk Calculation
NutriBib	Clinical Nutrition Library

Was sind unsere Erfolgsfaktoren?

«Individualized Nutrition»

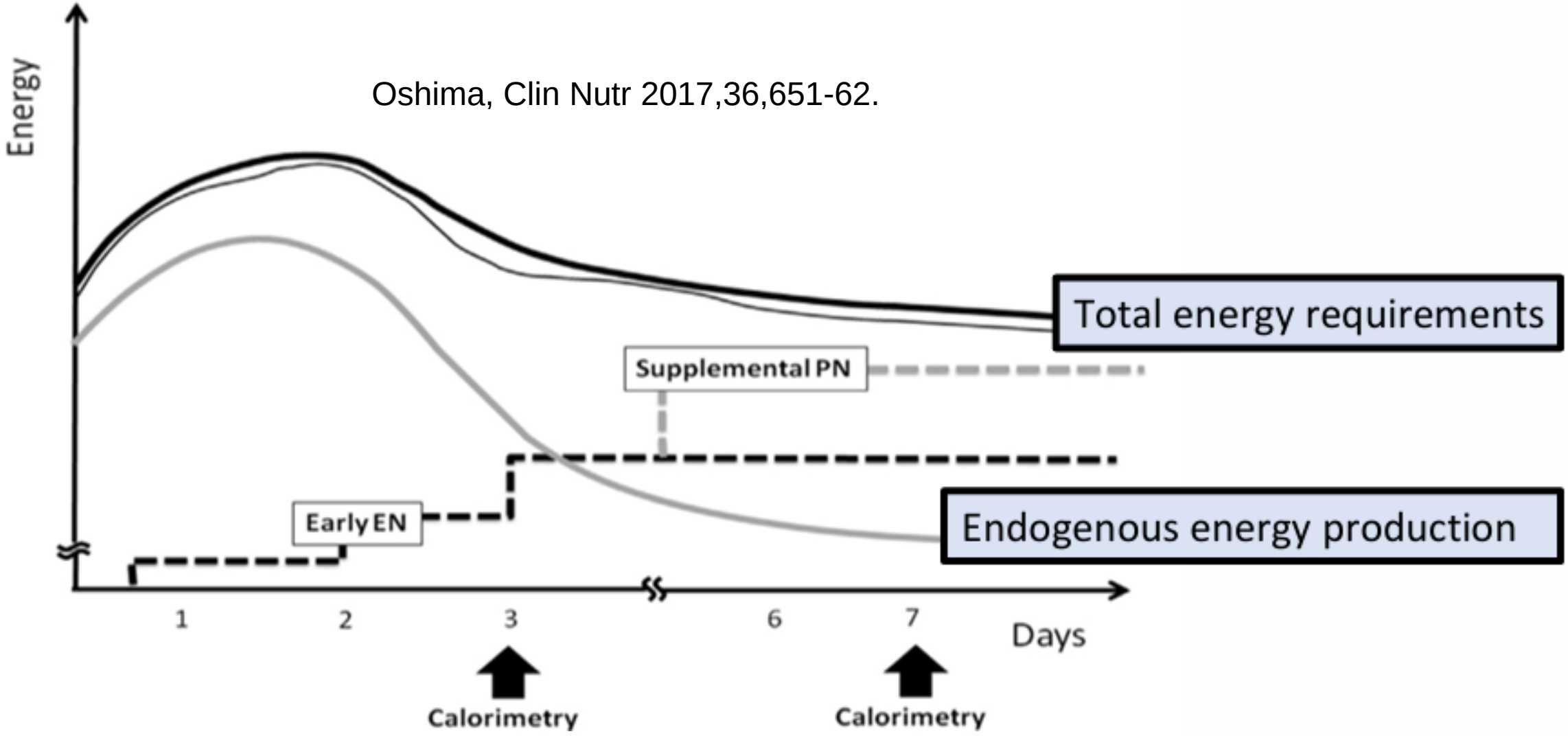
Die richtige Qualität & Menge für den richtigen Patienten

The Nutrion Paradox

The higher the severity – the slower the nutritional increase

Stress response during acute illness

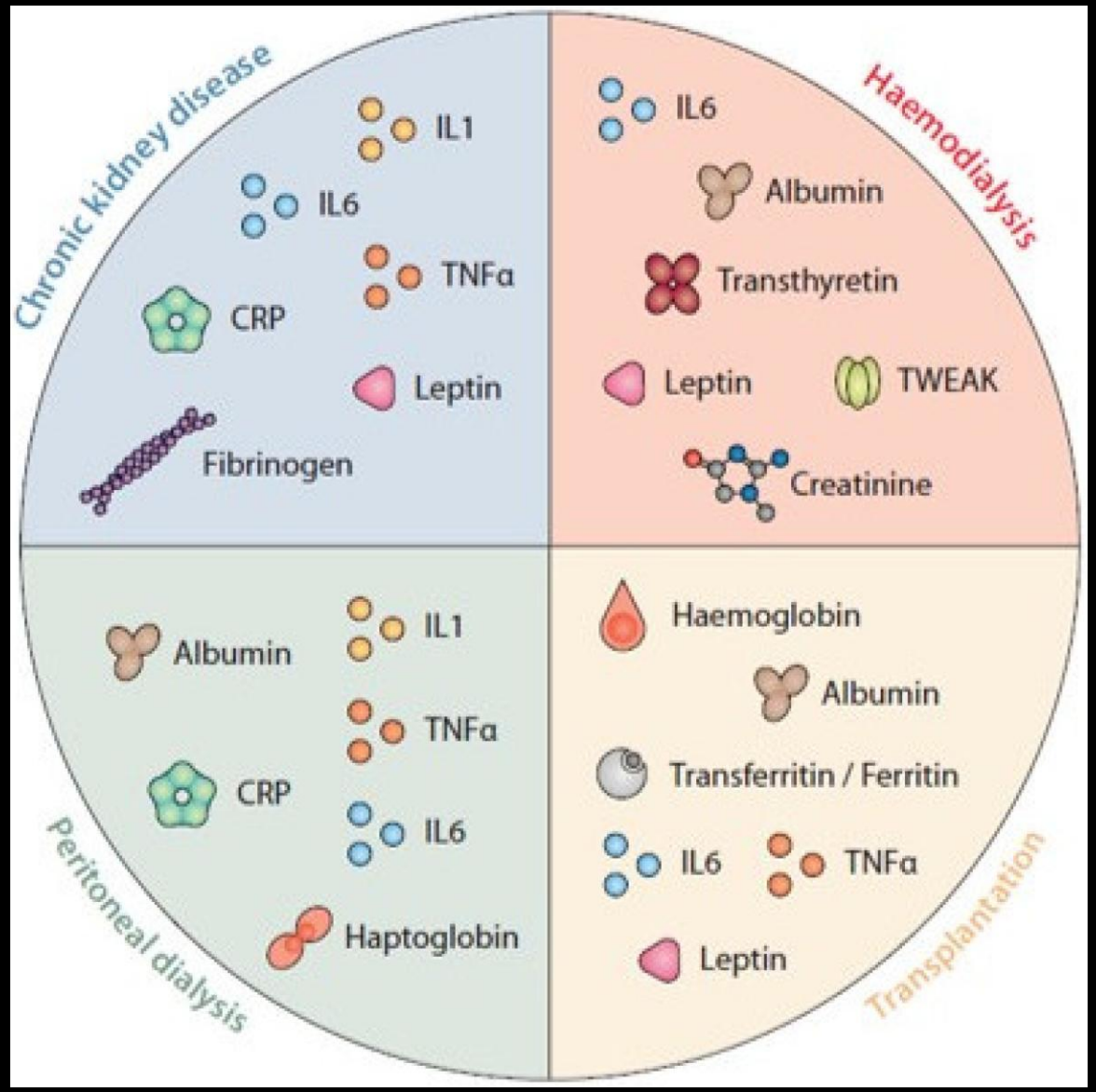
Oshima, Clin Nutr 2017,36,651-62.

