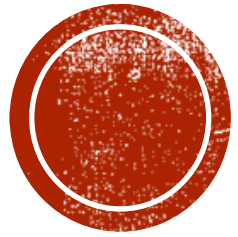


ΑΝΤΙΓΗΡΑΝΤΙΚΗ ΔΙΑΤΡΟΦΗ ΚΑΙ ΝΕΦΡΟΣ

Δήμητρα Μπαχαράκη
Π.Γ.Ν. «Αττικόν»





**NOTHING TO
DECLARE**



ΣΗΜΕΙΑ ΚΛΕΙΔΙΑ-1: Η ΥΓΙΕΙΝΗ ΔΙΑΤΡΟΦΗ «ΕΠΙΒΑΛΛΕΤΑΙ» ΓΙΑ ΤΗΝ ΕΠΙΒΙΩΣΗ ΤΩΝ ΑΣΘΕΝΩΝ, ΤΟΥ ΣΥΣΤΗΜΑΤΟΣ ΥΓΕΙΑΣ ΚΑΙ ΤΟΥ ΠΛΑΝΗΤΗ



«Πλανητική υγιεινή διατροφή»:

- Μείωση κόκκινου κρέατος και ζάχαρης κατά 50%, διπλασιασμός κατανάλωσης σε ξηρούς καρπούς, φρούτα, λαχανικά, όσπρια
- Μείωση 11εκατομμυρίων Θανάτων/ χρόνο
- Διάσωση πόρων πλανήτη



ΜΠΟΡΕΙ ΝΑ ΣΥΝΕΙΣΦΕΡΕΙ ΣΤΗΝ
ΜΕΙΩΣΗ ΝΟΣΗΡΟΤΗΤΑΣ ΚΑΙ
ΘΝΗΤΟΤΗΤΑΣ ΣΕ ΑΣΘΕΝΕΙΣ ΜΕ
ΧΡΟΝΙΑ ΝΕΦΡΙΚΗ ΝΟΣΟ ?



ΣΗΜΕΙΟ ΚΛΕΙΔΙ 2:

ΧΝΝ ΑΠΟΤΕΛΕΙ ΙΔΙΑΤΕΡΗ ΠΛΗΘΥΣΜΙΑΚΗ ΟΜΑΔΑ

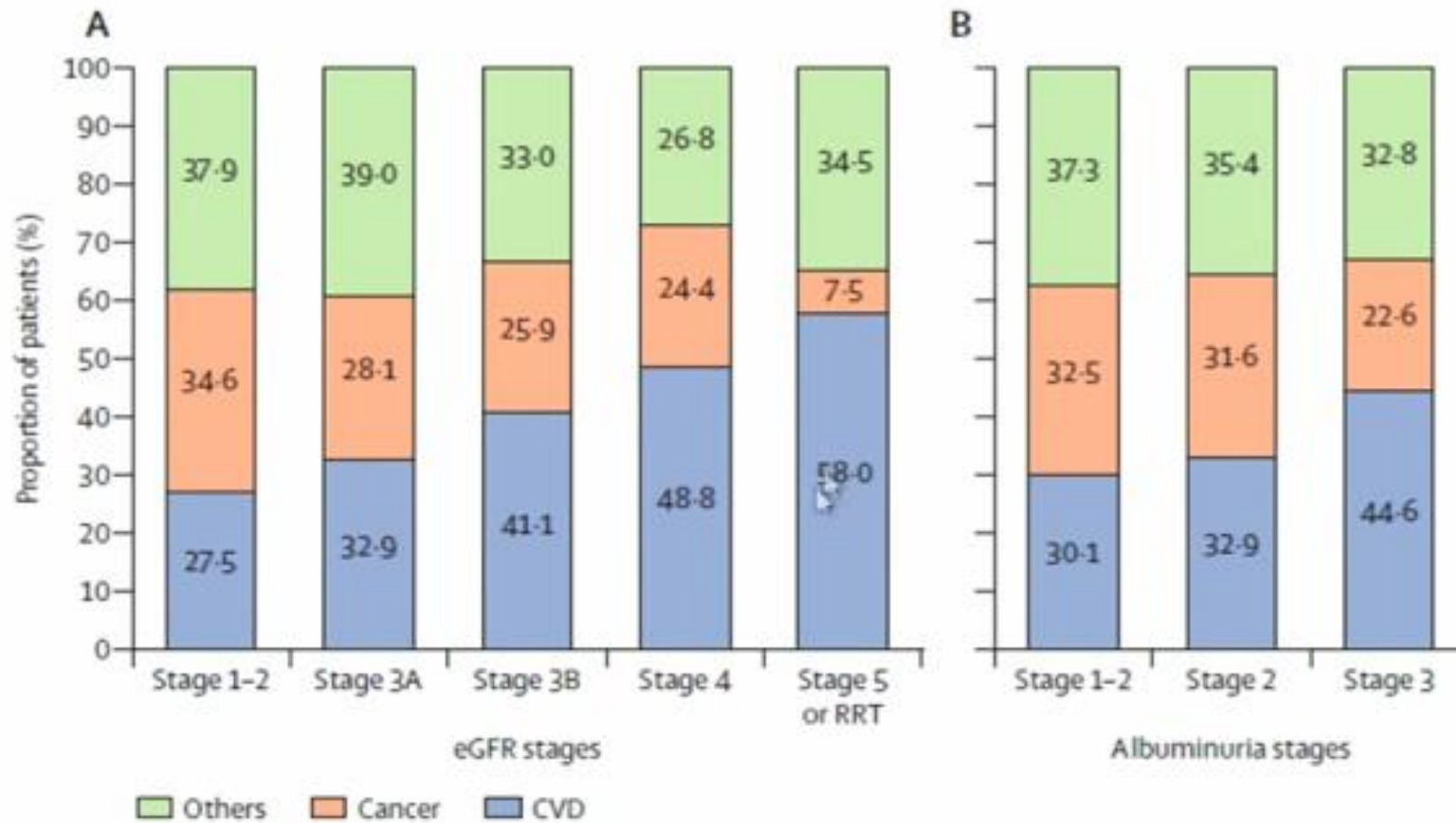
Death is A Far More Likely Event than Dialysis at all CKD Stages

End Points	GFR, 60-89; No Proteinuria (n = 14 202)	Stage 2 GFR, 60-89; Proteinuria (n = 1741)	Stage 3 GFR, 30-59 (n = 11 278)	Stage 4 GFR, 15-29 (n = 777)
	Disenrolled from plan	14.9	16.2	10.3
Died (prior to transplant/dialysis)	10.2	19.5	24.3	45.7
Received a transplant	0.01	0.2	0.2	2.3
Initiated dialysis	0.06	0.9	1.1	17.6
None of the above through June 30, 2001	74.8	63.3	64.2	27.8

*Glomerular filtration rates (GFRs) were estimated in milliliters per minute per 1.73 m². Other values are given as percentage of patients.



Causes of Death Per CKD Stage

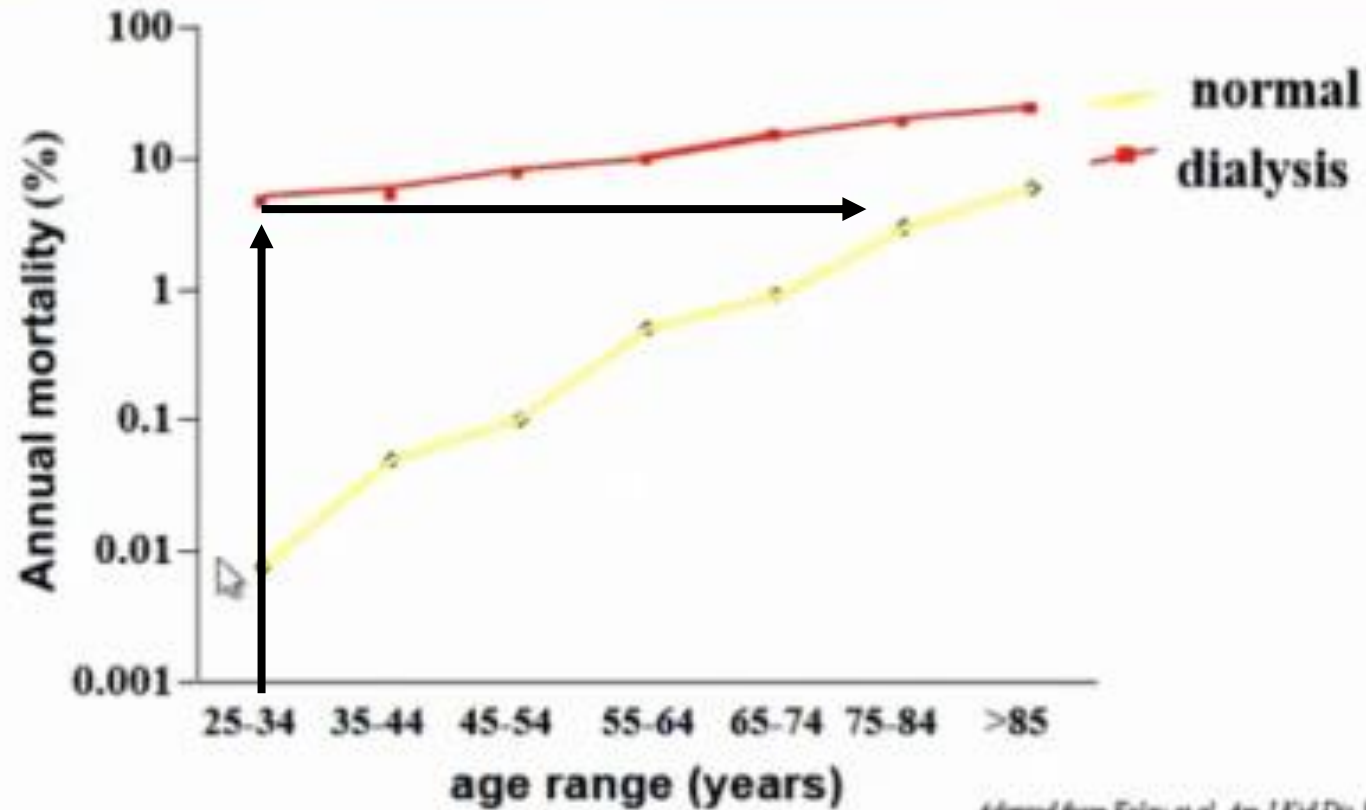


Gansevoort RT, et al. Lancet 2013

WHO world averages in 2000–05



Cardiovascular mortality in CKD patients



Adapted from Foley et al. Am J Kid Dis 1998

Adolescents and young adult with CKD:

- structural and functional abnormalities in the large vessels
- present even in the second decade of life
- linked to disorders in mineral metabolism

