



FONDAZIONE IRCCS CA' GRANDA
OSPEDALE MAGGIORE POLICLINICO

Sistema Sanitario Regione Lombardia



INTERNATIONAL SEMINAR
REPOSI2015
Milan, Italy 24-25 September
**TARGETING THE BURDEN
OF POLYPHARMACY
IN THE ELDERLY**

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DISCUSSANT

*The role of nutrition and
nutraceuticals in older adults
on polypharmacy:
opportunities and concerns*



Milan, September 25, 2015

WHAT KIND OF EVIDENCE DO WE NEED?

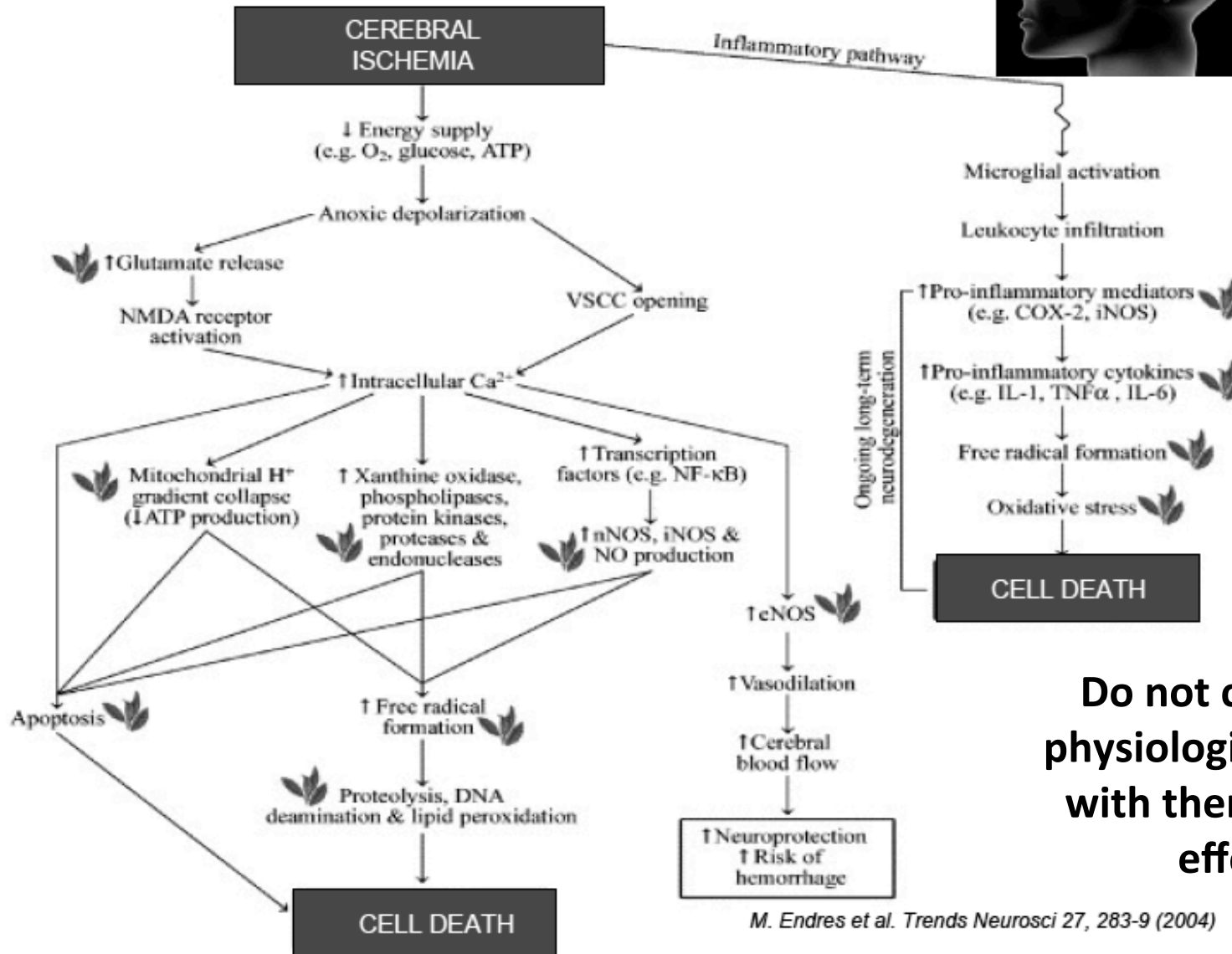
The term **NUTRACEUTICAL** is a chimerical word, resulting from the fusion of “**nutrition**” and “**pharmaceutical**”.

