Olive Oil Times
EDUCATION LAB

Lesson 6

Olive Oil Chemistry and Nutrition – Olive Oil Education New York 2025

Dr Simon Poole

Why Are We Here?

Always in Context; The Story of Olive Oil – Rooted in Generations

If you deconstruct Greece, you will in the end see an olive tree, a grapevine, and a boat remain. That is, with as much, you reconstruct her.

— Odysseas Elytis —

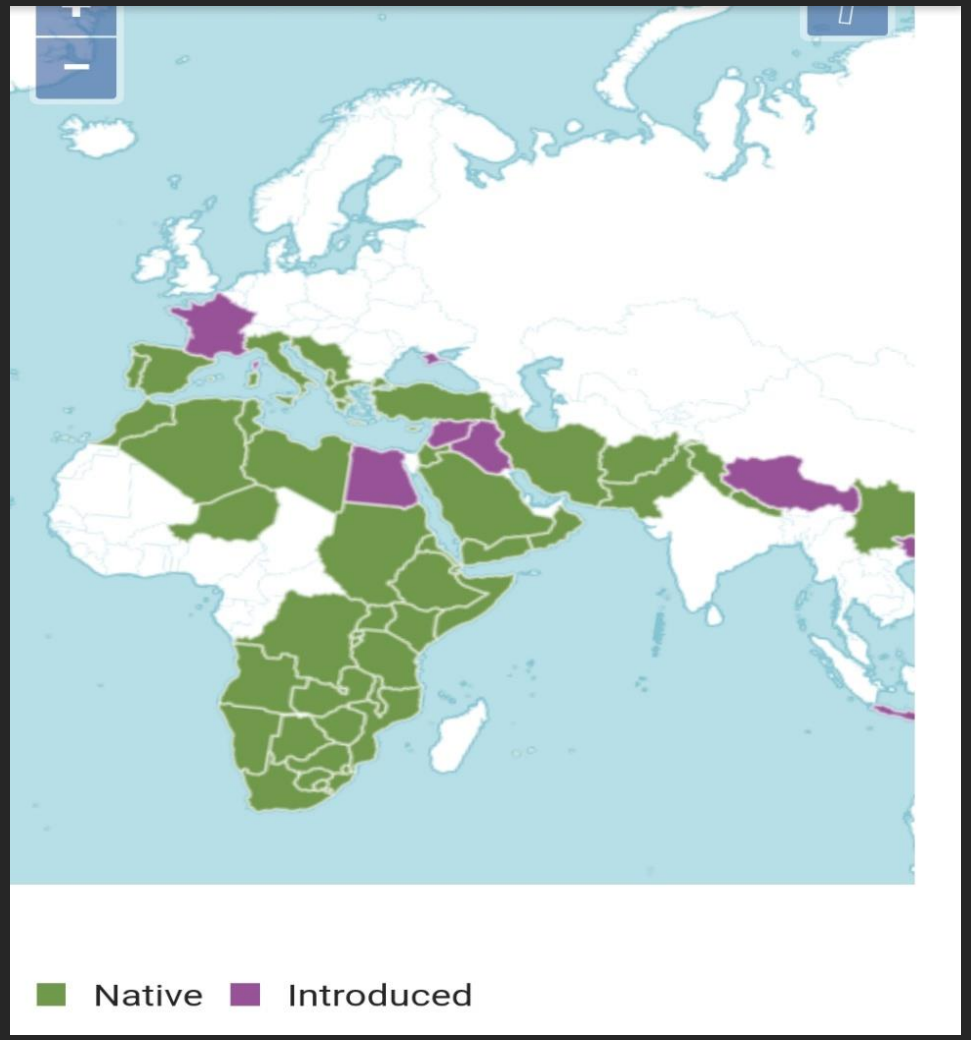
AZ QUOTES

Extra Virgin Olive Oil – The Journey

"I hope your road is a long one, full of adventure, full of discovery" From Ithaka By C. P. Cavafy.

Expect Surprises

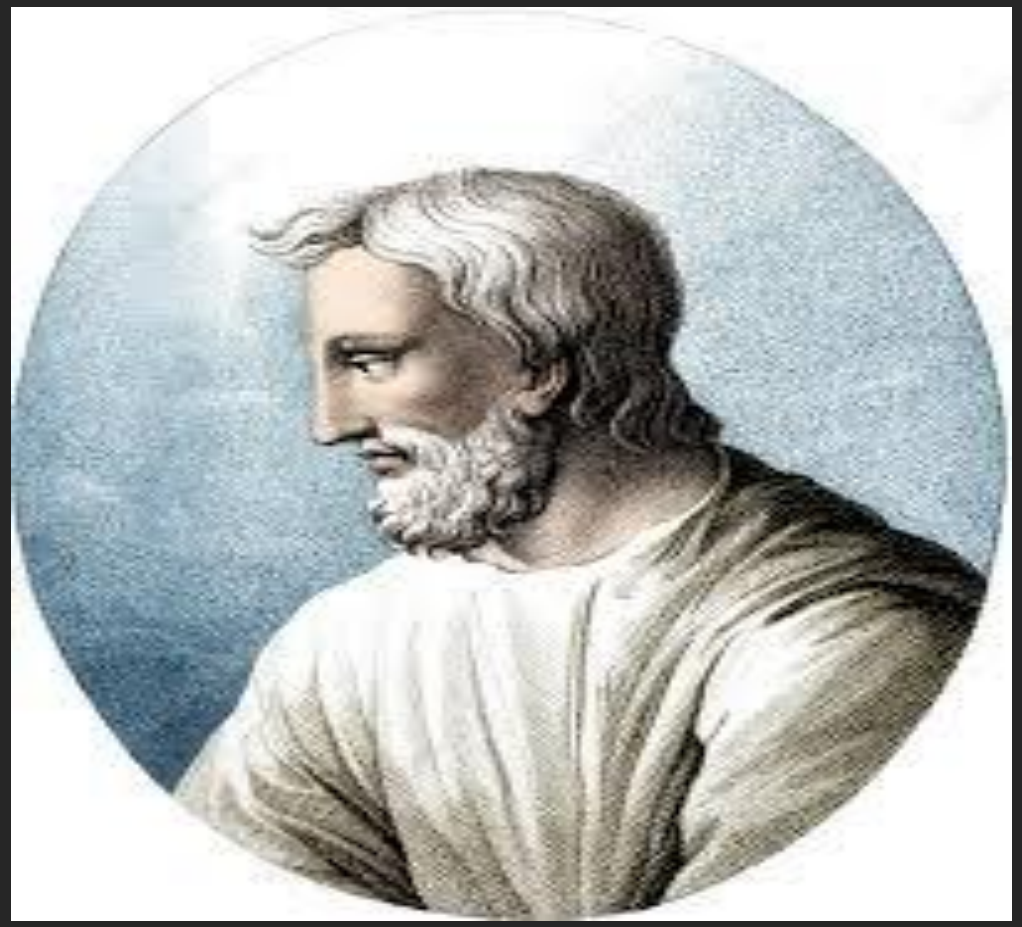
Like The Olive Tree’s African Heritage



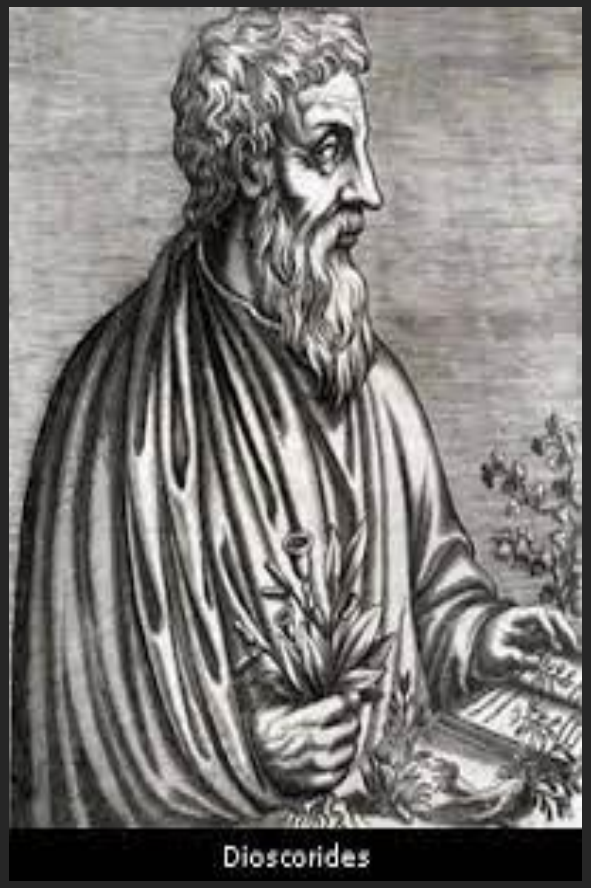
In the Monduli District of Arusha, Tanzania, the Maasai community utilizes Olea europaea subsp. africana (African wild olive) in their traditional medicinal practices. An ethnobotanical survey documented that this plant is among the most frequently cited species used in their food system and traditional medicine,

A study conducted in central Ethiopia documented the traditional use of Olea europaea subsp. cuspidata (africana) by local communities for treating various ailments, including back pain, high blood pressure, and skin conditions. Knowledge of its medicinal use was primarily passed down orally among family members and traditional healers, highlighting its cultural and therapeutic significance in Ethiopian ethnomedicine.

Olive Oil – Of Myths and Medicine



Trust Me, I’m a Doctor…….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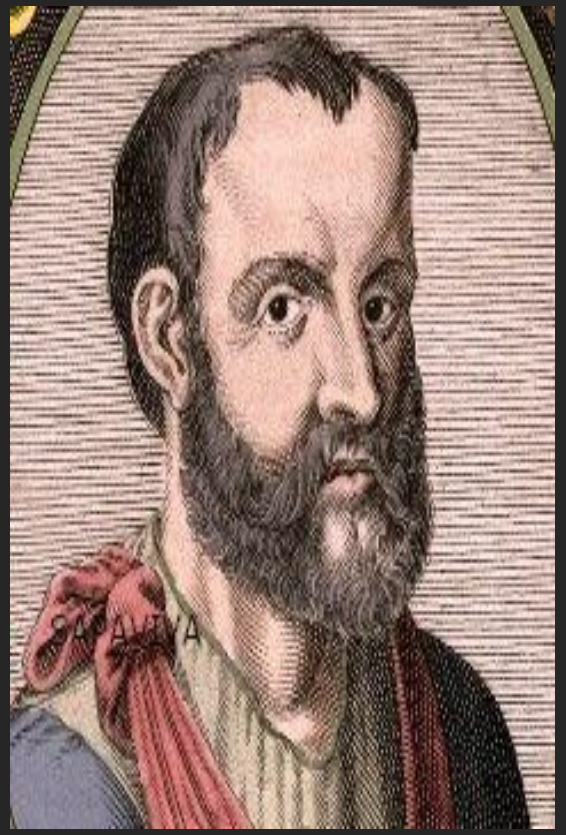
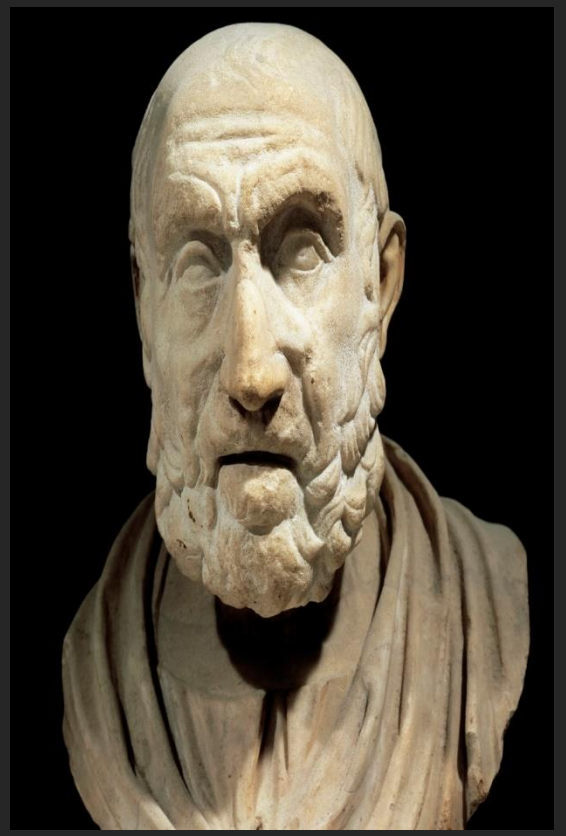


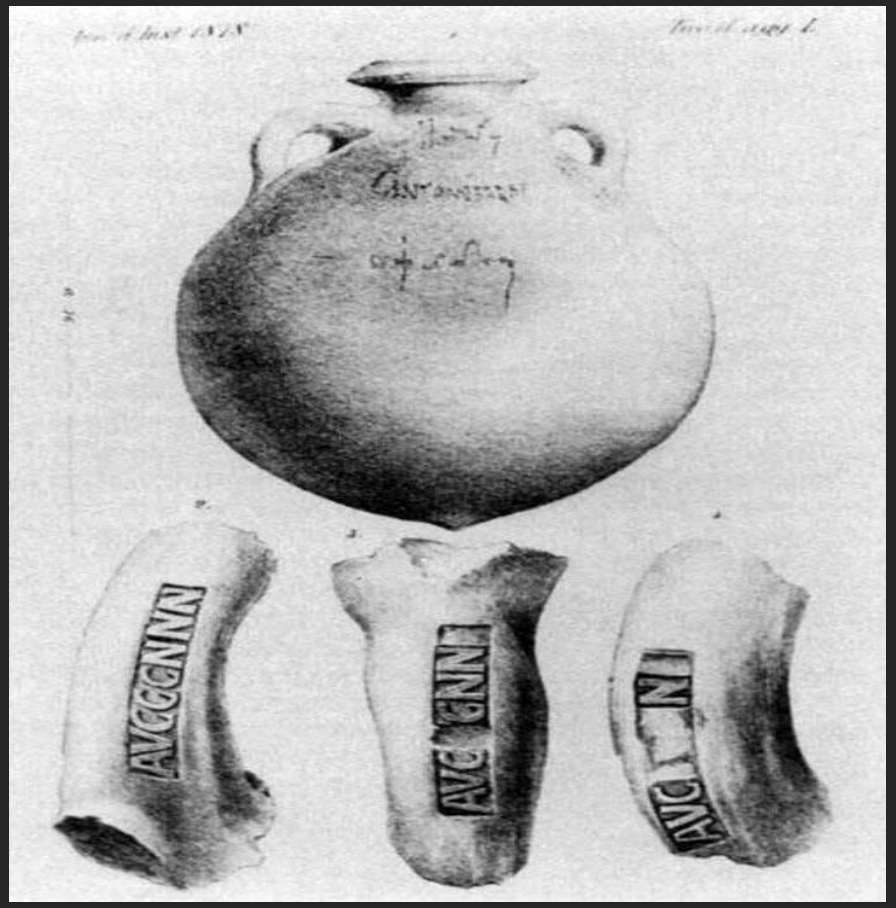


There Was Even Ancient Culinary Medicine

Pliny the Elder - Understanding Quality in Olive Oil

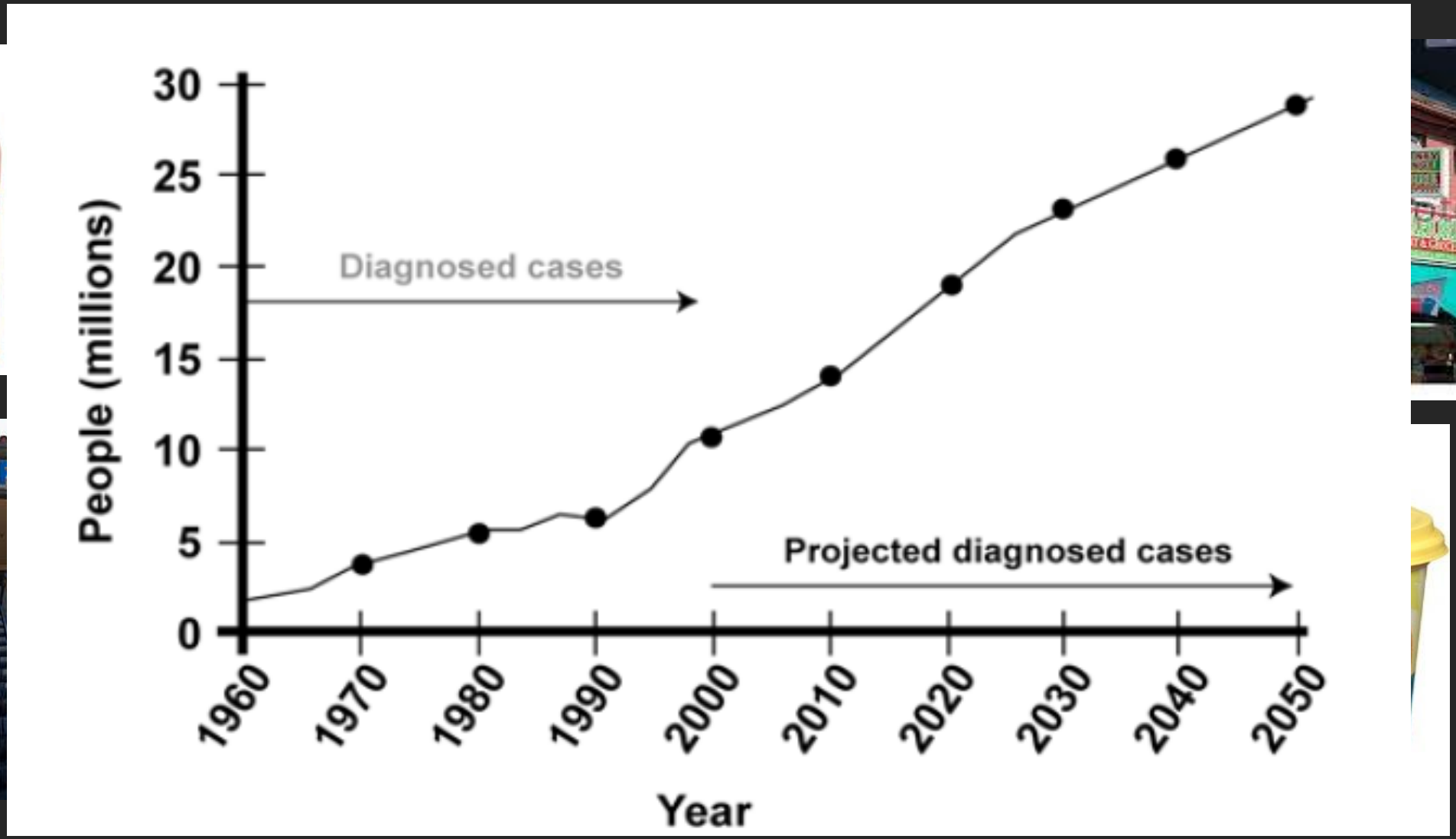
- “The first oil of all is obtained from the raw olive, when it has not begun to ripen – this has the best flavour.
- Moreover its first issue from the press is the richest, and so on by diminishing stages.
- The riper the berry is, the greasier and less agreeable in flavour is the juice.
- It makes a difference whether the maturing of the berry takes place in the presses or the boughs, and whether the tree has been watered or the berry has only been moistened by its own juice and has drunk nothing else but the dews of heaven….”

Authenticity and Provenance – Always Important



To Modern Times; We Know What's Important; Fingers

So Why is Diet not Straightforward in 21st Century?



Are You Holding Onto Your Seats?

Why is Nutritional Science so Difficult?

- Placebo Effect
- Publication Bias
- Replicability
- Selection Bias/ Population Bias
- Confounding Variables
- Ethical Limitations
- Complexity of Foods
- Blinding Difficulties
- Less investment than Drug Trials
- Asking the Right Questions
- Non-causal Correlations

Some Interesting Correlations

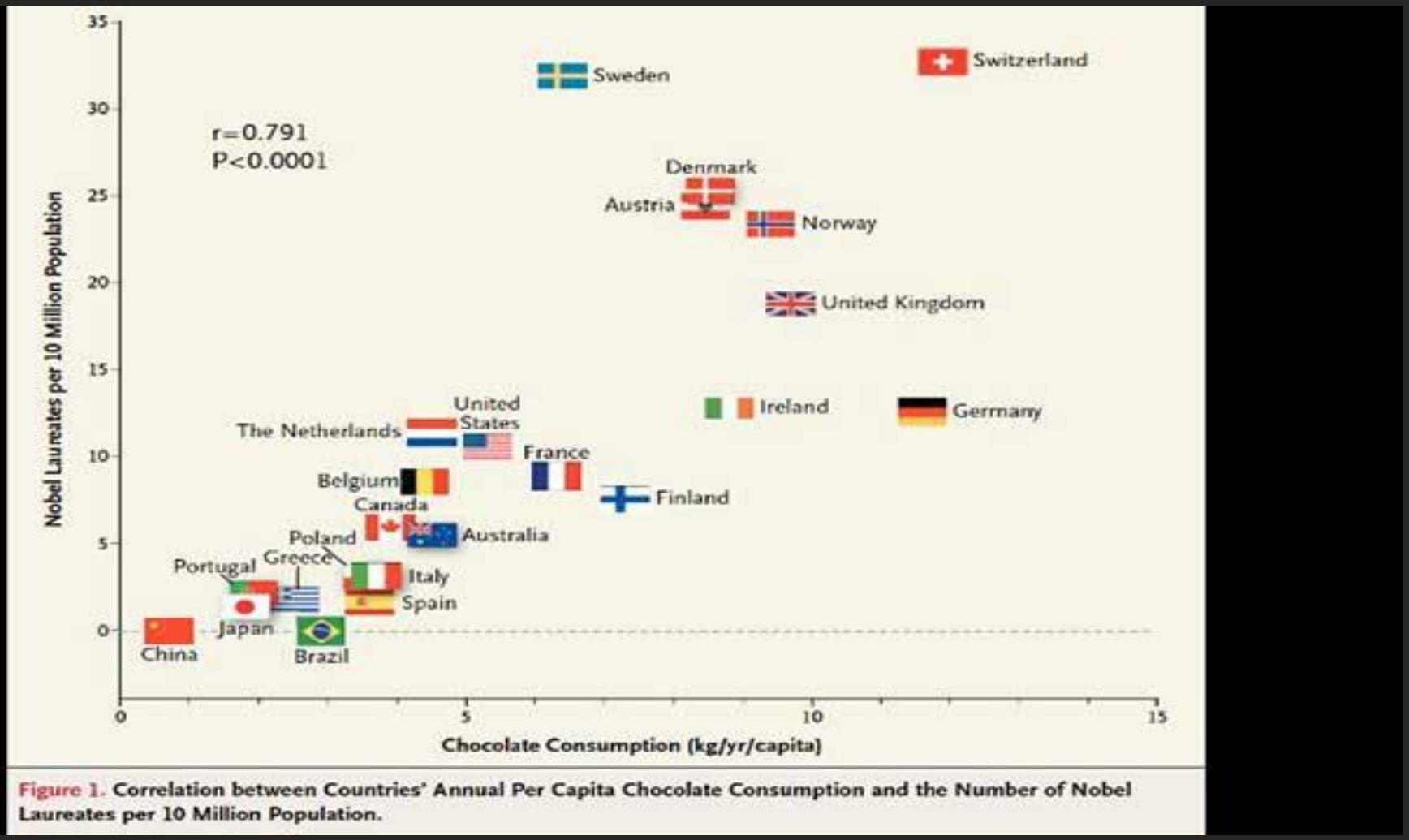
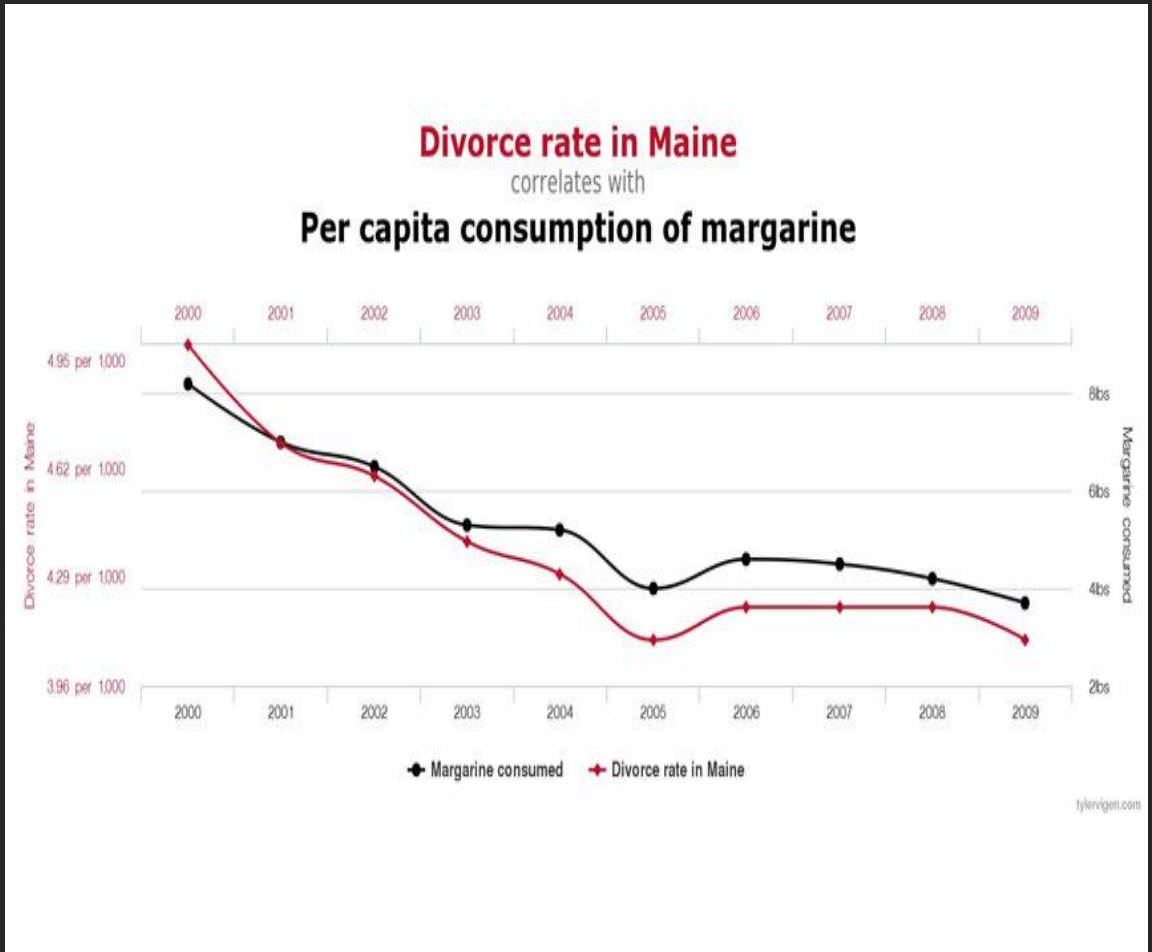
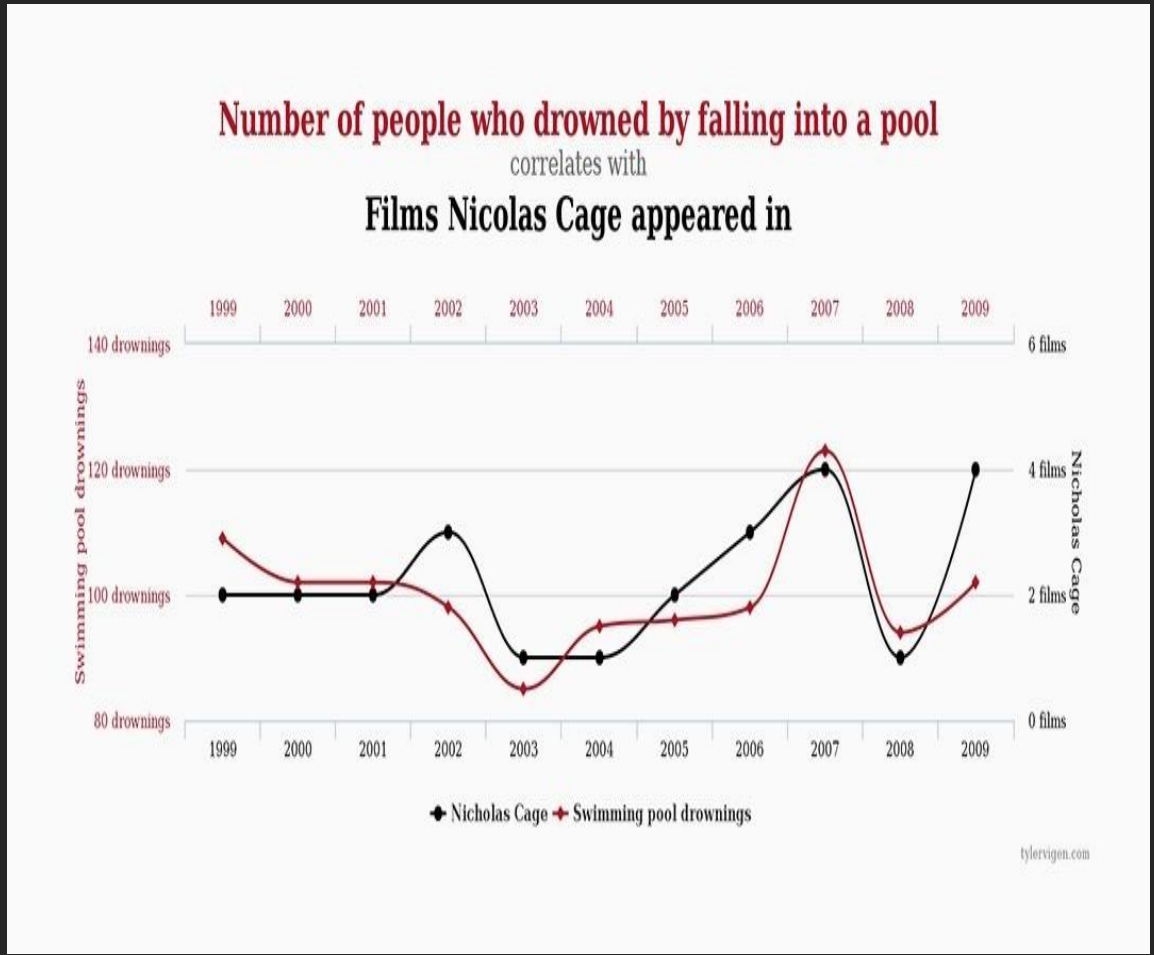


Figure 1. Correlation between Countries' Annual Per Capita Chocolate Consumption and the Number of Nobel Laureates per 10 Million Population.