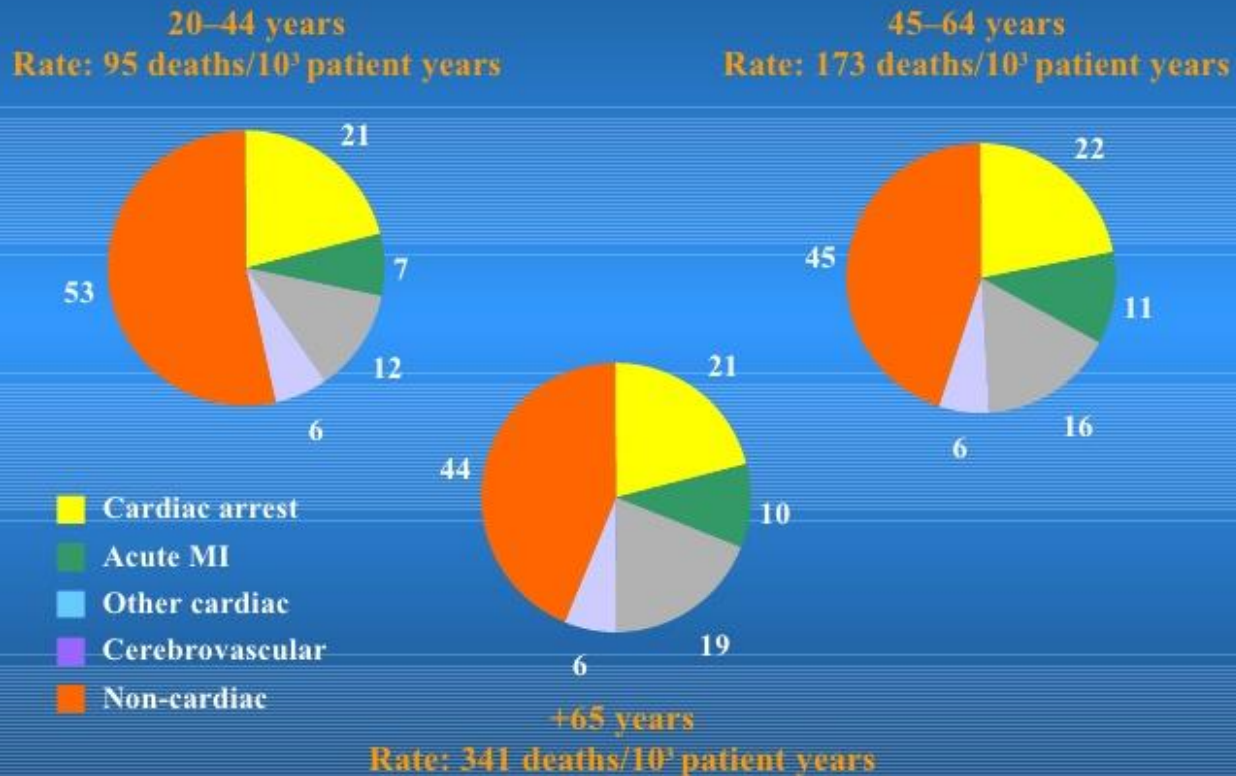
Goodman, NEJM, 2000; Litwin, JASN, 2005;
Mitsnefes, JASN 2005; Goldsmith, NDT, 2006

Chronic kidney disease and premature ageing

Nat. Rev. Nephrol. **10**, 732–742 (2014)

Jeroen P. Kooman, Peter Kotanko, Annemie M. W. J. Schols, Paul G. Shiels and Peter Stenvinkel

Distribution (%) of causes of death for all dialysis patients by age (1994–96)

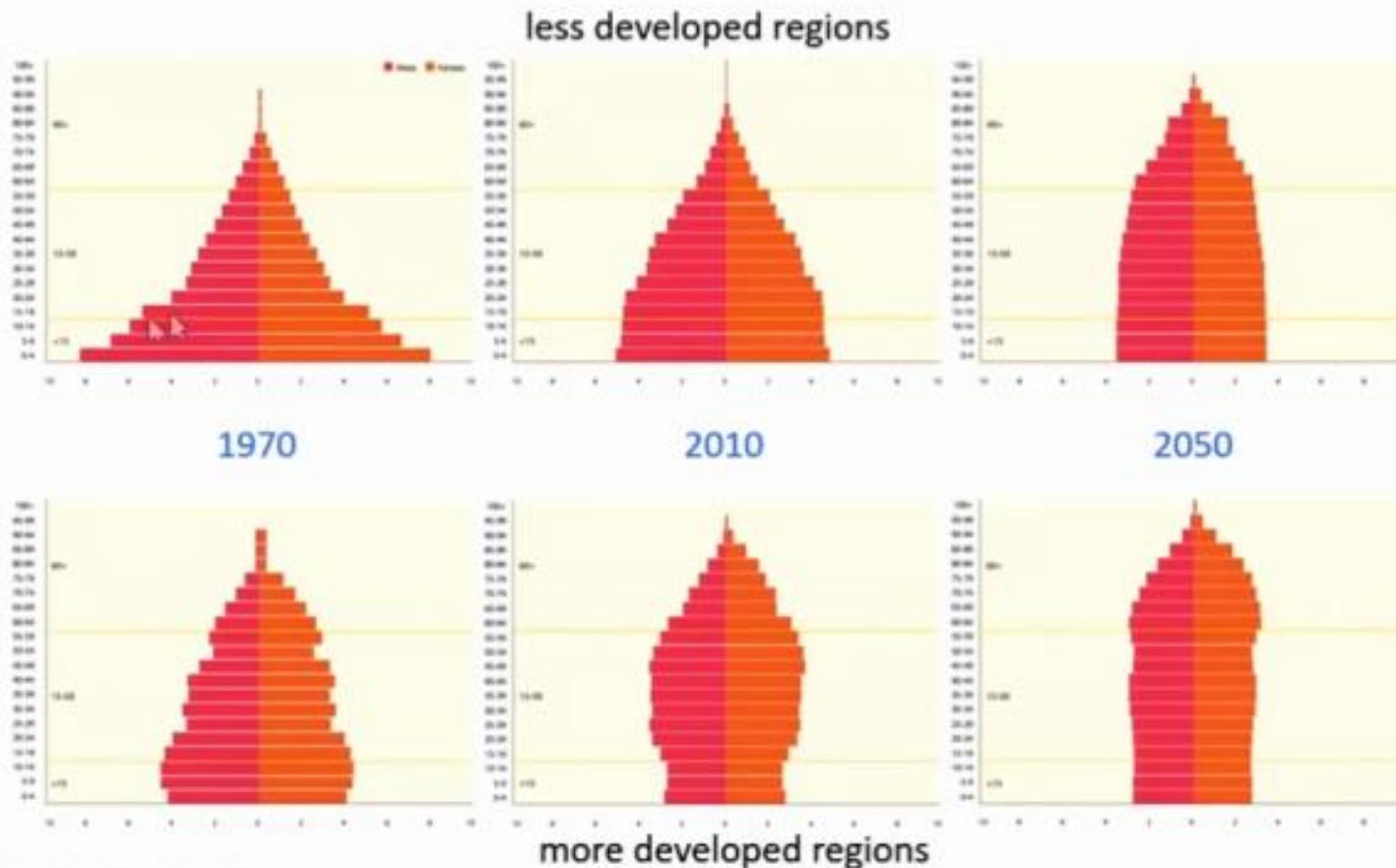


USRDS. *AJKD*, 1998

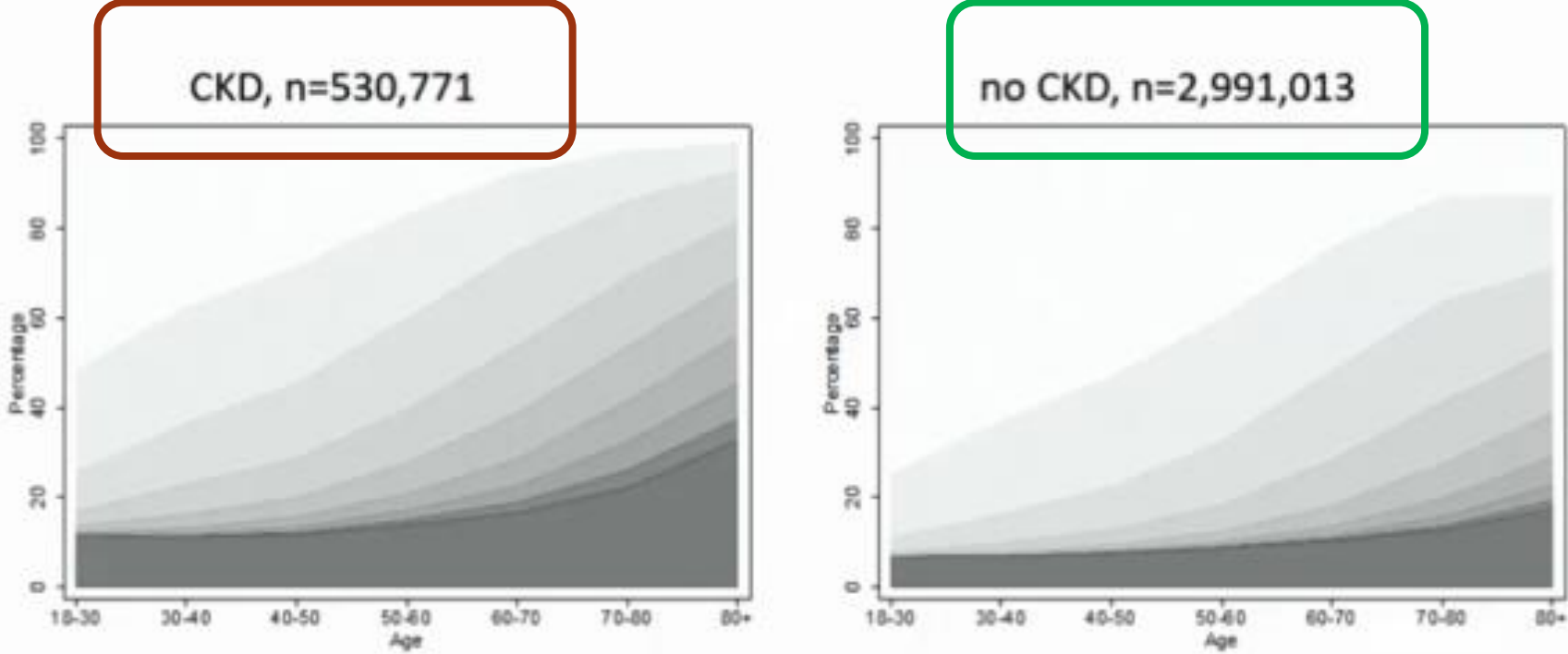


ΣΗΜΕΙΑ ΚΛΕΙΔΙΑ-3: Ο ΠΛΗΘΥΣΜΟΣ ΓΗΡΑΣΚΕΙ

World's population is changing dramatically in size and composition



Prevalence of morbidities increases with age and presence of CKD



- CKD only
- CKD+ 1 morbidity
- CKD+ 2 morbidities
- CKD+ 3 morbidities
- CKD+ 4 morbidities
- CKD+ 5 morbidities
- CKD+ 6 morbidities
- CKD+ 7 morbidities
- CKD+ >=8 morbidities

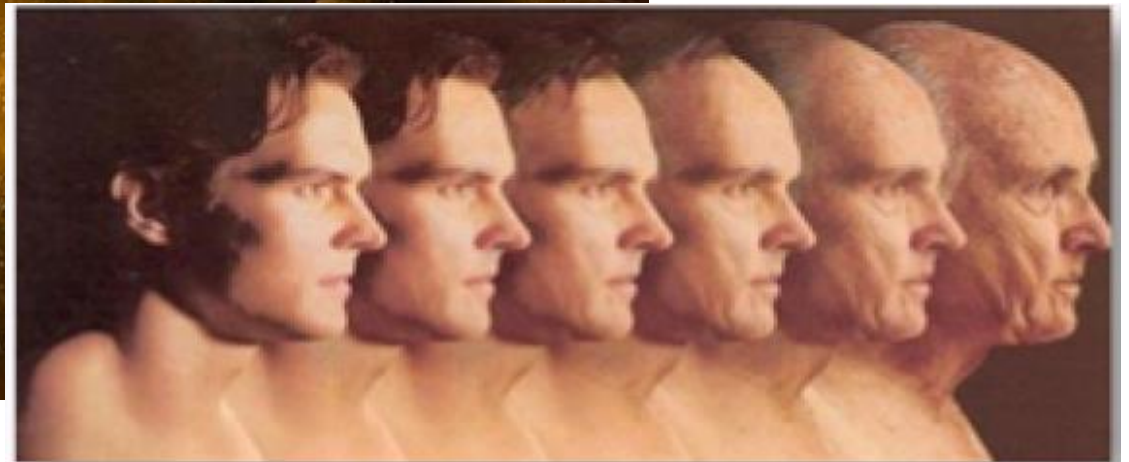
- 0 morbidities
- 1 morbidity
- 2 morbidities
- 3 morbidities
- 4 morbidities
- 5 morbidities
- 6 morbidities
- 7 morbidities
- >=8 morbidities