Foods or drugs?

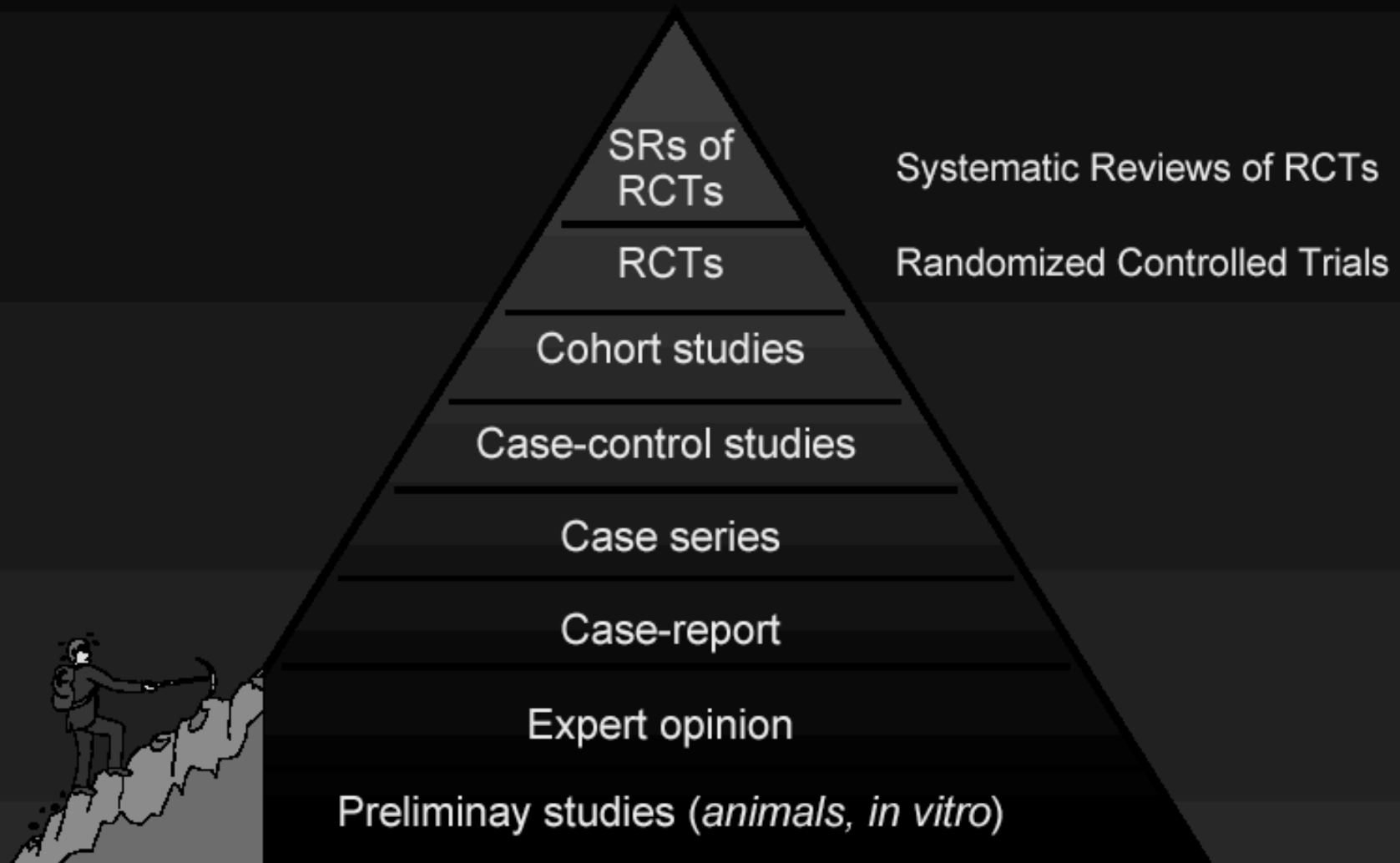
Different kind of evidence

<i>Biological Level</i>	<i>Main Type of Evidence</i>	
Molecular Sub-Cellular Cellular Tissue Organ		<i>Biochemical & Physiological Mechanism</i> <i>in vitro</i> <i>ex vivo</i> <i>in vivo</i> <i>in situ</i>
Whole Body Sub-Populations Populations		<i>'Practical' Effect</i> Intervention Trials Epidemiological Meta-analyses
Nutrigenomics		<i>'Individual' Effect</i> 'Analytical'