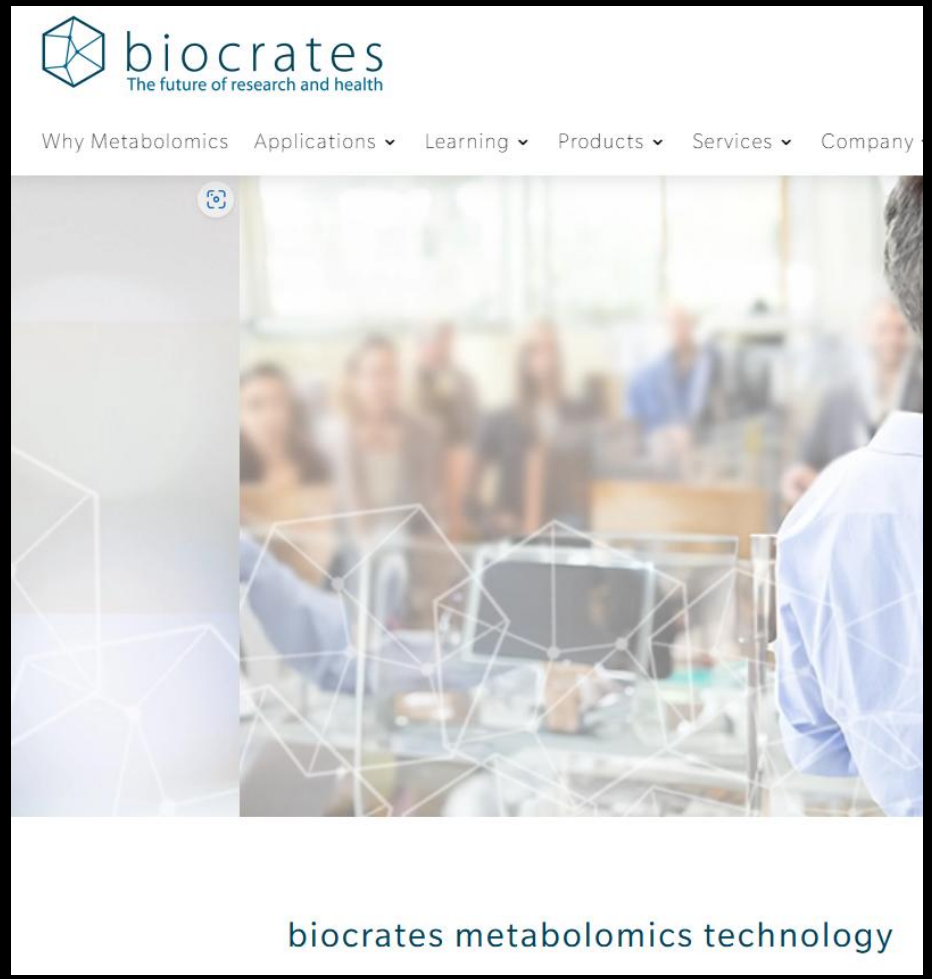


Oshima, Clin Nutr 2017,36,651-62.

Personlized Nutrition:
a hug opportunity for Medicine (& Industry …?)

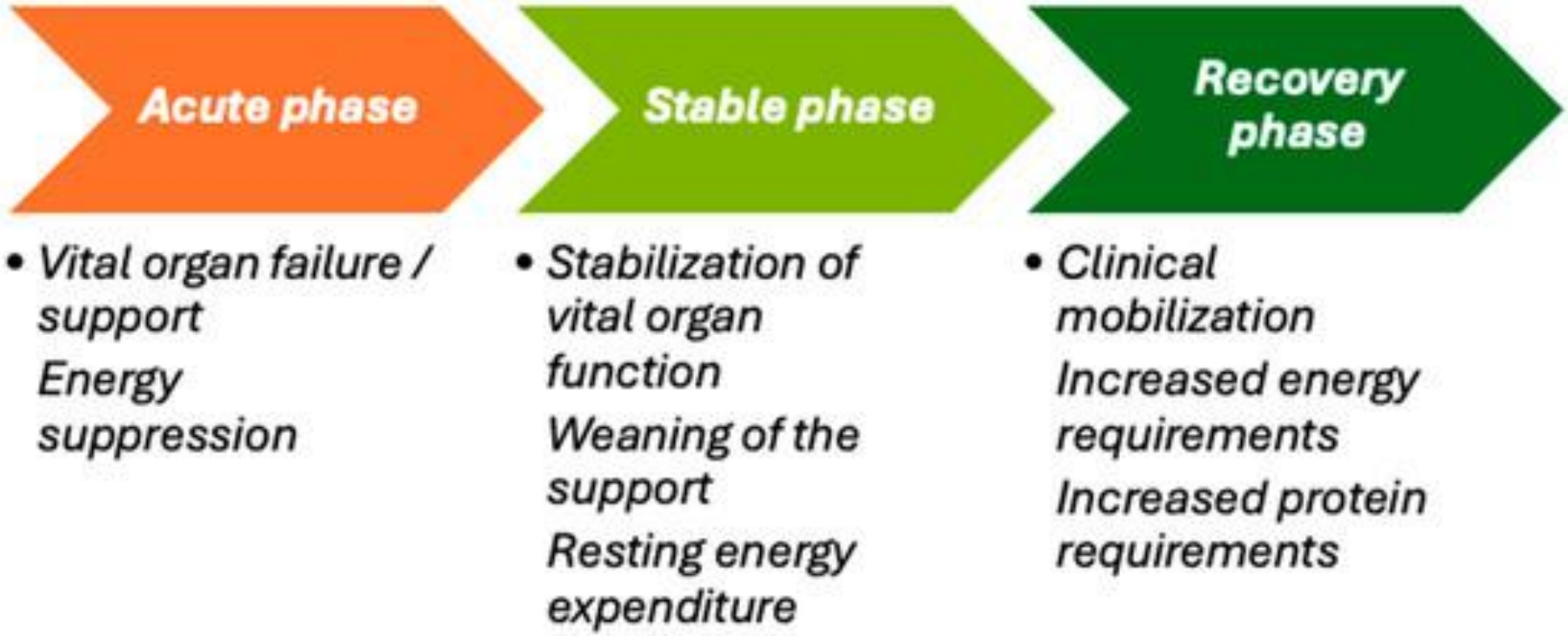
What are promising nutritional biomarkers?