**ΜΕ ΣΥΝ- ΝΟΣΗΡΟΤΗΤΕΣ,
ΙΔΙΑΙΤΕΡΩΣ ΣΤΗΝ ΧΝΝ**



Kirkwood:

Ζωή= μια σεξουαλικά μεταδιδόμενη κατάσταση με αναπόφευκτα θανατηφόρα έκβαση



The Ageing Process

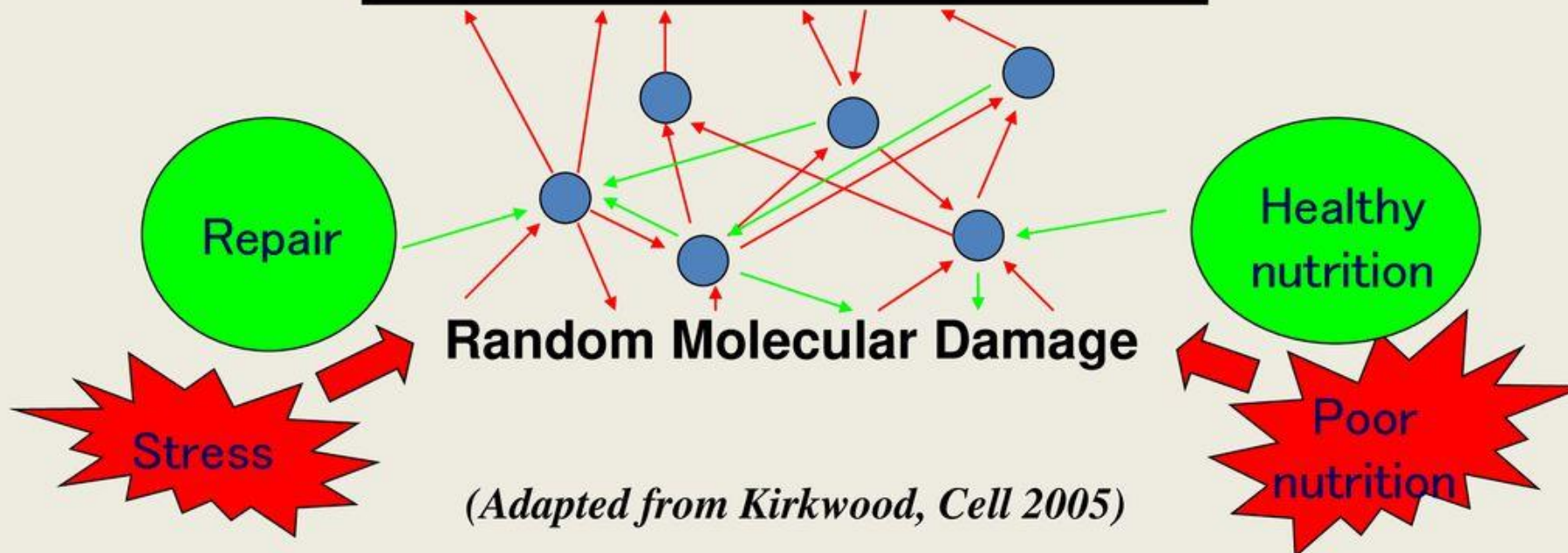
Age-related Frailty, Disability, and Disease

ΦΛΕΓΜΟΝΗ



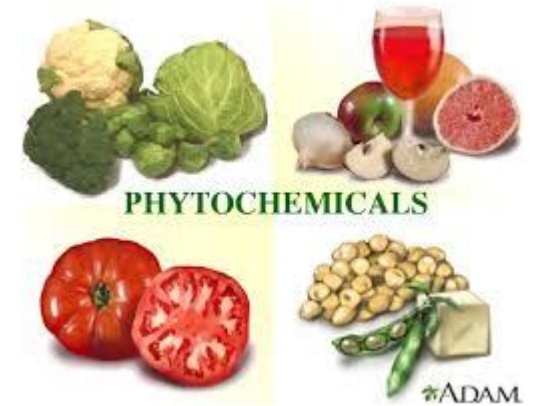
ANTI- ΦΛΕΓΜΟΝΗ

Accumulation of Cellular Defects

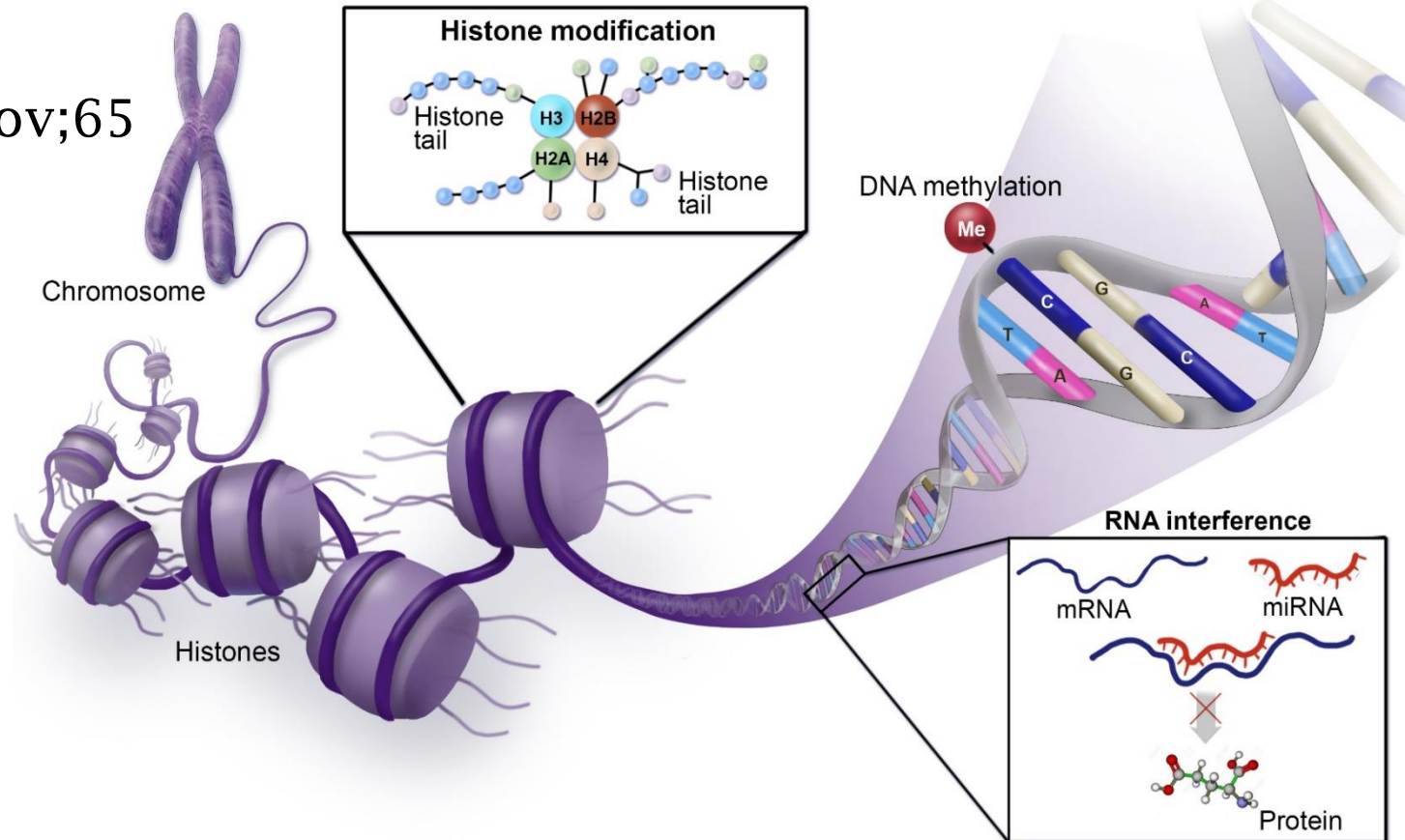




ΕΠΙΓΕΝΩΜΑ= Η ΕΠΙΔΡΑΣΗ ΤΟΥ ΠΕΡΙΒΑΛΛΟΝΤΟΣ



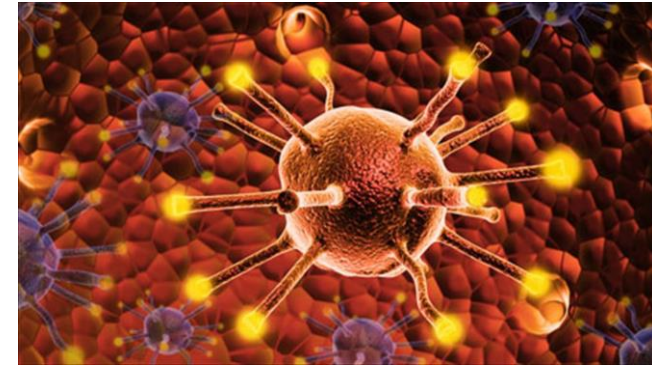
Biotechnol Appl Biochem. 2018 Nov;65





Healthy bone

Osteoporosis



Age and Age-Related Diseases: Role of Inflammation Triggers and Cytokines

Irene Maeve Rea

Frontiers in Immunology-April
2018



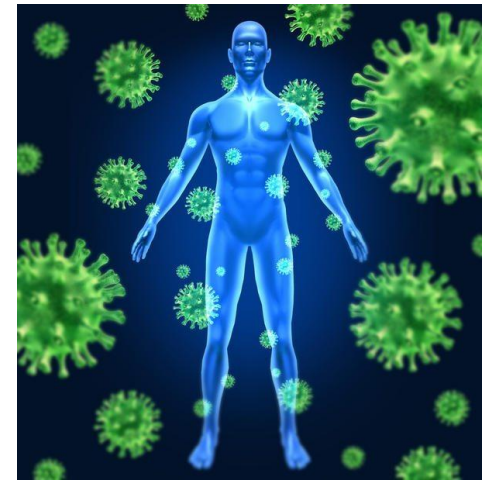
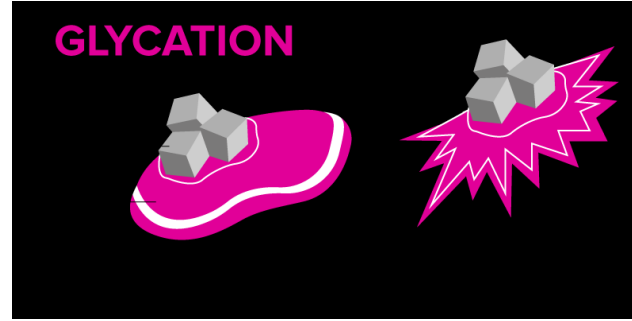


Οι ασθένειες «γήρατος» θα μπορούσαν να αντιμετωπισθούν πιο αποτελεσματικά αν επεμβαίναμε σε **βασικούς μηχανισμούς του ίδιου του γήρατος**, σε αντιδιαστολή με την προσπάθεια να προλάβουμε ή να καθυστερήσουμε μία –μία τις ειδικές επιπλοκές των οργάνων

«Die Young at an Old Age”

‘Inflammaging”