GREEN TEA NEUROPROTECTIVE EFFECTS

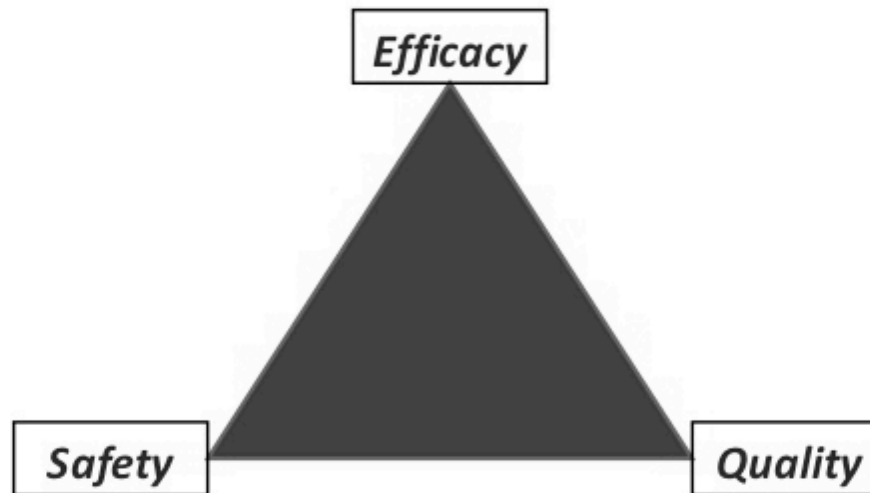


Hierarchy of Evidence





EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH



The European Medicines Agency is responsible for the centralised authorisation procedure for human and veterinary medicines.

This procedure results in a single marketing authorisation that is valid in all EU countries, as well as in the European Economic Area (EEA) countries Iceland, Liechtenstein and Norway.

SURROGATE vs CLINICAL ENDPOINTS

Disease-centered characteristics

Patient-centered characteristics

Biomarkers

A characteristic that is objectively measured and evaluated as an indicator of normal, pathogenic or pharmacologic responses to a therapeutic intervention.

Surrogate outcomes

A *biomarker* - or clinical or patient-relevant outcome - that is intended to substitute and predict for a final outcome, namely *survival* or *HRQoL*.