Was sind unsere Erfolgsfaktoren?

Dauer der Therapie – ambulante Anbindung
Phasen-gerechte Weiterführung zuhause



Medical patients after hospital discharge & Nutritional Support

Contents lists available at ScienceDirect

Clinical Nutrition

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

Meta-analyses

Nutritional support after hospital discharge improves long-term mortality in malnourished adult medical patients: Systematic review and meta-analysis

Nina Kaegi-Braun [a, 1], Fiona Kilchoer [b, 1], Saranda Dragusha [c, 1], Carla Gressies [a], Montserrat Faessli [b], Filomena Gomes [d, e], Nicolaas E. Deutz [f], Zeno Stanga [g], Beat Mueller [a], Philipp Schuetz [a, *]

[a] *Medical University Department, Clinic for Endocrinology/Metabolism/Clinical Nutrition, Kantonsspital Aarau, Aarau and Medical Faculty of the University of Basel, Switzerland*
[b] *Medical Faculty of the University of Basel, Switzerland*
[c] *Medical Faculty of the Università Della Svizzera Italiana, Switzerland*
[d] *The New York Academy of Sciences, New York, NY, USA*
[e] *NOVA Medical School, Universidade NOVA de Lisboa, Lisboa, Portugal*
[f] *Center for Translational Research in Aging & Longevity, Department of Health & Kinesiology, Texas A&M University, College Station, TX, USA*
[g] *Division of Diabetology, Endocrinology, Nutritional Medicine, & Metabolism, University Hospital Inselspital Bern, University of Bern, Bern, Switzerland*

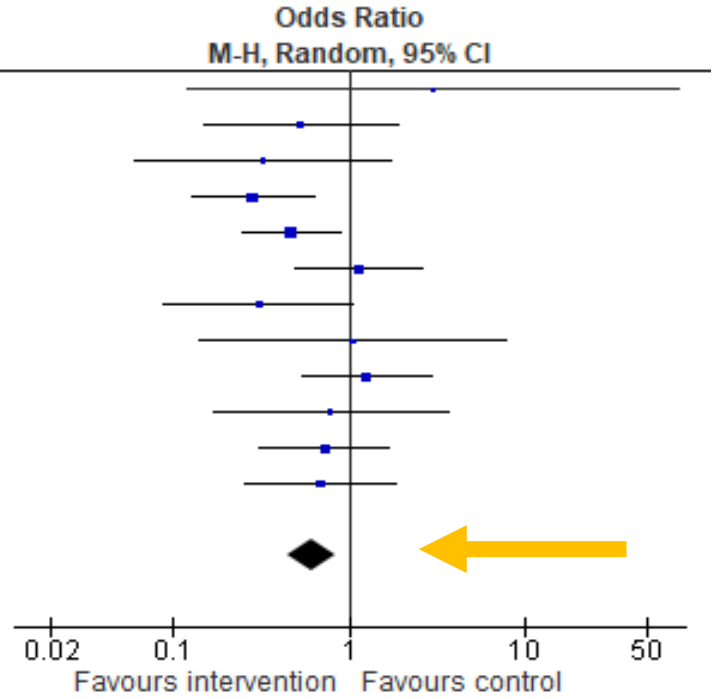
Kaegi-Braun N. et al, Clin Nutr 2022 Nov;41(11):2431-2441.

Medical patients after hospital discharge & Nutritional Support

Study or Subgroup	nutritional intervention Events	Total	control Events	Total	Weight	Odds Ratio M-H, Random, 95% CI
Andersson 2017	1	58	0	57	1.0%	3.00 [0.12, 75.19]
Beck 2013	4	63	7	62	5.8%	0.53 [0.15, 1.92]
Beck 2015	2	34	6	37	3.5%	0.32 [0.06, 1.72]
Bonilla-Palomas 2016	12	59	29	61	13.0%	0.28 [0.13, 0.63]
Deutz 2016	15	313	30	309	18.7%	0.47 [0.25, 0.89]
Edington 2004	17	51	15	49	12.2%	1.13 [0.49, 2.63]
Feldblum 2010	3	78	21	181	6.2%	0.30 [0.09, 1.05]
Gazzotti 2003	2	39	2	41	2.5%	1.05 [0.14, 7.87]
Neelemaat 2011	14	89	11	86	11.9%	1.27 [0.54, 2.98]
Price 2005	3	66	4	70	4.1%	0.79 [0.17, 3.65]
Sharma 2017	12	78	14	70	12.0%	0.73 [0.31, 1.70]
Yang 2019	9	39	13	43	9.2%	0.69 [0.26, 1.86]
Total (95% CI)		**967**		**1066**	**100.0%**	**0.62 [0.45, 0.85]**
Total events	94		152			