More Interesting Correlations



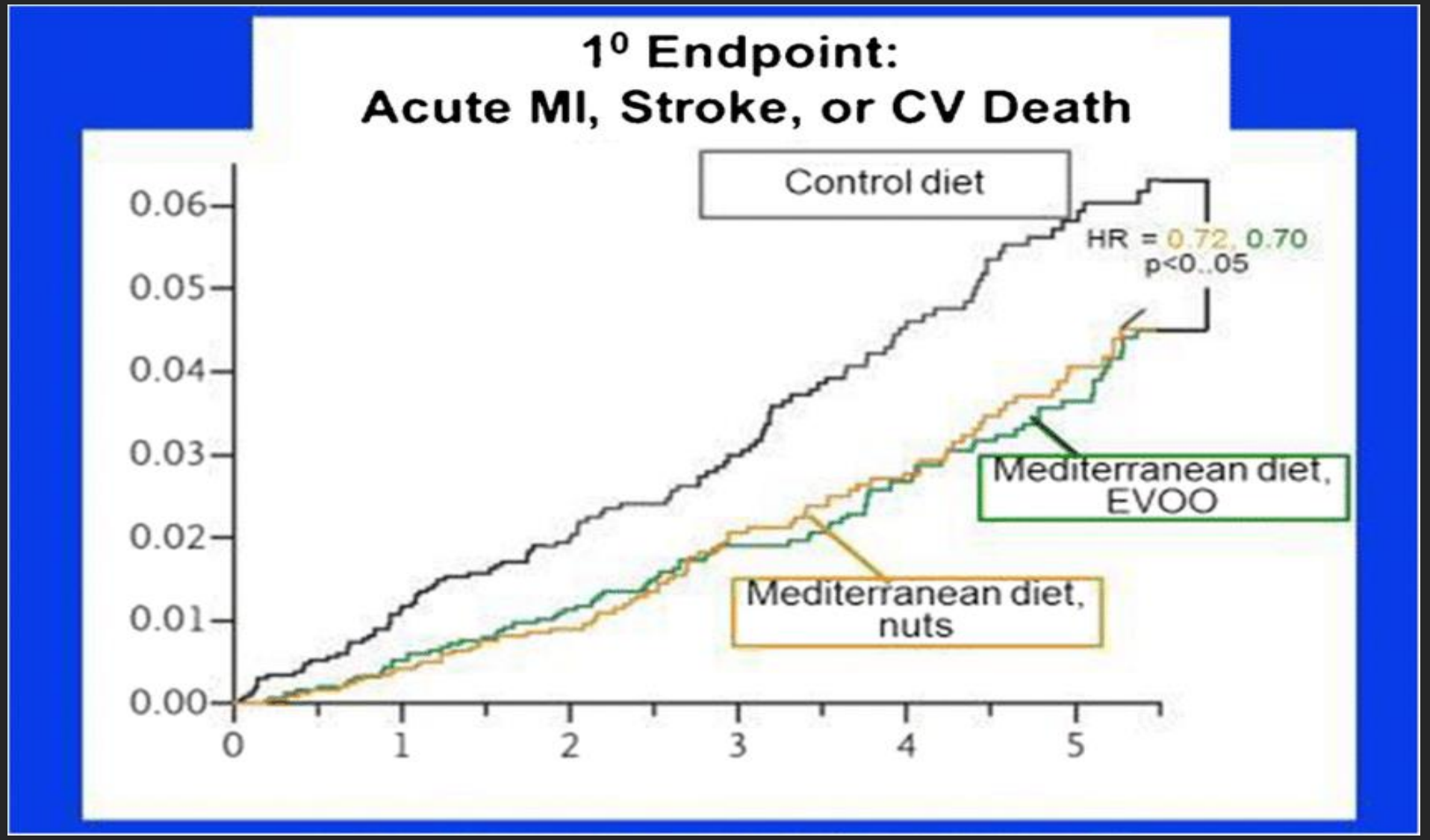


But we do know something…

Scientific Landmarks for the Mediterranean Diet

- Keys, Ancel (1980). Seven Countries; A multivariate analysis of death and coronary heart disease.
- 1999 Lyon Heart Study
- 2004 HALE project publication; 10-year mortality reductions in elderly
- Scientific Evidence for the Mediterranean Diet; Nutrition Review February 2006, analysis of 43 intervention studies
- Large meta-analysis; Adherence to a Mediterranean Diet and Health Status; 2008 Sofi et al BMJ
- The Effect of Mediterranean Diet on Metabolic Syndrome ; a meta-analysis of 50 studies and 534,906 individuals. Am Coll Cardiology 2011
- The “Game Changing” Predimed RCT 2013 and Beyond

Predimed Study Results



The Gold Standard Diet Evolved Over Millennia Rediscovered

The Mediterranean Diet – A Recipe for Wellness

- Reduced risk of Cardiovascular Disease
- Reduced risk of Stroke
- Reduced risk of Obesity
- Reduced risk of Diabetes
- Reduced risk of Cancers
- Reduced risk of Alzheimer’s Disease; Parkinson's Disease
- Reduced risk of Inflammatory Conditions –Arthritis/ Asthma. Reduced Markers of Inflammation
- Reduced risk of Early Mortality
- Improved Wellbeing, Reduced Depression
- Improved Markers of Aging
- Mitigates the Increased Risks Associated with Weight

What the 2020 Uppsala Study of 79,000 Participants Showed;

Being overweight or obese is usually associated with an increase in chronic diseases and mortality. BUT;

- Overweight and obese people with high adherence to the Med Diet did not show an increase in mortality
- The lowest mortality rates were overweight with high Med Diet adherence score
- So, you are better off being overweight on the Med Diet than of normal weight and on a standard diet
- Illnesses related to weight are a SAD problem, not a Med Diet one

The Summary

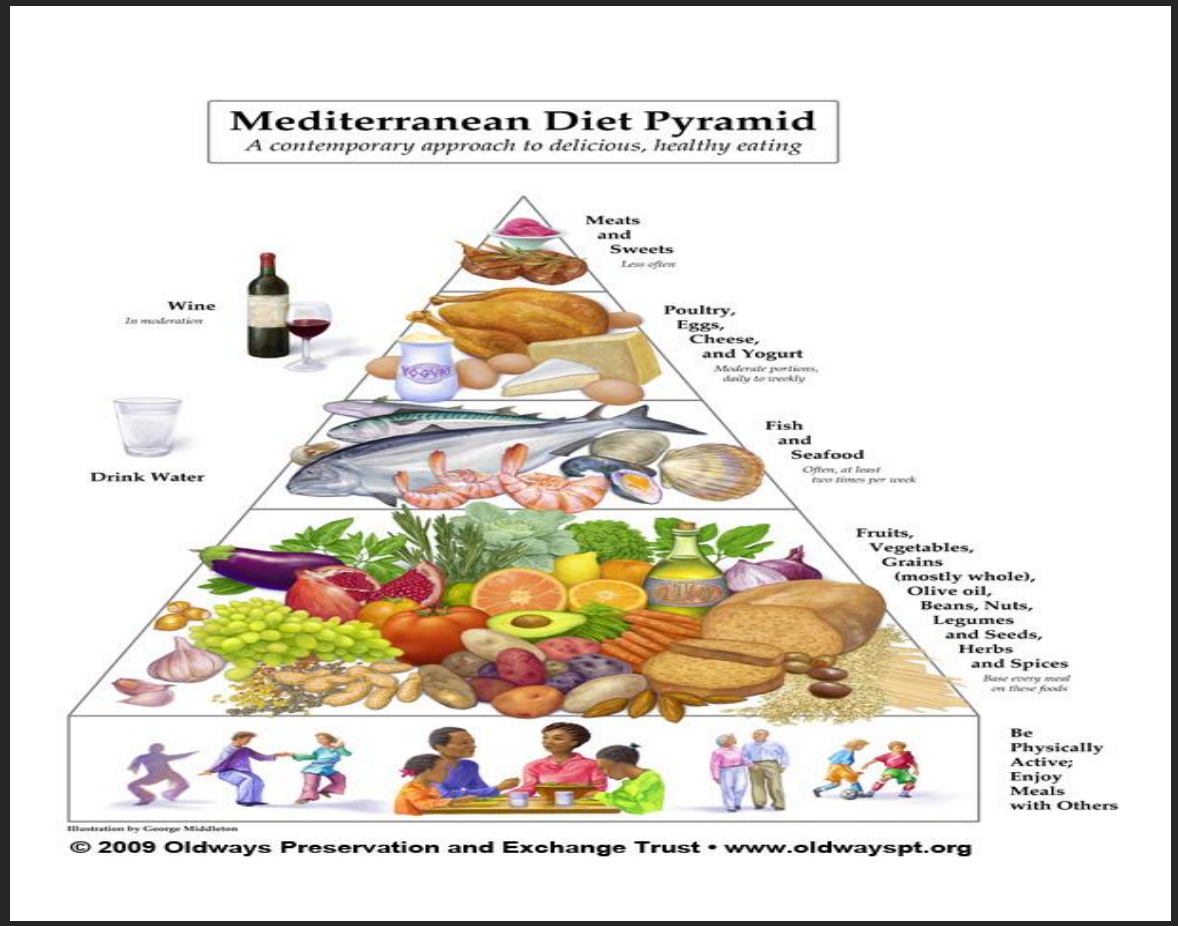
- Over 21 years of follow-up, more than 30,000 participants died. The researchers found that individuals classified as overweight with high mMED had the lowest risk of all-cause mortality. Obese individuals who had high mMED did not have a higher mortality risk compared with those in the healthy weight group with the same diet.
- By contrast, individuals with a healthy weight but low mMED had higher mortality rates compared to people in the same weight range who regularly adhered to a Mediterranean-style diet.

The Mediterranean Diet in Practice

The Stats

- 8 – 10 Years Longer Lifespan Compared with USA
- 2.5 Times as Likely to Survive to 90
- 1 in 3 Islanders Live to 90+
- More Than 80% over 65 Years Report Regular and Active Sex Lives
- Low Levels of Chronic Diseases
- Longevity with High Quality of Life, Active Participation and High Preservation Cognition

The Mediterranean Diet – Let's Talk About Food



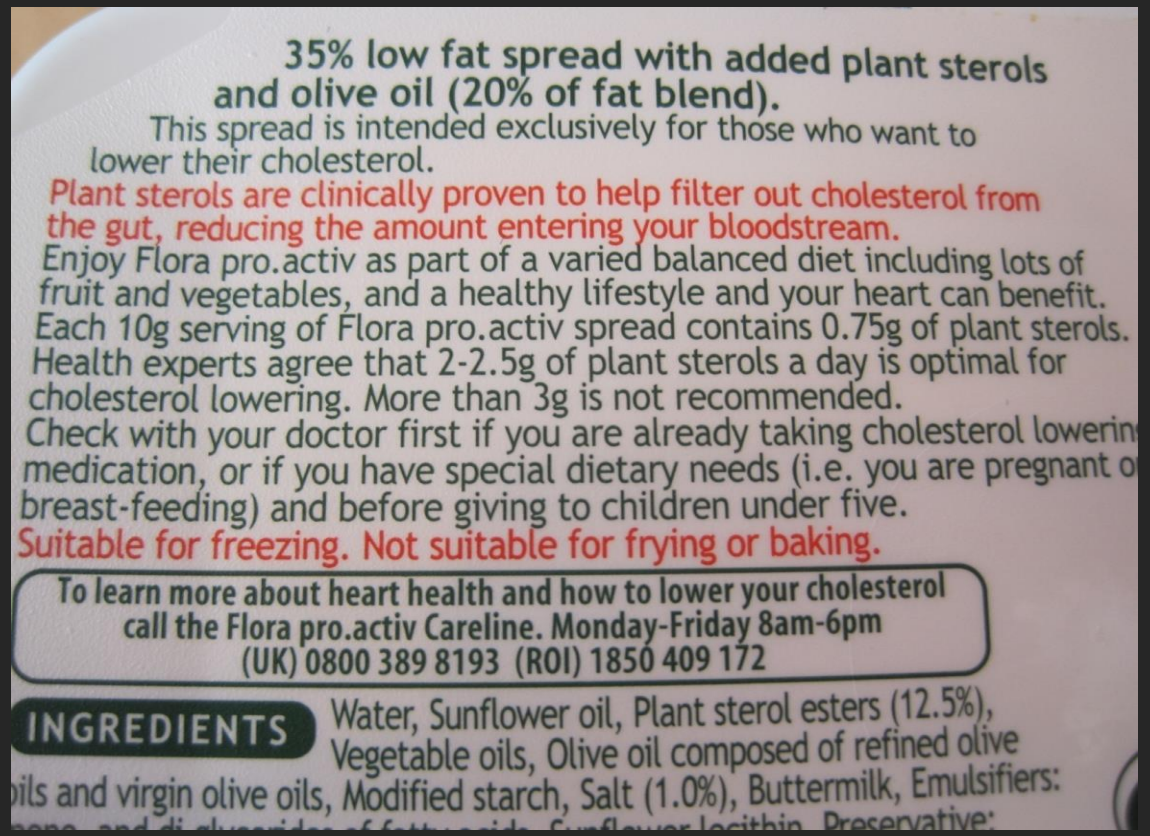
Traditional Diet Meets Modern Understanding , Rising Above the Macronutrient “Food Fights”

Understanding How The Med Diet Works - Real Food, Beautifully Combined, Healthily Absorbed

So, Why Did it Take Us So Long To Get Here?
The Story of Modern Nutrition – a Tale of Fats, Fads and Food Fights….

To Modern Times

Modern Fat Substitutes – the First UPFs - Always Read the Label



EVOO is the Common Denominator in the Mediterranean Diets

EVOO Effects are Inseparable, Considerable, Aligned and Individually Measurable

	Recommendation*	Score
Fruit	1–2 servings/main meal**	3
Vegetables	≥ 2 servings/main meal**	3
Cereals[a]	1–2 servings/main meal**	3
Potatoes	≤ 3 servings/week	1
Olive Oil[b]	1 serving/main meal**	3
Nuts	1–2 servings/day	2
Dairy products[c]	2 servings/day	2
Legumes	≥ 2 servings/week	1
Eggs	2–4 servings/week	1
Fish	≥ 2 servings/week	1
White meat[d]	2 servings/week	1
Red meat[e]	< 2 servings/week	1
Sweets[f]	≤ 2 servings/week	1
Fermented beverages[g]	1–2 glass/day	1
Total score		**24**

* According with the new Mediterranean Diet Pyramid [16].

** Main meals: breakfast, lunch and dinner.

[a] Bread, breakfast cereals, rice and pasta.

[b] Olive oil used on salads or bread or for frying

[c] Milk, yoghurt, cheese, ice-cream

[d] Poultry

[e] Pork, beef, or lamb

[f] Sugar, candies, pastries, sweetened fruit juices, and soft drinks

[g]Wine and beer.

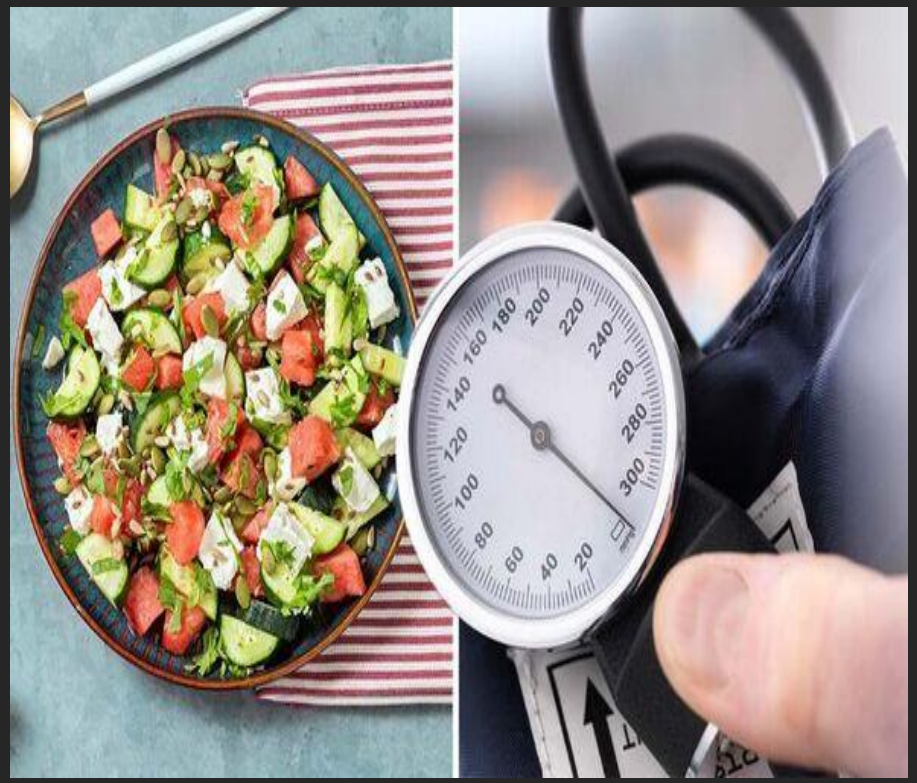
doi:10.1371/journal.pone.0128594.t001

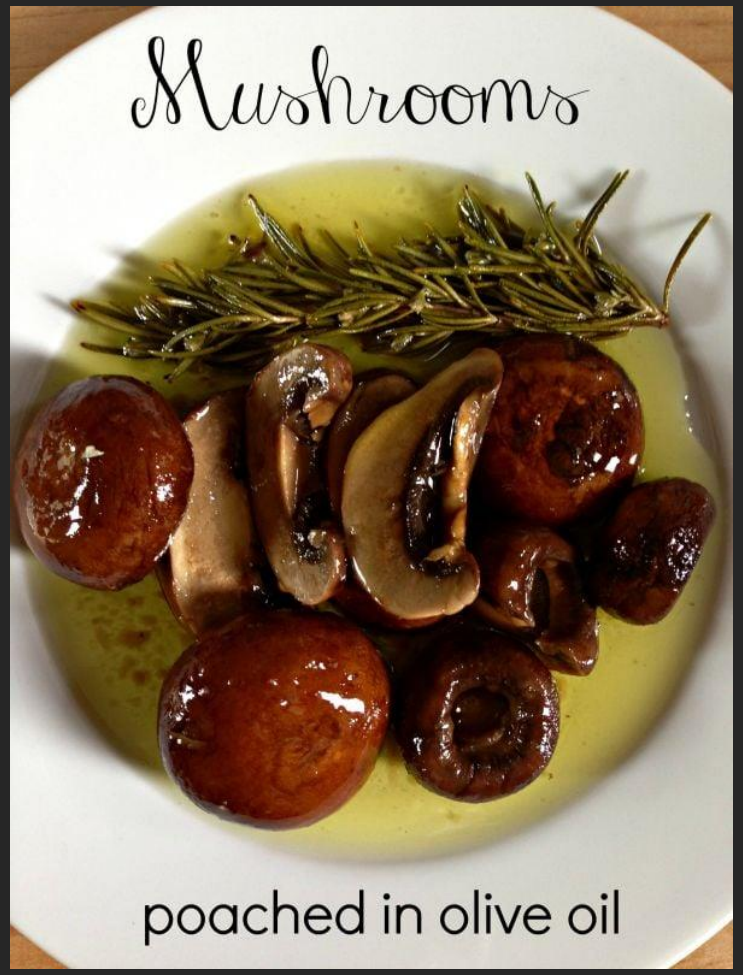
The Science Specific to Extra Virgin Olive Oil – Landmark Studies

- 2011 Bordeaux Study – 41% difference in risk of stroke between lowest and high EVOO consumers.
- 2012 EPIC Study – Risk of heart disease halved by regular 20mls of EVOO, and reduced all cause mortality by 26%
- 2013 Predimed Study – Heart Disease, Stroke and Mortality reduced by 30% in EVOO supplemented Med Diet. Diabetes 50%, Breast Cancer 68%
- 2024 Nurses Study reduced risk dementia deaths more than 30% with high consumers of EVOO
- The Science of Combining EVOO

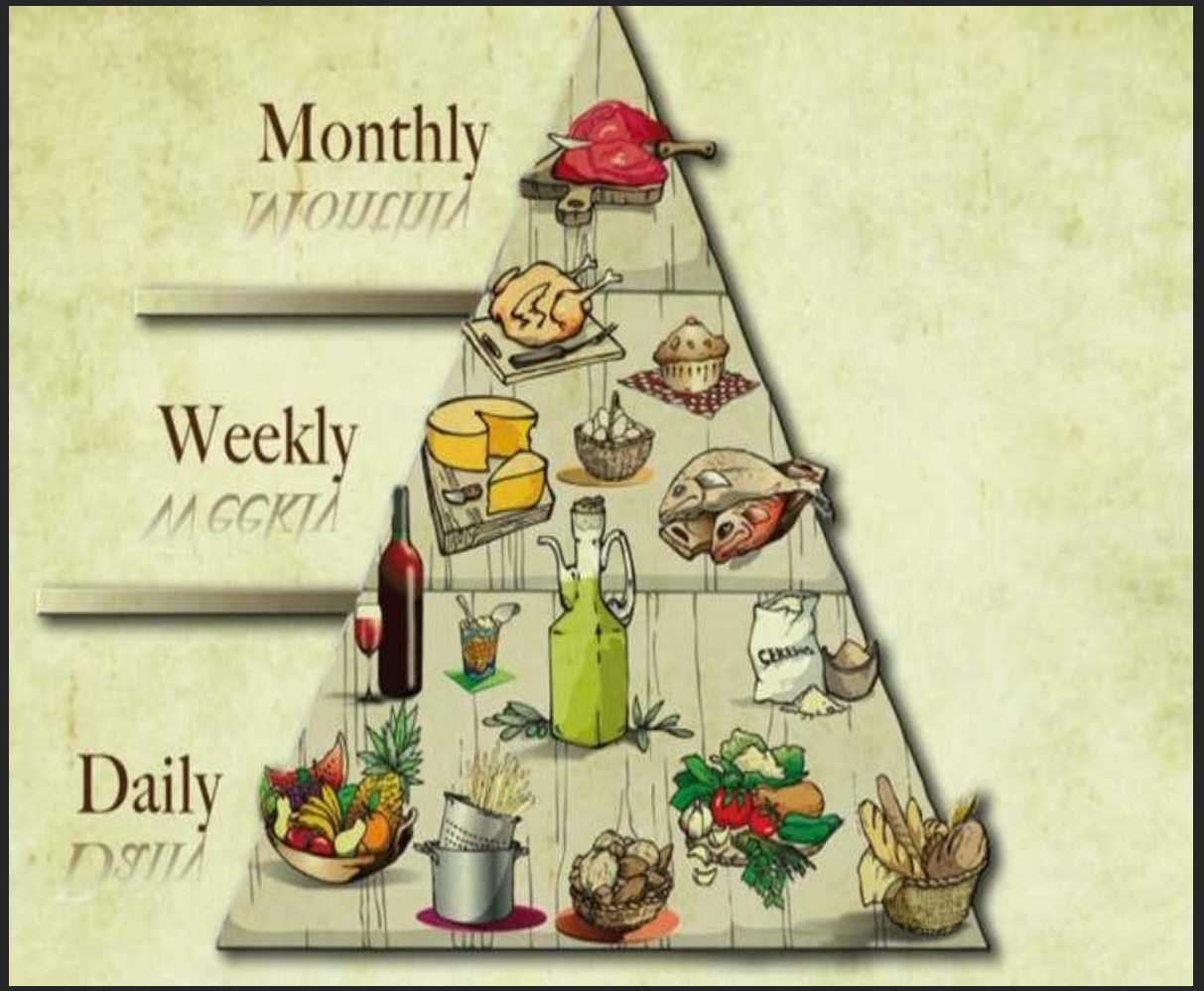
Secrets of EVOO - Guess the Chemistry 1

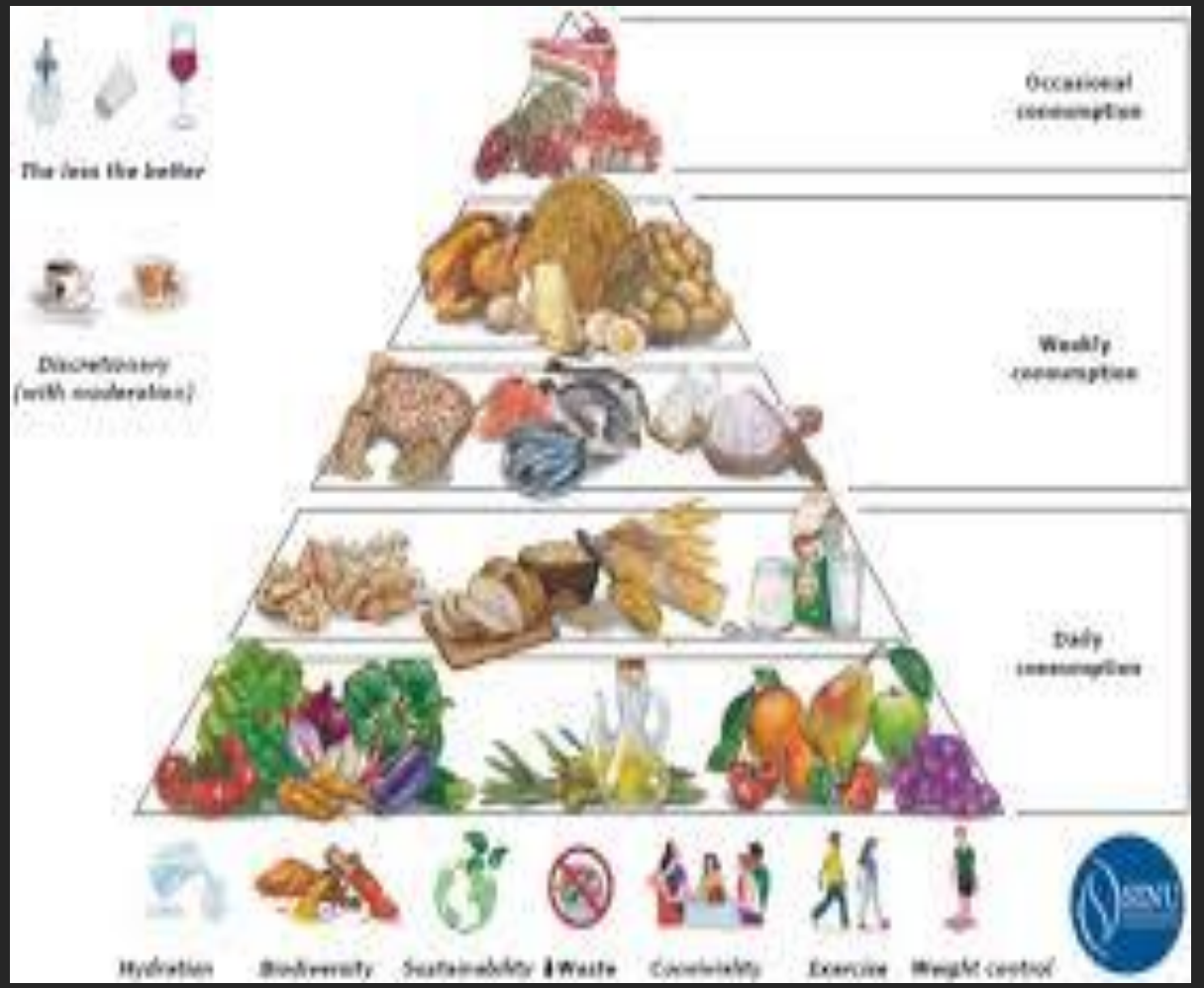
Secrets of EVOO - Guess the Chemistry 2



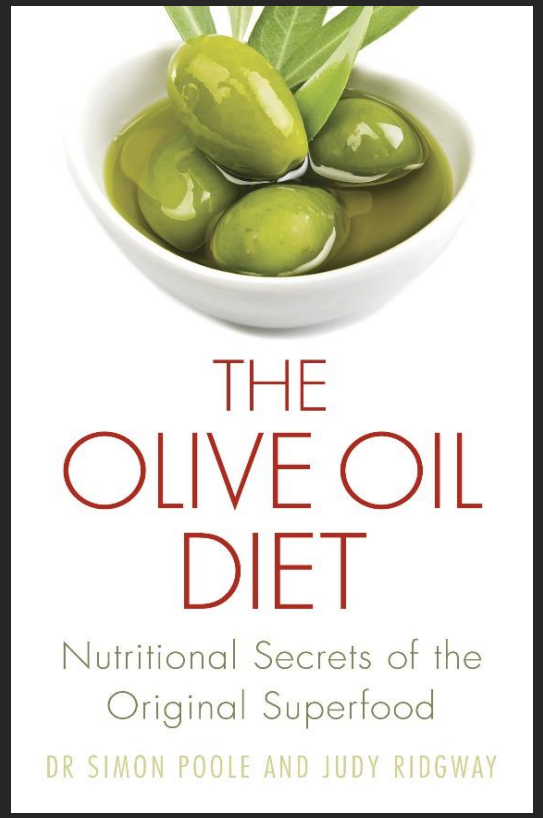


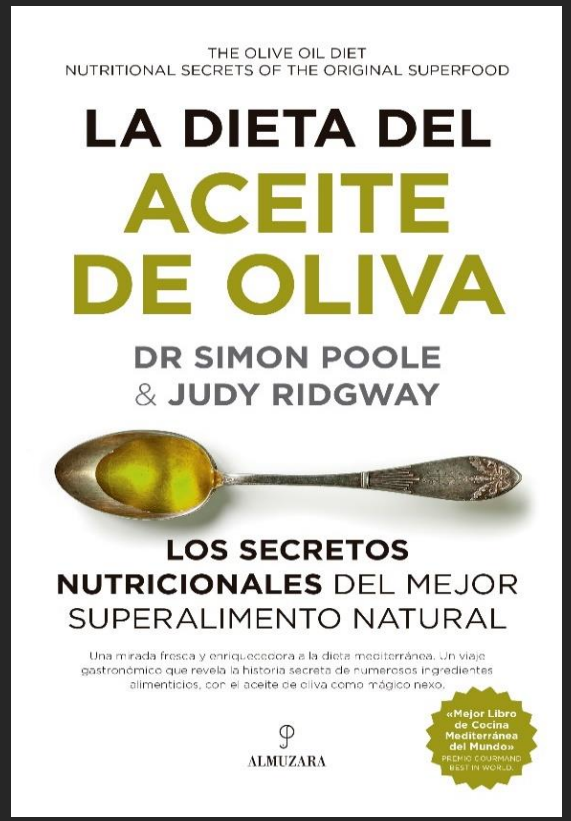
Extra Virgin Olive Oil – the Soul of the Mediterranean Diet