e.g. Rate of hip fracture

e.g. Event-free Survival

Final outcome

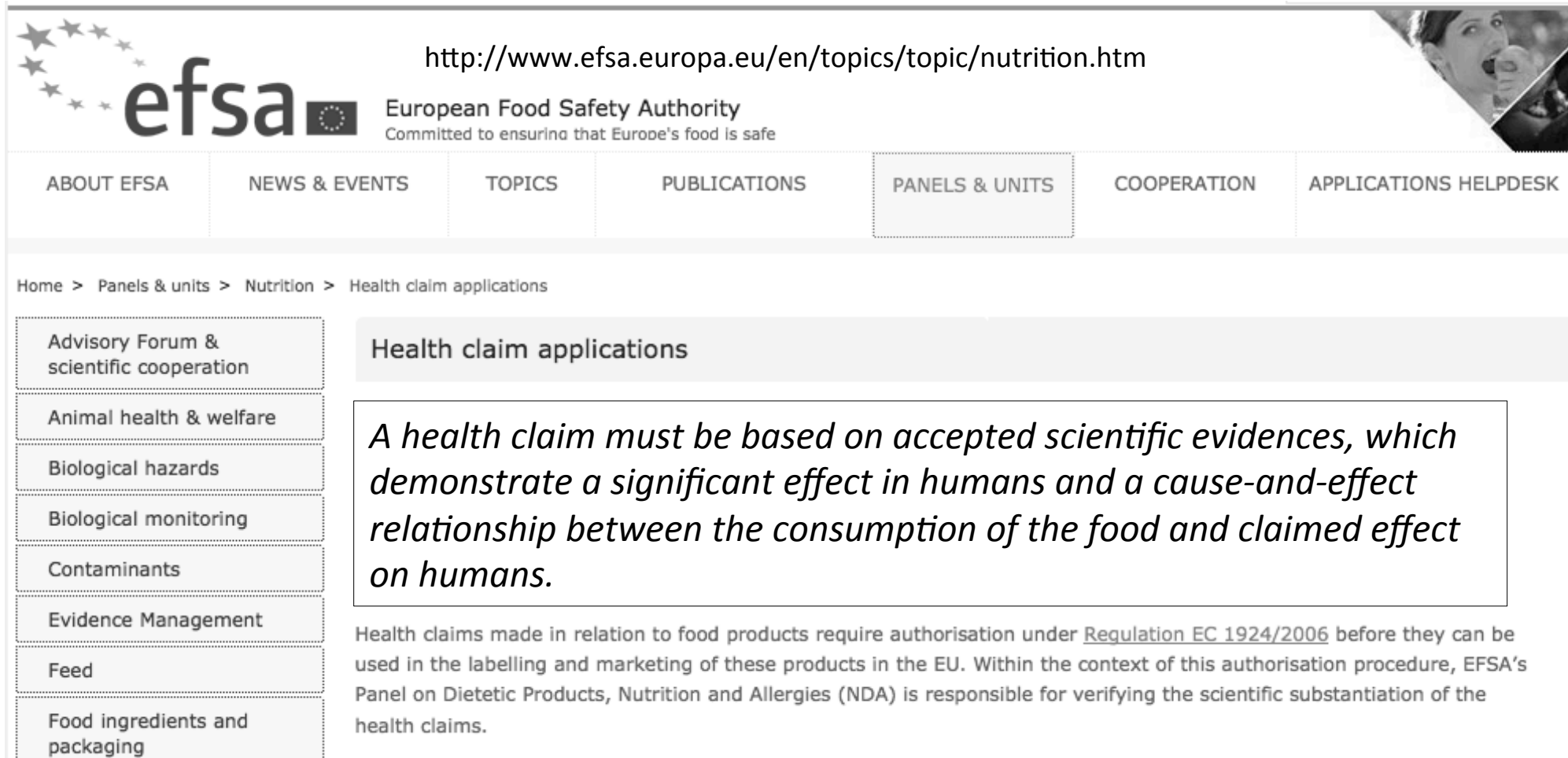
A characteristic that reflects how patient feels, functions or survives.


Mortality/HRQoL

Overall Survival

The **European Food Safety Authority (EFSA)** authorizes the labeling of food products with health claims.

Regulation EC 1924/2006



 <http://www.efsa.europa.eu/en/topics/topic/nutrition.htm>
European Food Safety Authority
Committed to ensuring that Europe's food is safe

ABOUT EFSA | NEWS & EVENTS | TOPICS | PUBLICATIONS | **PANELS & UNITS** | COOPERATION | APPLICATIONS HELPDESK

Home > Panels & units > Nutrition > Health claim applications

- Advisory Forum & scientific cooperation
- Animal health & welfare
- Biological hazards
- Biological monitoring
- Contaminants
- Evidence Management
- Feed
- Food ingredients and packaging

Health claim applications

A health claim must be based on accepted scientific evidences, which demonstrate a significant effect in humans and a cause-and-effect relationship between the consumption of the food and claimed effect on humans.

Health claims made in relation to food products require authorisation under [Regulation EC 1924/2006](#) before they can be used in the labelling and marketing of these products in the EU. Within the context of this authorisation procedure, EFSA's Panel on Dietetic Products, Nutrition and Allergies (NDA) is responsible for verifying the scientific substantiation of the health claims.

The great health supplements con: How firms like Seven Seas and Vitabiotics exaggerate benefits of pills used by millions says Which?