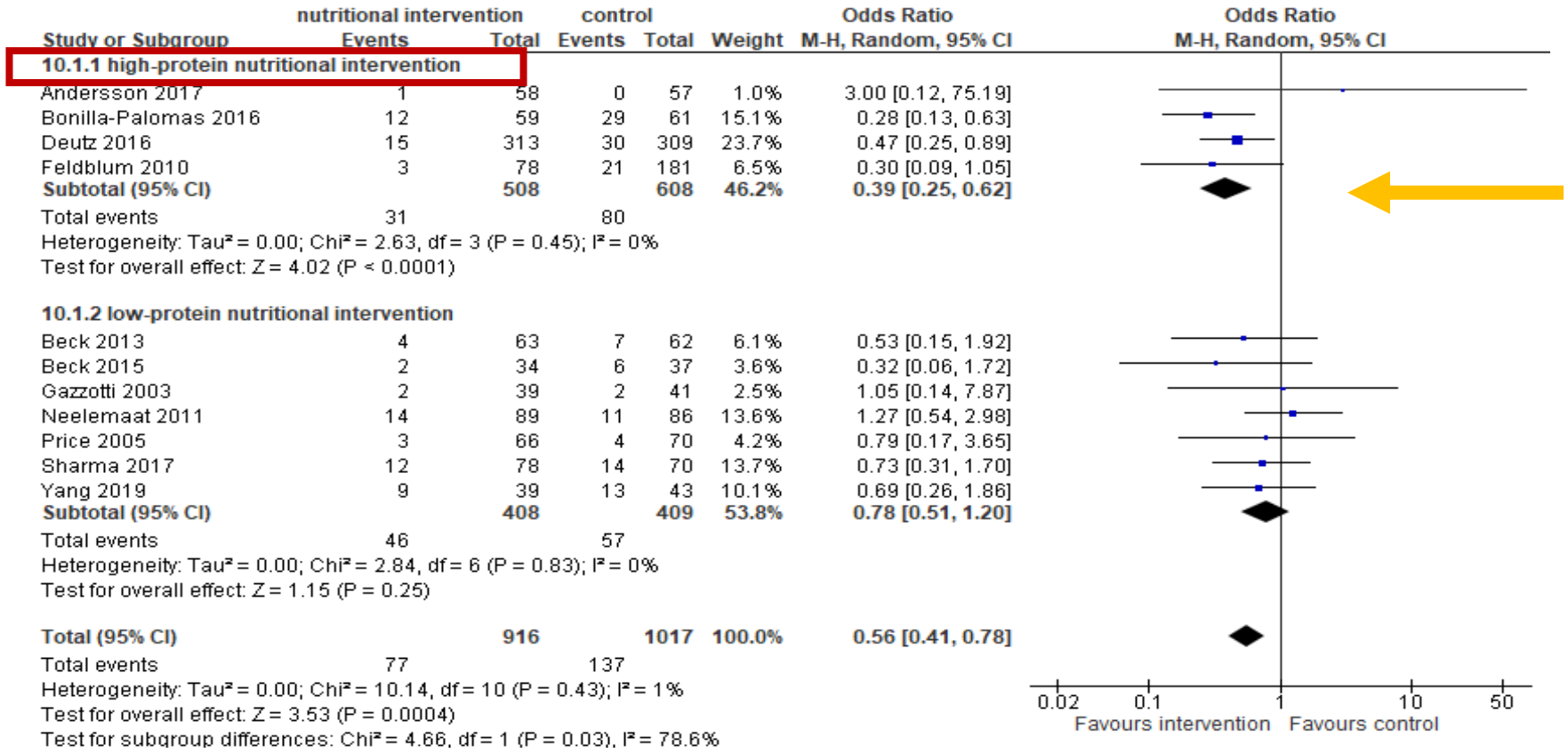
Heterogeneity: $Tau^2 = 0.04$; $Chi^2 = 12.47$, $df = 11$ ($P = 0.33$); $I^2 = 12\%$

Test for overall effect: $Z = 2.93$ ($P = 0.003$)



40%- Mortality reduction in patients treated long term with nutritional support

Kaegi-Braun N. et al, Clin Nutr 2022 Nov;41(11):2431-2441.



Stronger mortality effect in High vs. Low protein interventions

Nutritional support was also associated with a significant increase in the mean daily intake of energy (568 kcal, p = 0.04), proteins (24 g, 95% CI 7 to 41), p = 0.005) and body weight (1.1 kg, 95% CI 0.6 to 1.7), p < 0.001).

Kaegi-Braun N. et al, Clin Nutr 2022 Nov;41(11):2431-2441.

Effectiveness of ONS in Reducing Complications: Principal results

Contents lists available at ScienceDirect

Ageing Research Reviews

journal homepage: www.elsevier.com/locate/arr

Review

A systematic review and meta-analysis of the effects of community use of oral nutritional supplements on clinical outcomes

A.L. Cawood [a,*], S.T. Burden [b], T. Smith [c], R.J. Stratton [a]

[a] Faculty of Medicine, Southampton General Hospital, Mailpoint 113, Tremona Road, Southampton SO16 6YD, UK
[b] School of Health Sciences, University of Manchester, Manchester, UK
[c] Department of Gastroenterology, University Hospitals Southampton, NHS Foundation Trust, Southampton General Hospital, Mailpoint 255, Tremona Road, Southampton SO16 6YD, UK

- Examined the **effect of ONS** in community settings on the incidence of complications
  - 44 RCT: 29 RCT surgical, 15 RCT medical patients
  - n=5716, mean age 67 years, range 35–87
- ONS prescribed for a mean of **74 days**.
- ONS intake: mean 588 kcal/day; protein 22 g/day, range 0–54; mean energy from protein 22%, range 0–54.

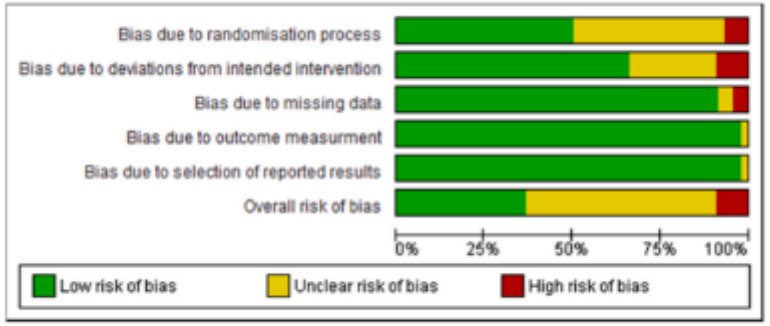


Fig. 2. Risk of bias summary (RoB2) for included studies (44 RCT).