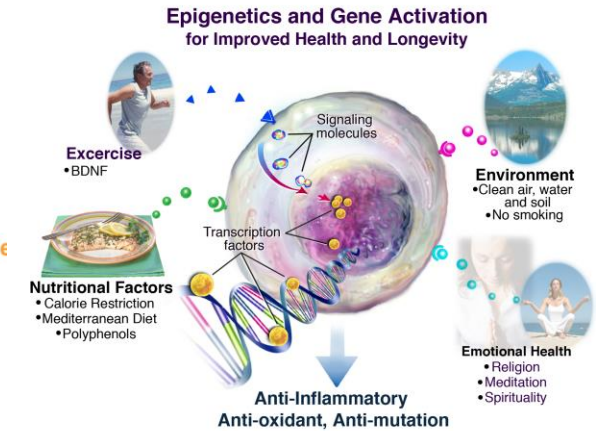
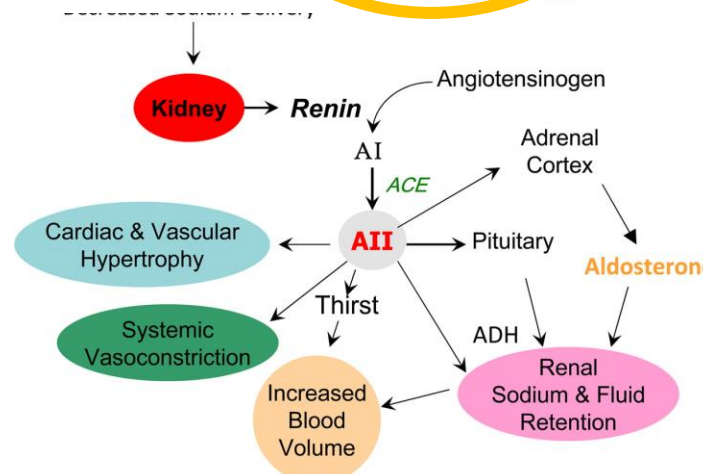
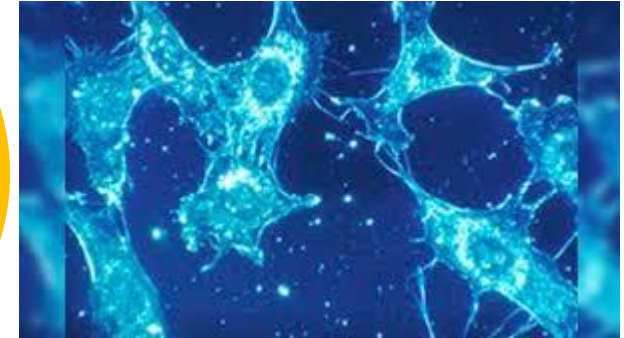
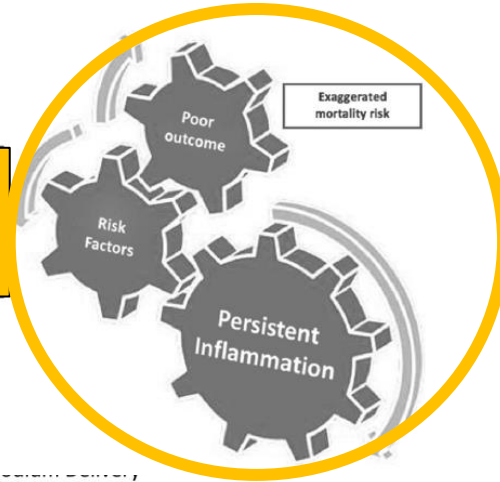


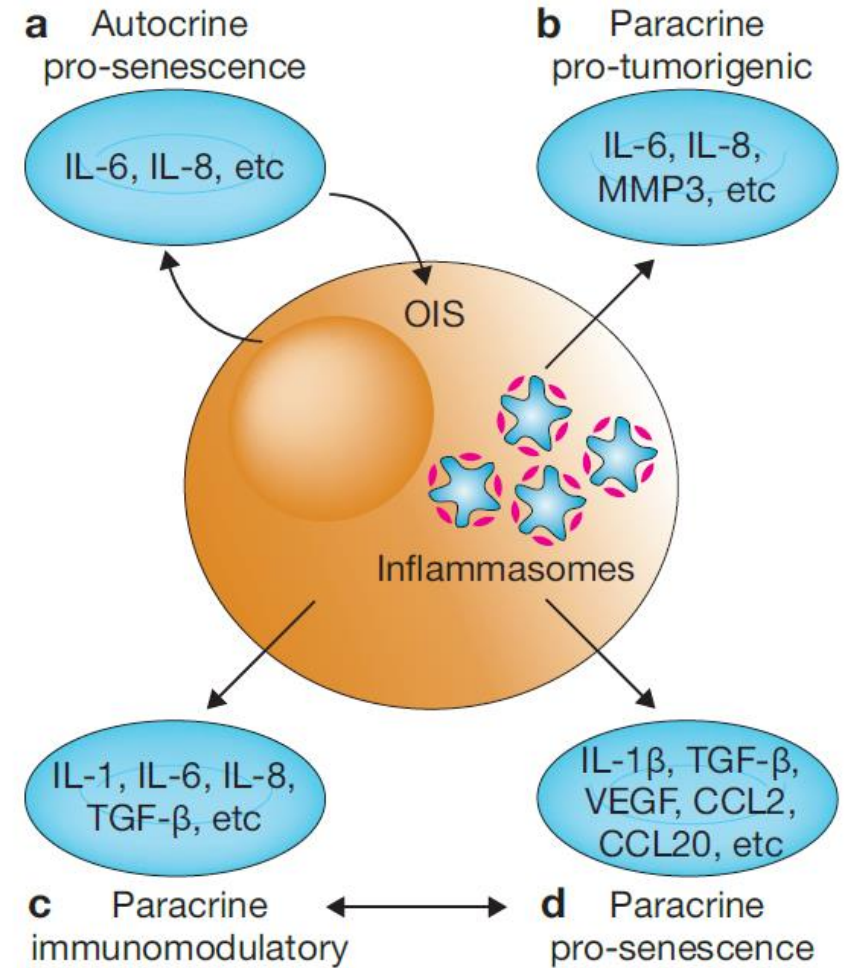
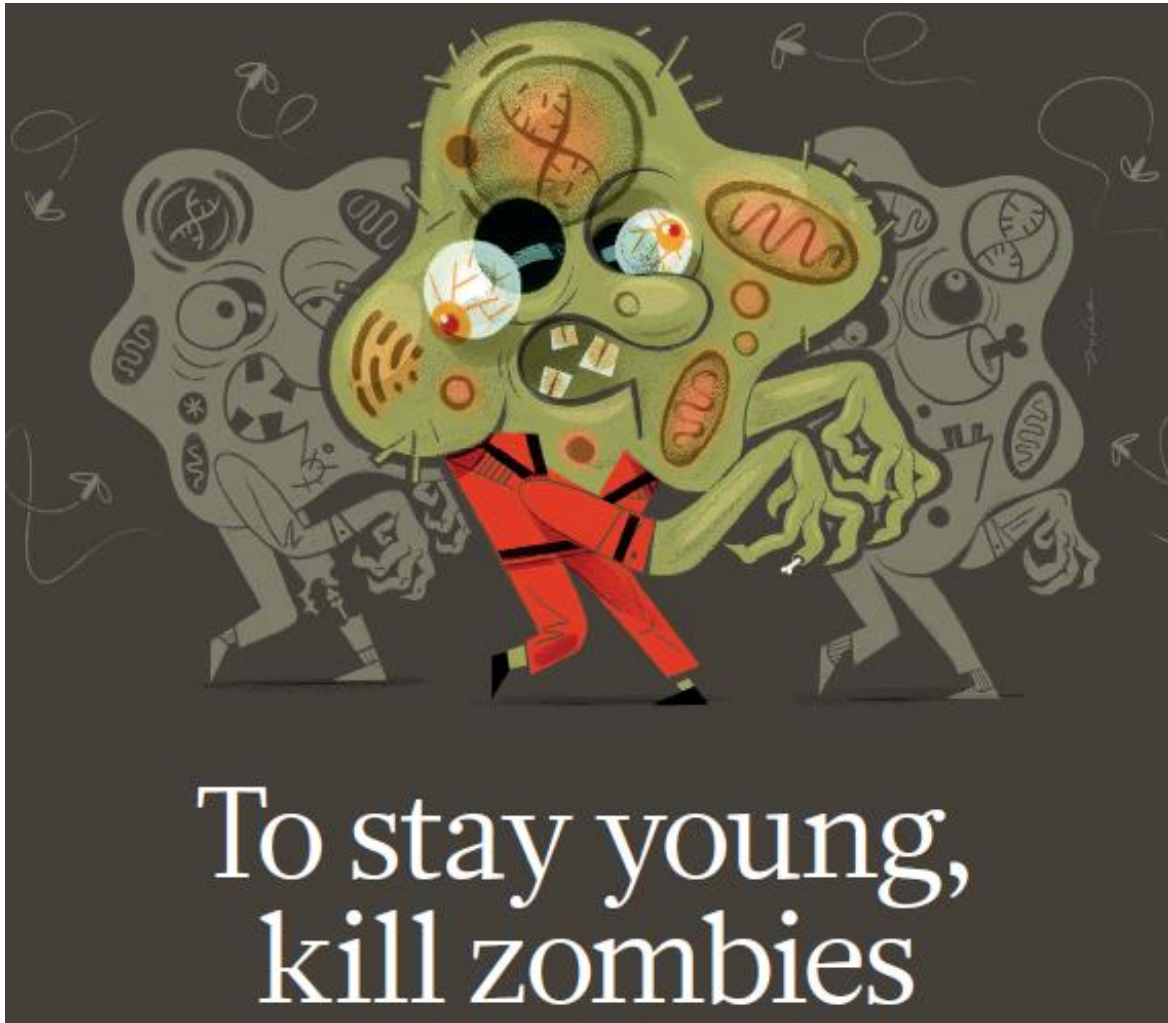
ΚΛΕΙΔΙ 4: Η ΦΛΕΓΜΟΝΗ ΚΑΤΑΛΥΤΗΣ