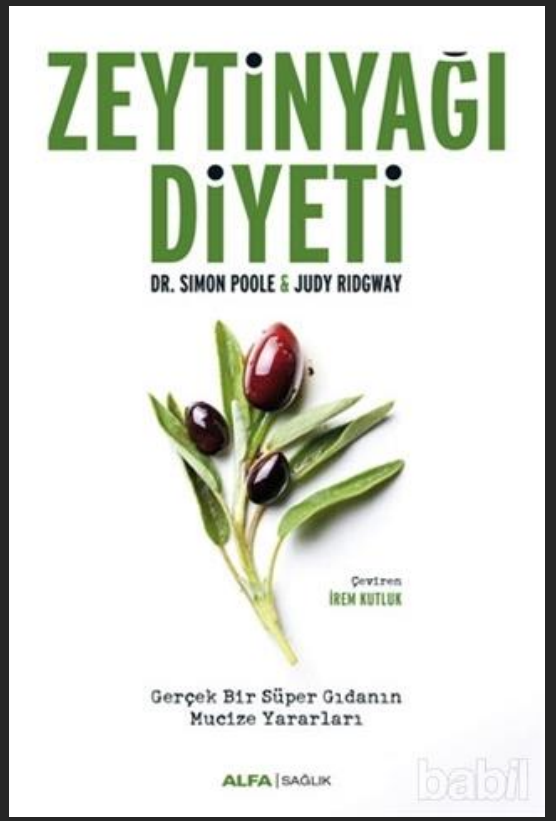




The Olive Oil Diet

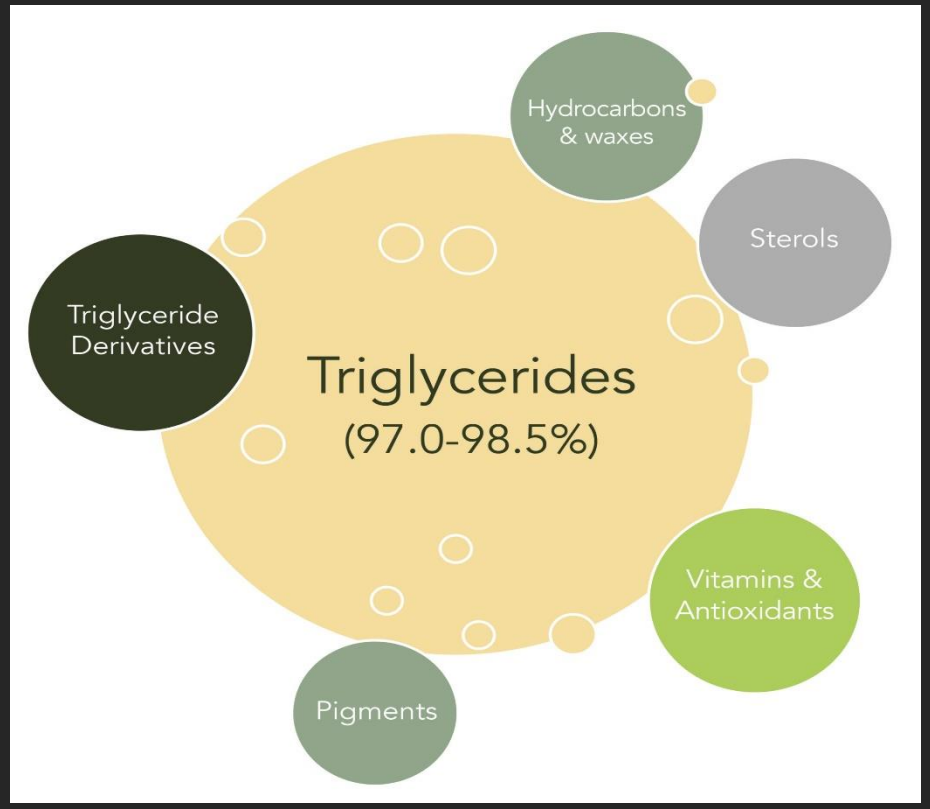


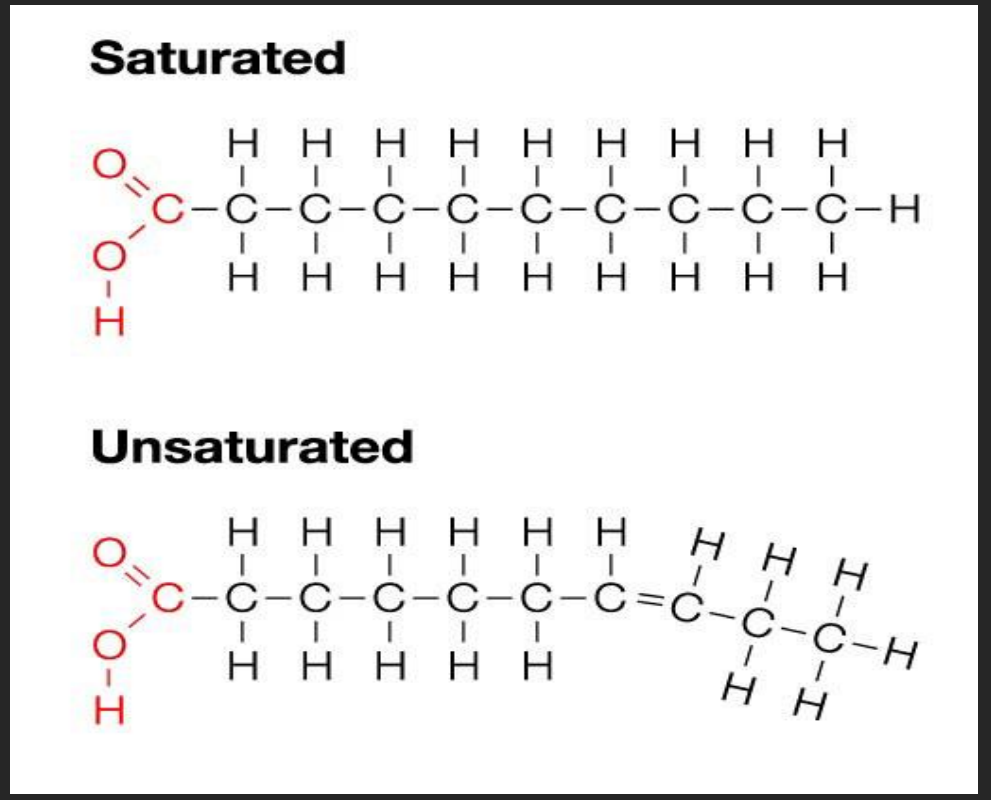




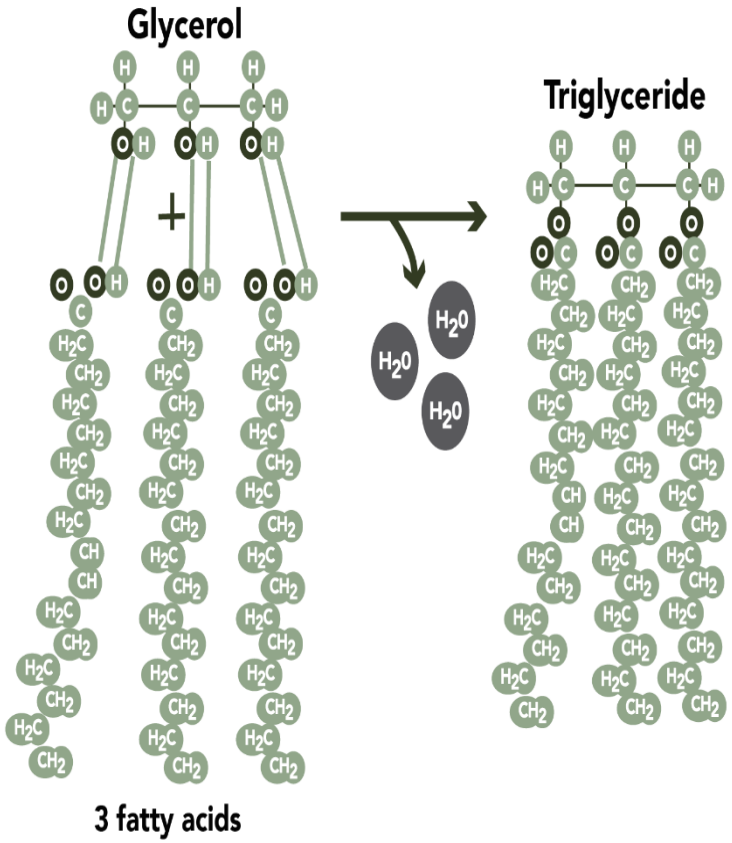
Chemistry of Olive Oil – A Continuing Journey of Discovery

The Good Fats and Other Stories





A Predominantly “Cholesterol Friendly” Mono-Unsaturated Fat
Fatty Acid Chains Bound Together in Triglycerides (Unless They are Free)

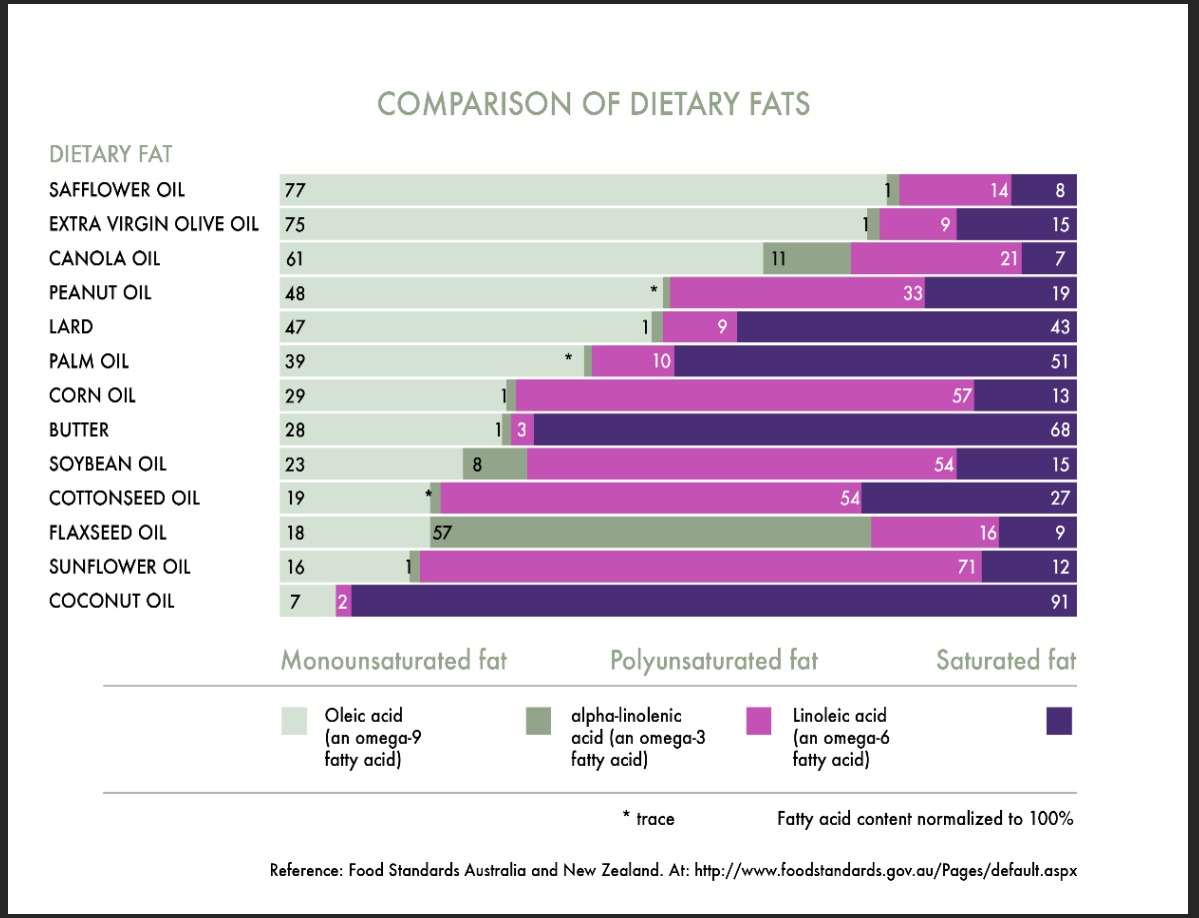


C 16:0 = Palmitic Acid
(7% - 20%)

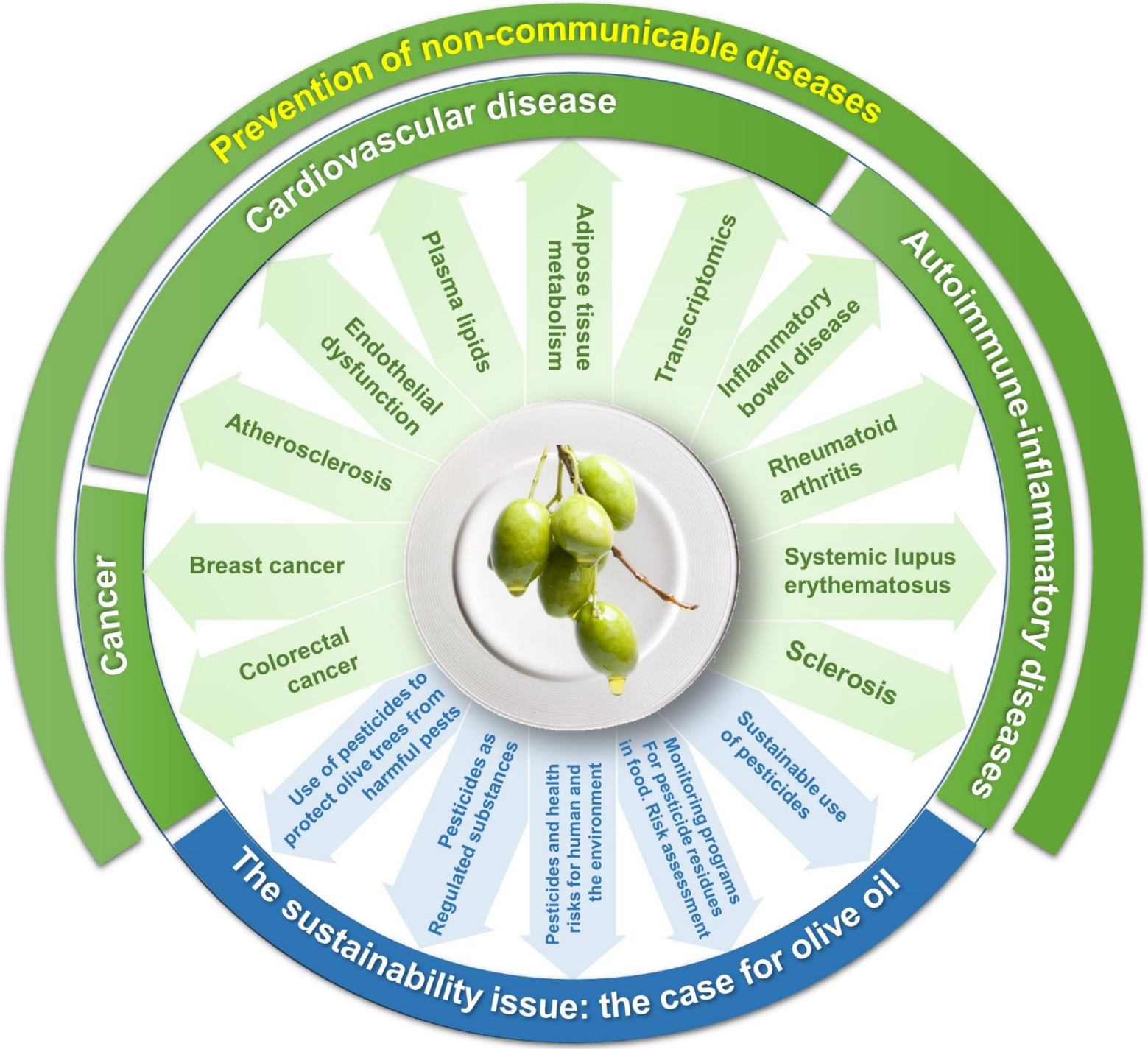
C 18:1 = Oleic Acid
(53% - 85%)

C 18:2 = Linoleic Acid
(3% - 22%)

C 18:3 = Linolenic Acid
(< 1.5%)

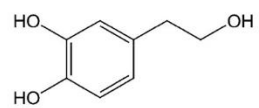


Reference: Food Standards Australia and New Zealand. At: http://www.foodstandards.gov.au/Pages/default.aspx

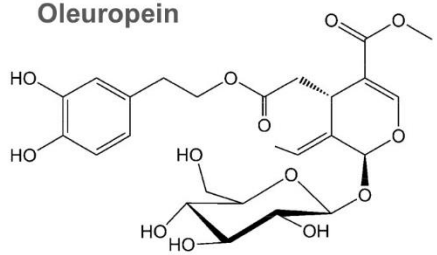


Molecules key in the Virgin Olive Oil

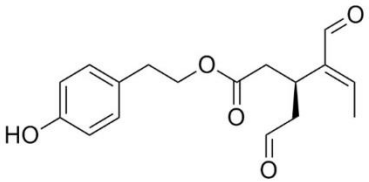
Hydroxytyrosol

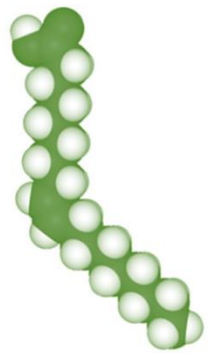


Oleuropein



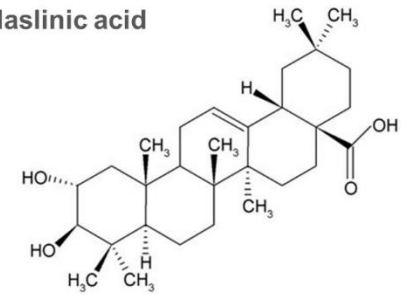
Oleocanthal



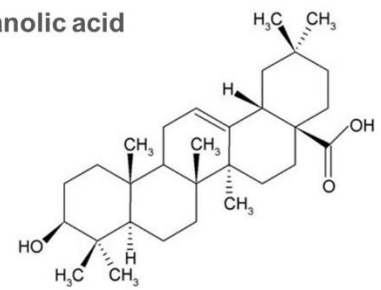


Oleic Acid

Maslinic acid



Oleanolic acid



The Unique Chemistry of *EXTRA VIRGIN* Olive Oil

A Monounsaturated Fat- Oleic Acid/ Omega9

- Helps Satiety; Decrease Glycemic Rise
- Stable to Heat,
- Improves Cholesterol Profile
- Absorbs Fat Soluble Vitamins
- Has Anti-inflammatory Properties

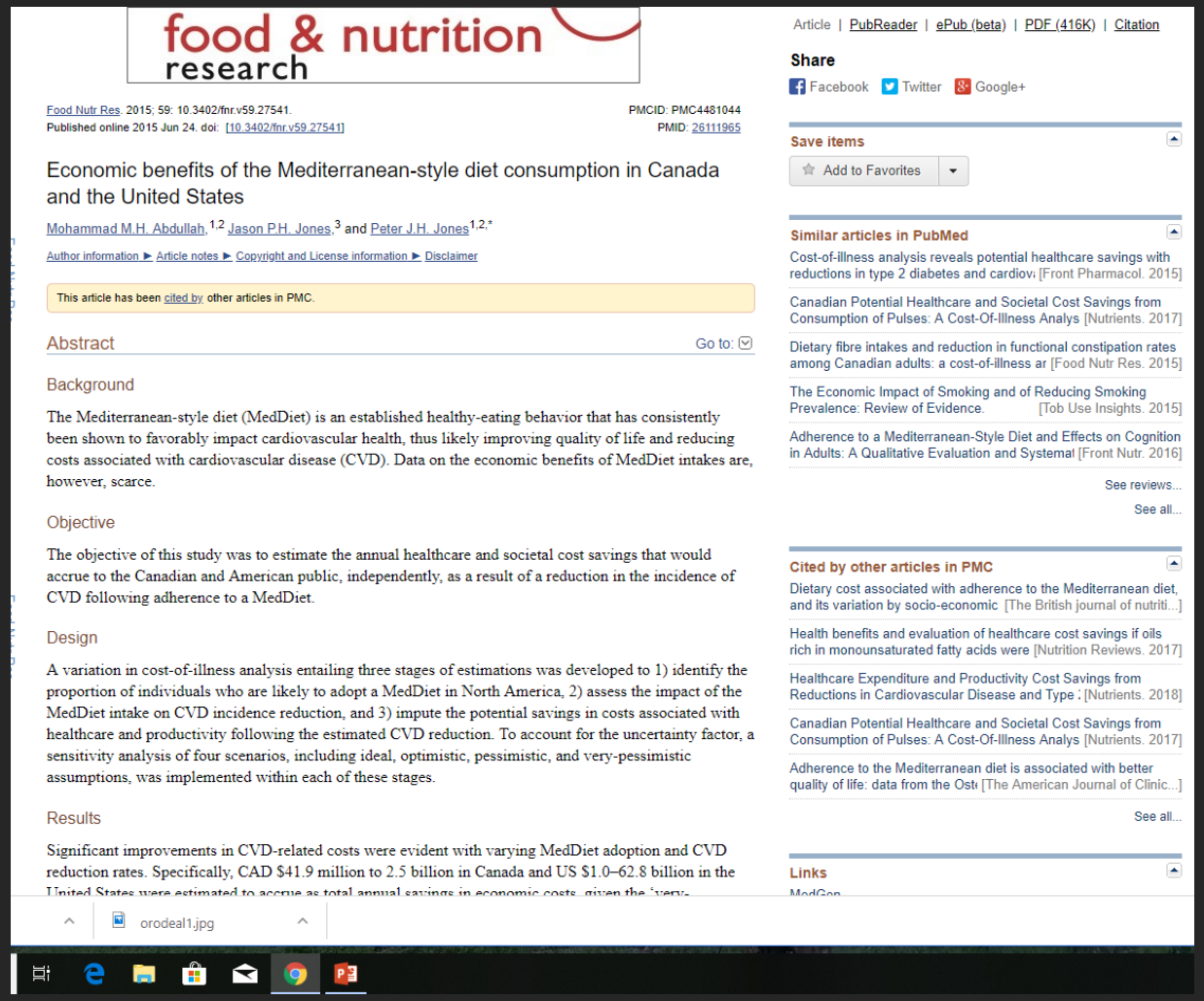
The Unique Antioxidant and Anti-inflammatory Polyphenol Compounds of EVOO (NOT present in other oils)

- Reducing Harmful Oxidation and Inflammation
- Reducing Risk of Heart Disease
- Reducing Risk of Cancers

Effects of Oleic Acid – The Monounsaturated Fat

- Lowering “bad” LDL cholesterol and possible raising “good” HDL cholesterol.
- Reducing the risk of obesity by inducing a feeling of fullness, increasing insulin sensitivity and slowing the absorption of glucose during and after a meal.
- Inhibiting the growth of certain types of cancer by suppressing the expression of genes associated with the metastasis of cancerous cells.
- Preserving brain function and reducing the decline of cognition in early dementia.
- Diets high in oleic acid, are associated with lower levels of markers for inflammation
- Improving the functioning of blood vessels. Helps dilate blood vessels, improving blood flow and reducing blood pressure.

Extra Virgin Olive Oil Production and Consumption – Opportunities (and a Matter of Public Health)



food & nutrition research

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PMID: 26111965

Economic benefits of the Mediterranean-style diet consumption in Canada and the United States

Mohammad M.H. Abdullah,[1,2] Jason P.H. Jones,[3] and Peter J.H. Jones[1,2,*]

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Abstract

Go to:

Background

The Mediterranean-style diet (MedDiet) is an established healthy-eating behavior that has consistently been shown to favorably impact cardiovascular health, thus likely improving quality of life and reducing costs associated with cardiovascular disease (CVD). Data on the economic benefits of MedDiet intakes are, however, scarce.

Objective

The objective of this study was to estimate the annual healthcare and societal cost savings that would accrue to the Canadian and American public, independently, as a result of a reduction in the incidence of CVD following adherence to a MedDiet.

Design

A variation in cost-of-illness analysis entailing three stages of estimations was developed to 1) identify the proportion of individuals who are likely to adopt a MedDiet in North America, 2) assess the impact of the MedDiet intake on CVD incidence reduction, and 3) impute the potential savings in costs associated with healthcare and productivity following the estimated CVD reduction. To account for the uncertainty factor, a sensitivity analysis of four scenarios, including ideal, optimistic, pessimistic, and very-pessimistic assumptions, was implemented within each of these stages.