Cawood A.L. et al. Ageing Res Rev 2023 Jul:88:101953

Nutrient dense & Compliance

Contents lists available at SciVerse ScienceDirect

Clinical Nutrition

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

Review

A systematic review of compliance to oral nutritional supplements☆

Gary P. Hubbard [a,*], Marinos Elia [b,d], Anne Holdoway [c,f], Rebecca J. Stratton [a,b,e]

[a] Medical Affairs Dept, Nutricia, Whitehorse Business Park, Trowbridge, Wiltshire, BA14 0XQ, UK
[b] Institute of Human Nutrition, University of Southampton, Southampton General Hospital, Mailpoint 113, Tremona Road, Southampton SO16 6YD, UK
[c] Nutrition & Dietetic Services, Great Western Hospitals NHS Foundation Trust and Wiltshire Community Health Services, Marlborough Road, SN3 6BB, UK

Greater compliance with higher energy density ONS
(91% for ONS ≥2 kcal/mL)

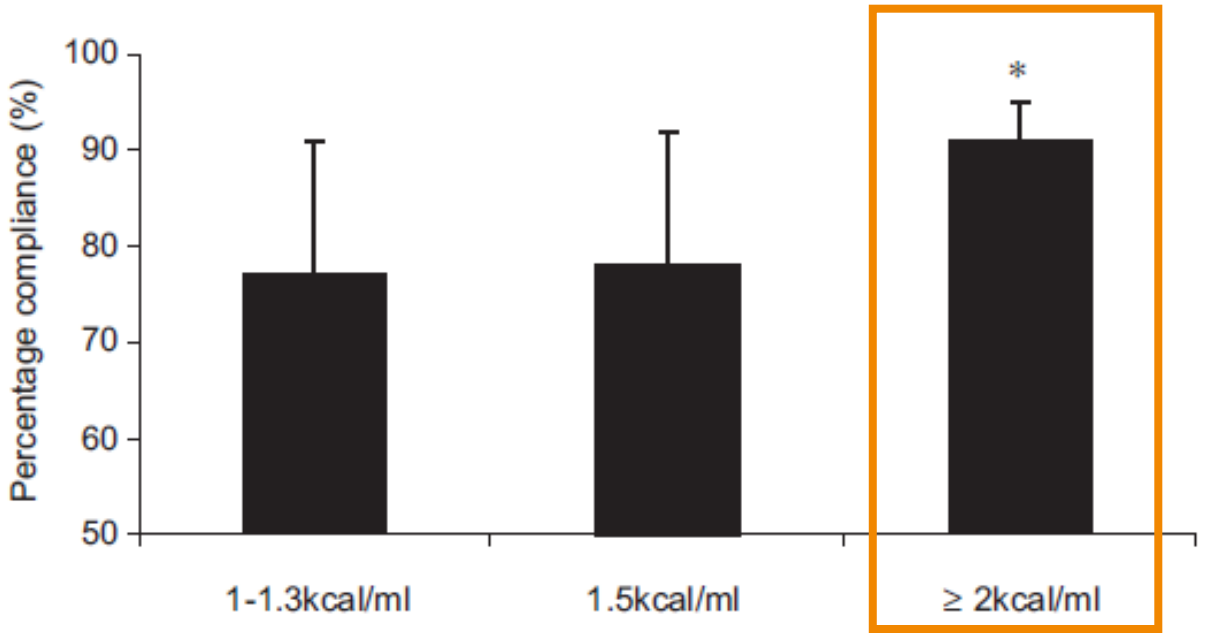


Fig. 5. Comparison of percentage compliance between groups of studies employing feeds with different energy densities. Compliance was significantly greater with ONS of energy density ≥2 kcal/ml ($N = 8$) ($^*p < 0.05$) compared to 1–1.3 kcal/ml ($N = 21$) or 1.5 kcal/ml ($N = 12$) ONS.

Hubbard GP et al. Clin Nutr 2012 Jun;31(3):293-312

Long-term effectiveness of nutritional support when using ONS in the community setting