- Study found many of the claims made for products are not only exaggerated and misleading but may be unauthorised
- Manufacturers responded angrily to the Which? report by accusing the consumer group itself of misleading the public

<http://www.dailymail.co.uk/news/article-2399370/Health-supplements-Which-says-firms-like-Seven-Seas-Vitabiotics-exaggerate-benefits.html>

The industry has submitted 44,000 commonly used claims for supplements and food products for approval by the European Food Safety Authority (EFSA) over the past five years, yet **only 248 have been successful.**

Nutraceuticals| for older people: Facts, fictions and gaps in knowledge

Antonio González-Sarrías*, Mar Larrosa, María Teresa García-Conesa, Francisco A. Tomás-Barberán, Juan Carlos Espín

Research Group on Quality, Safety and Bioactivity of Plant Foods, Department of Food Science and Technology, CEBAS-CSIC, 30100 Campus de Espinardo, Murcia, Spain

Nutraceuticals are of interest for an increasingly health-concerned society and may be especially relevant for preventing or delaying a number of age-related diseases.

Although epidemiological, animal and in vitro studies have given evidence of the potential benefits of some of these nutraceuticals or of their components, **definitive proof of their effects in appropriate human clinical trials is still lacking in most cases, more critically among people above 65 years of age.**

Further well-designed trials are needed to improve the current knowledge on the health benefits of nutraceuticals in the elderly.

Overall, **there are some facts, a lot of fiction and many gaps** in the knowledge of nutraceutical benefits.

Enough Is Enough: Stop Wasting Money on Vitamin and Mineral Supplements

The large body of accumulated evidence has important public health and clinical implications.

Evidence is sufficient to advise against routine supplementation, and we should translate null and negative findings into action.

The message is simple: most supplements do not prevent chronic disease or death, their use is not justified, and they should be avoided.

This message is especially true for the general population with no clear evidence of micronutrient deficiencies, who represent most supplement users in the United States and in other countries.

The evidence also has implications for research. Antioxidants, folic acid, and B vitamins are harmful or ineffective for chronic disease prevention, and further large prevention trials are no longer justified.

Original Investigation

Effect of a 24-Month Physical Activity Intervention vs Health Education on Cognitive Outcomes in Sedentary Older Adults The LIFE Randomized Trial

Kaycee M. Sink, MD, MAS; Mark A. Espeland, PhD; Cynthia M. Castro, PhD; Timothy Church, MD, PhD, MPH;
Ron Cohen, PhD; John A. Dodson, MD; Jack Guralnik, MD, PhD; Hugh C. Hendrie, MB, ChB, DSc;
Janine Jennings, PhD; Jeffery Katula, PhD, MA; Oscar L. Lopez, MD; Mary M. McDermott, MD; Marco Pahor, MD;
Kieran F. Reid, PhD, MPH; Julia Rushing, MS; Joe Verghese, MBBS; Stephen Rapp, PhD;
Jeff D. Williamson, MD, MHS; for the LIFE Study Investigators

Negative results on improvements in global or domain-specific cognitive function.

JAMA. 2015;314(8):781-790. doi:10.1001/jama.2015.9617

Original Investigation

Effect of Omega-3 Fatty Acids, Lutein/Zeaxanthin, or Other Nutrient Supplementation on Cognitive Function The AREDS2 Randomized Clinical Trial

Emily Y. Chew, MD; Traci E. Clemons, PhD; Elvira Agrón, MA; Lenore J. Launer, PhD; Francine Grodstein, ScD;
Paul S. Bernstein, MD, PhD; for the Age-Related Eye Disease Study 2 (AREDS2) Research Group

Oral supplementation with LCPUFAs or lutein/zeaxanthin had no statistically significant effect on cognitive function.

JAMA. 2015;314(8):791-801. doi:10.1001/jama.2015.9677

Lifestyles and Cognitive Health

What Older Individuals Can Do to Optimize Cognitive Outcomes

Sudeep S. Gill, MD, MSc; Dallas P. Seitz, MD, PhD

Physicians should encourage patients of all ages to optimize physical activity levels throughout their life, which may help to reduce the risk of developing dementia and many other adverse health outcomes.

An active lifestyle throughout the lifespan may be more effective in preventing cognitive decline than starting physical activity after the onset of cognitive symptoms.

Similarly, adherence to Mediterranean or heart healthy diets throughout life are likely to be most beneficial in preventing cognitive decline or the onset of dementia in contrast to isolated nutritional supplements initiated late in life.