Results

Significant improvements in CVD-related costs were evident with varying MedDiet adoption and CVD reduction rates. Specifically, CAD $41.9 million to 2.5 billion in Canada and US $1.0–62.8 billion in the United States were estimated to accrue as total annual savings in economic costs, given the 'very-

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Eating Mediterranean diet could prevent 19,000 UK deaths, Cambridge University scientists claim

JAMIE MICKLETHWAITE | Thursday 29 September 2016 07:38 BST | 3 comments

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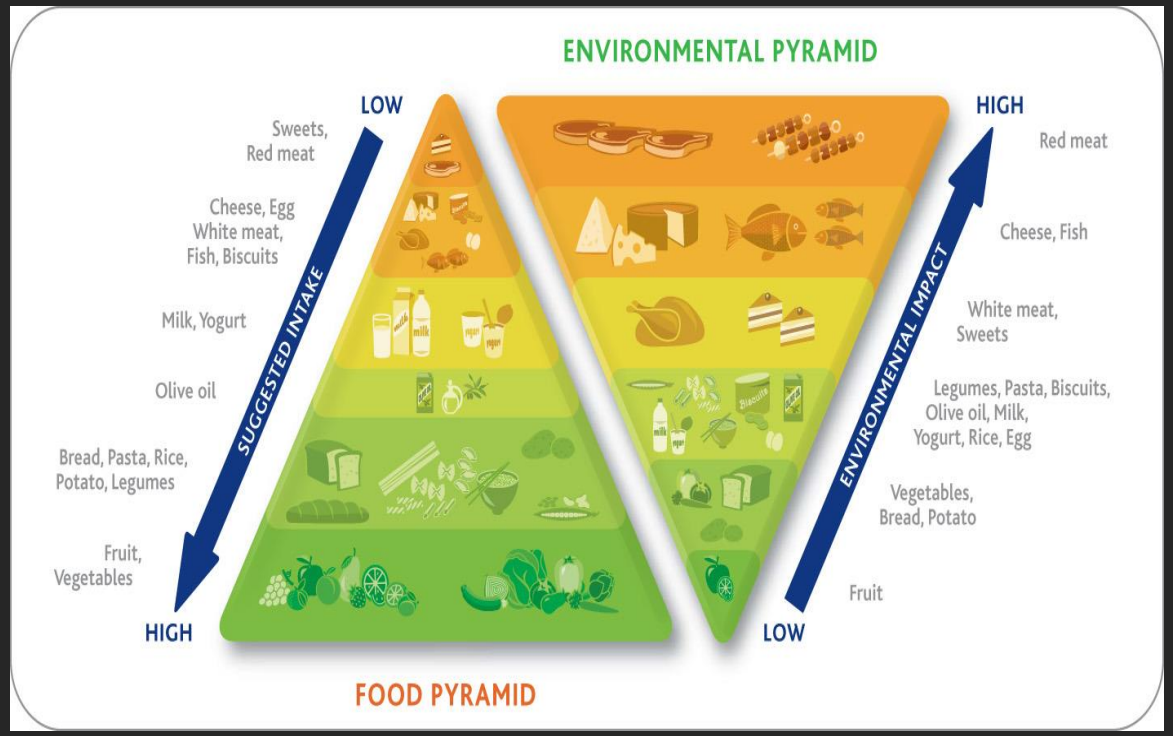
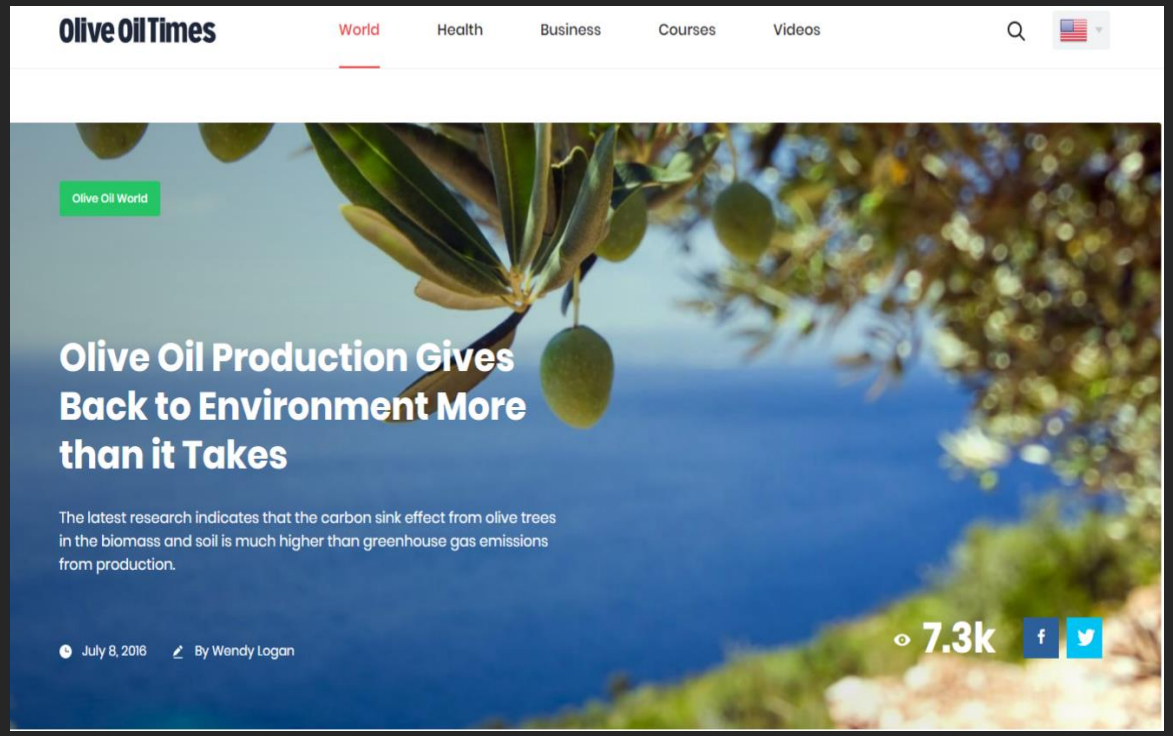
Extra Virgin Olive Oil Production and Consumption – Opportunities (and a Matter of Planetary Survival)





Thank You

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Lesson 10
Polyphenols and Health Benefits of Olive Oil – New York 2025

Dr Simon Poole

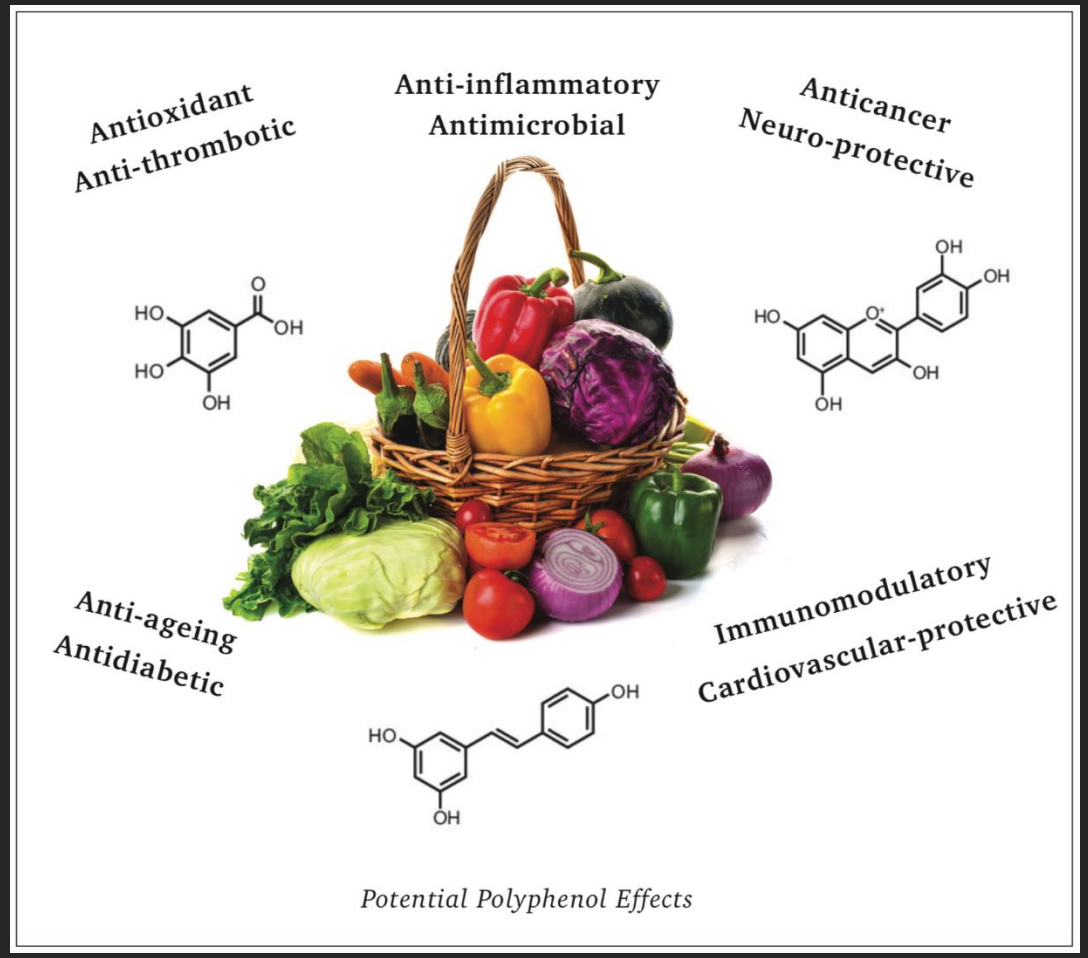
Extra Virgin Olive Oil Education

EVERY DAY – 30ml+ extra virgin olive oil, inseparably at the heart of the healthy Mediterranean Diet, with independently measurable health benefits. The 40/80 Paradigm

UNDERSTANDING –Healthy fats, polyphenols & the unique anti-inflammatory, antioxidant benefits of extra virgin olive oil.

TASTE – the experience of different extra virgin olive oils for healthy cooking, preparation and finishing.

Polyphenols - Nature's Natural Medicines; The Health Story of 2020s



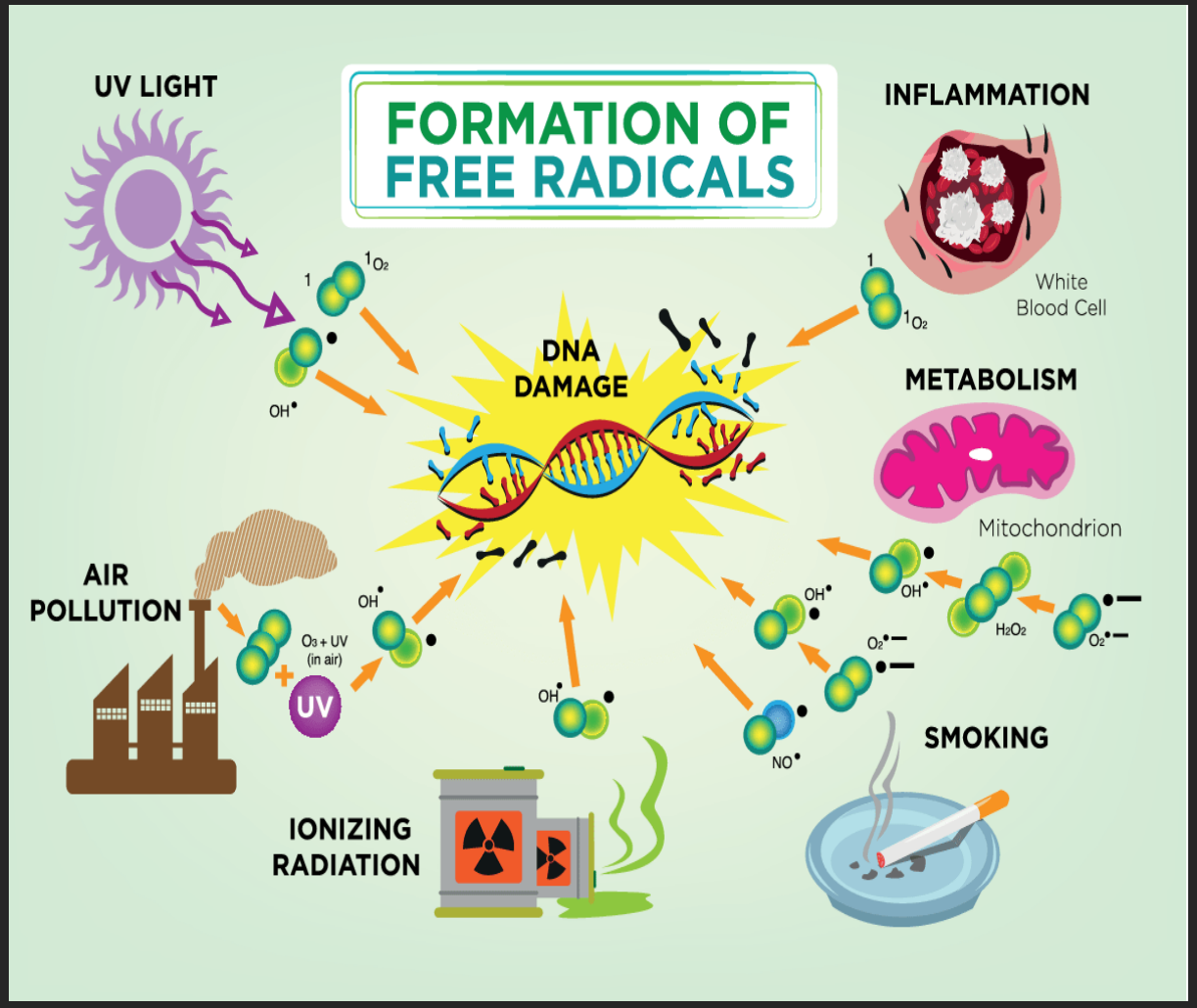
Potential Polyphenol Effects

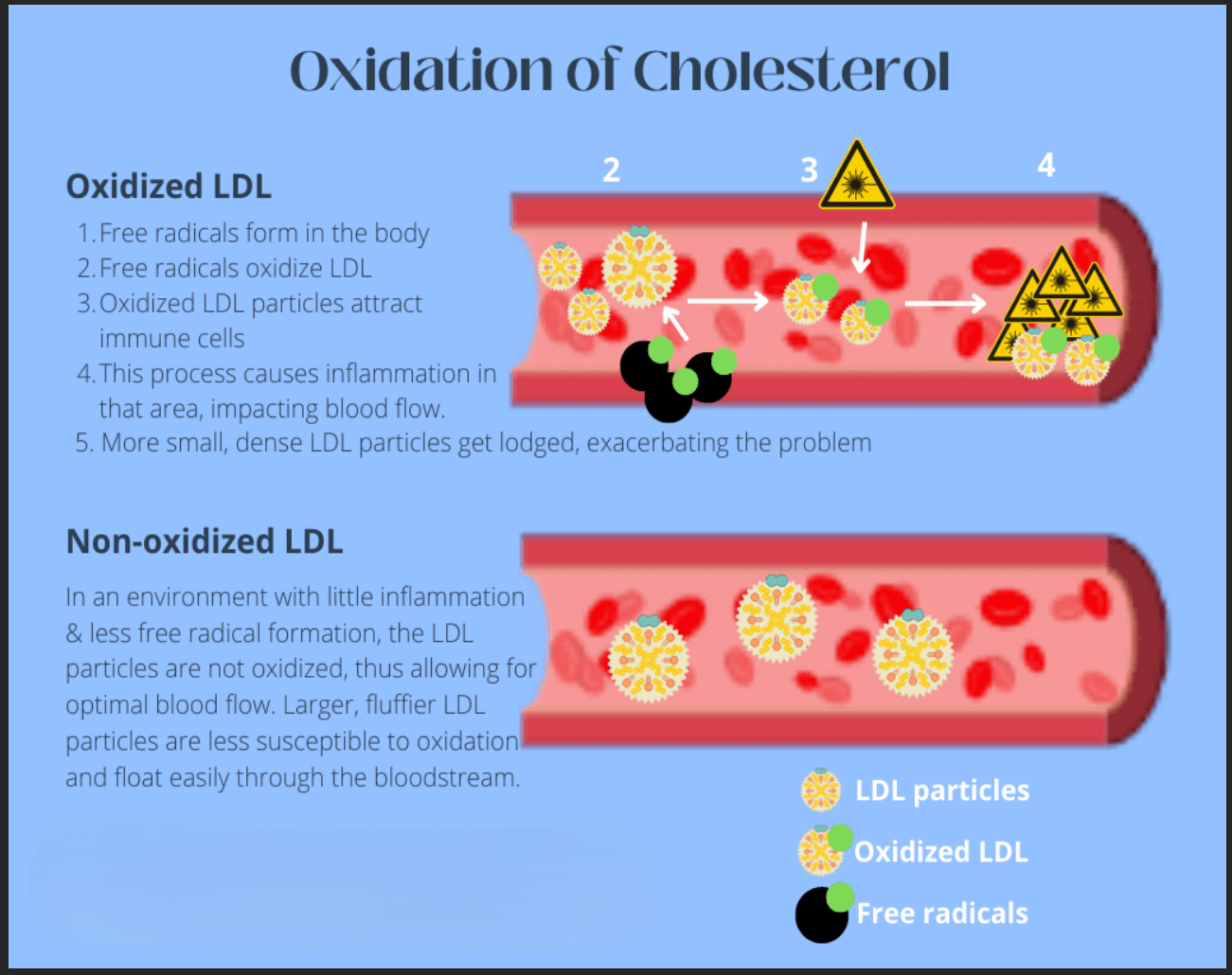
A Tale of Two Islands – An Introduction to Plant Power

Why was Nutmeg so Valuable?

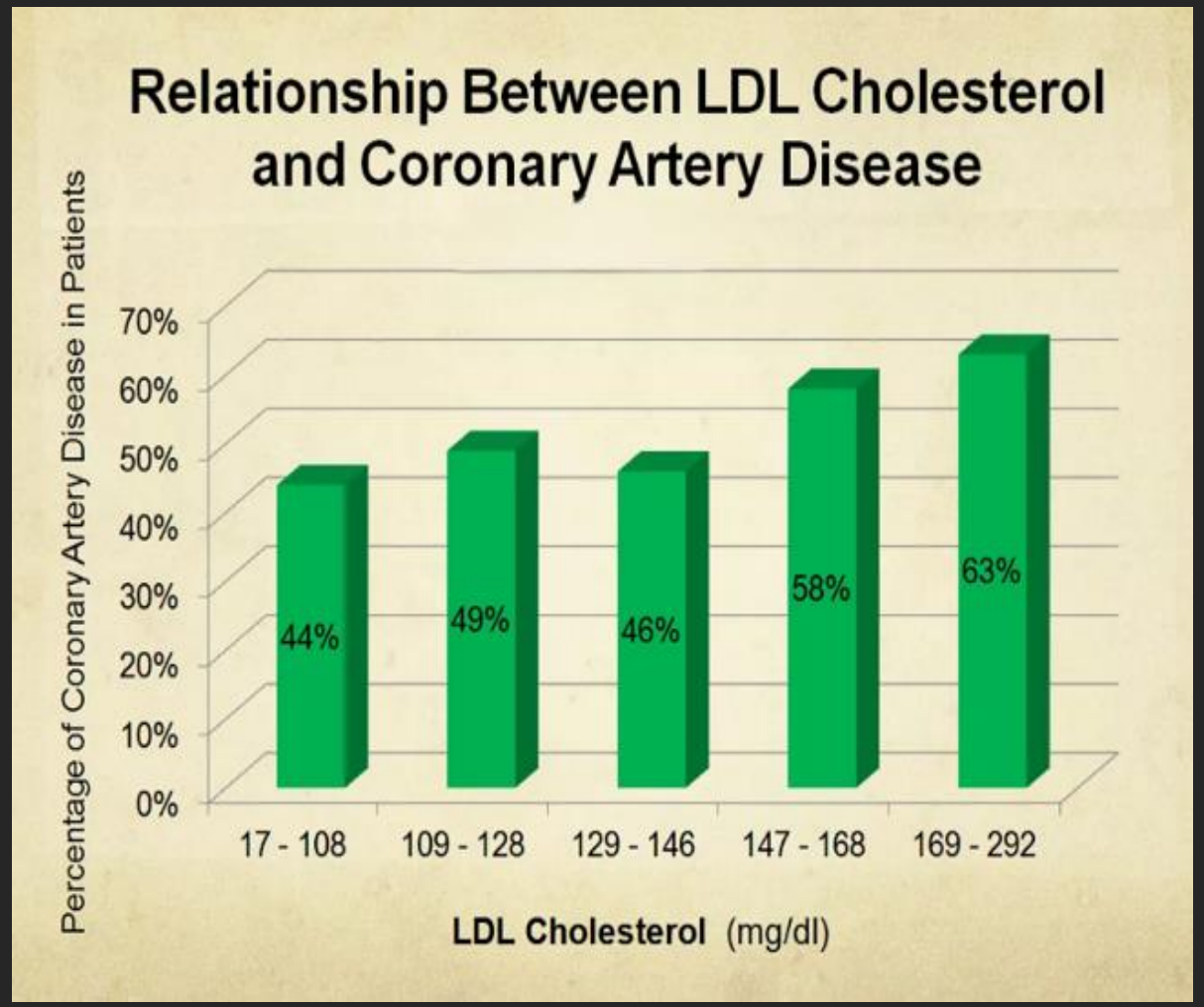
Our Beautiful, Reactive, Breathing Oxygen Rich World

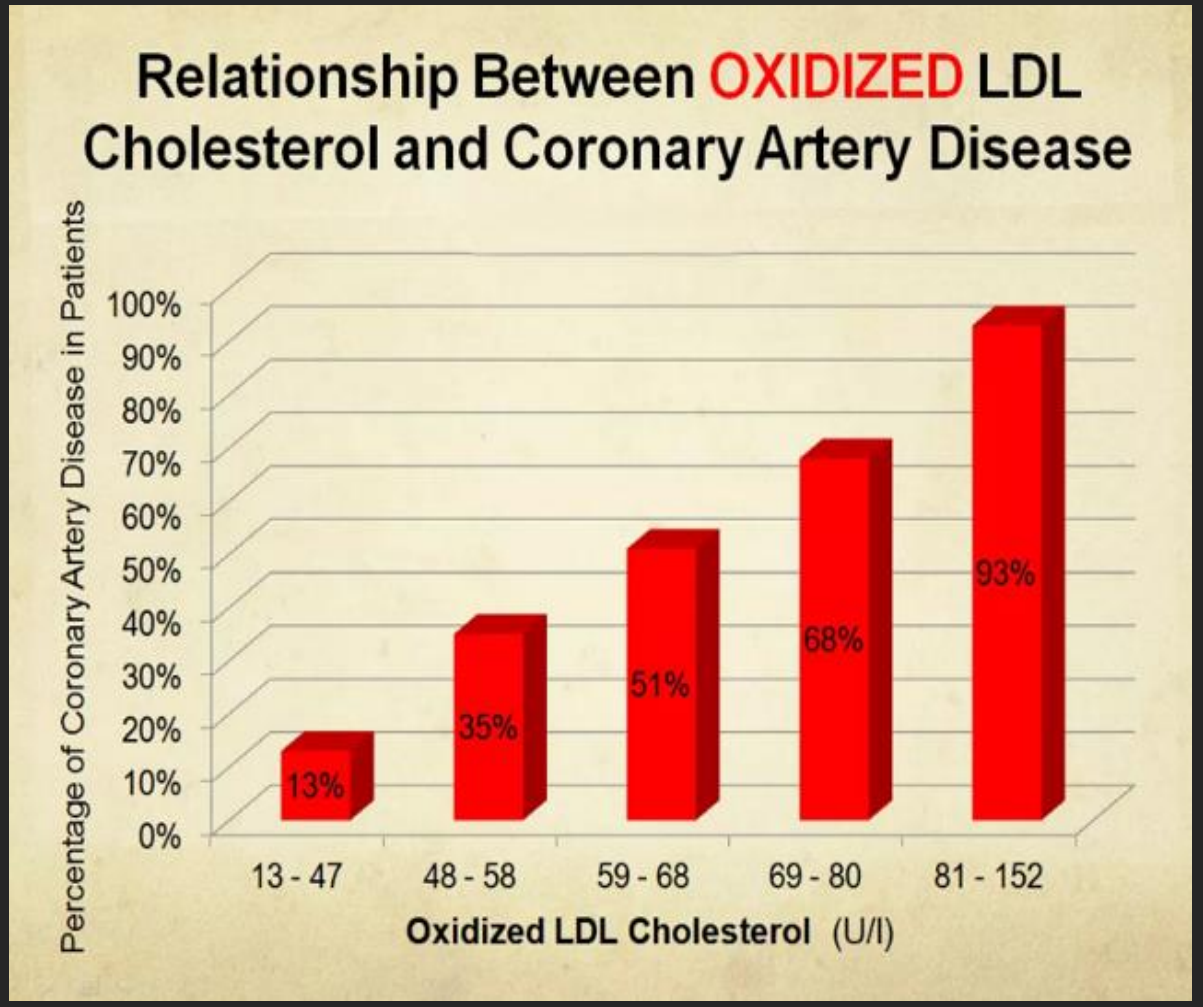
Reactive Oxygen, Oxidative Stress and Antioxidants



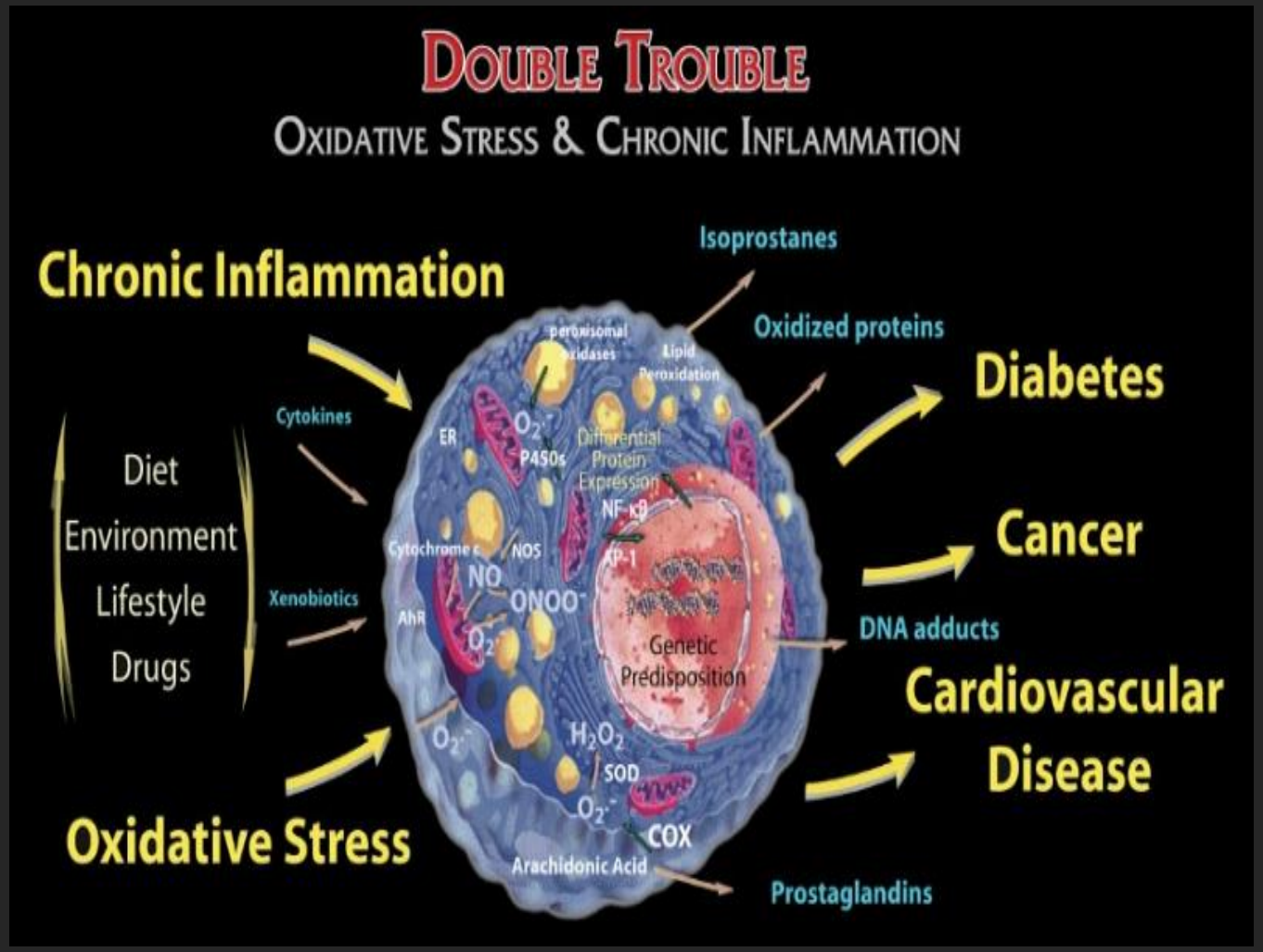


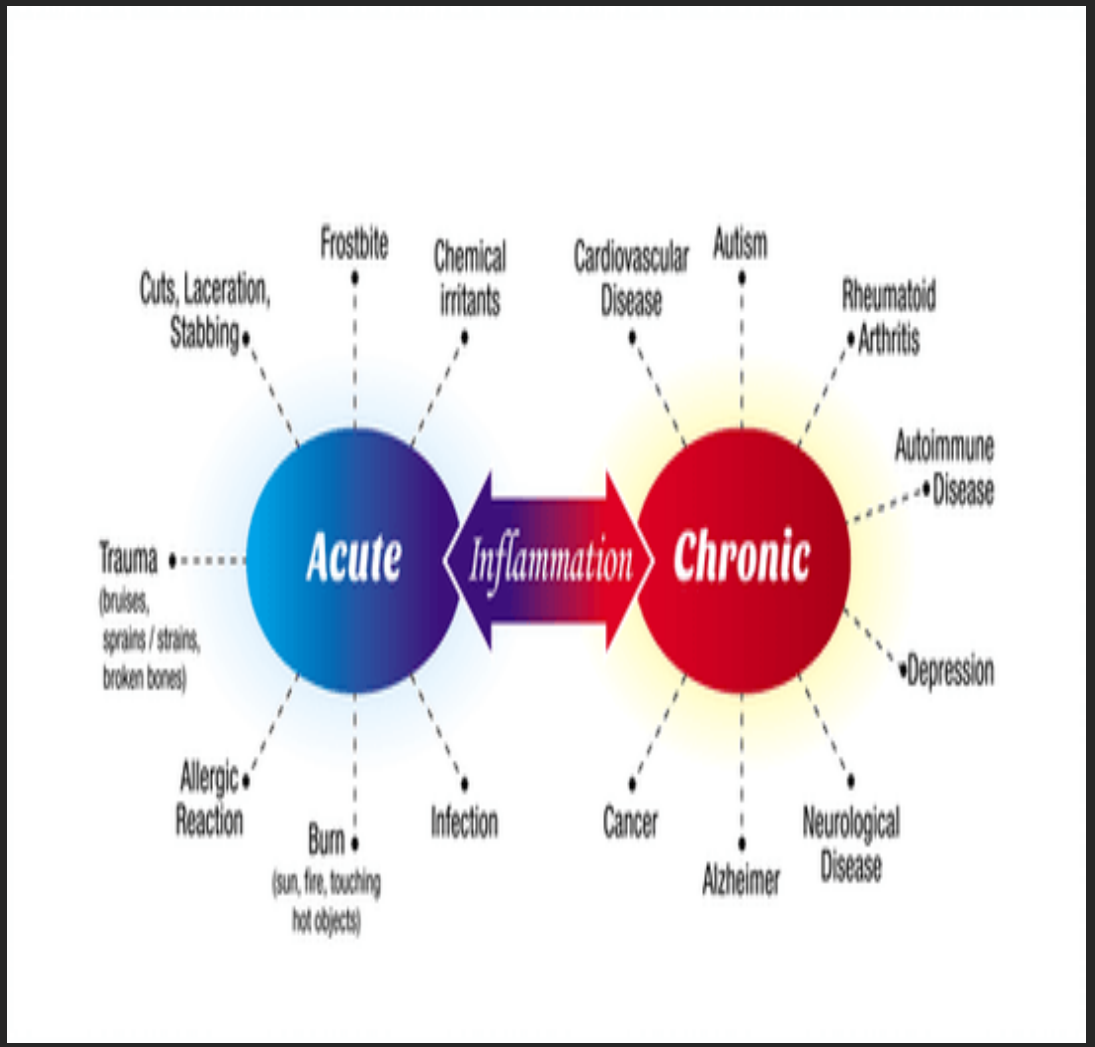
Oxidized Cholesterol Causing Inflammation is the Problem





Inflammation – The Good, The Bad and The Ugly





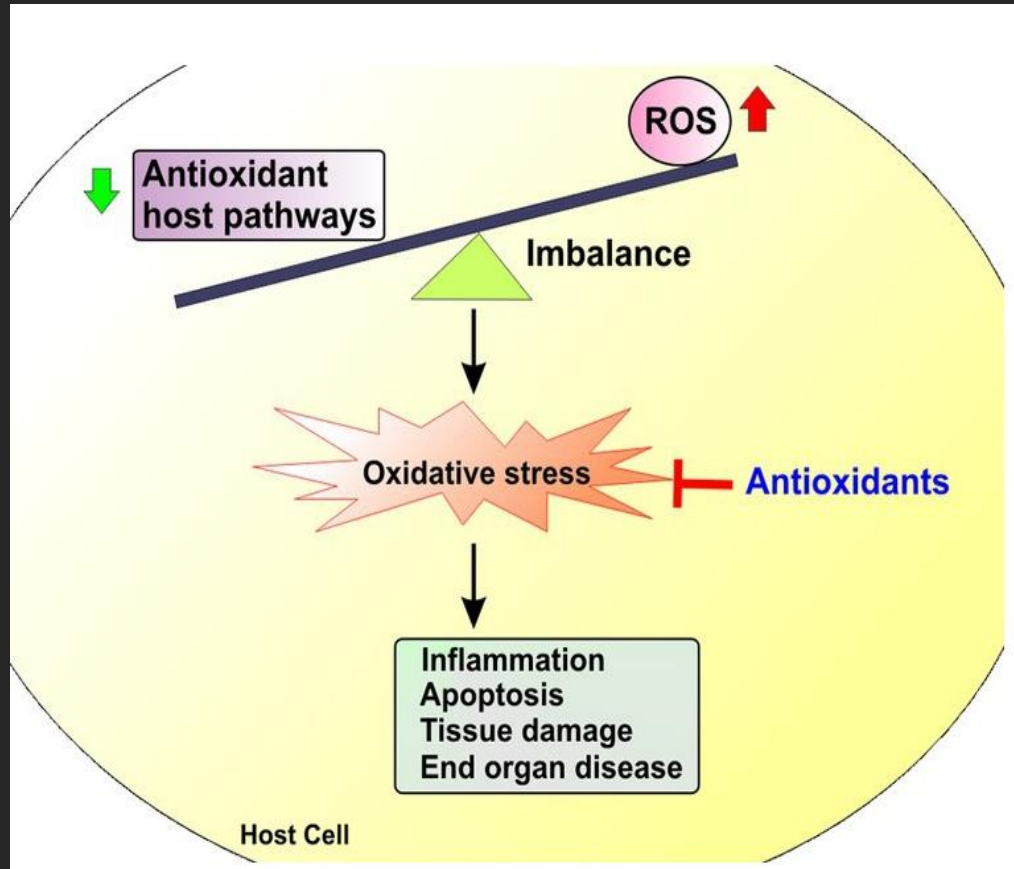
Pro-inflammatory nutrients and lifestyle factors:

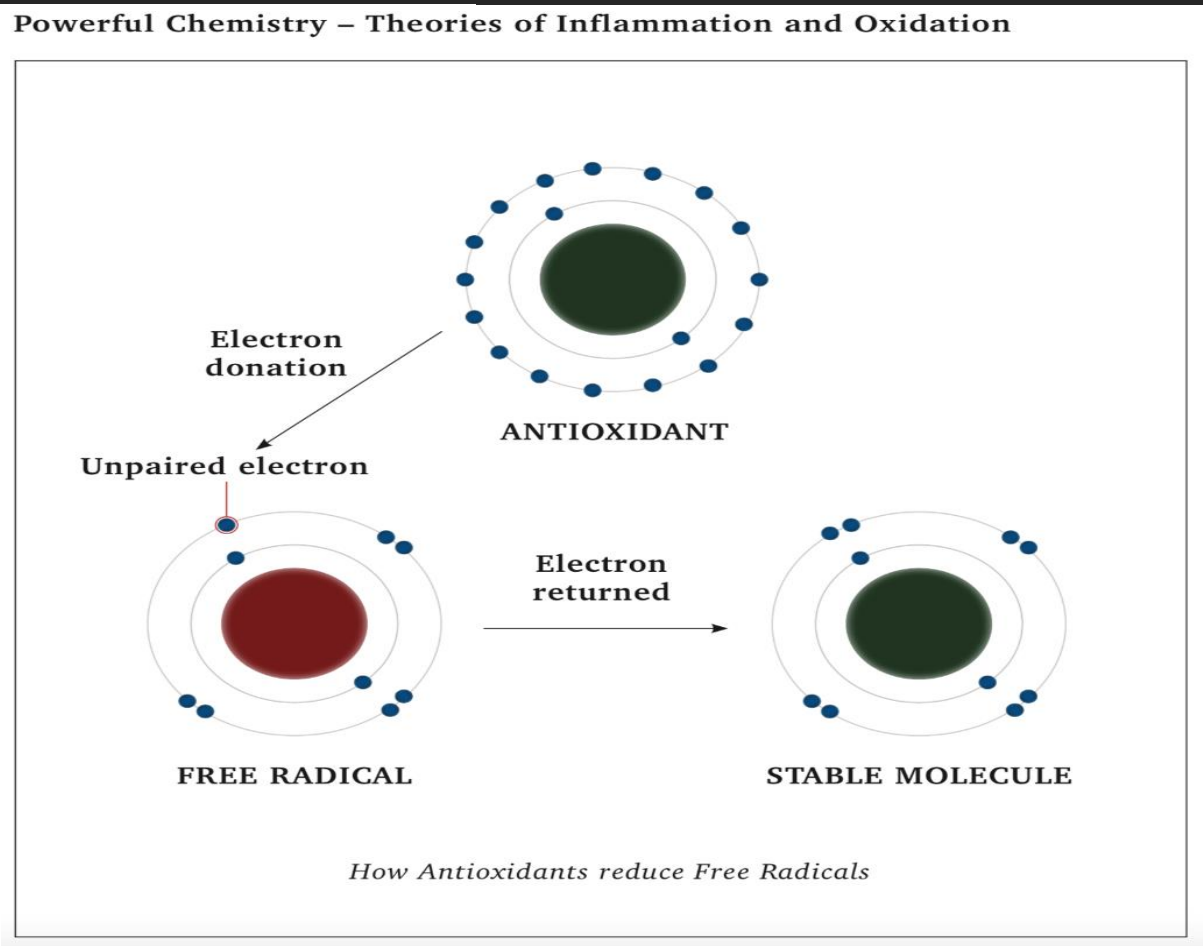
- Refined sugars
- Trans fats
- Excess omega-6 fatty acids (e.g., from processed seed oils)
- Excessive alcohol
- Processed meats
- Sedentary lifestyle
- Chronic stress
- Poor sleep quality
- Smoking
- Air pollution exposure

Anti-inflammatory nutrients and lifestyle factors:

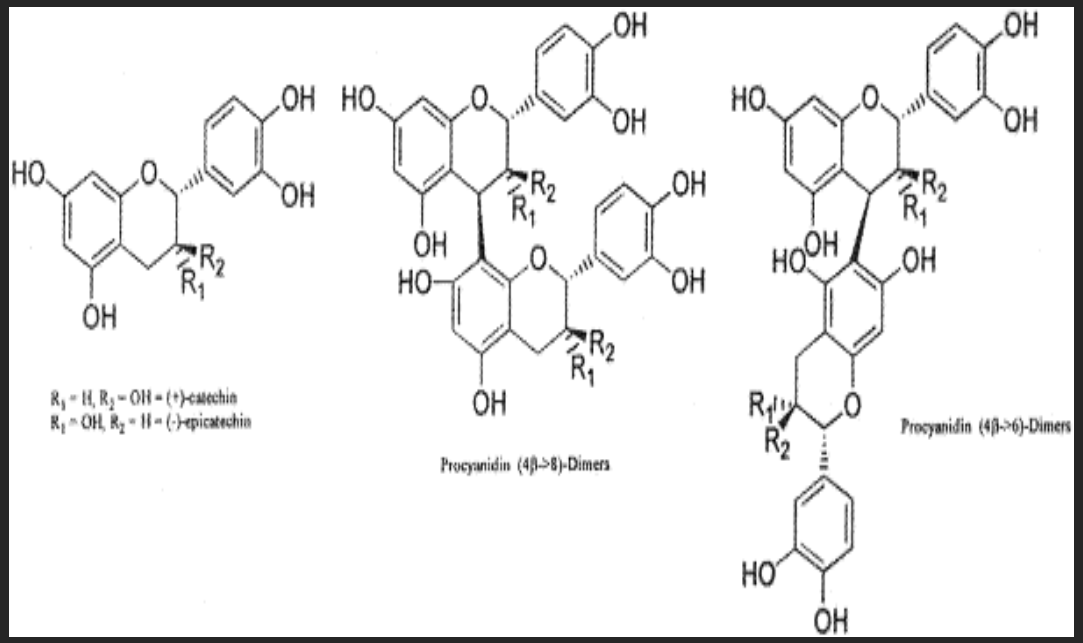
- Polyphenols
- Monounsaturated fats (e.g., olive oil, avocados)
- Omega-3 fatty acids (e.g., fish oil, flaxseeds)
- Fiber (e.g., fruits, vegetables, whole grains)
- Regular moderate exercise
- Stress management (e.g., meditation, yoga)
- Quality sleep (7–9 hours)
- Non-smoking
- Time in clean, natural environments

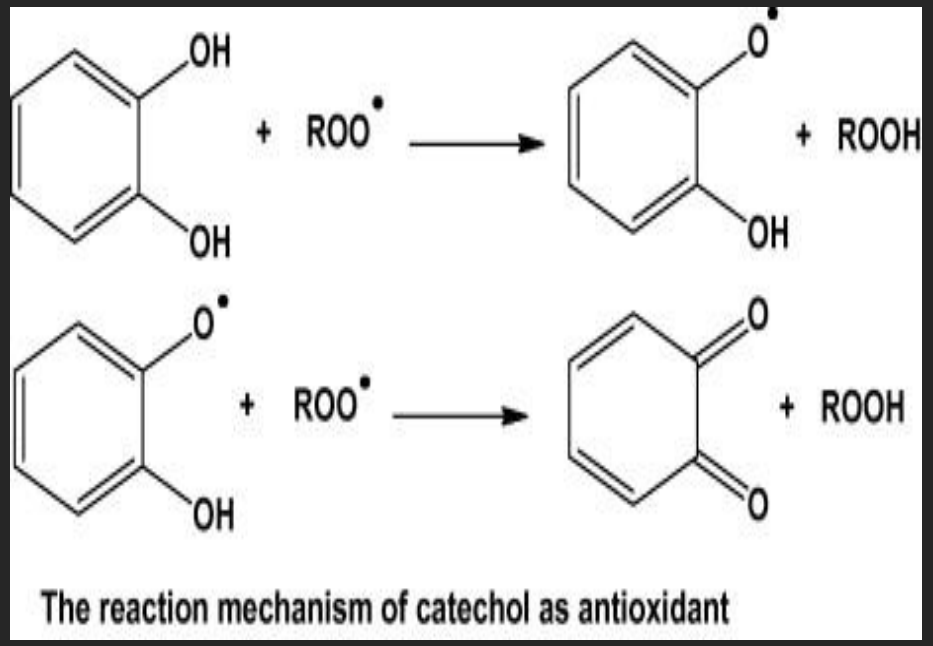
Antioxidants, Designed to Protect Plants, Have a Role in Reducing Oxidative Stress and Chronic Inflammation



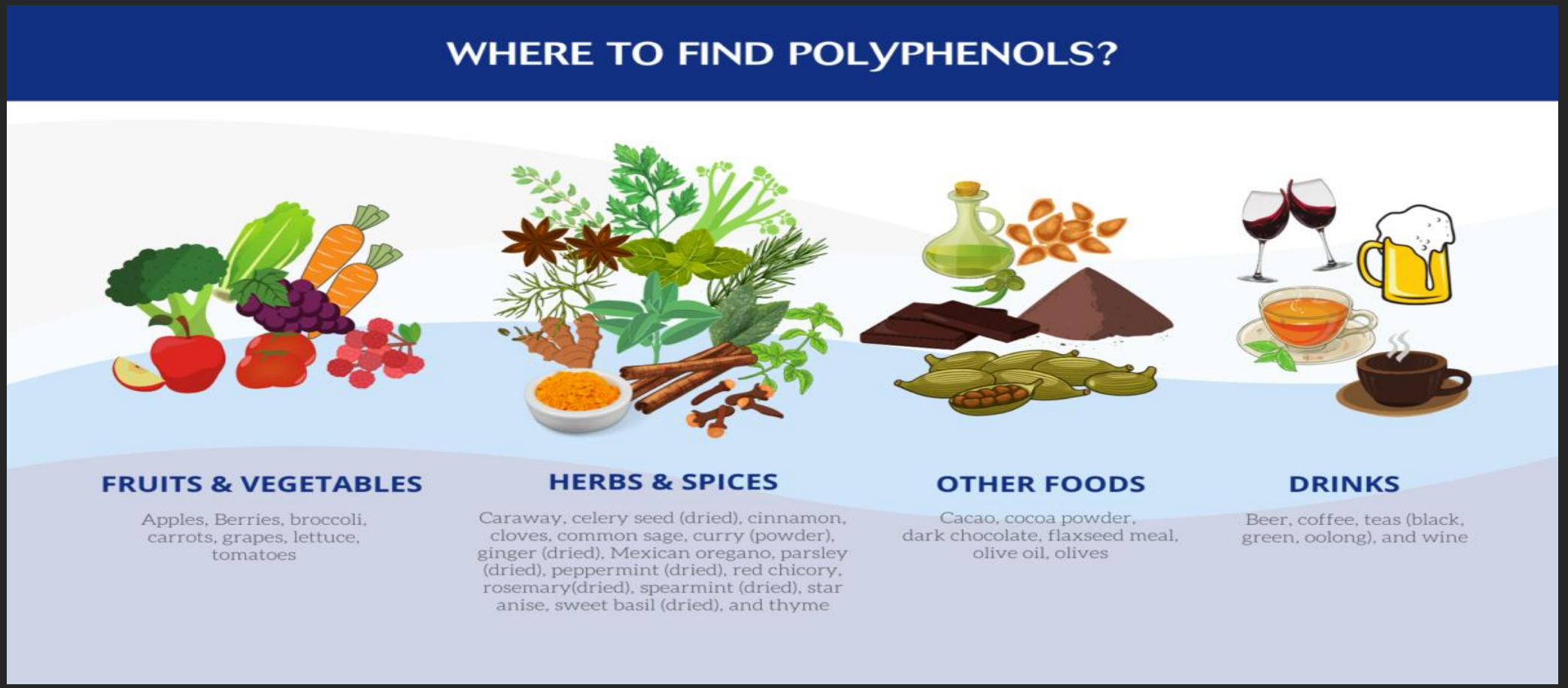


The Destructive Power of Oxygen Free Radicals and Healing Antioxidants





The High Polyphenol, Antioxidant, Anti-inflammatory Diet



Polyphenols – the most interesting things no one has heard of..

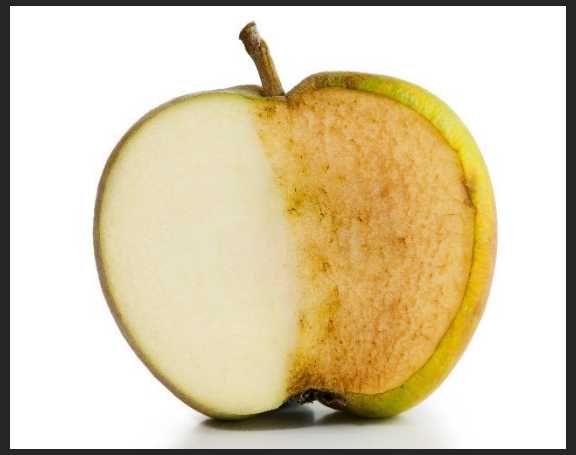
The theory of plant polyphenol production;

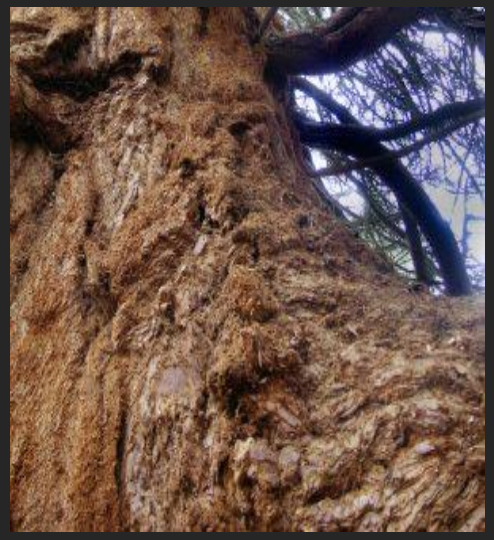
- Protection from Oxidation – Damage from Reactive Oxygen Species in our Energetic World
- Resistance to Microbial Attack
- Prevention of Being Eaten
- Selective Visual and Taste Signalling for Seed Distribution
- Responding to Environmental Stress and Damage
- Community Protection

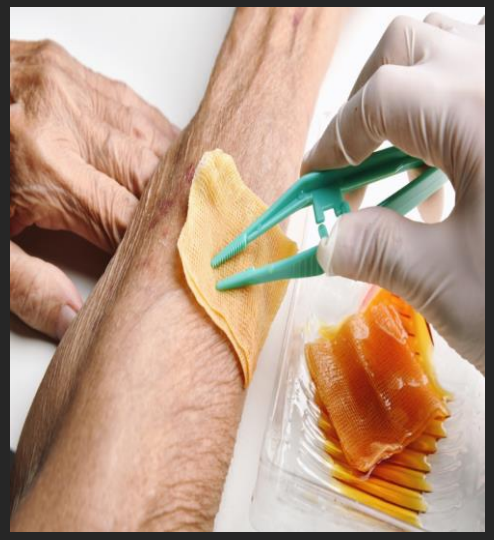
Powerful antioxidant and anti-inflammatory activity in Humans as Bioactive Compounds

Unique and abundant polyphenols in the fruit of the olive tree

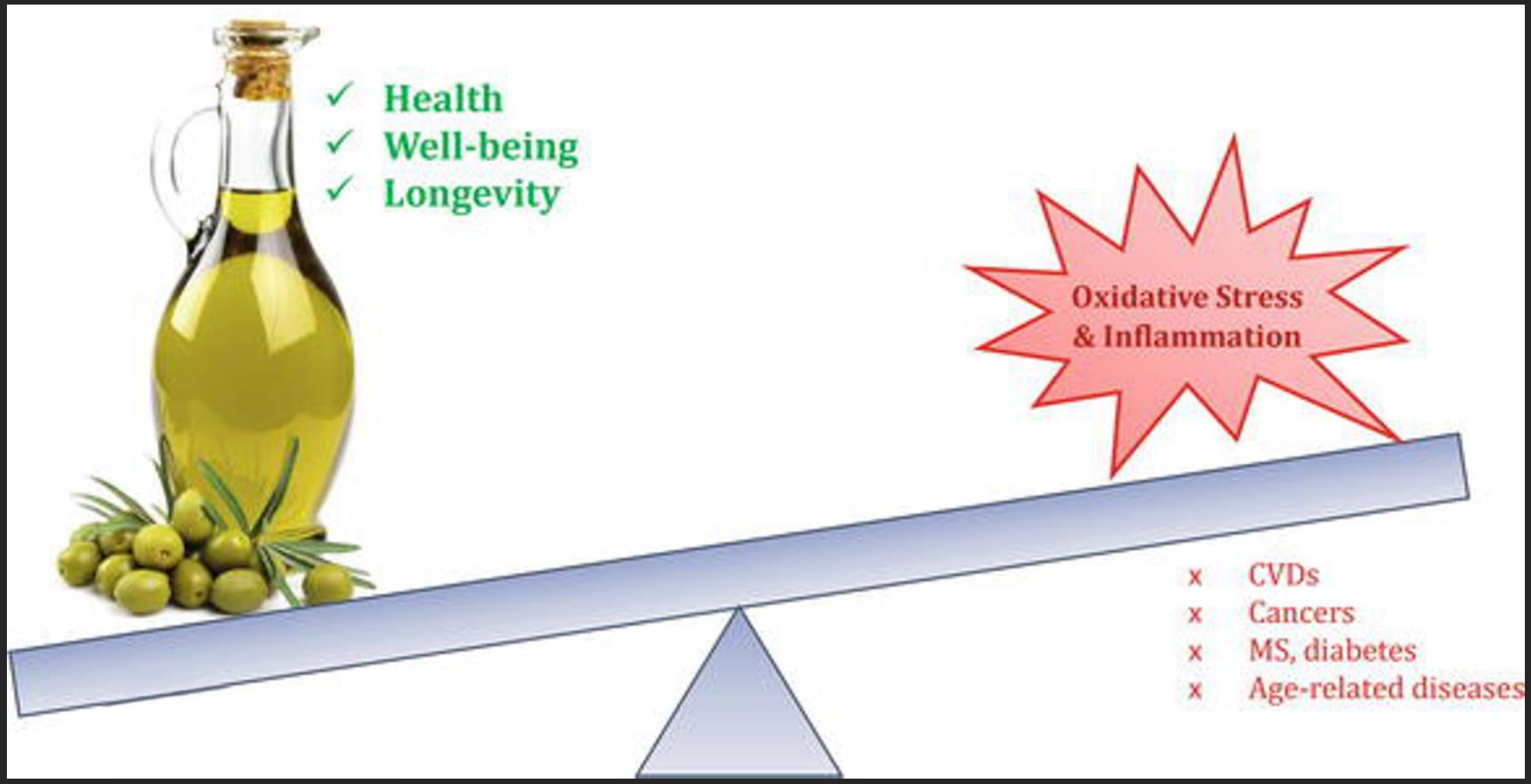
Plant Polyphenols in Action





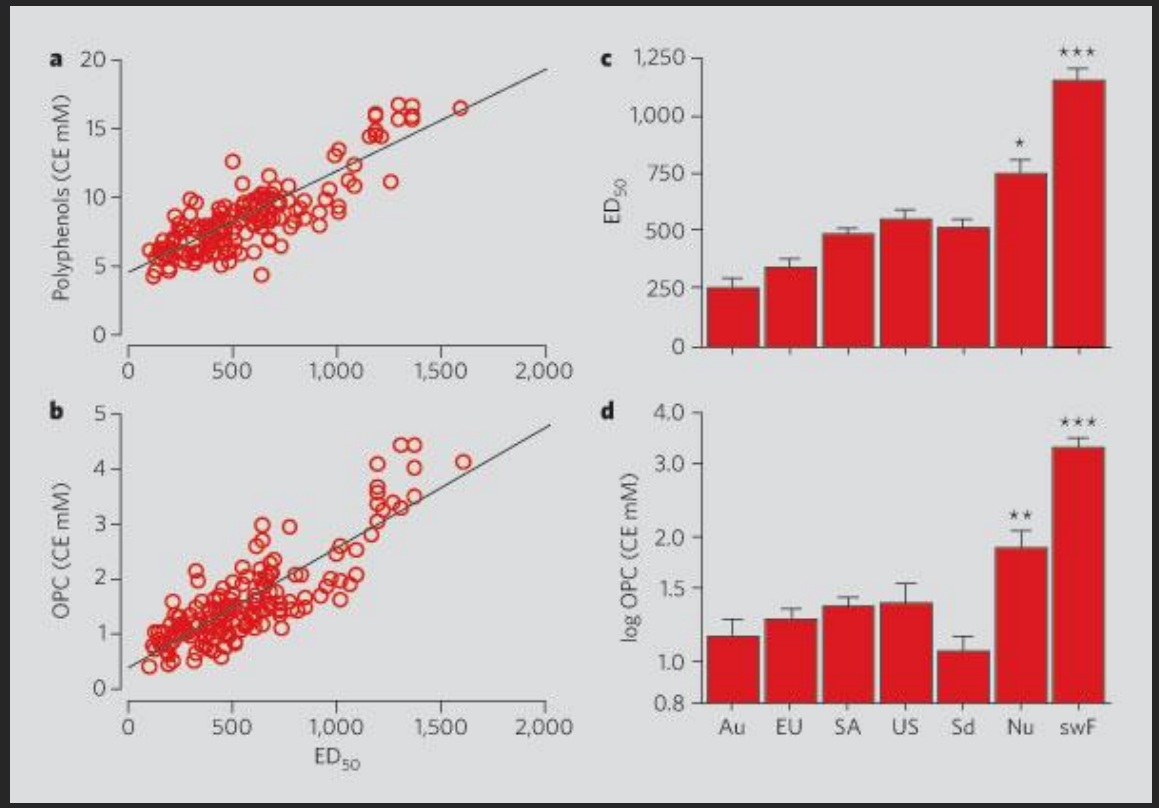


The Special Place of EVOO



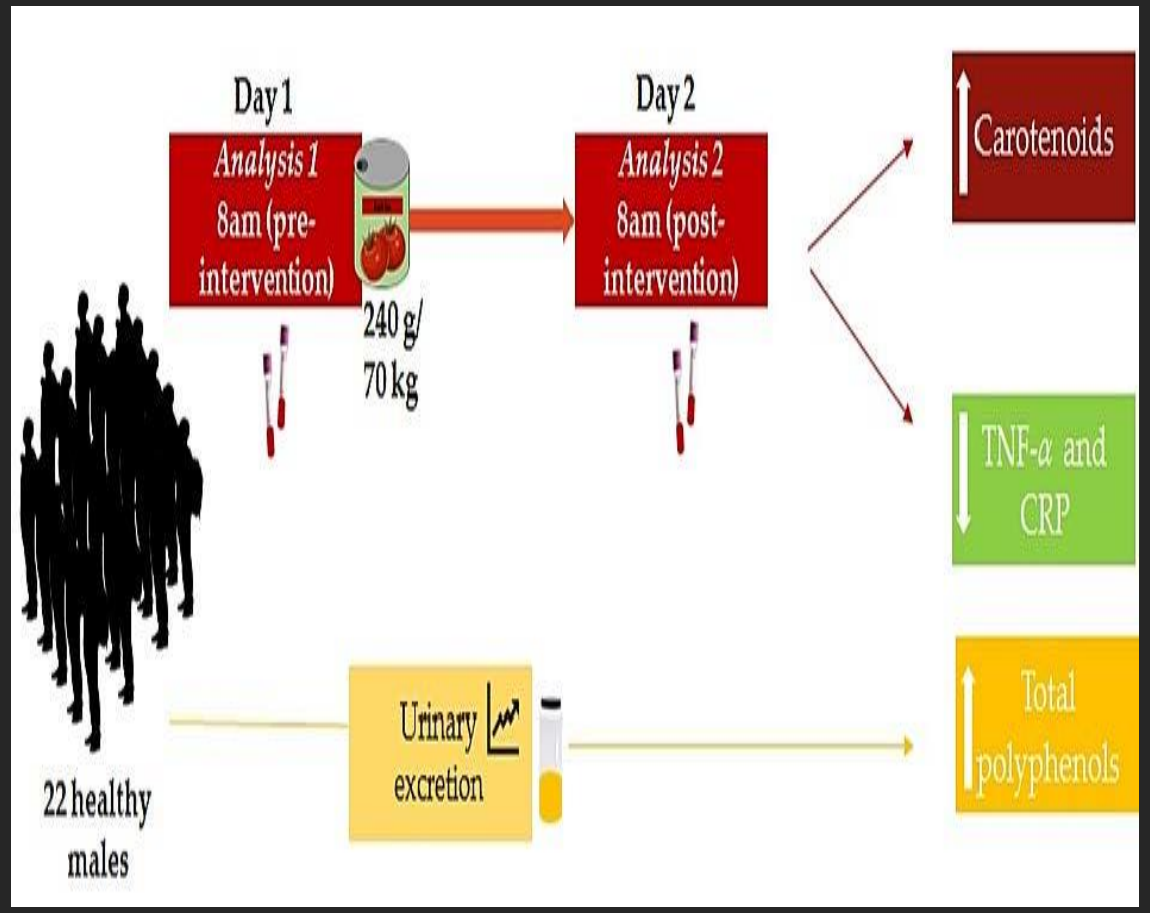
Plants & Food Quality – Common Themes to Talk About

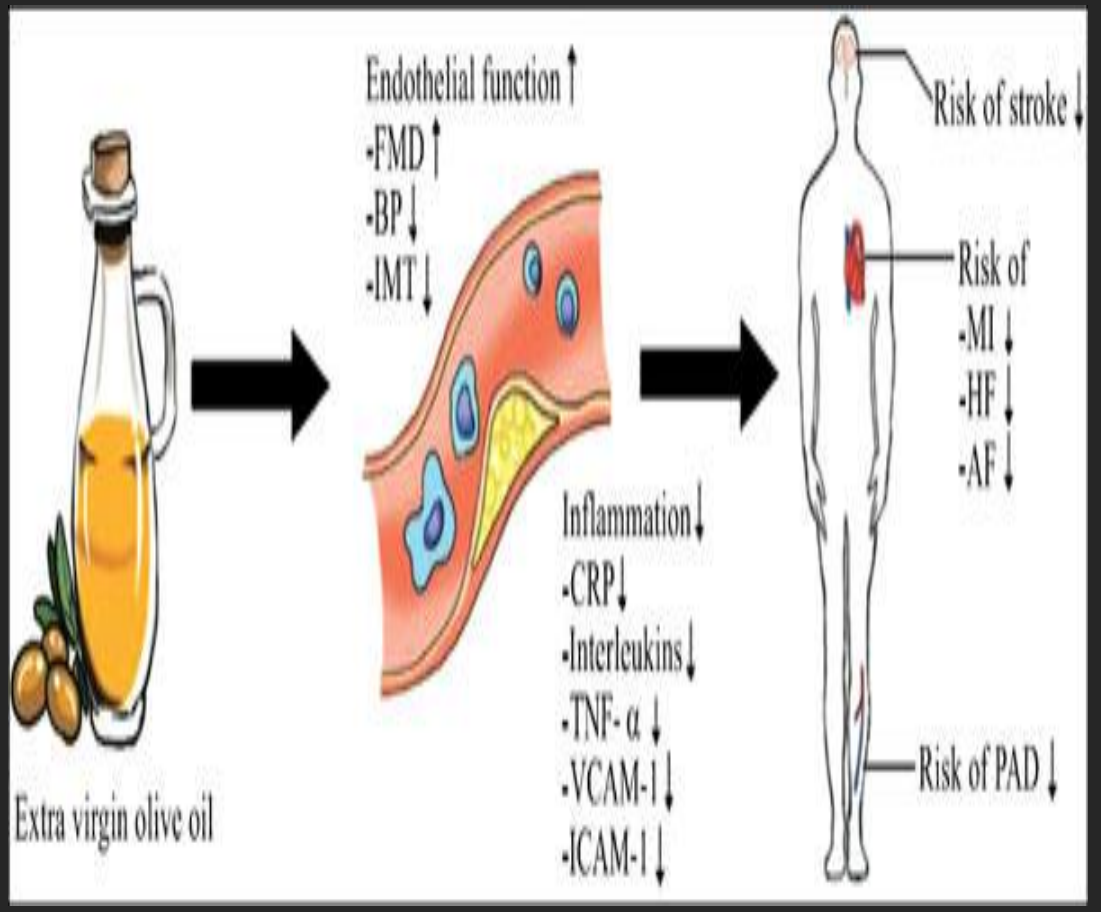
It’s Not Just EVOO
Red Wine Procyanidins – A Powerful Effect on Blood Vessels



The Sofrito Experiment – Tomatoes, Olive Oil and Spices

EVOO is VERY SPECIAL





Major and “Minor” Chemistry of EVOO

Major Components**: Triglycerides**: The predominant fats in olive oil.