Inflammagin

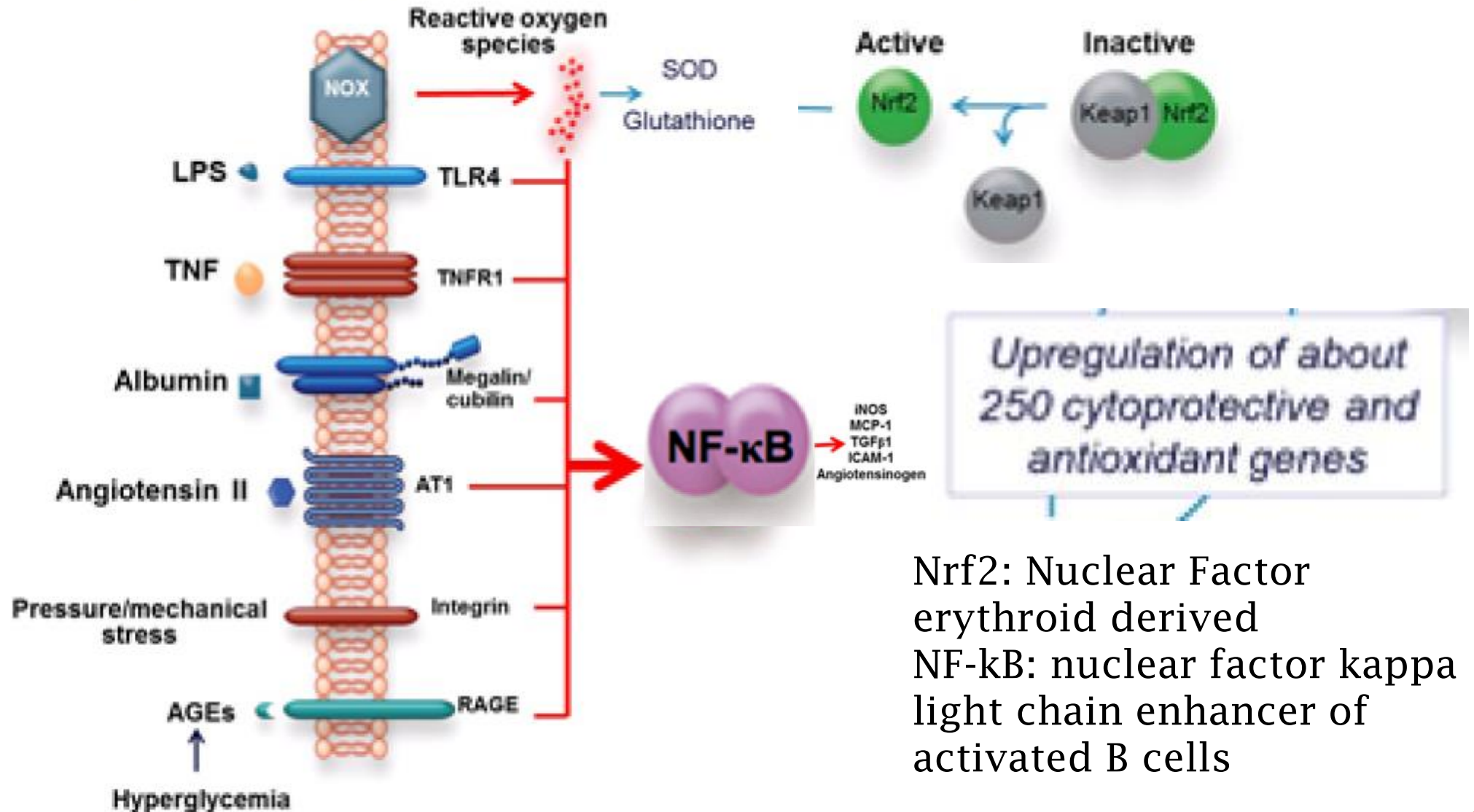
Liakopoulos et al 2017

Clin J Am Soc Nephrol 4: S49–S55, 2009





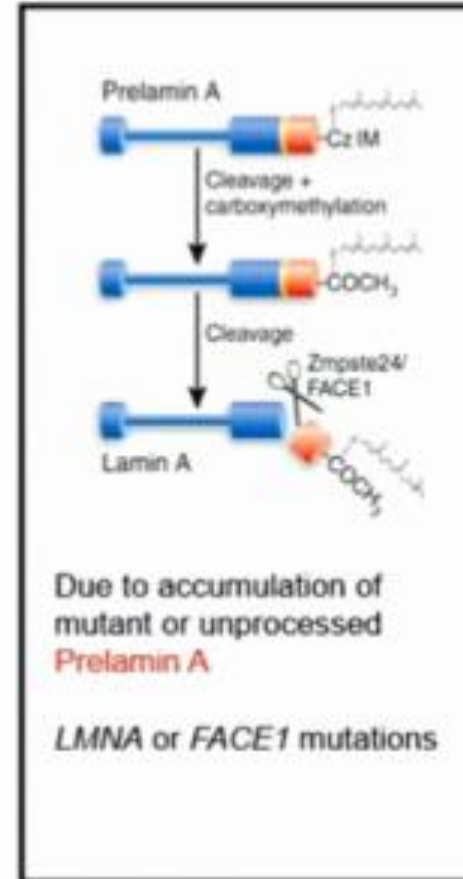
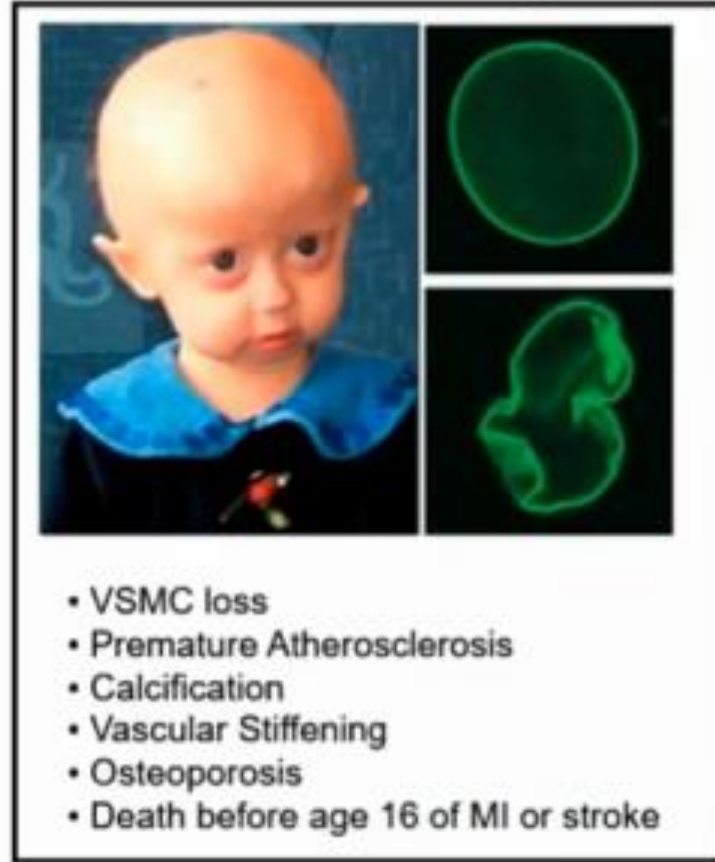
Multiple Pathways Stimulate NF-κB in the Uremic Milieu



Nrf2: Nuclear Factor erythroid derived
 NF-κB: nuclear factor kappa light chain enhancer of activated B cells



Hutchinson-Gilford Progeria Syndrome (HGPS)



Protein selectively accumulates in MSC populations

Repression of the antioxidant NRF2 pathway in premature aging

Cell 2016



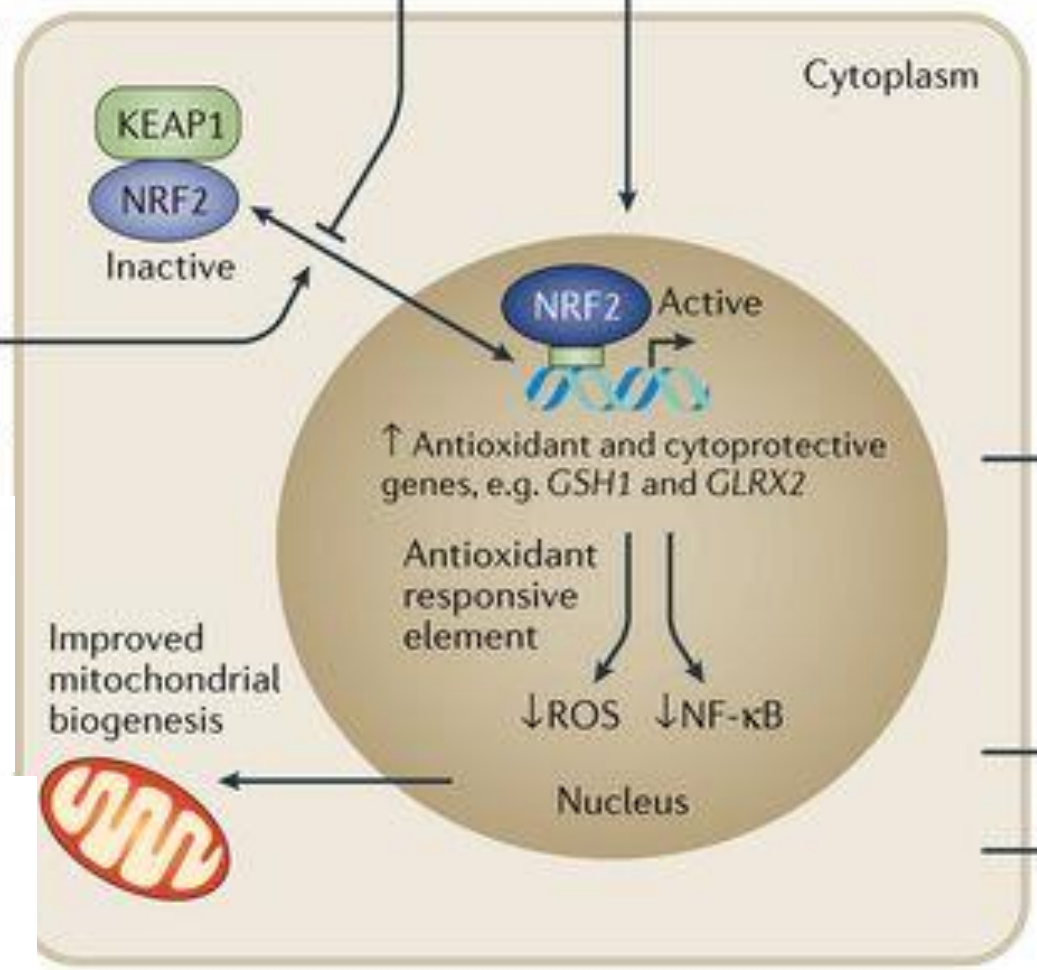


ΕΠΑΓΩΓΗ NRF2

- Natural NRF2 agonists**
- Oleanic acid
 - Sulforaphane
 - Curcumin
 - Lycopene
 - Epigallocatechin-3-gallate
 - Resveratrol
- Synthetic NRF2 agonist**
- Bardoxolone methyl

- High-fructose diet
- Low PUFA

- Klotho
- Circadian clock
- H₂S
- n-3 fatty acids

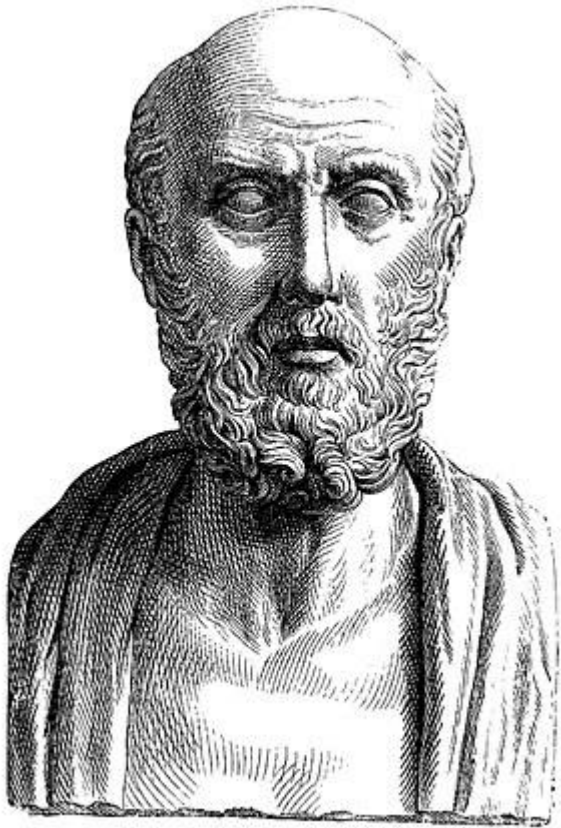


Protection in diseases of ageing, i.e. cancer (?), cardiovascular disease, CKD, osteoporosis, inflammatory disease and neurodegenerative disease