EFFORT II

ClinicalTrials.gov ID: NCT04926597

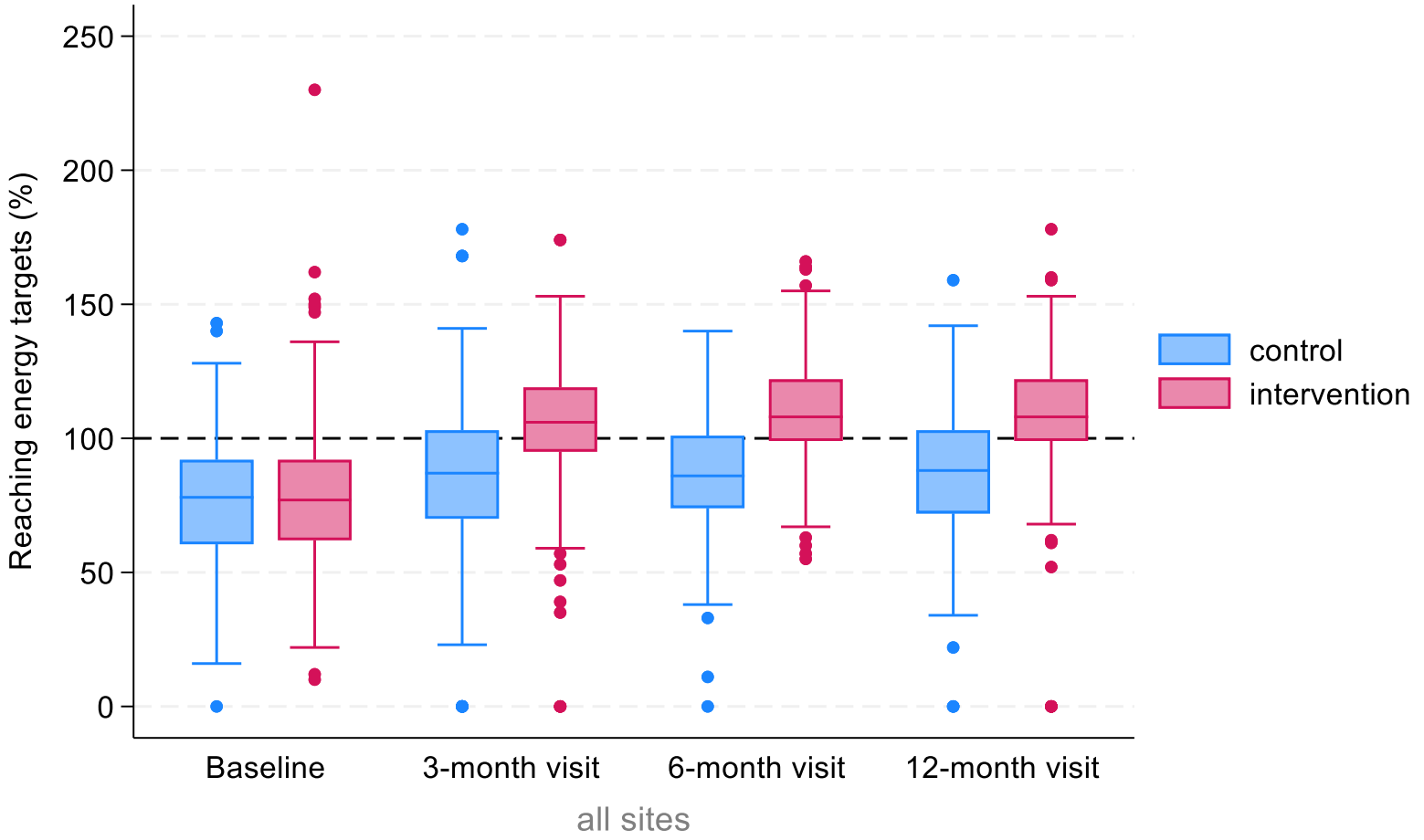
Medienmitteilung

Schweizerischer Nationalfonds unterstützt EFFORT-Studie 2 des KSA

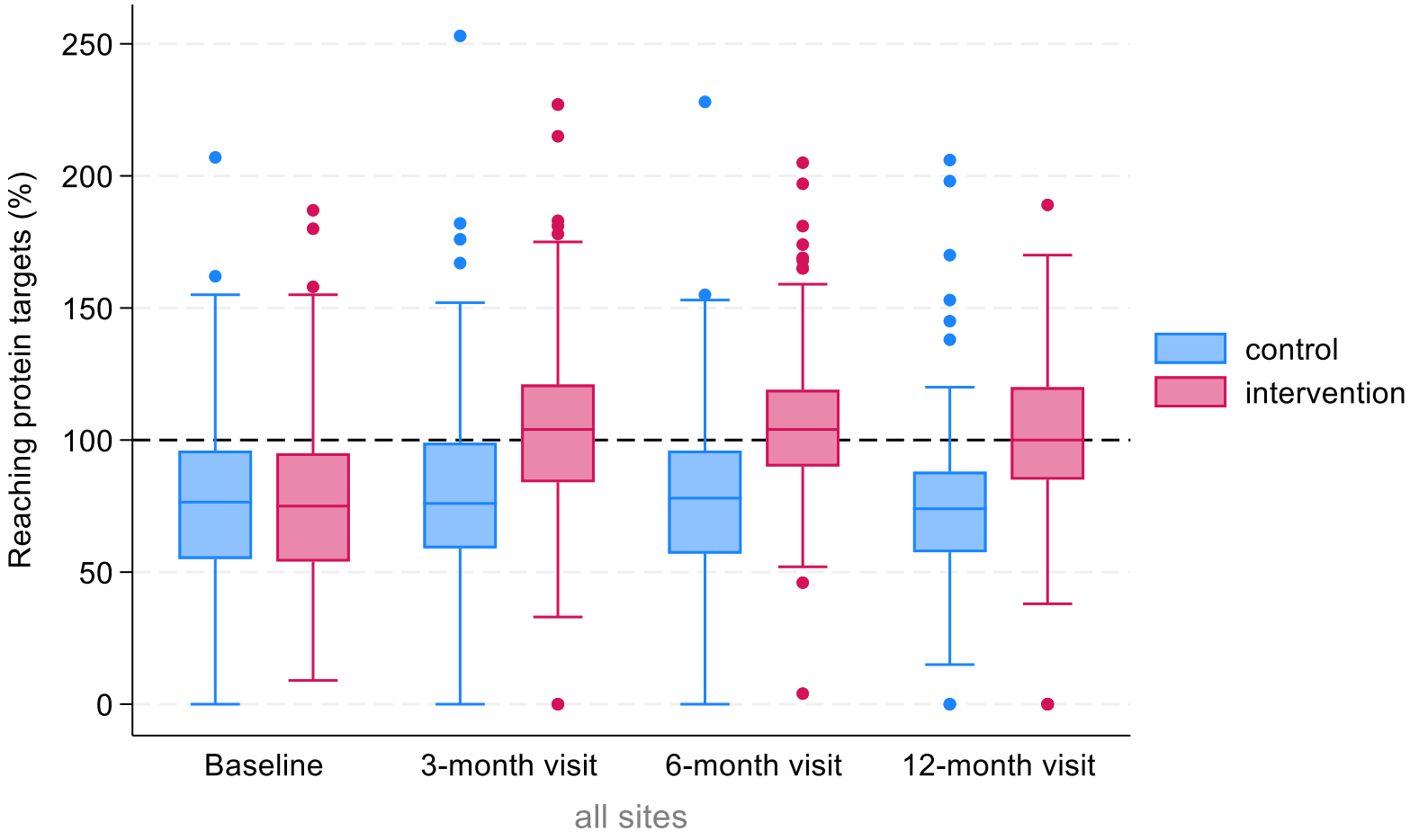
6. Juni 2022

Ein Forschungsprojekt des KSA zur Wirksamkeit von Ernährungstherapien darf sich über die finanzielle Unterstützung des Schweizerischen Nationalfonds (SNF) freuen. Unter der Leitung von

Individualized nutritional support leads to better achievement of nutritional targets: Energy



Individualized nutritional support leads to better achievement of nutritional targets: Protein



Was sind unsere Erfolgsfaktoren?

Klinische Forschung

Contents lists available at ScienceDirect

Clinical Nutrition

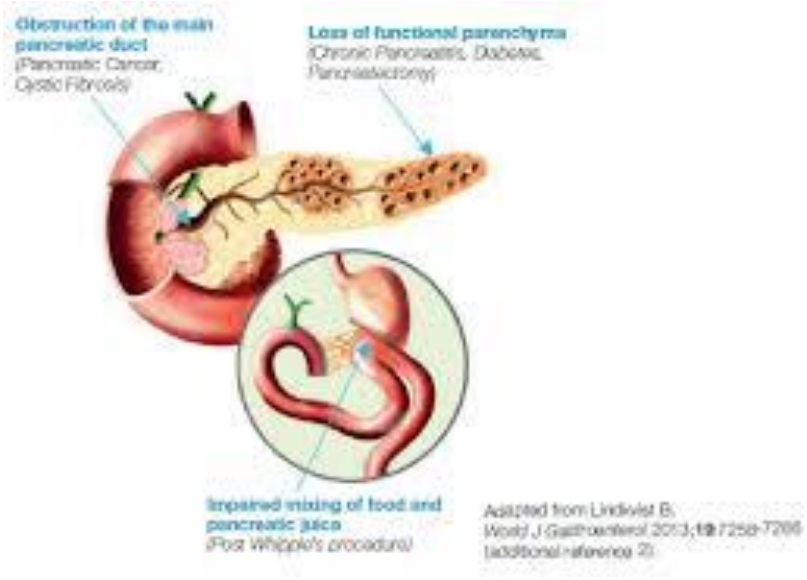
journal homepage: http://www.elsevier.com/locate/clnu