Although the direct cognitive benefits of lifestyle interventions will require further confirmation, **there is clear evidence that physical activity and a healthy diet contribute to improvements in a wide variety of health outcomes.**

A 2 year multidomain intervention of diet, exercise, cognitive training, and vascular risk monitoring versus control to prevent cognitive decline in at-risk elderly people (FINGER): a randomised controlled trial

Tiia Ngandu, Jenni Lehtisalo, Alina Solomon, Esko Levälähti, Satu Ahtiluoto, Riitta Antikainen, Lars Bäckman, Tuomo Hänninen, Antti Jula, Tiina Laatikainen, Jaana Lindström, Francesca Mangialasche, Teemu Paajanen, Satu Pajala, Markku Peltonen, Rainer Rauramaa, Anna Stigsdotter-Neely, Timo Strandberg, Jaakko Tuomilehto, Hilka Soininen, Miia Kivipelto

In a double-blind randomised controlled trial we enrolled individuals aged 60–77 years. They were randomly assigned in a 1:1 ratio to a 2 year multidomain intervention (diet, exercise, cognitive training, vascular risk monitoring), or a control group (general health advice).

The primary outcome was change in cognition as measured through comprehensive neuropsychological test battery (NTB).

Findings from this large, long-term, randomised controlled trial suggest that a **multidomain intervention could improve or maintain cognitive functioning in at-risk elderly people** from the general population.

Some conclusions/questions:

- Nutra-ceuticals: foods or drugs?
- What is the role clinicians (want to) attribute to nutraceuticals in the prevention/care of older adults?
- There is a need for development a more targeted legislation.
- Harmonization on regulatory definition, scientific evaluation and process of approval.
- The *in-vitro* results should always require confirmation by appropriate clinical studies.
- As far as these products are currently used as drugs, more criticism from regulatory agency and clinicians is required.
- Do not forgot that they can interact with medicines and also produce serious adverse reactions.
- How can we change the wrong belief that “natural” is always safe?.
- More control on information directed to the patients.

CHANGING AND IMPROVING LIFE STYLE...

The protective role of "Functional Foods" is not attributable to a single component, but rather to a group of nutrients, contained in one or more foods, able to act synergistically with each other.

<p>1 DIET</p>  <p>High in whole foods, plant-based protein, fruits, vegetables; Low in fat (10% of calories) and refined carbohydrates</p>	<p>2 EXERCISE</p>  <p>Moderate aerobic exercise – walking 30 minutes per day for six days a week</p>
<p>3 STRESS MANAGEMENT</p>  <p>Gentle, yoga-based stretching, breathing or meditation for 60 minutes daily</p>	<p>4 INCREASED SOCIAL SUPPORT</p>  <p>Weekly support group sessions that included moderate exercise, stress management training and counseling</p>

...INSTEAD OF TRANSFORMING FOODS IN PILLS



Seven alternatives to evidence based medicine

David Isaacs, Dominic Fitzgerald

BMJ 1999;319:1618

Basis of clinical practice

Basis for clinical decisions	Marker	Measuring device	Unit of measurement
Evidence	Randomised controlled trial	Meta-analysis	Odds ratio
Eminence	Radiance of white hair	Luminometer	Optical density
Vehemence	Level of stridency	Audiometer	Decibels
Eloquence (or elegance)	Smoothness of tongue or nap of suit	Teflometer	Adhesin score
Providence	Level of religious fervour	Sextant to measure angle of genuflection	International units of piety
Diffidence	Level of gloom	Nihilometer	Sighs
Nervousness	Litigation phobia level	Every conceivable test	Bank balance
Confidence*	Bravado	Sweat test	No sweat

*Applies only to surgeons.



***Thank you for
your attention***

Mediterranean Diet Pyramid: a lifestyle for today

Guidelines for Adult population

Serving size based on frugality and local habits



Wine in moderation and respecting social beliefs



© 2010 Fundación Dieta Mediterránea
The use and promotion of this pyramid is recommended without any restriction

2010 edition



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Dieta Mediterránea

ICAF
International Commission on the
Anthropology of Food and Nutrition



Predimed
Prevención con Dieta Mediterránea