NRF2 activation may promote oncogenesis

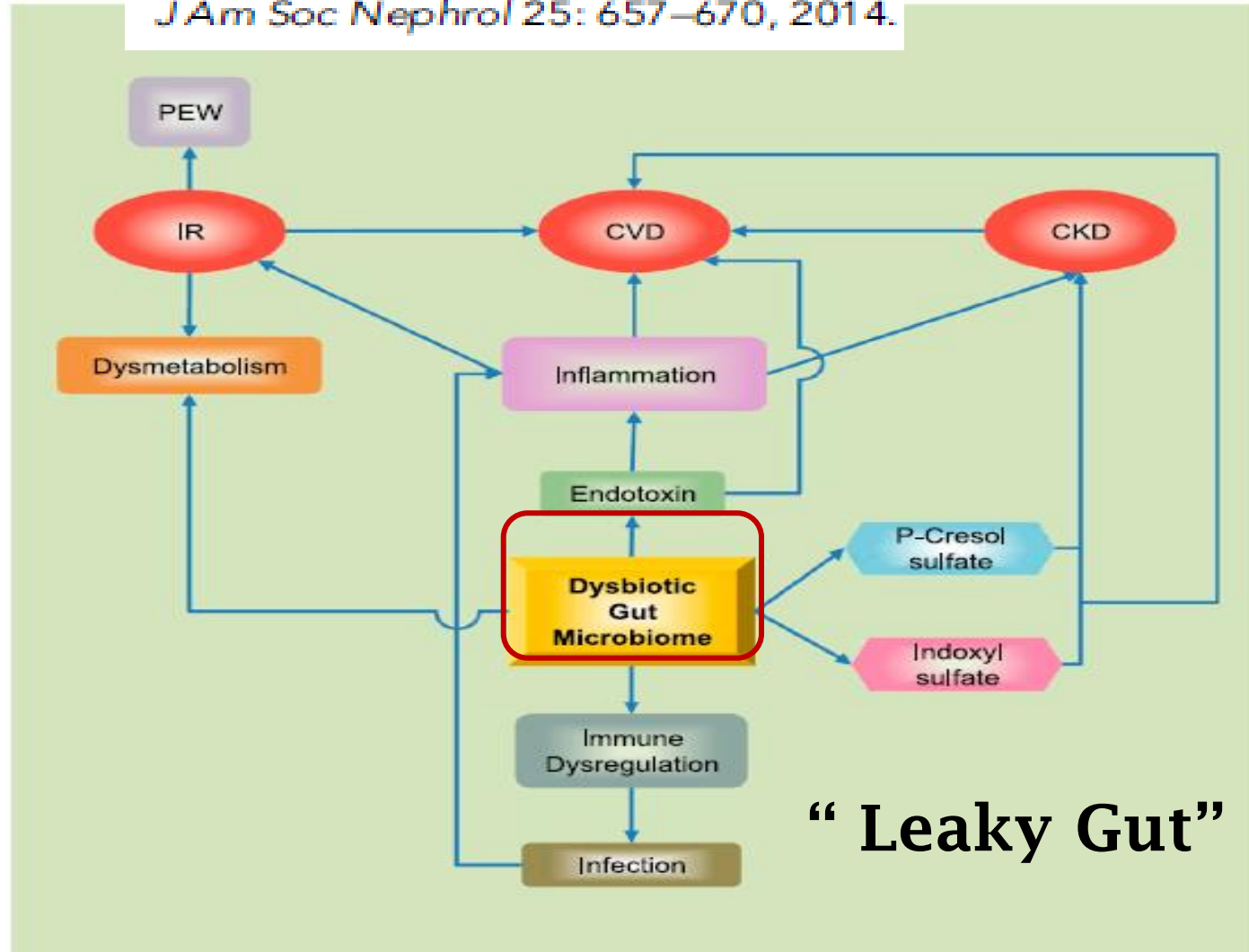
↑ Antioxidant defence
↓ Inflammation





ΕΝΤΕΡΙΚΟ ΜΙΚΡΟΒΙΩΜΑ

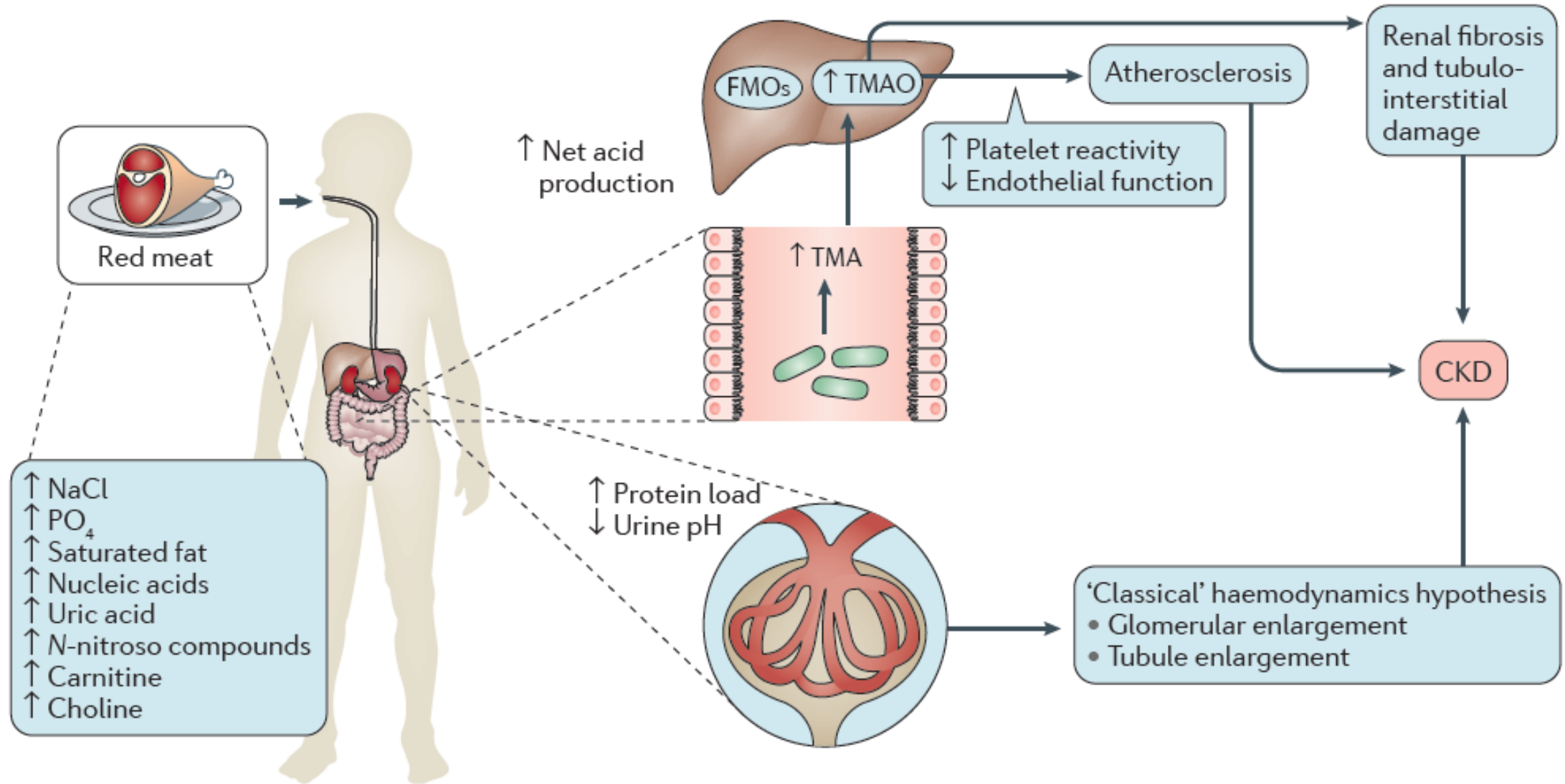
J Am Soc Nephrol 25: 657–670, 2014.