Randomized Control Trials

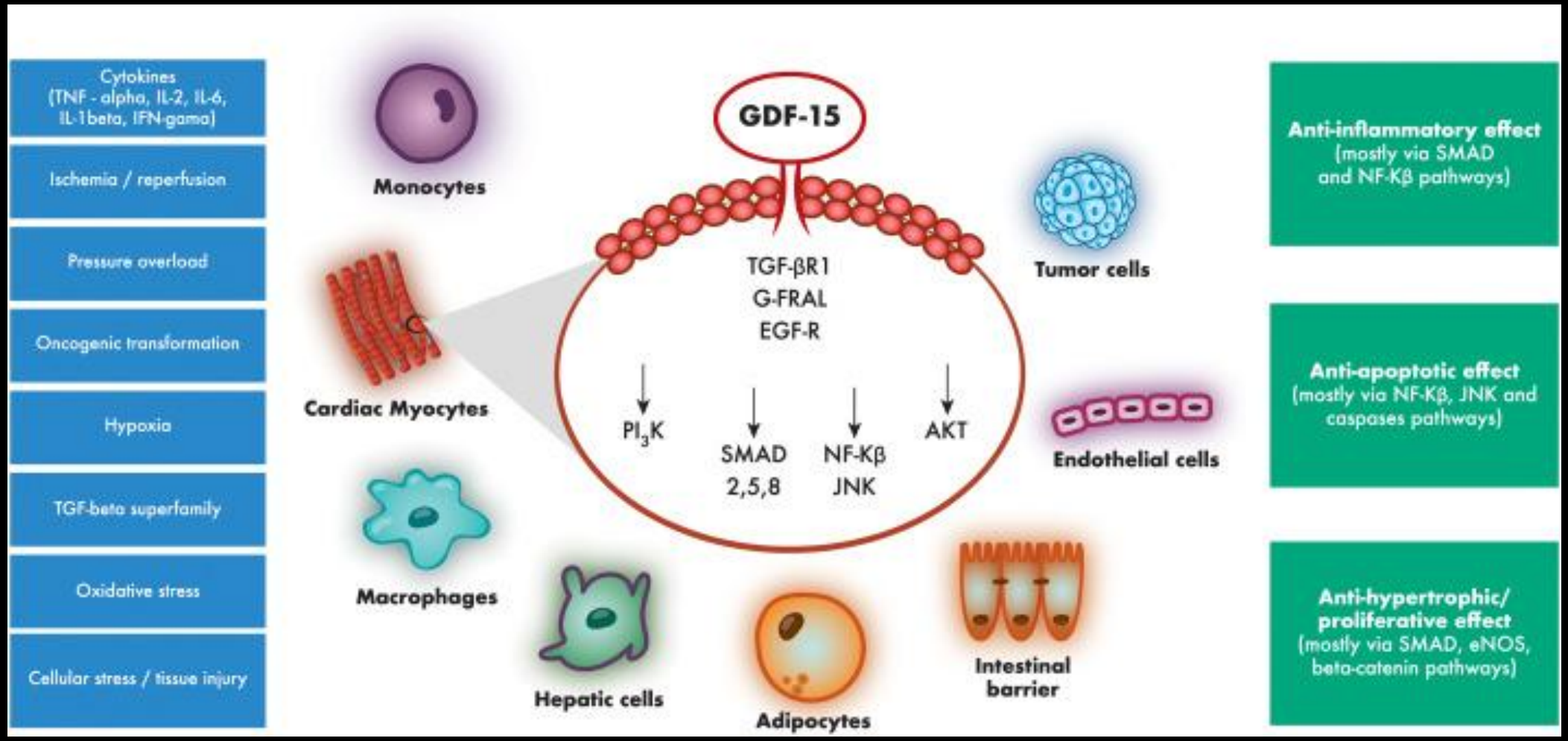
Low plasma pancreatic lipase as a novel predictor of nutritional target achievement and response to nutritional interventions in malnourished inpatients: *Secondary analysis of a randomized clinical trial*

Selina Randegger [a, b, 1], Carla Wunderle [a, 1], Odd Erik Johansen [c], Pascal Tribolet [a, d, e], Vojtech Pavlicek [f], Michael Braendle [g], Christoph Henzen [h], Robert Thomann [i], Peter Neyer [j], Zeno Stanga [k], Beat Mueller [a, b], Philipp Schuetz [a, b, *]

[a] *Medical University Department, Division of General Internal and Emergency Medicine, Kantonsspital Aarau, Tellstrasse 25, 5001 Aarau, Switzerland*
[b] *Medical Faculty of the University of Basel, Klingelbergstrasse 61, 4056 Basel, Switzerland*
[c] *Nestlé Health Science, Av. Nestlé 55, 1800 Vevey, Switzerland*
[d] *Department of Health Professions, Bern University of Applied Sciences, Murtenstrasse 10, 3008 Bern, Switzerland*
[e] *Vienna Doctoral School of Pharmaceutical, Nutritional and Sport Sciences, University of Vienna, Josef-Holaubek-Platz 2, 1090 Vienna, Austria*
[f] *Internal Medicine, Kantonsspital Münsterlingen, Spitalcampus 1, 8596 Münsterlingen, Switzerland*
[g] *Internal Medicine & Endocrinology/Diabetes, Kantonsspital St.Gallen, Rorschacherstrasse 95, 9000 St.Gallen, Switzerland*
[h] *Internal Medicine, Kantonsspital Luzern, Spitalstrasse, 6000 Luzern, Switzerland*
[i] *Department of Internal Medicine, Bürgerspital Solothurn, Schöngrünstrasse 42, 4500 Solothurn, Switzerland*
[j] *Institute of Laboratory Medicine, Kantonsspital Aarau, Tellstrasse 25, 5001 Aarau, Switzerland*
[k] *Division of Diabetes, Endocrinology, Nutritional Medicine, and Metabolism, Bern University Hospital and University of Bern, Freiburgstrasse 15, 3010 Bern, Switzerland*



GDF-15: biomarker and therapeutic target?