“Minor” Bioactive Components: (excluding pigments & aromatic compounds eg terpenes, hexanal)

Carotenoids: Beta-carotene and Lutein

Squalene: A triterpene that serves as a precursor to sterols.

Sterols: Plant sterols, including β-sitosterol, campesterol, and stigmasterol

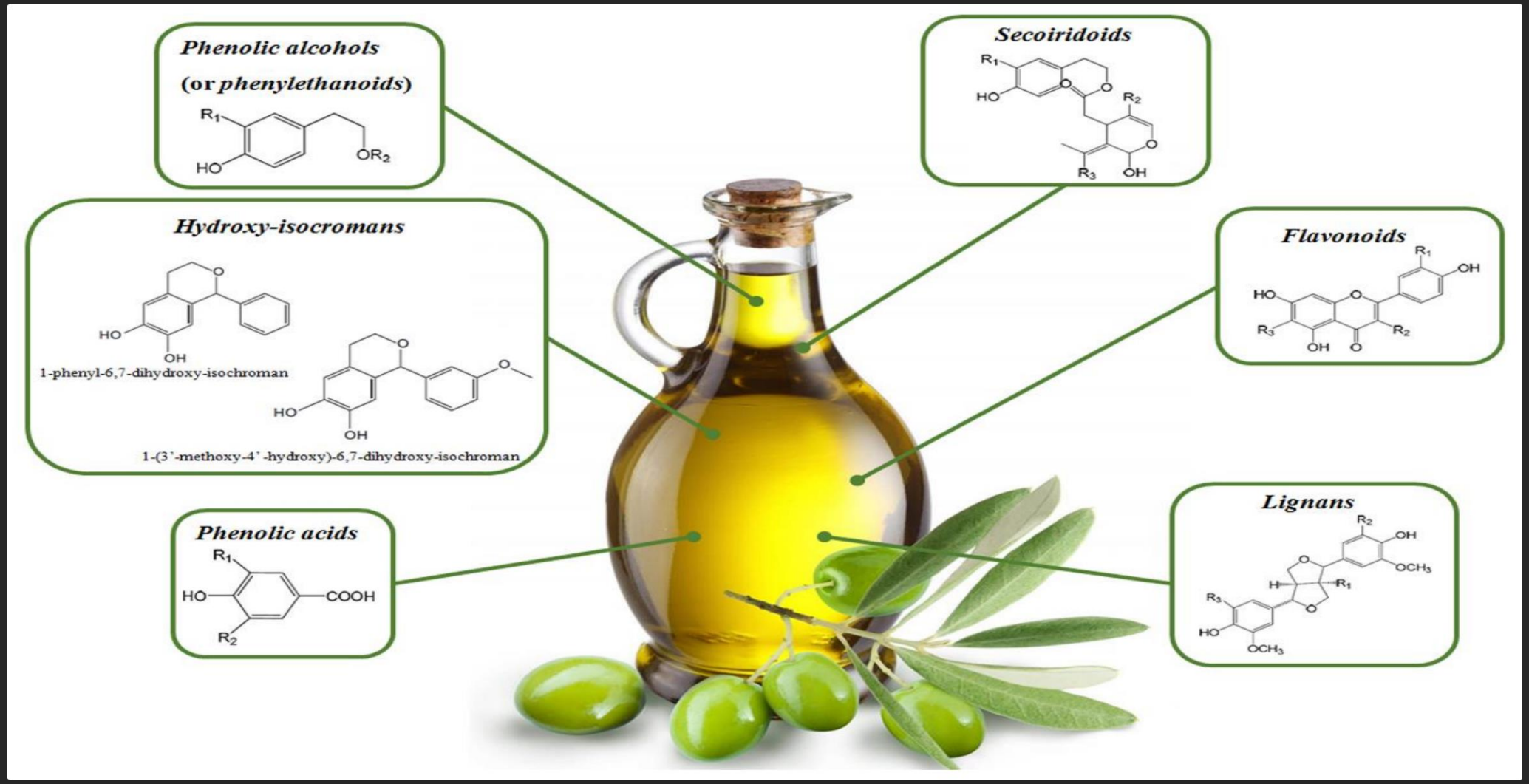
Polyphenols: Various classes contribute to the flavor and health benefits. Subcategories include:

- Secoiridoids: Oleuropein, oleocanthal, oleuropein aglycone.
- Phenolic Acids: Caffeic acid, vanillic acid, syringic acid.
- Flavonols: Quercetin, kaempferol.
- Flavones: Apigenin.
- Flavanones: Naringenin.
- Lignans: Pinoresinol.
- Phenolic Alcohols: Tyrosol, hydroxytyrosol.

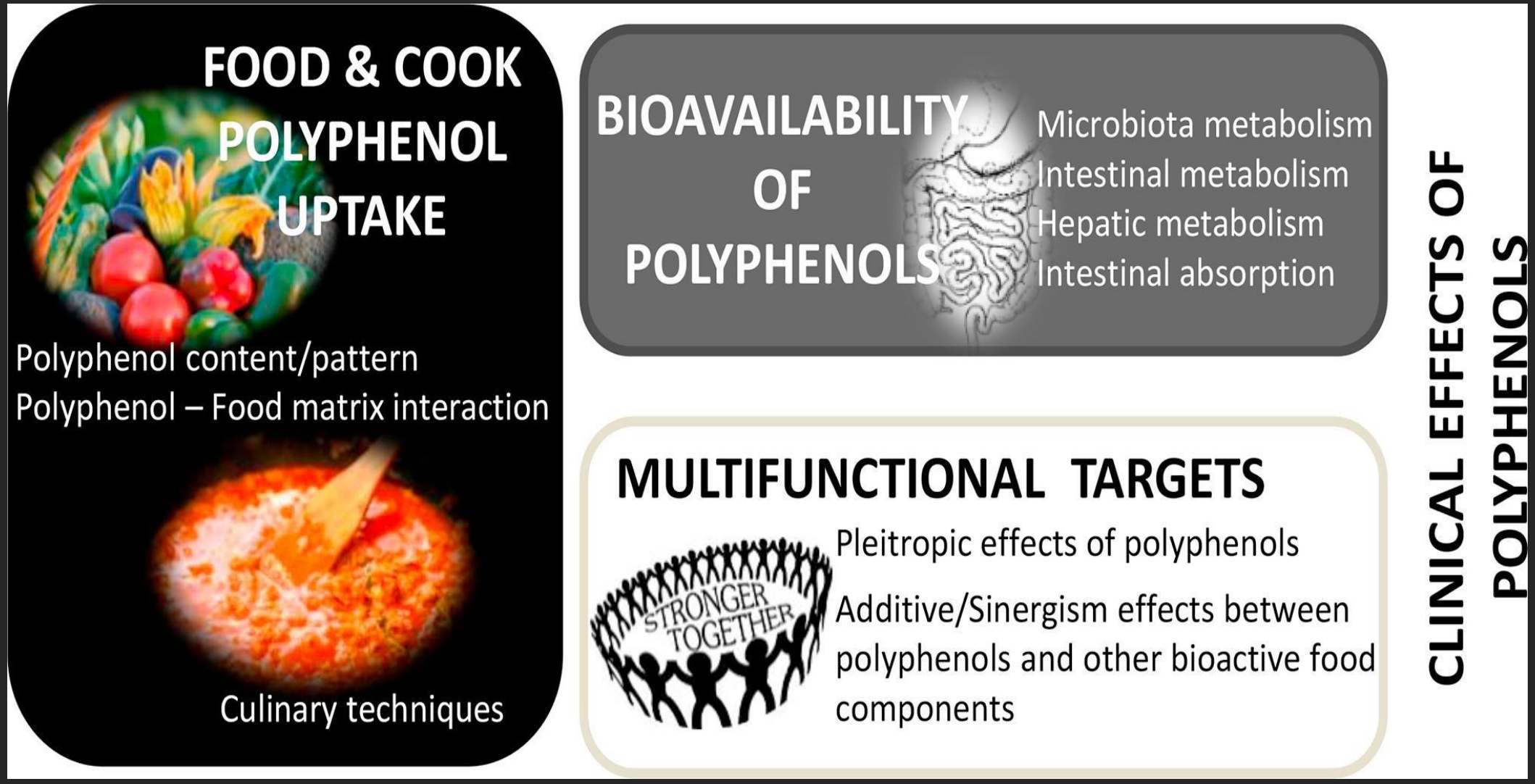
Unique Antioxidants and/or Anti-inflammatories & EVOO

- Vitamin E
- Squalene
- Lignans
- Polyphenols (>36 identified)
  - ➢Oleuropein
  - ➢Oleocanthal
  - ➢Hydroxytyrosol and its Derivatives

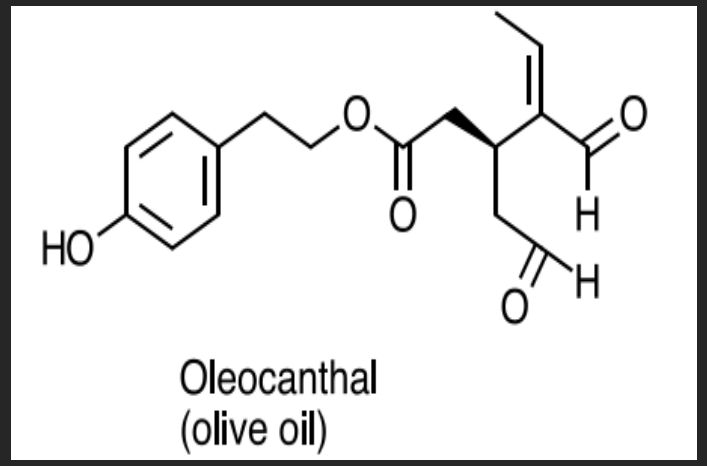
Unique & Abundant EVOO Polyphenols in a Protective Fat Matrix



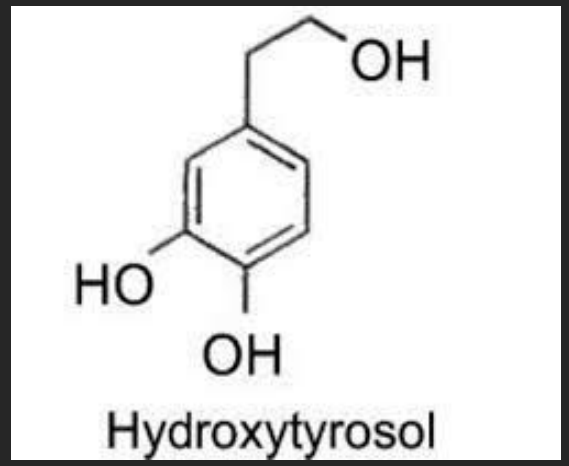
Mysteries of Polyphenols – Many Areas of Uncertainty



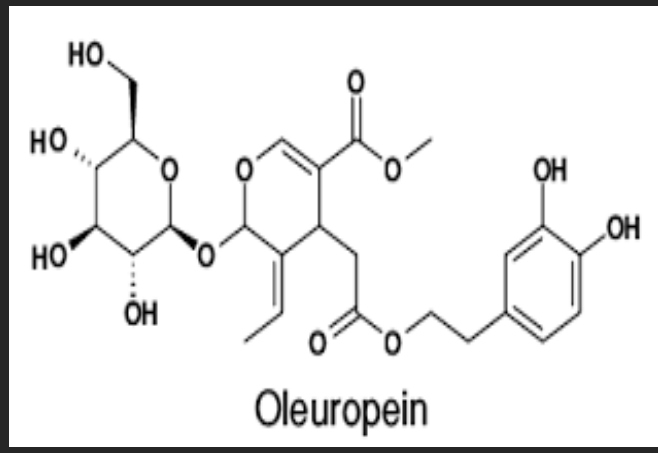
3 of the 36



Oleocanthal
(olive oil)

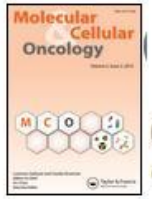


Hydroxytyrosol



Oleuropein

Oleocanthal – Stinging Cancer Cells



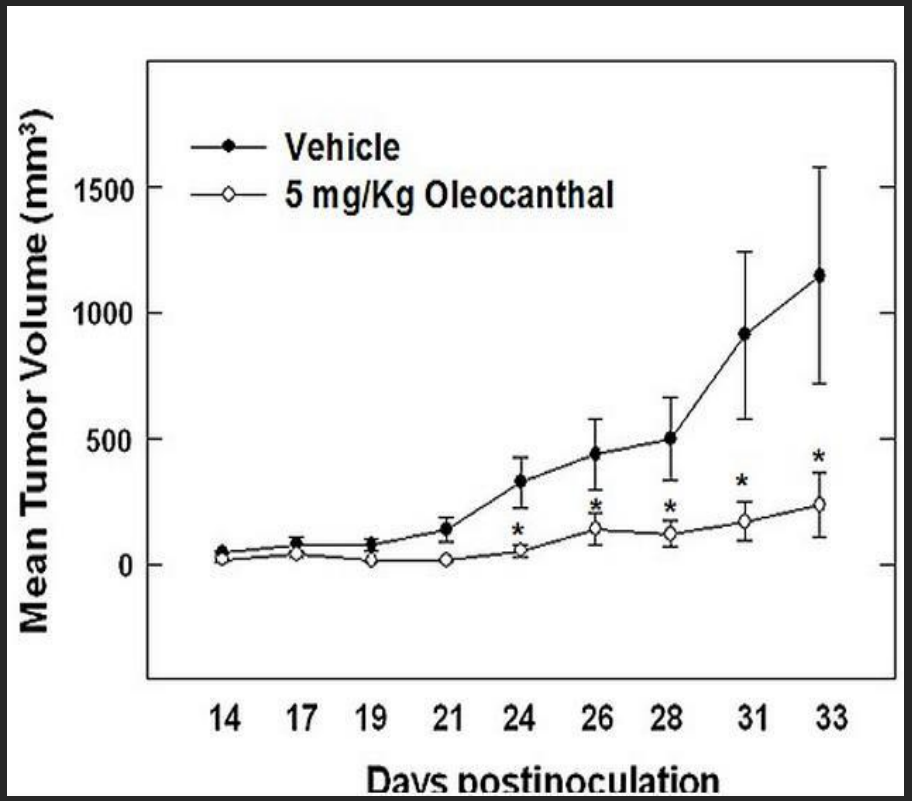
(-)-Oleocanthal rapidly and selectively induces cancer cell death via lysosomal membrane permeabilization (LMP)

DOI: 10.1080/23723556.2015.1006077
O LeGendre[ab*], P A S Breslin[cd] & D A Foster[a*]
Publishing models and article dates explained

Received: 2 Aug 2014
Accepted: 7 Jan 2015
Accepted author version posted online: 23 Jan 2015

Abstract

(-)-Oleocanthal (OC), a phenolic compound in extra virgin olive oil (EVOO), has been implicated in the health benefits associated with diets rich in EVOO. We investigated the effect of OC on human cancer cell lines in culture. Amazingly, OC induced cell death in all cancer cells examined – as rapidly as 30 minutes after treatment in the absence of serum.



Tyrosols, Oxidative Stress and the Inflammation of Heart Disease

European Food Safety Authority EFSA Journal 2011;9(4):2033

SCIENTIFIC OPINION

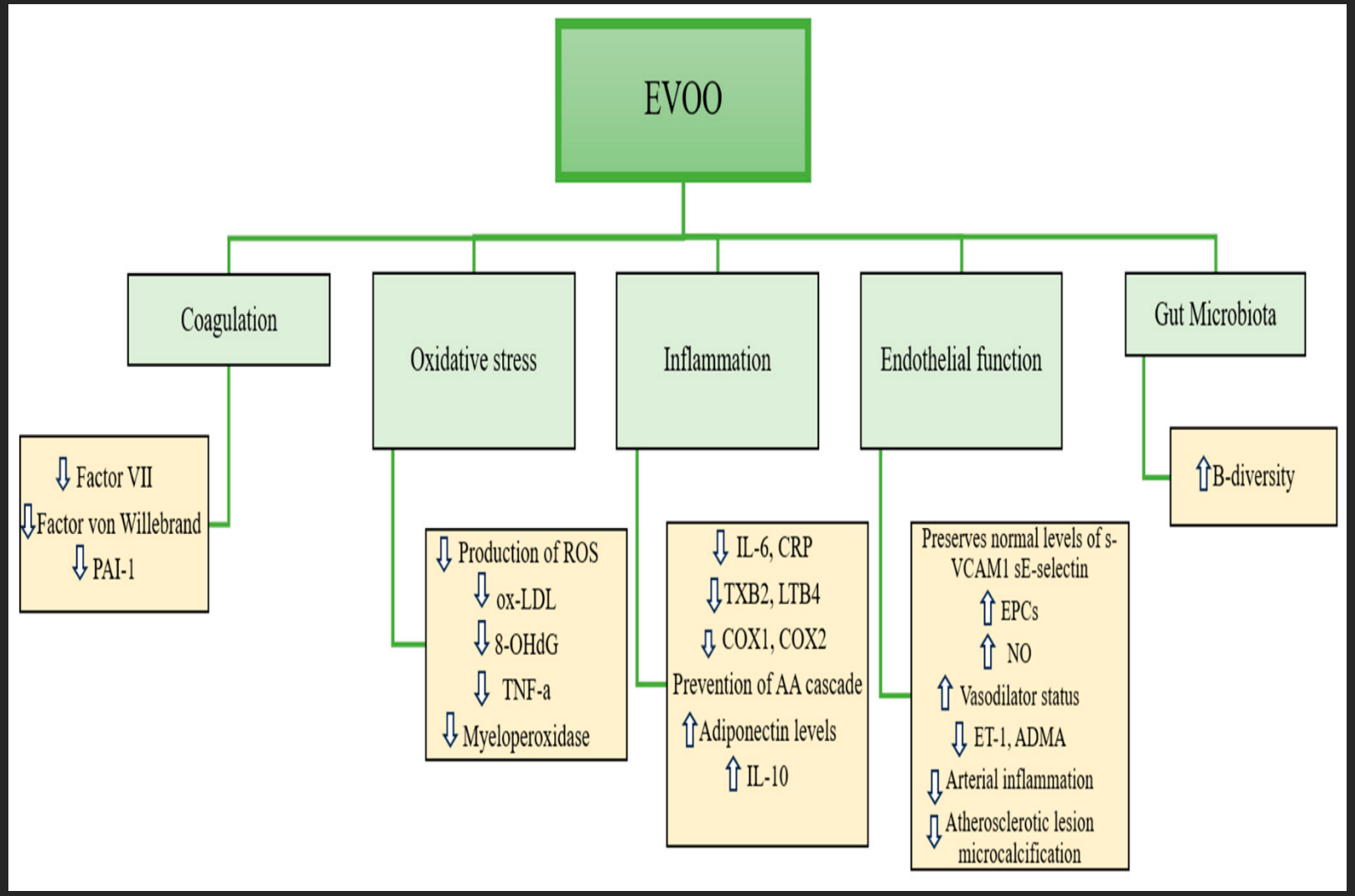
Scientific Opinion on the substantiation of health claims related to polyphenols in olive and protection of LDL particles from oxidative damage (ID 1333, 1638, 1639, 1696, 2865), maintenance of normal blood HDL-cholesterol concentrations (ID 1639), maintenance of normal blood pressure (ID 3781), "anti-inflammatory properties" (ID 1882), "contributes to the upper respiratory tract health" (ID 3468), "can help to maintain a normal function of gastrointestinal tract" (3779), and "contributes to body defences against external agents" (ID 3467) pursuant to Article 13(1) of Regulation (EC) No 1924/2006[1]

EFSA Panel on Dietetic Products, Nutrition and Allergies (NDA)[2, 3]

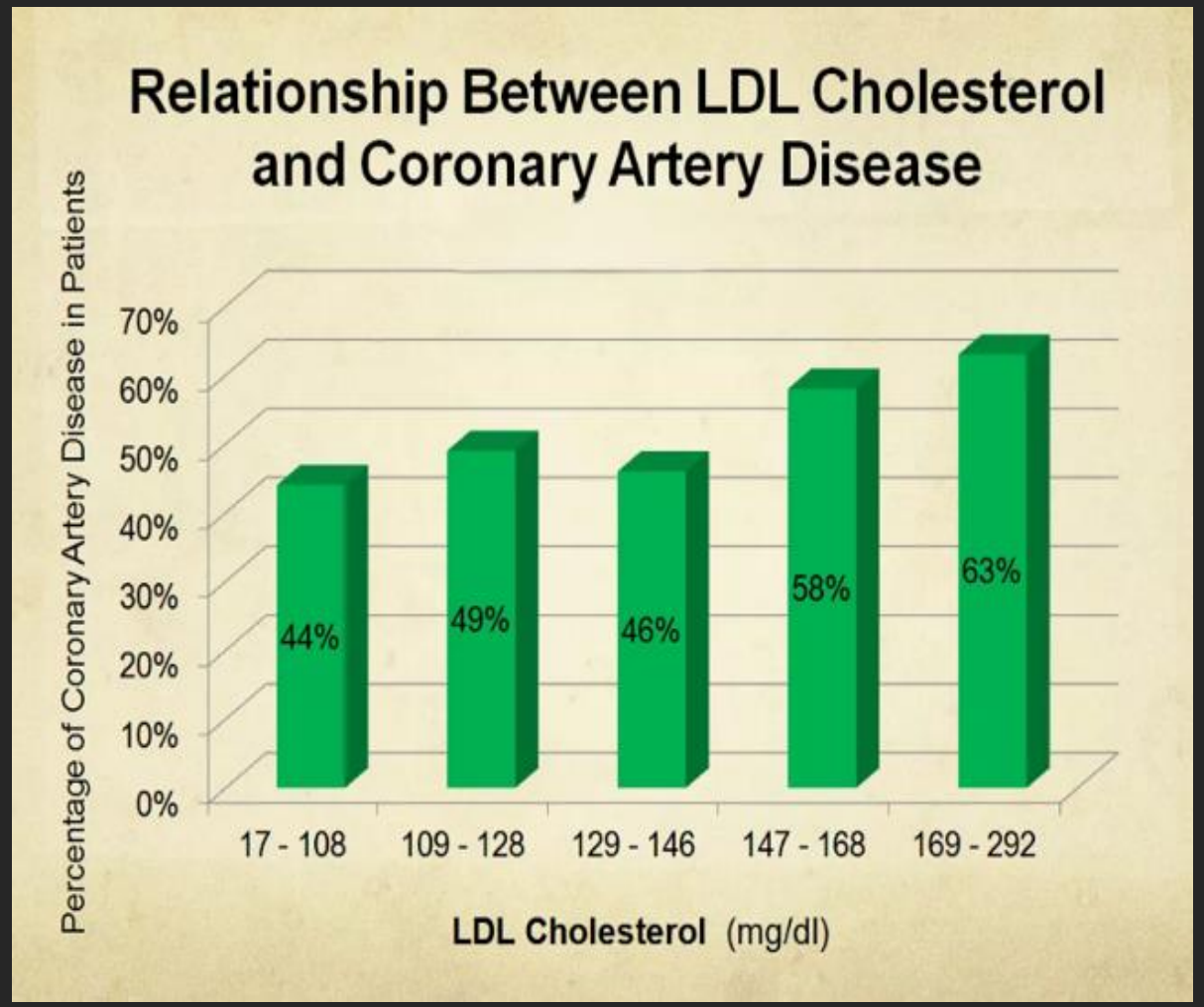
European Food Safety Authority (EFSA), Parma, Italy

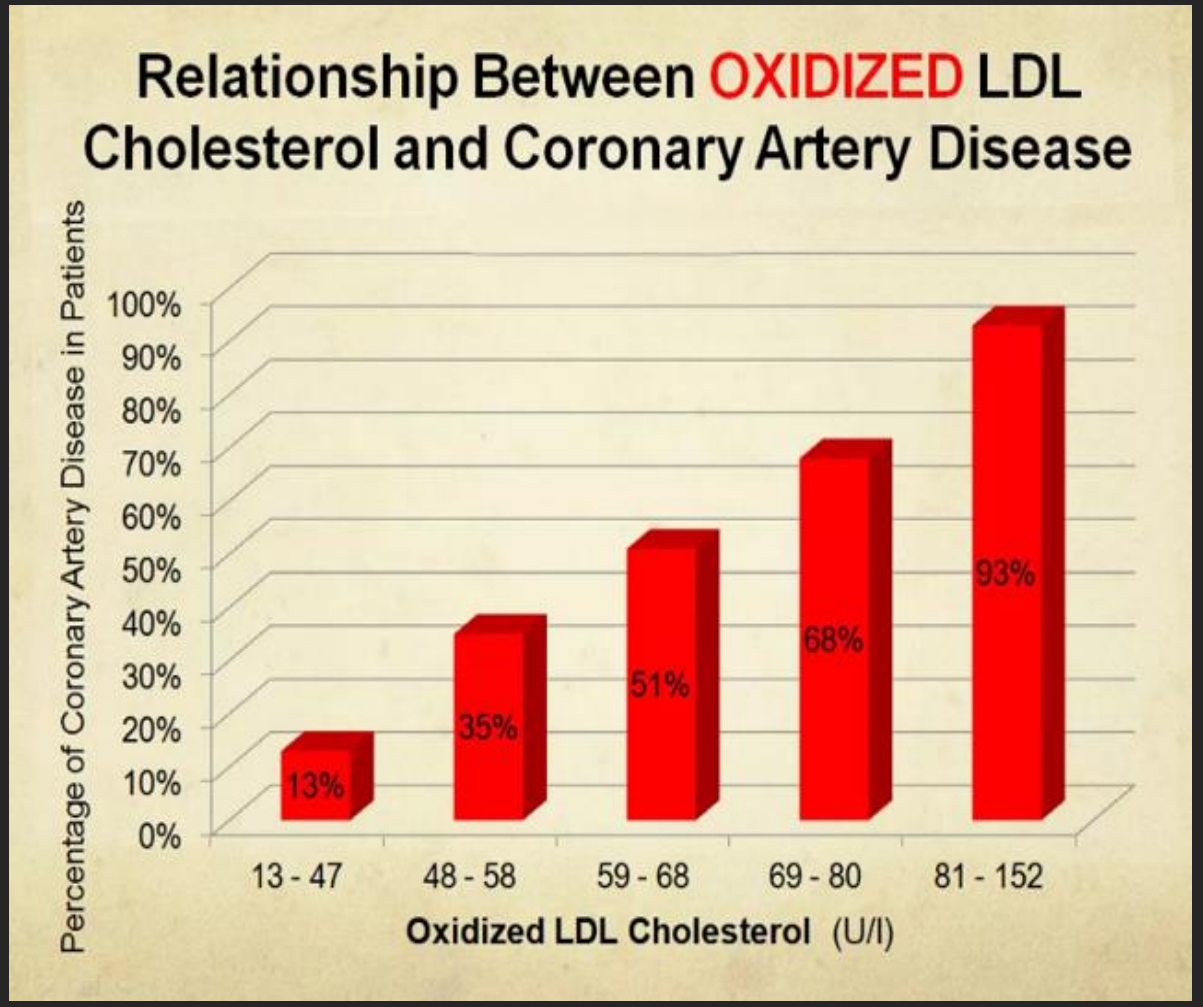
SUMMARY

Following a request from the European Commission, the Panel on Dietetic Products, Nutrition and Allergies was asked to provide a scientific opinion on a list of health claims pursuant to Article 13 of Regulation (EC) No 1924/2006. This opinion addresses the scientific substantiation of health claims in relation to polyphenols in olive and protection of LDL particles from oxidative damage, maintenance of normal blood HDL-cholesterol concentrations, maintenance of normal blood pressure, "anti-inflammatory properties", "contributes to the upper respiratory tract health", "can help to maintain a normal function of gastrointestinal tract", and "contributes to body defences against external agents".