The Gut Microbiome, Kidney Disease, and Targeted Interventions



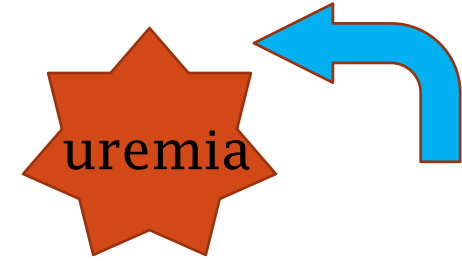
TMAO: TriMethylAmine Oxide





- Διαταραχή μικροβιώματος
- Χαμηλή έκφραση NrF2
- Ουραιμικές τοξίνες
- Φώσφορος

Inflammation

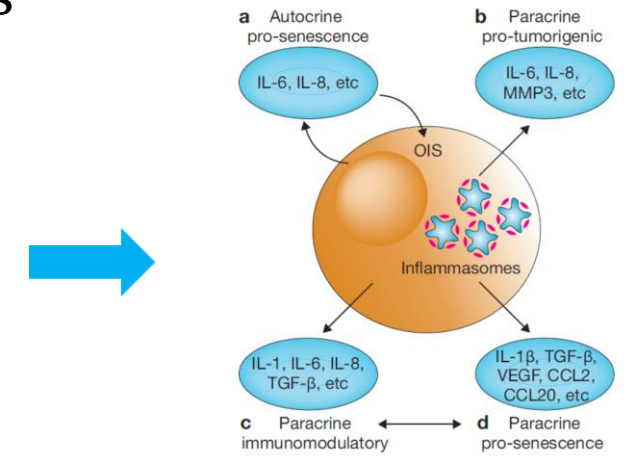


DNA repair

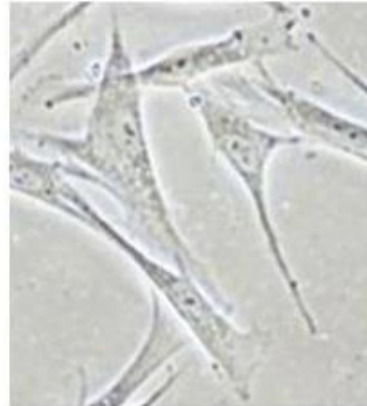
DNA stress



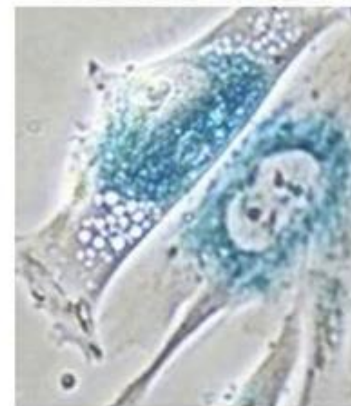
Hutchison-Gilford Progeria syndrome



Normal Cells

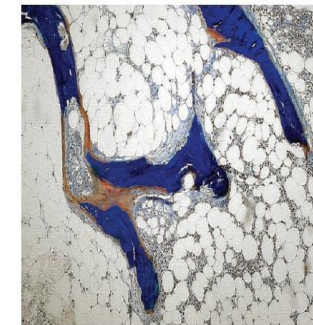
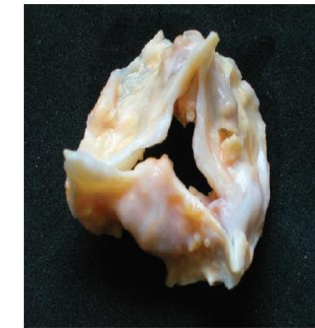
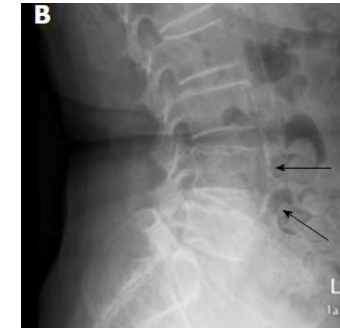
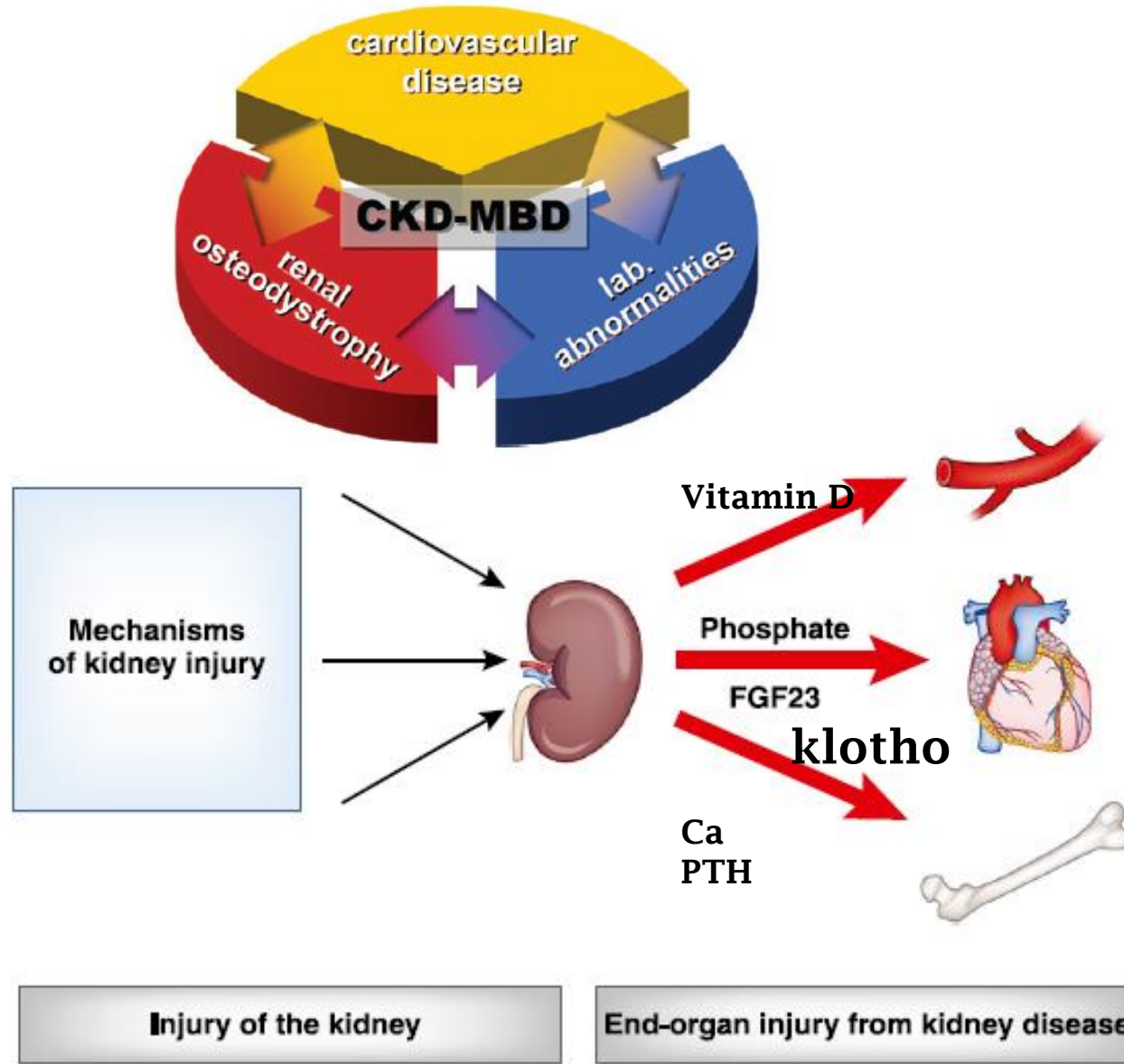


Senescent Cells



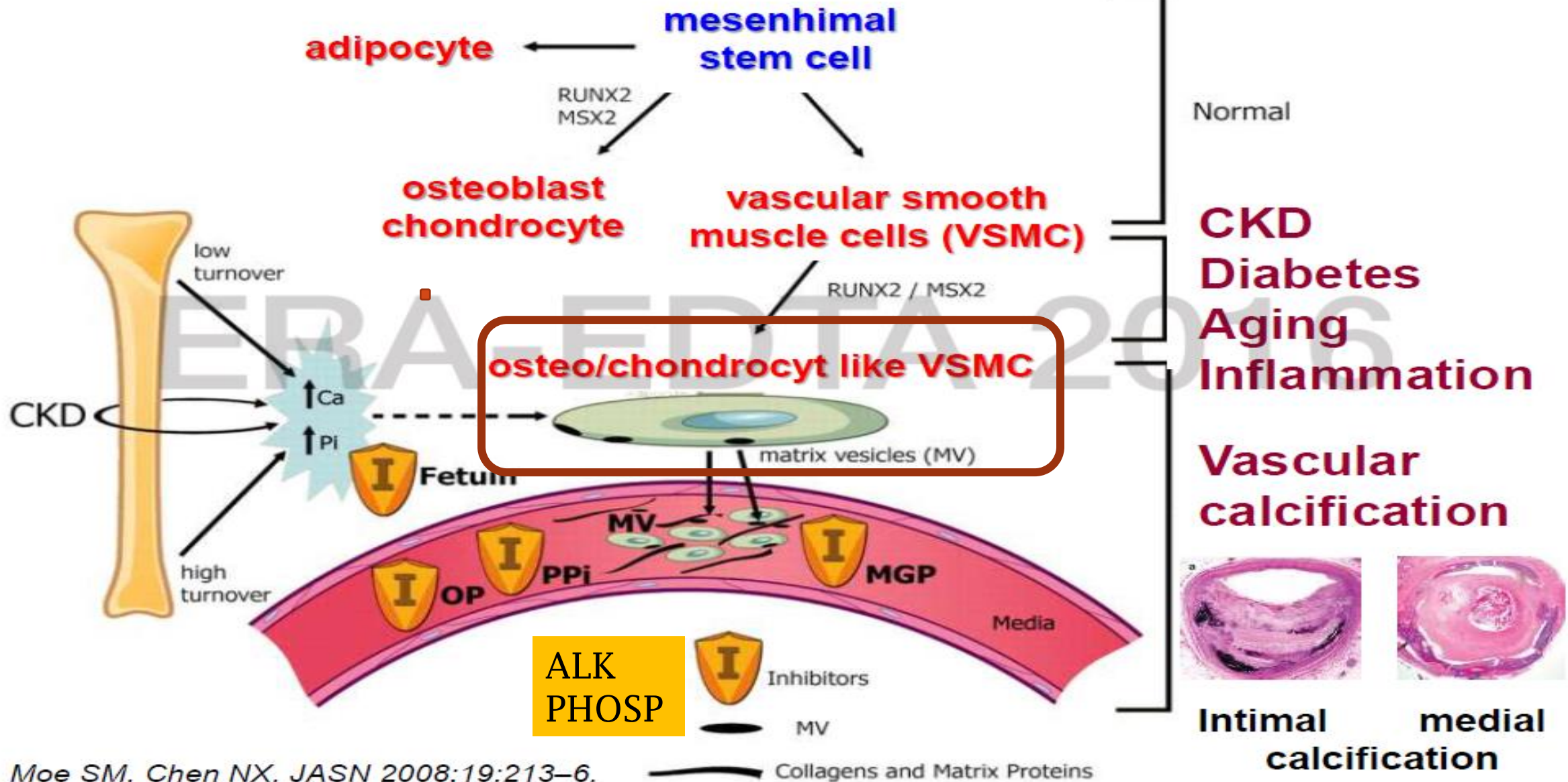
ΚΛΕΙΔΙ 5: Η ΔΙΑΙΤΑ ΔΡΑΣΕ ΠΟΛΛΑΠΛΑ ΜΟΝΟΠΑΤΙΑ

Chronic kidney disease – mineral and bone disorder

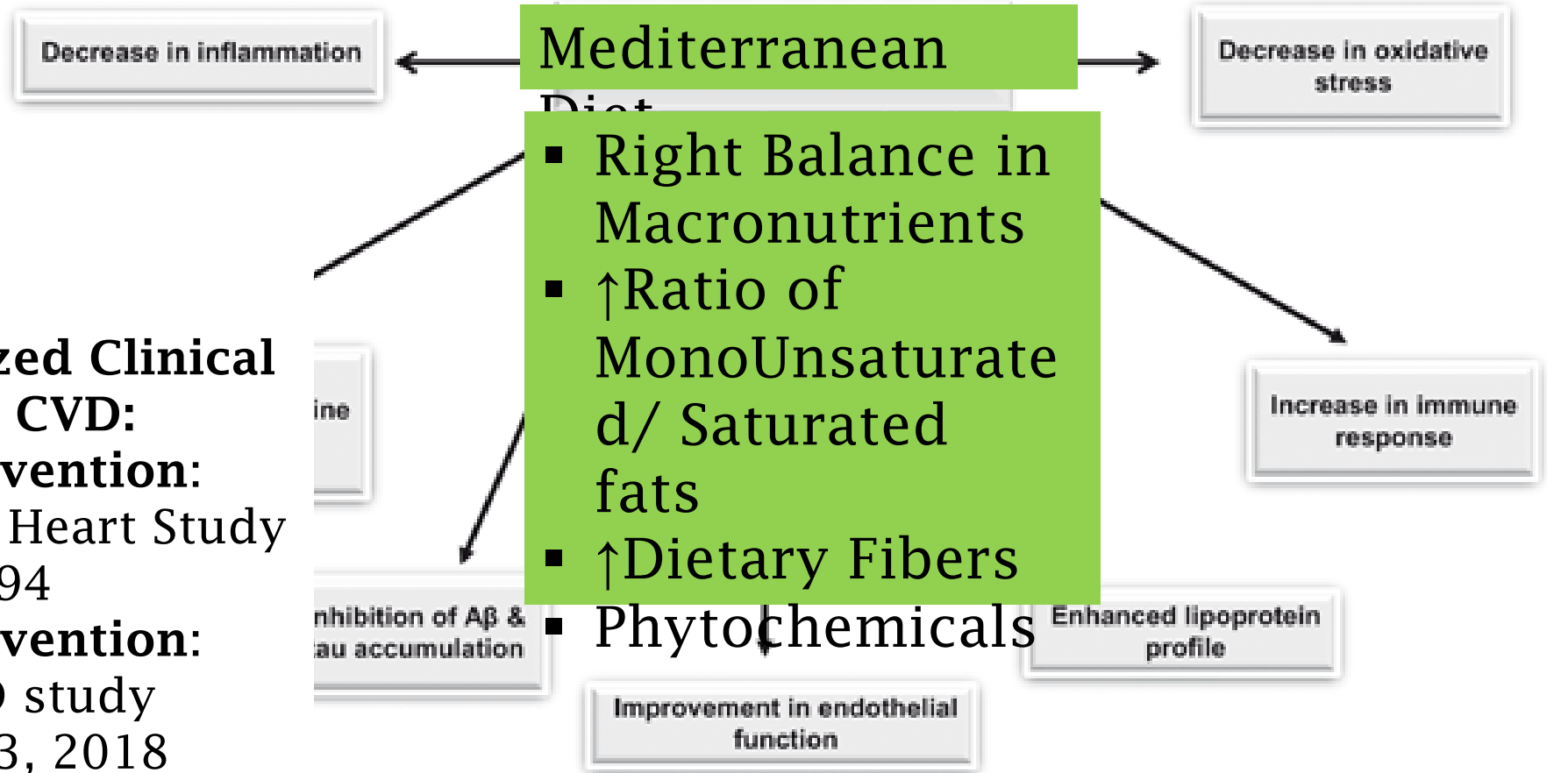


Vascular calcification

Pathophysiology of CAD in CKD



**Decrease in dietary
Ph load
Serum Ph and
FGF23**



**POSITIVE
Randomized Clinical
Trials for CVD:**

- **2ry prevention:**
Lyon Diet Heart Study
Lancet 1994
- **1ry prevention:**
PREDIMED study
NEJM 2013, 2018