Growth differentiation factor-15 (GDF-15) is a cytokine upregulated in multiple pathological conditions where oxidative stress, endothelial dysfunction, tissue aging, and chronic inflammation are the hallmarks.

The NEW ENGLAND JOURNAL of MEDICINE

Ponsegromab for Cancer Cachexia

A PLAIN LANGUAGE SUMMARY

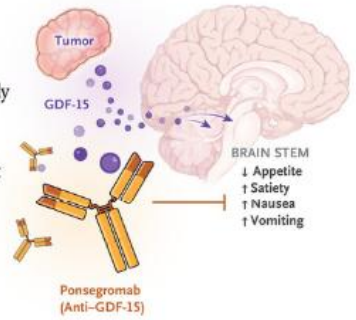
Based on the NEJM publication: Ponsegromab for the Treatment of Cancer Cachexia
by J.D. Groarke et al. (published September 14, 2024)

In this trial, researchers examined the safety and efficacy of the monoclonal antibody ponsegromab for treating cancer cachexia.

Cachexia — also known as wasting syndrome — occurs commonly in patients with cancer and can lead to weight loss, muscle wasting, functional impairment, and reduced survival.

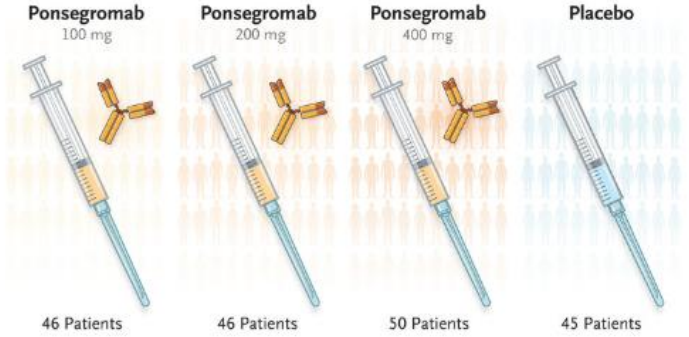
WHY WAS THE TRIAL DONE?

Pharmacologic treatment options for cancer cachexia are limited. Ponsegromab is a humanized monoclonal antibody that binds to growth differentiation factor 15 (GDF-15), a stress-induced cytokine implicated in the development of cachexia. In a small phase 1b study of ponsegromab, patients with cancer cachexia and an elevated circulating GDF-15 level had improved outcomes and few adverse events.



HOW WAS THE TRIAL CONDUCTED?

Adults with cancer cachexia and elevated serum GDF-15 levels were assigned to receive ponsegromab (100 mg, 200 mg, or 400 mg) or placebo, administered subcutaneously every 4 weeks for three doses. The primary end point was the change in body weight at 12 weeks.



PATIENTS

WHO

187 adults

Median age, 67 years

Men: 63%; Women: 37%

CLINICAL STATUS

Cachexia (involuntary weight loss of >5% within the previous 6 months or >2% with BMI <20)

Serum GDF-15 level of at least 1500 pg per milliliter

ECOG performance-status score of 3 or less (scale, 0 to 5, with higher numbers reflecting greater disability)

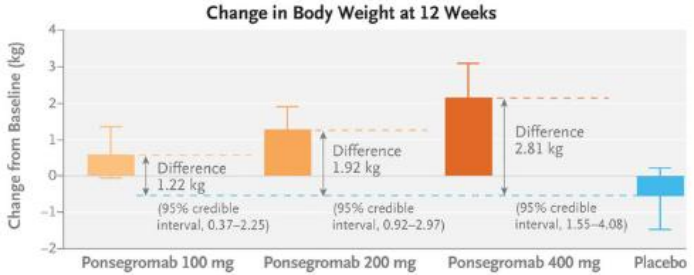
Life expectancy of at least 4 months

TRIAL DESIGN

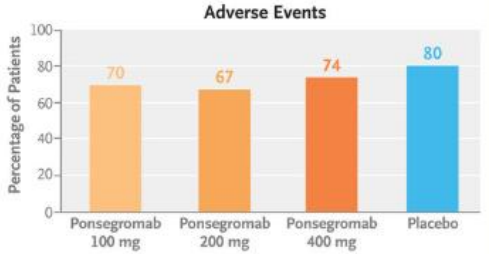
- PHASE 2
- RANDOMIZED
- DOUBLE-BLIND
- PLACEBO-CONTROLLED
- DOSE-RANGING
- DURATION: 12 WEEKS
- LOCATION: 74 SITES IN 11 COUNTRIES

RESULTS

At 12 weeks, patients in the ponsegromab groups had significantly greater weight gain than those in the placebo group. Patients in the 400-mg ponsegromab group also had improvements in secondary end point measures of anorexia and cachexia symptoms, as well as physical activity, as compared with the placebo group.



The percentage of patients who reported adverse events of any cause was similar across groups.



CANCER TYPE

Non–small-cell lung cancer was the most prevalent cancer (40% of patients), followed by pancreatic cancer (32%) and colorectal cancer (29%).

LIMITATIONS AND REMAINING QUESTIONS

- Nearly all the patients in the trial were Asian or White.
- Although ponsegromab-mediated weight gain did not appear to be related to the magnitude of baseline GDF-15 elevation, larger studies are needed to evaluate a possible association.
- Missing data on physical activity level and gait for some patients may have limited detection of a treatment effect across the ponsegromab dose groups.

CONCLUSIONS

Among patients with cancer cachexia and an elevated GDF-15 level, the inhibition of GDF-15 with ponsegromab significantly increased body weight at 12 weeks, as compared with placebo.

LINKS: FULL ARTICLE | NEJM QUICK TAKE | EDITORIAL | SCIENCE BEHIND THE STUDY

FURTHER INFORMATION

Trial registration: ClinicalTrials.gov number, NCT05546476
Trial funding: Pfizer

Was sind unsere Erfolgsfaktoren?

- Interdisziplinarität: ERB – Pflege – Arztdienst – Küche
- Frühzeitiges Screening und Evidenz-basierte Entscheidungen
- Individualisierte Ernährung – nicht zuviel & nicht zuwenig
- Gezielter Einsatz von hochwertigen protein- und energiereichen Trinknahrungen
- Dauer der Therapie – ambulante Anbindung
- Interdisziplinäre klinische Forschung

Thank you – stay in touch!

Follow me on LinkedIn for more updates!