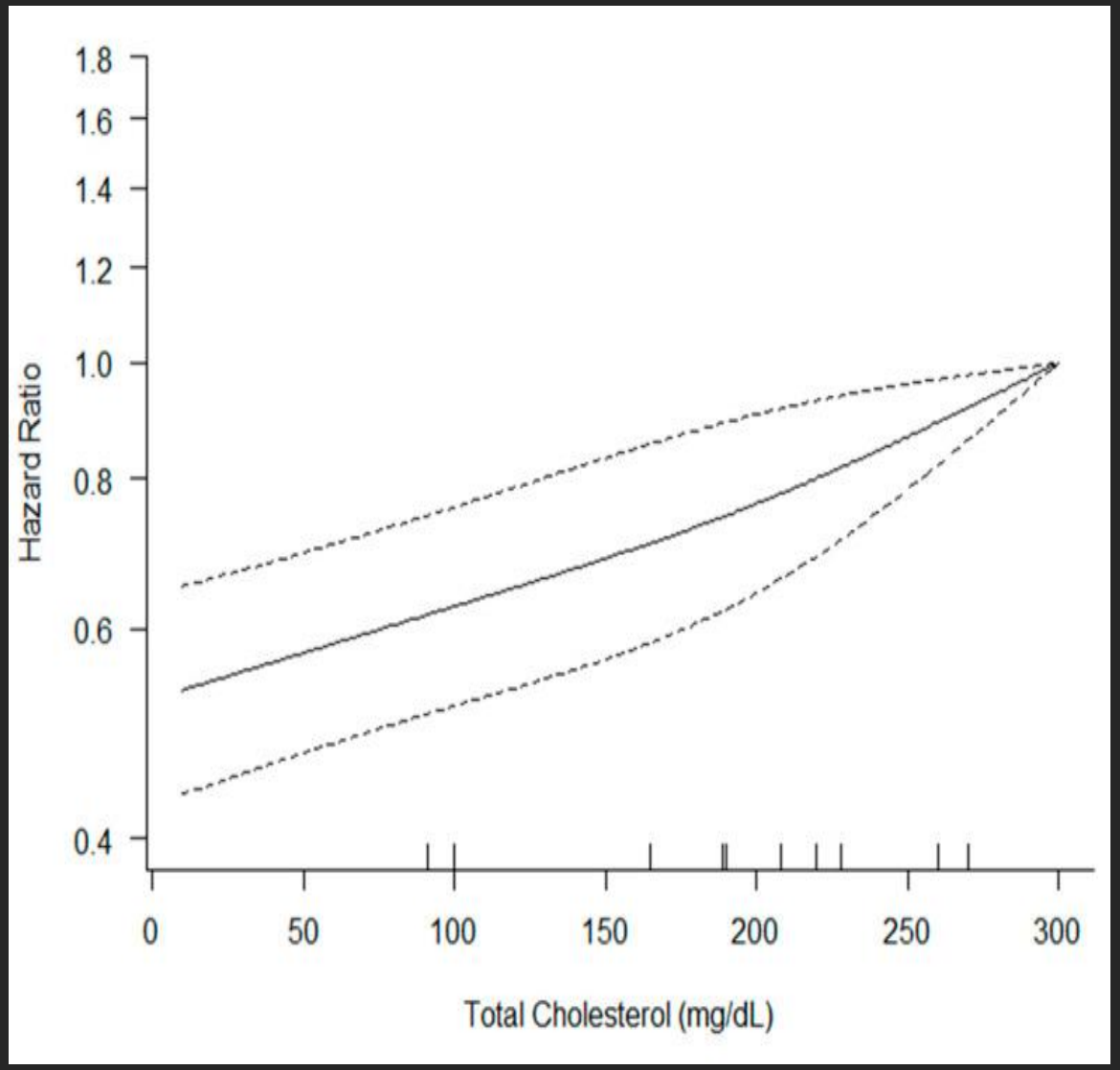


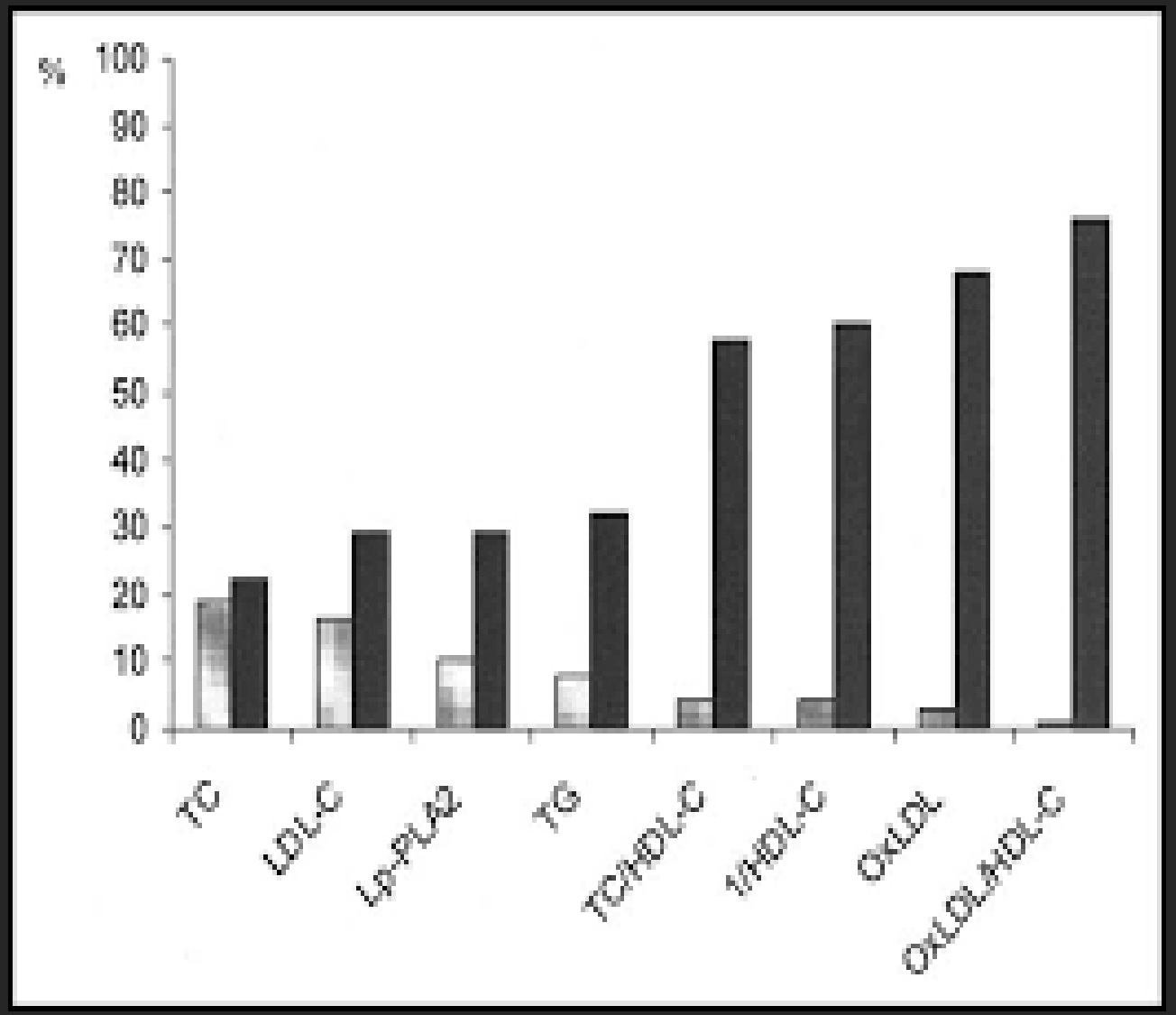
Oxidized Cholesterol Causing Inflammation is the Problem



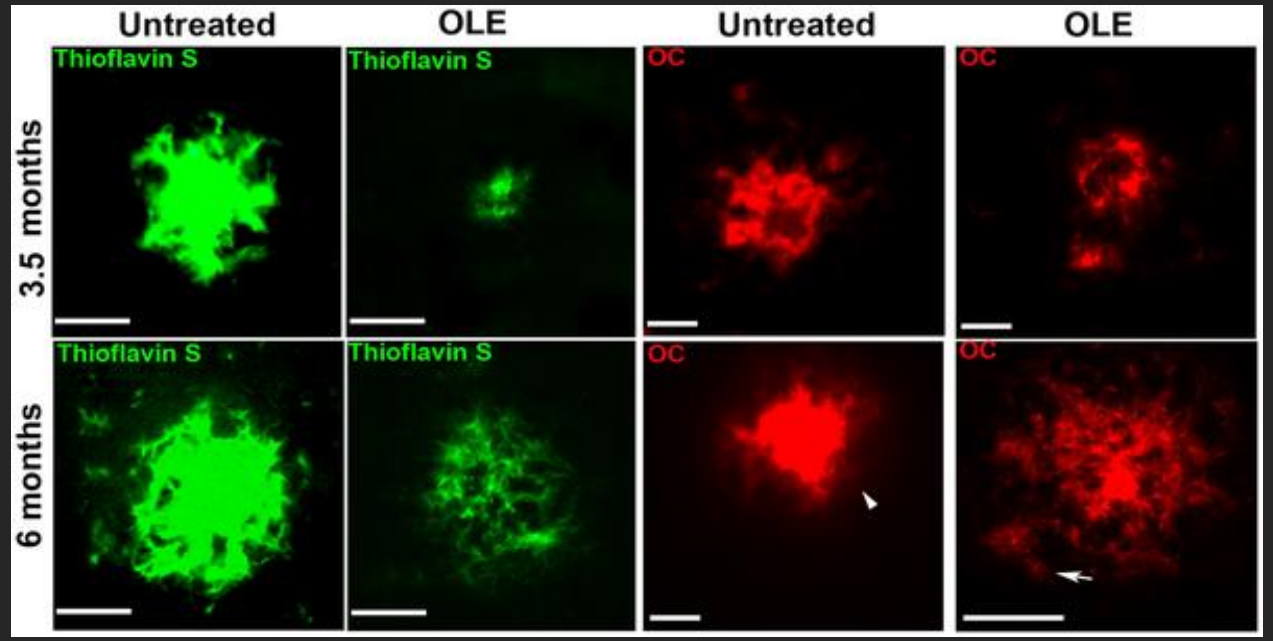


High vs Low OxLDL and Prediction of CVD





OLE - Oleuropein modifies Aβ plaque load and morphology in the brains of TgCRND8 mice. A marker for Alzheimer's Disease.



Quality – Protected Sensory Qualities and Chemical Markers of Antioxidant Capacity

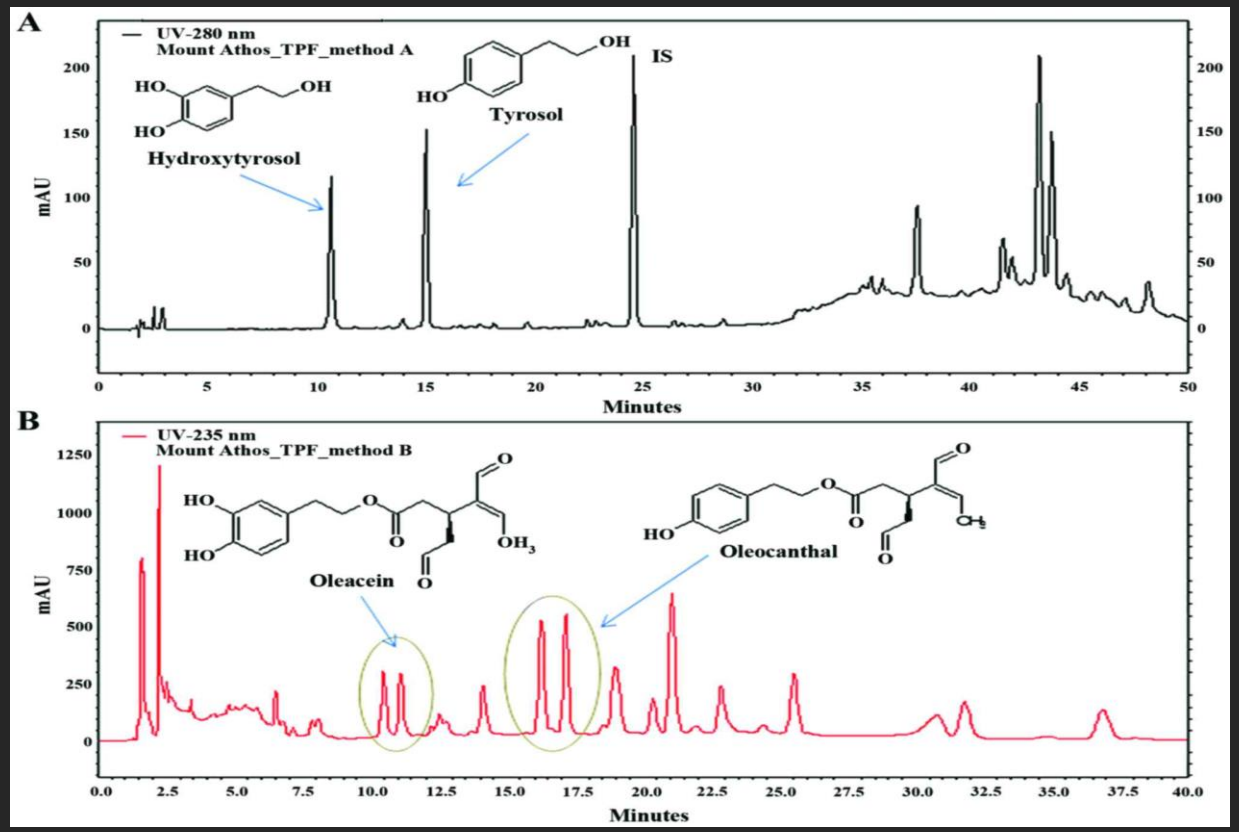
Sensory – aroma and taste – polyphenols and the sensory experience

Chemical - Acidity (broken down TGs froming FFAs), Polyphenol Levels, Peroxide Values, UV Absorption/ K Values, PyroPheoPhytin, DAGs..

Total Polyphenols – Measuring Techniques (HPCL/NMR)

Total Polyphenols Levels – Variability and Rate of Decline

How Olive Oil Chemistry may Look



Polyphenols – Why Taste Matters

	Compounds	Correlated attributes
Phenolic acids	Benzoic, Cinnamics, Vanillic, Gallic, Coumaric and Caffeic acids	
Flavons	Luteolin, Apigenin, Quercitin	
Lignans	Pinoresinol & Acetoxypinoresinol	
Phenyl-ethy alcohol	Hydroxytyrosol, Tyrosol	Bitter
Secoiridoids	All Oleuropein and Ligstroside derivates (except Hydroxytyrosol & Tyrosol)	
	Aglycon derivatives of Oleuropein & Ligstroside	Pungency
	Dialdehydic forms of Ligstroside aglycon	Burning sensation
	Dialdehydic forms of Oleuropein aglycon	Little burning sensation
	Oleocanthal	Pungent
	Aldehydic and Dialdehydic forms of Oleuropein aglycon	Bitterness
	Aldehydic forms of Oleuropein aglycon	Bitterness
	3,4-DHPEA-EDA	Bitter
	3,4-DHPEA-EA	Bitter
	p-HPEA-EDA	Bitter, Pungent, Astringent

Correlations between phenolic compounds and taste perceptions and related references.

Short name	Common name	Sensory description	References
3,4-DHPEA-EDA	decarboxymethyl oleuropein aglycon	main compound responsible for bitter taste	Kiritsakis, 1998;
3,4-DHPEA-EA	oleuropein aglycon	main compound responsible for bitter taste	Garcia *et al.*, 2001
p-HPEA-EDA	decarboxymethyl ligstroside aglycon	main compound responsible for bitter and pungent notes	Tovar *et al.*, 2001
3,4-DHPEA-EDA	decarboxymethyl oleuropein aglycon	high positive correlation between these compounds and bitterness intensity of olive oil	Gutiérrez-Rosales *et al.*, 2003
3,4-DHPEA-EA	oleuropein aglycon		
p-HPEA-EDA	decarboxymethyl ligstroside aglycon		
p-HPEA-EDA	decarboxymethyl ligstroside aglycon	main compound responsible for the pungent sensation on back of the tongue	Andrewes *et al.*, 2003
3,4-DHPEA-EA	oleuropein aglycon	a highly significant correlation with bitter taste of olive oil	Mateos *et al.*, 2004
3,4-DHPEA-EA	oleuropein aglycon	positive correlation between this compound and bitterness and pungency intensity of several Spanish and Italian olive oils	Cerretani *et al.*, 2008
Secoiridoids	all oleuropein and ligstroside derivatives considered except for hydroxytyrosol and tyrosol	relevant predictors of the static and dynamic analysis for bitterness and pungency	Esti *et al.*, 2009
p-HPEA-EDA	decarboxymethyl ligstroside aglycon	effective only for predicting pungency	

Some Olive Oil Myths

- “The Mediterranean Diet is just about eating more fruit and vegetables – I can use any oil”
- “Olive oil is just as good as extra virgin oil”
- “It’s not safe to cook with extra virgin olive oil”
- “It’s a waste to use “good” oil to cook”
- “Extra virgin olive oil is expensive”
- “I should keep extra virgin olive oil for special occasions”
- “Most extra virgin olive oil is fake”
- “All extra virgin olive oils are the same”
- “It contains too many calories and makes me fat”

Safe and Desirable to Cook with EVOO – Polyphenols in Action

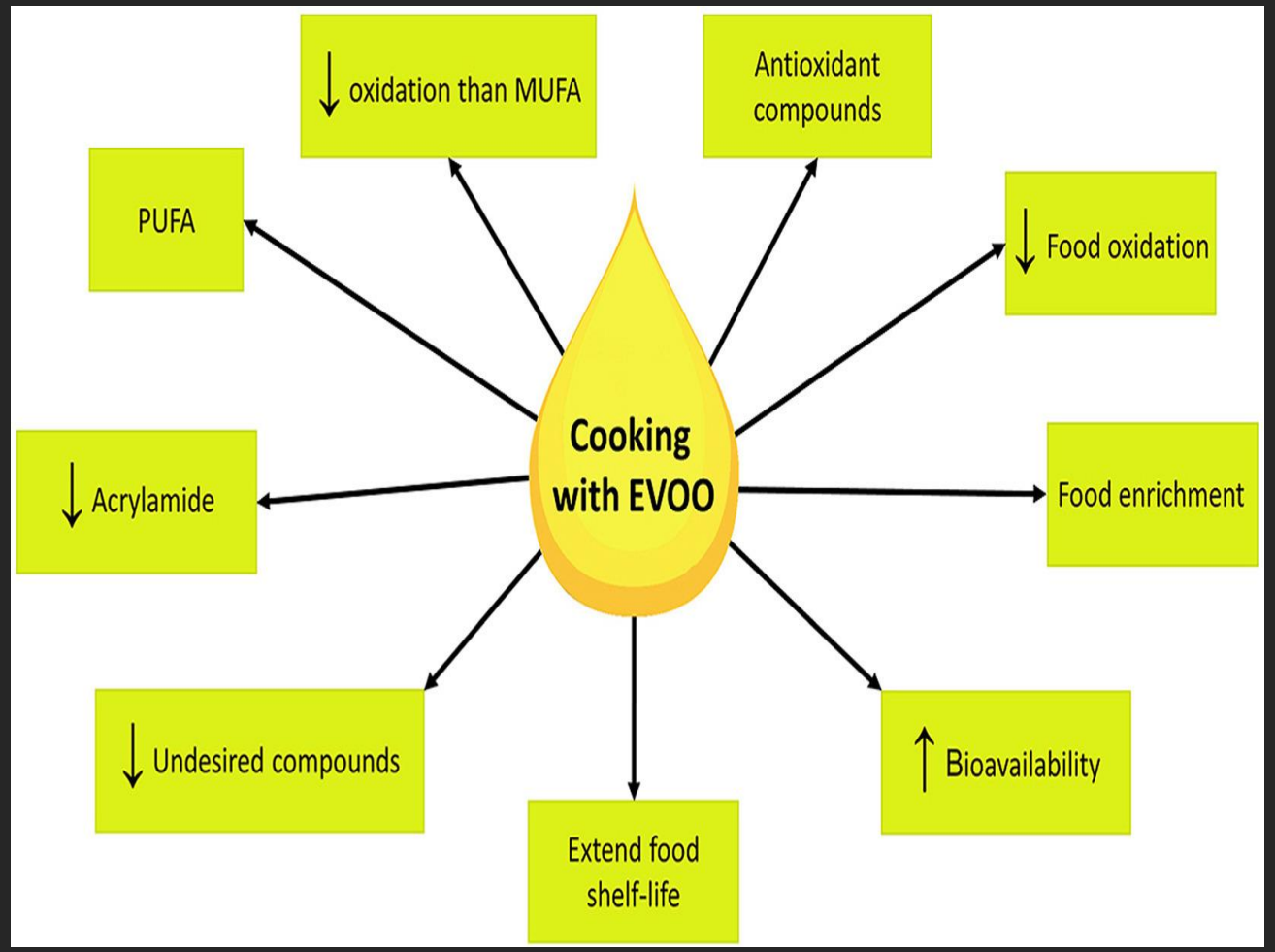
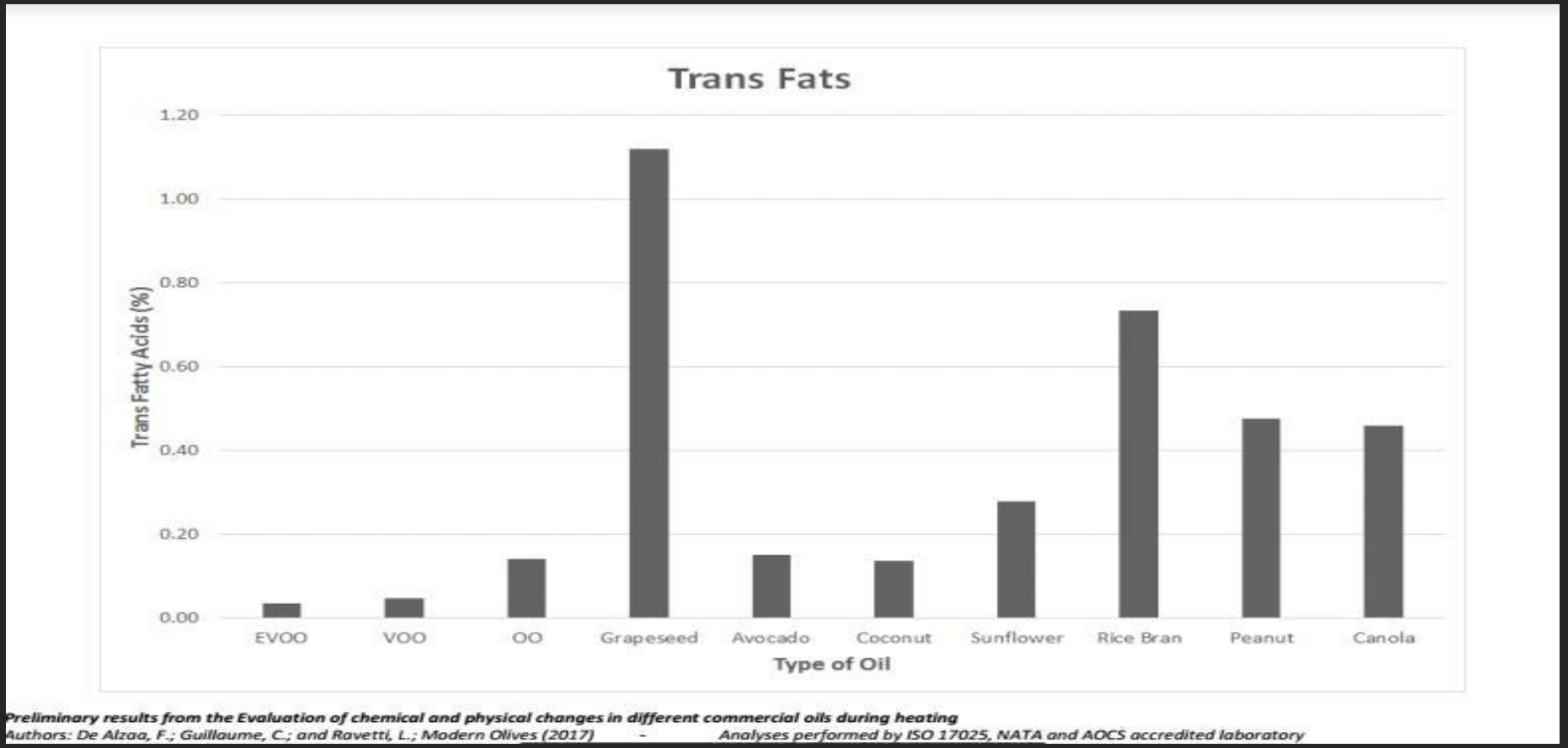


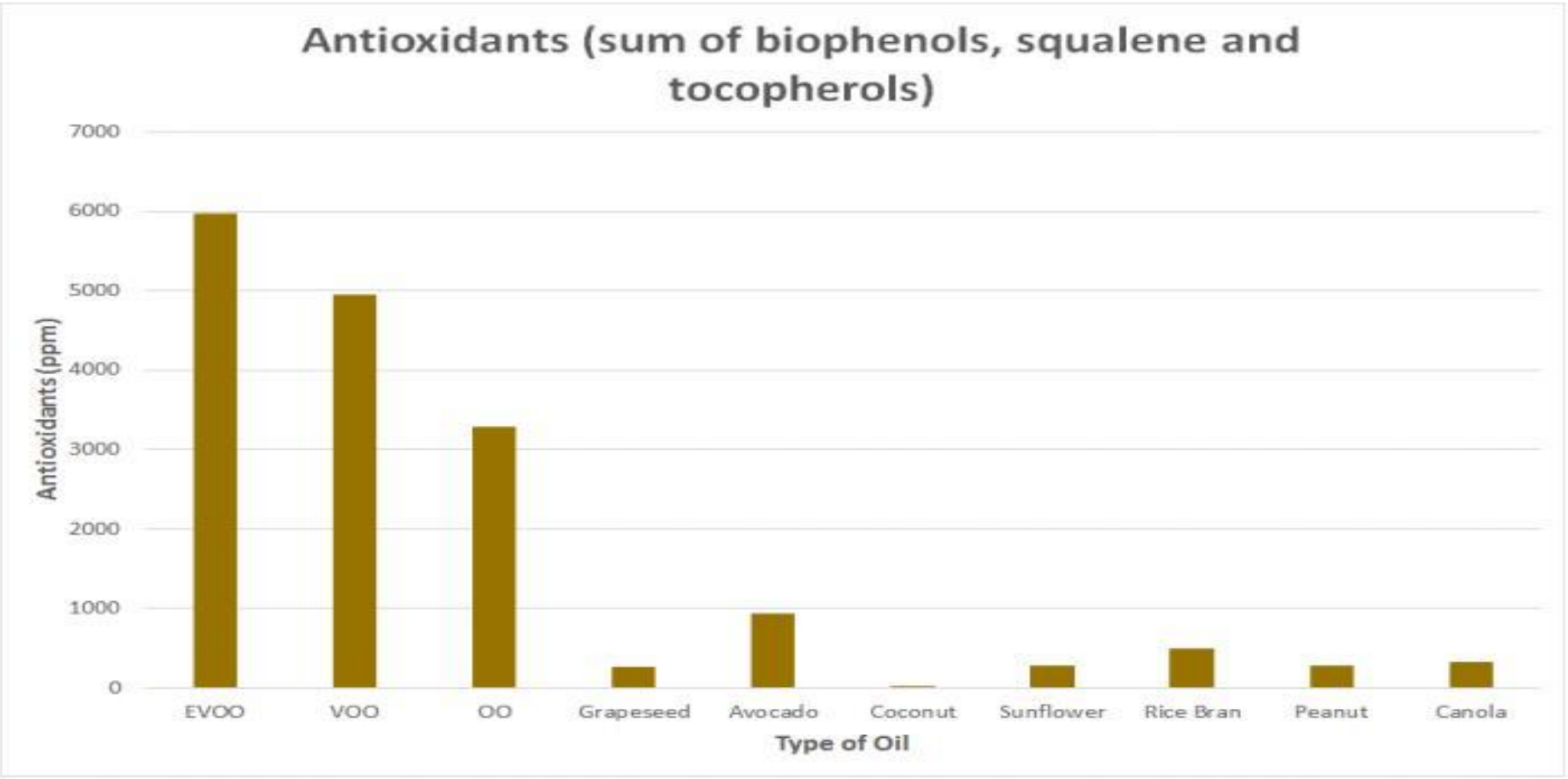
Table 1: Percentage of polar compounds produced after heating

Oil type	Polar Compounds (%)
Extra Virgin Olive Oil	8.47
Coconut Oil	9.3
Virgin Olive Oil	10.71
Peanut Oil	10.71
Avocado Oil	11.6
Olive Oil	11.65
Rice Bran Oil	14.35
Sunflower Oil	15.57
Grapeseed Oil	19.79
Canola Oil	22.43

The Chemistry of Extra Virgin Olive Oil in the Kitchen



Heat, Oxidation and Residual Oxidative Capacity



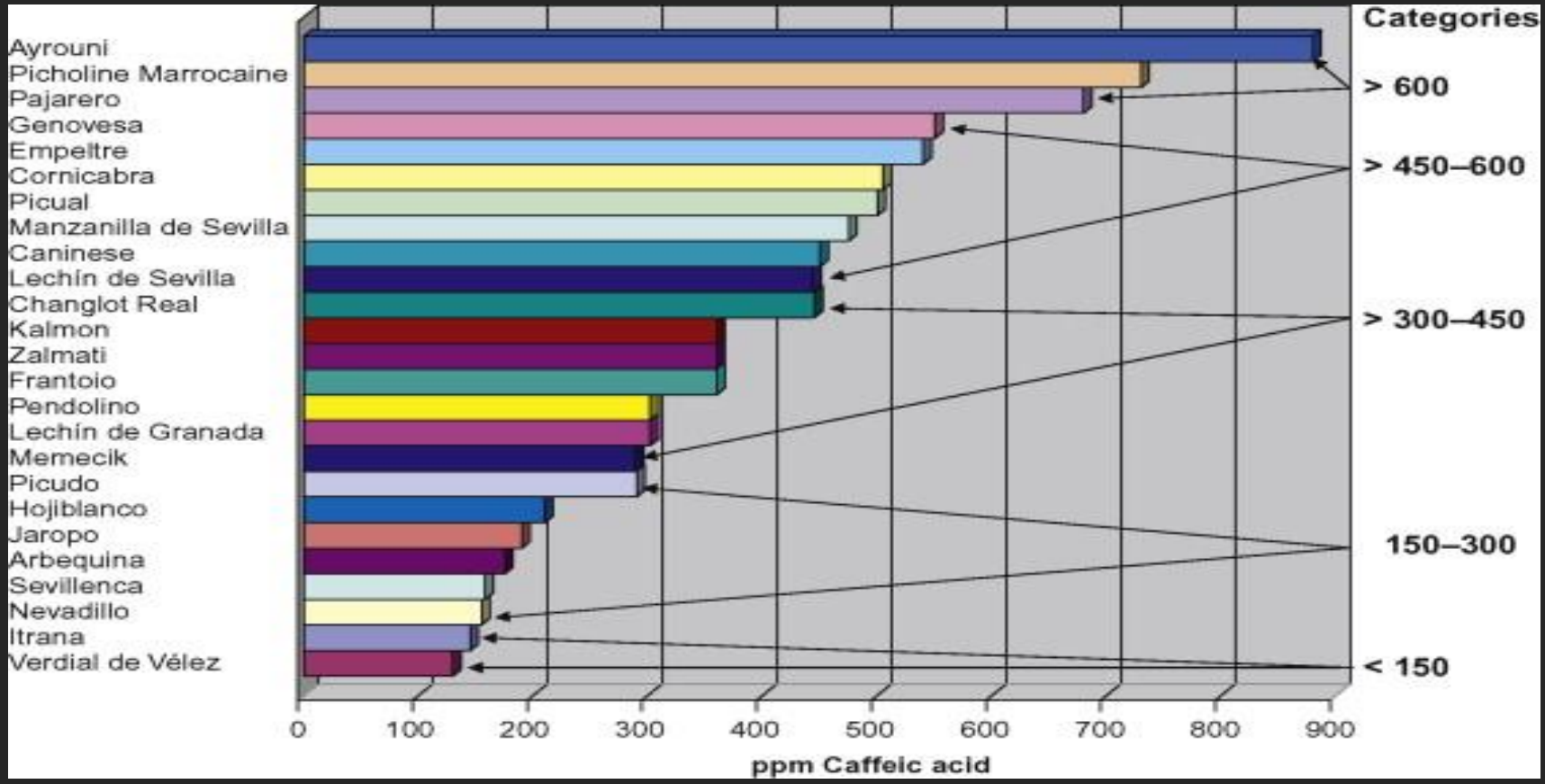
Preliminary results from the Evaluation of chemical and physical changes in different commercial oils during heating
Authors: De Alzaa, F.; Guillaume, C.; and Ravetti, L.; Modern Olives (2017) - Analyses performed by ISO 17025, NATA and AOCS accredited laboratory

Extra Virgin Olive Oils Are Not All The Same – Quality Matters
Achieving Perfection in Stress and Care – Producing and Preserving Antioxidants

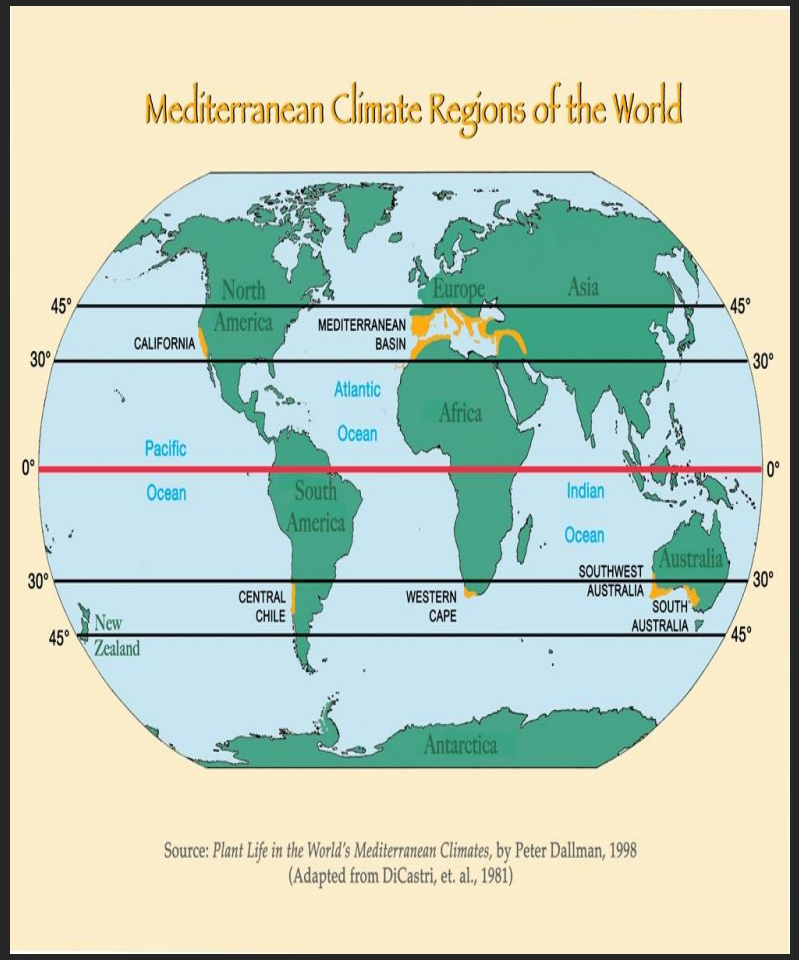
Factors Affecting Health, Polyphenols and Taste Profiles of Extra Virgin Olive Oils

- Extra Virginity and Acidity
- Variety
- Processing including Malaxation Phase Determinants
- Time of Harvest
- Irrigation/ Agricultural Factors/ Stress
- Altitude
- Organic Cultivation
- Storage

Varietal Variation in Total Polyphenols



Extra Virgin Olive Oil Production and Consumption - Opportunities



Source: *Plant Life in the World's Mediterranean Climates*, by Peter Dallman, 1998
(Adapted from DiCastri, et. al., 1981)

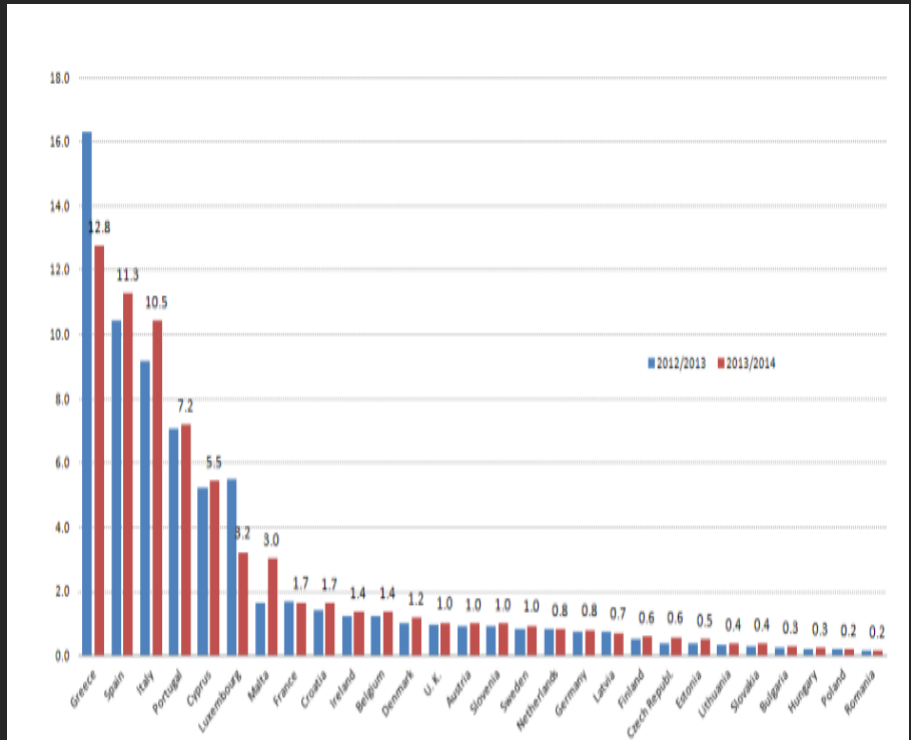


Chart 5: Per capita olive oil consumption (2014) in EU countries (kg).

E.U Report Predicts Stagnant Olive Oil Market

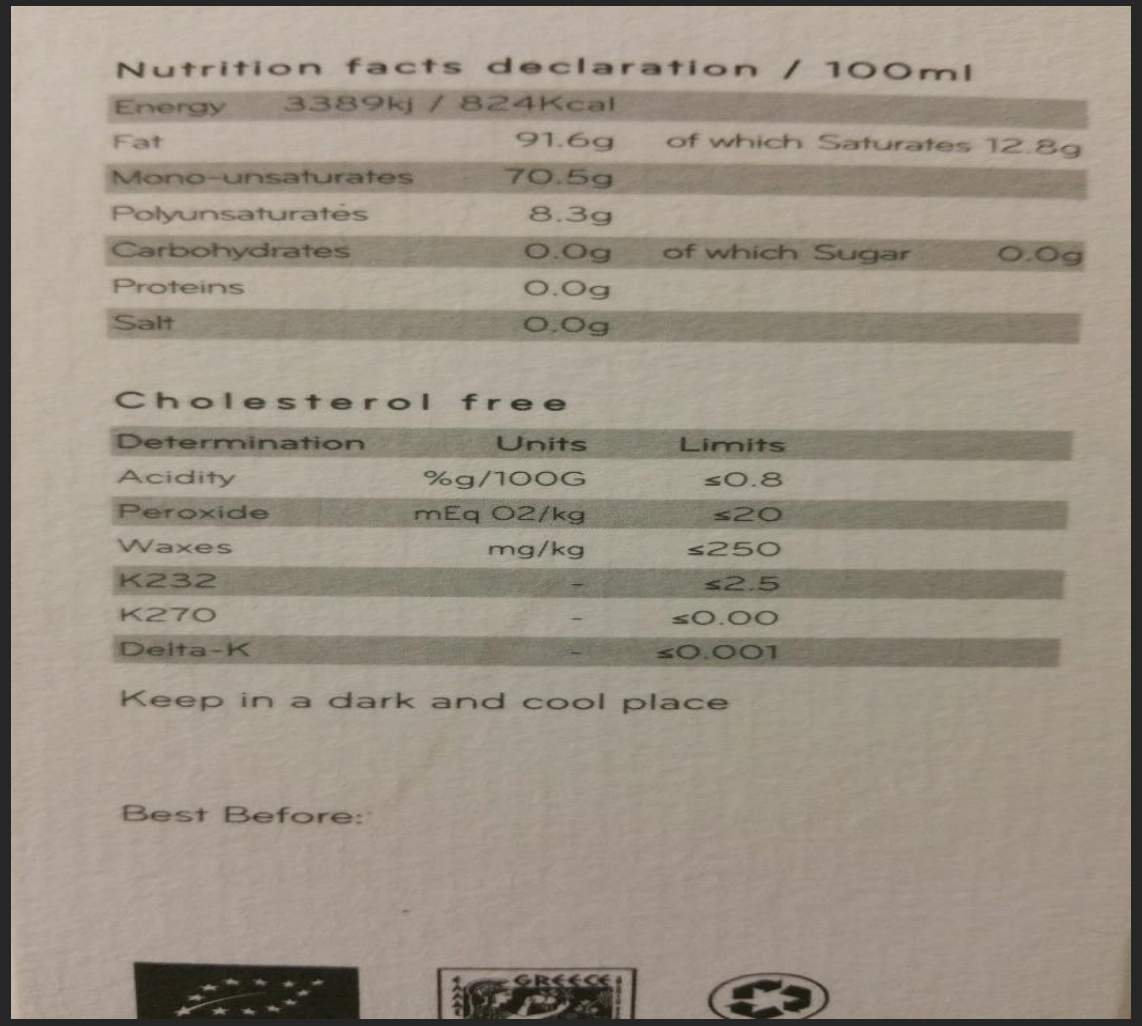
Olive oil production and consumption will be flat or slightly declining over the next ten years, a European Commission report predicts.

Chalkidiki, Greece

By Paolo DeAndreis
Dec. 14, 2024 21:03 UTC

European Union olive oil production and consumption are expected to decline slightly in the coming years, according to

Polyphenols on Label – Trading Regulations, EFSA, and Testing Regimes



Nutrition facts declaration / 100ml

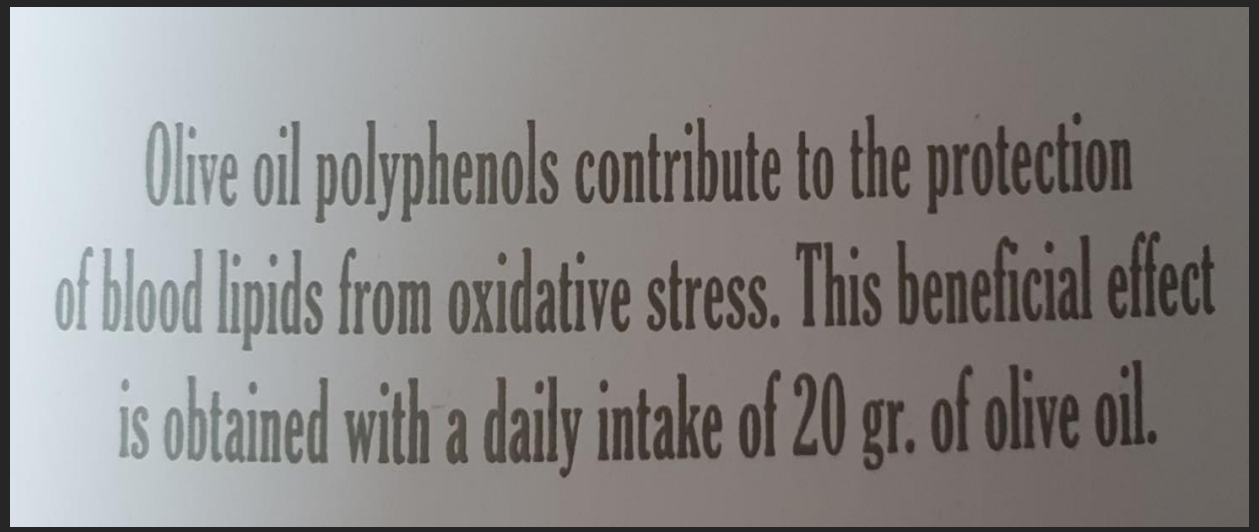
Energy	3389kj / 824Kcal		
Fat	91.6g	of which Saturates	12.8g
Mono-unsaturates	70.5g		
Polyunsaturates	8.3g		
Carbohydrates	0.0g	of which Sugar	0.0g
Proteins	0.0g		
Salt	0.0g		

Cholesterol free

Determination	Units	Limits
Acidity	%g/100G	≤0.8
Peroxide	mEq O2/kg	≤20
Waxes	mg/kg	≤250
K232	-	≤2.5
K270	-	≤0.00
Delta-K	-	≤0.001

Keep in a dark and cool place

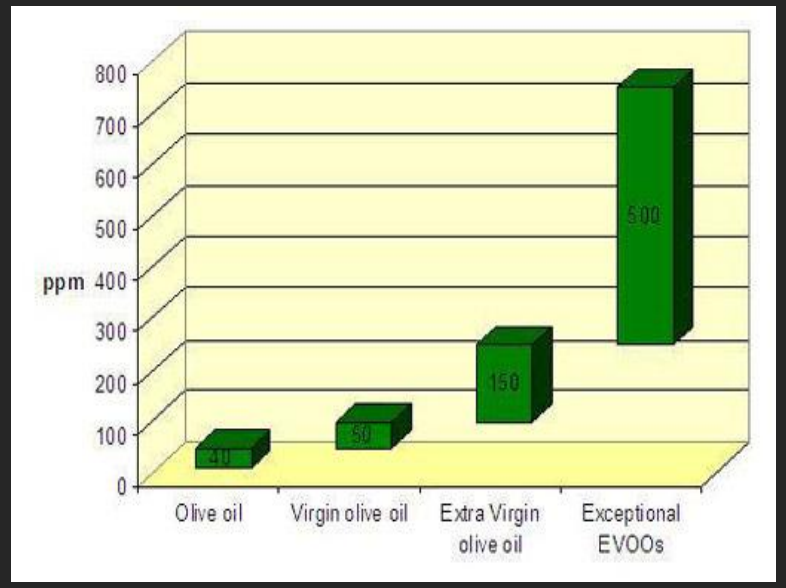
Best Before:



The Future for Olive Oil Polyphenols – Future Medicine or Food?

Biohackers and Snake Oil Salesmen –Good, Bad or Ugly?

Polyphenol Range - is there a “sweet point” for producers and consumers?

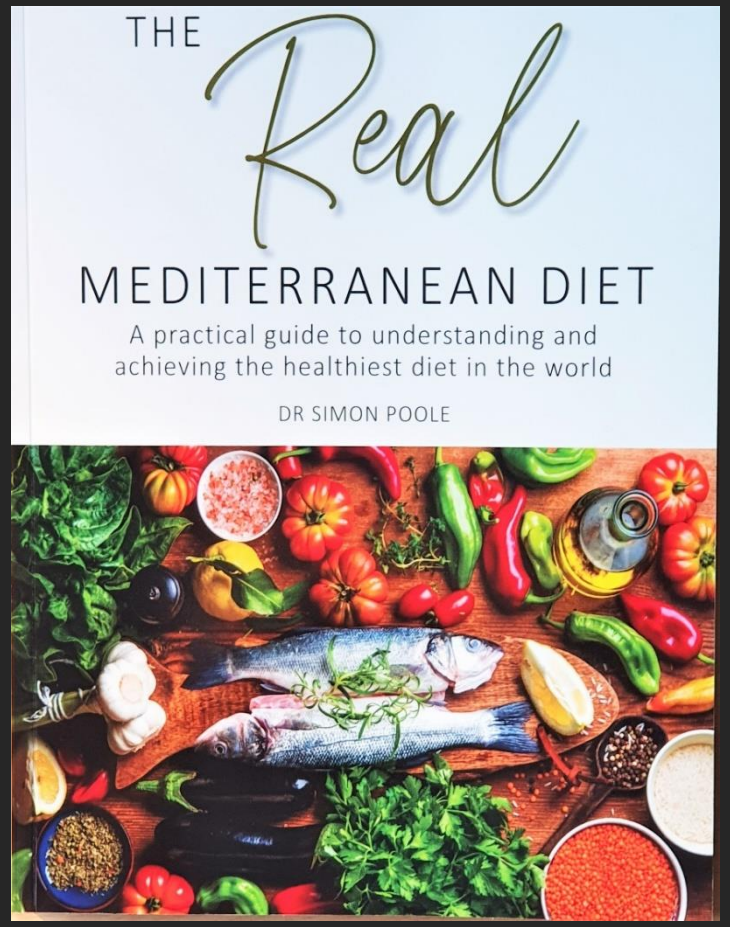


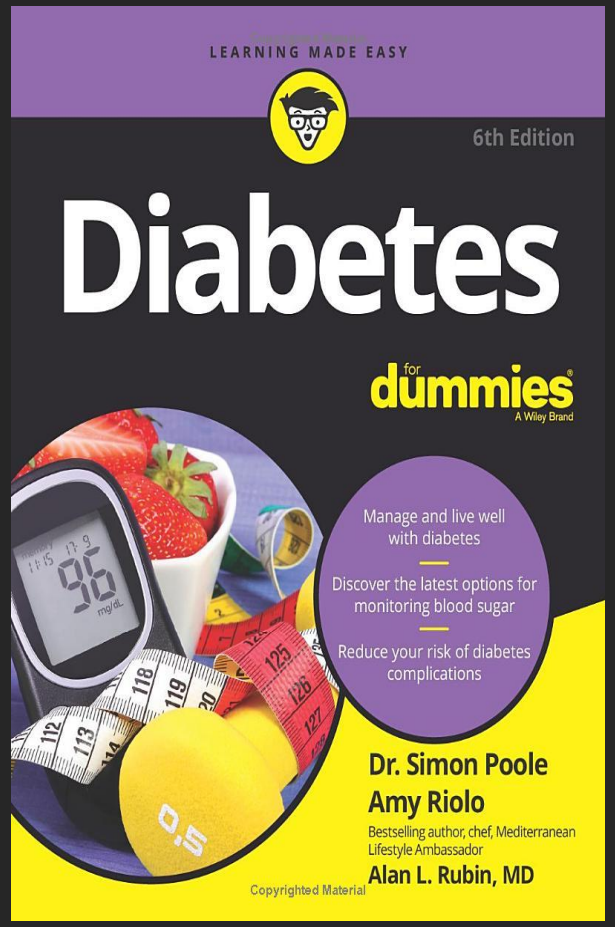
And Kudus…..

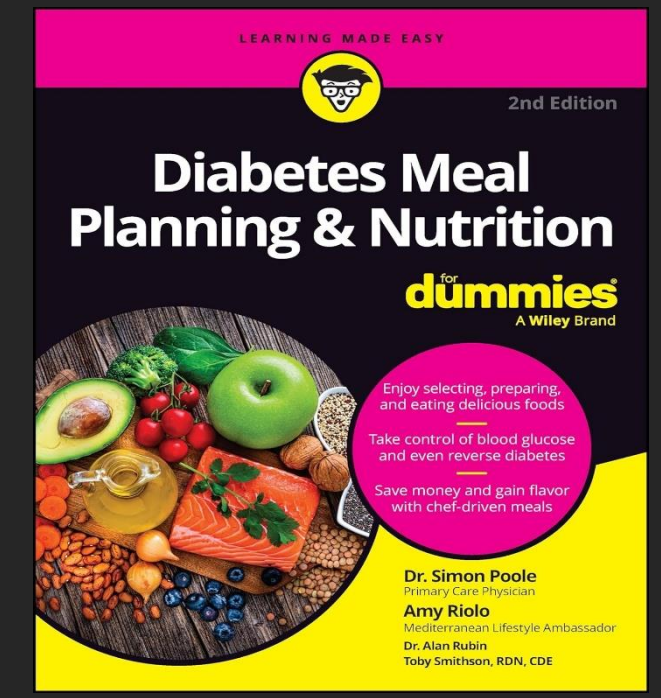
Opportunities for Producers

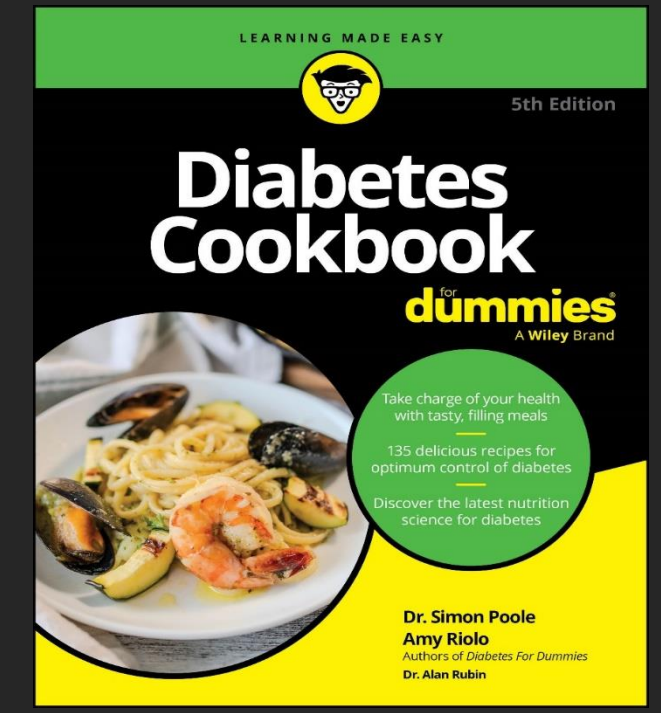
- Joint Initiatives – Tell the Story of Good Fats and Polyphenols – Antioxidants and Anti-inflammatory Components; Inseparable from the Med Diet
- Education Opportunities – Tourism, Seminars
- Taste Education
- Information Platforms – Olive Wellness Institute
- Telling Individual Stories – Web and Social Media
- Health Claims
- On Label Information
- Provenance
- Communication, Communication, Communication!

Further Reading..

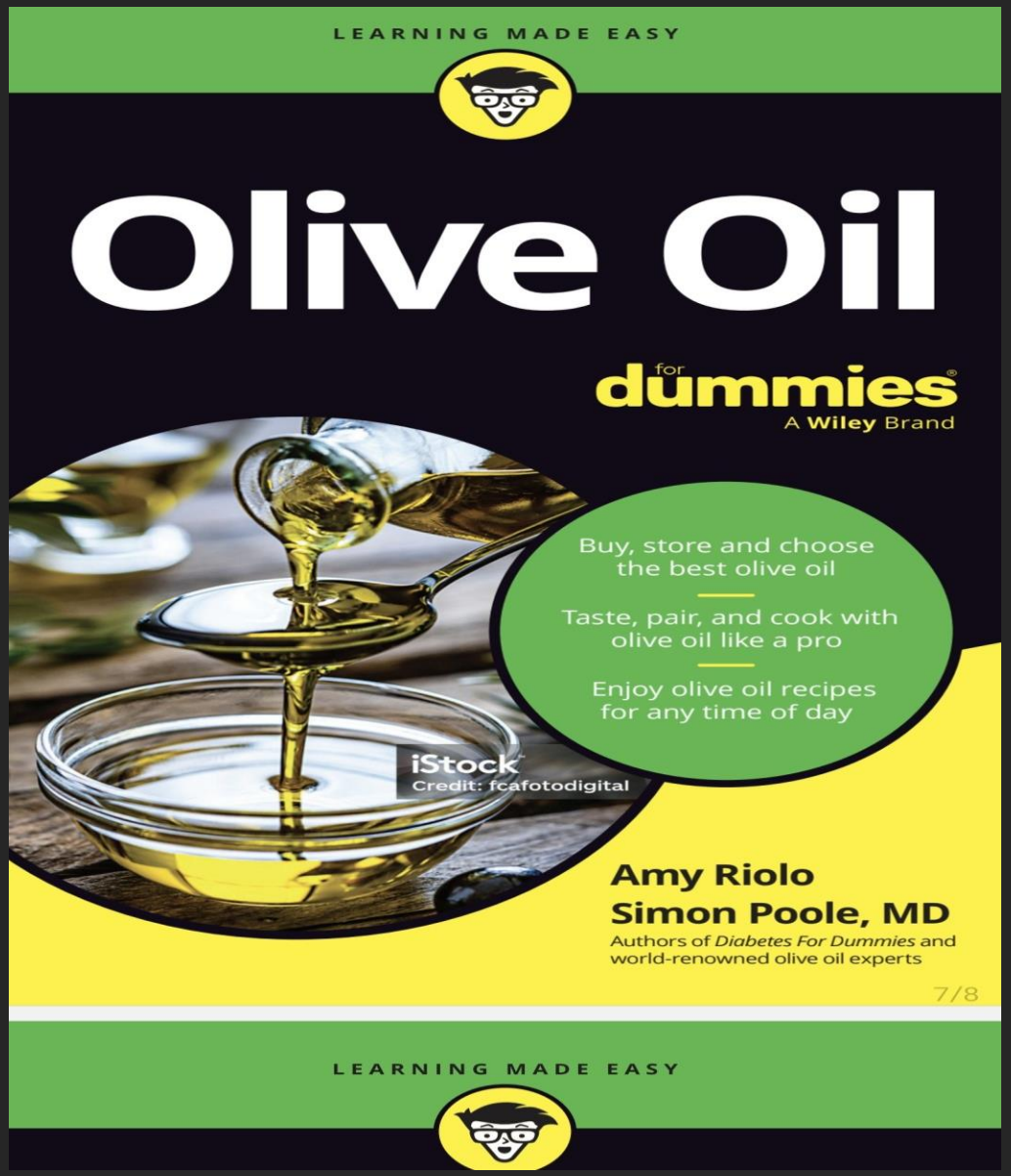


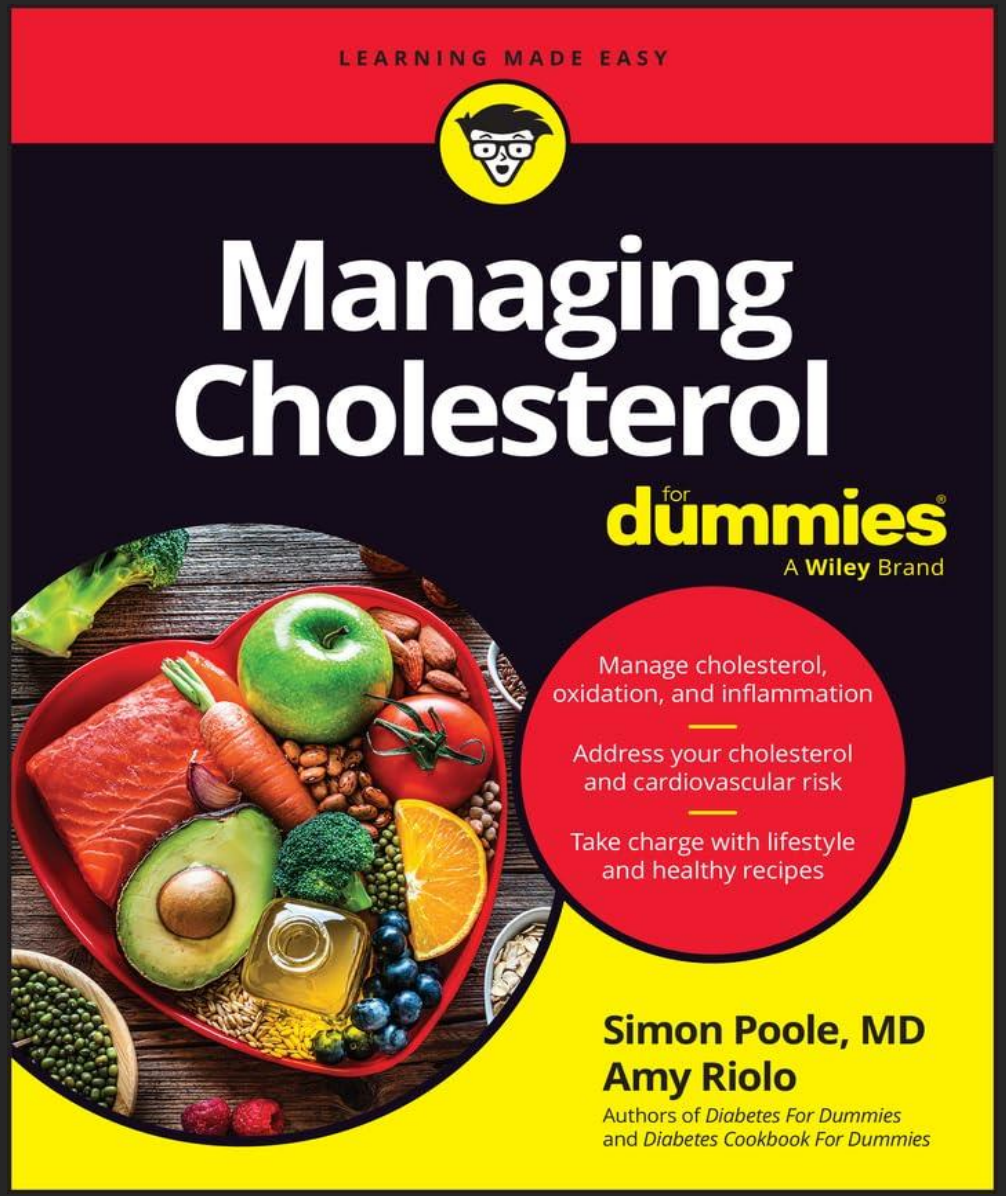






The Importance of Education & Communication





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