Mediterranean diet as the diet of choice for patients with chronic kidney disease

Nephrol Dial Transplant (2017)

Mediterranean Diet Pyramid

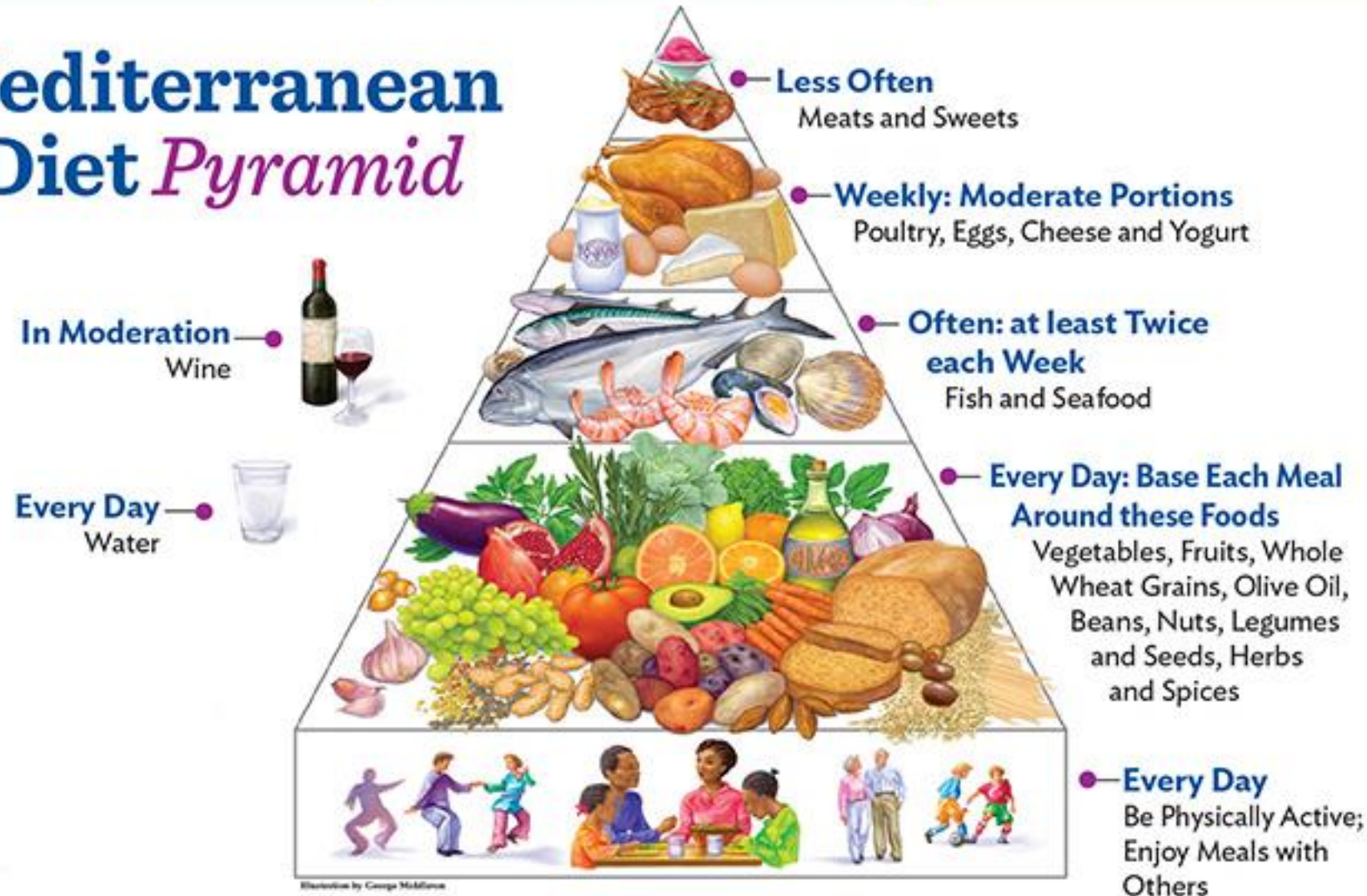


Illustration by George McMillan

© 2009 Oldways Preservation and Exchange Trust • www.oldwayspt.org



[Global facts & map](#)[Heart disease](#)[Stroke](#)[Cardiovascular
disease risk factors](#)**Diet*****Diet and cardiovascular disease***

The role of diet is crucial in the development and prevention of cardiovascular disease. Diet is one of the key things you can change that will impact all other cardiovascular risk factors.

Comparisons between a diet low in saturated fats, with plenty of fresh fruit and vegetables, and the typical diet of someone living in the developed world show that in the former there is a 73% reduction in the risk of new major cardiac events.

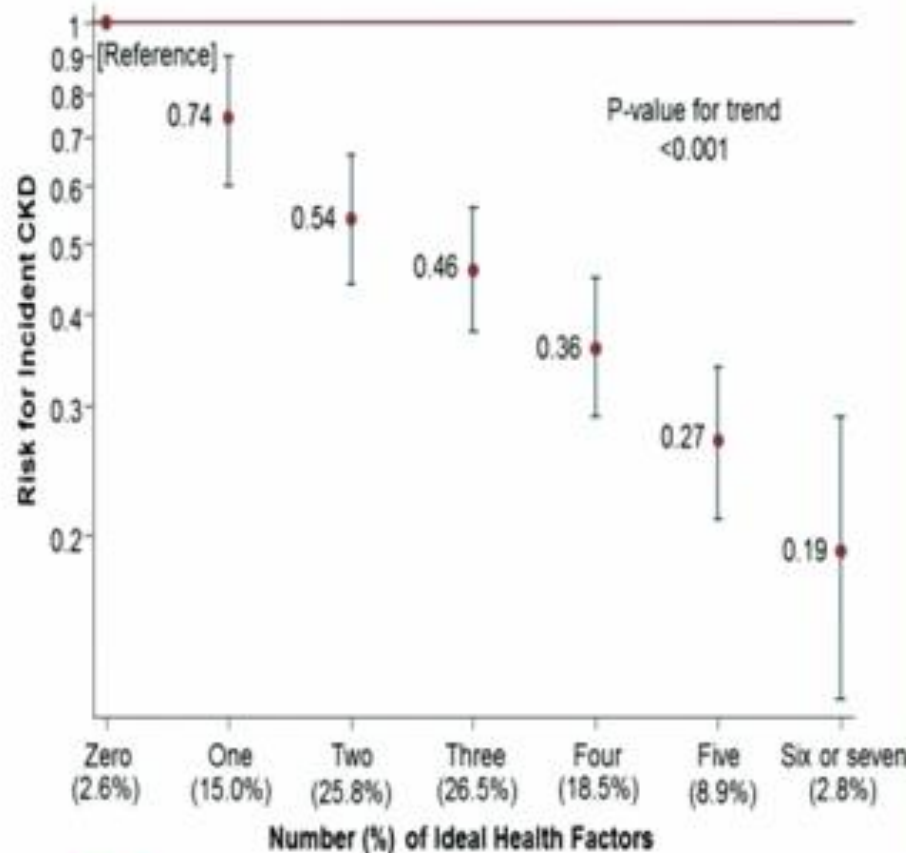
What's a Healthy Heart Diet?

Fat	High in PUFA or MUFA, Low in SF and transfat
Sodium	Low
Fruits and vegetables (fiber)	High
Wholegrain cereals (fiber)	High
Fish	High
Nuts	High
Soys	High



Relationship of the American Heart Association's Impact Goals (Life's Simple 7) With Risk of Chronic Kidney Disease: Results From the Atherosclerosis Risk in Communities (ARIC) Cohort Study

Casey M. Rebholz, PhD, MPH, MS; Cheryl A. M. Anderson, PhD, MPH, MS; Morgan E. Grams, MD, PhD, MHS; Lydia A. Bazzano, MD, PhD, MPH; Deidra C. Crews, MD, ScM; Alex R. Chang, MD, MS; Josef Coresh, MD, PhD, MHS; Lawrence J. Appel, MD, MPH

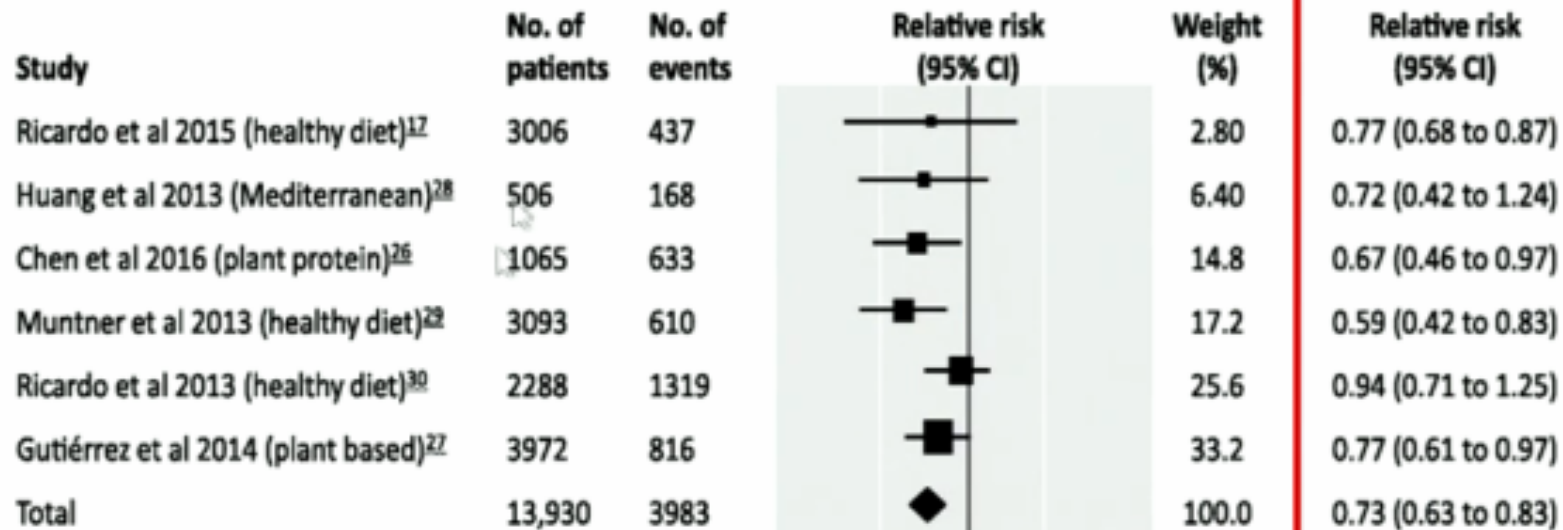


Life's Simple 7 health factor:

1. nonsmoker or quit >1 year ago;
2. body mass index <25 kg/m²;
3. ≥150 minutes/week of physical activity;
4. **healthy dietary pattern (high in fruits and vegetables, fish, and fiber-rich whole grains; low in sodium and sugar-sweetened beverages);**
5. total cholesterol <200 mg/dL;
6. blood pressure <120/80 mm Hg;
7. fasting blood glucose <100 mg/dL.



Risk of all-cause mortality associated with healthy dietary patterns among adults with CKD: Systematic Review



0.2 0.5 1 2 5

Lower risk
with healthy
dietary pattern

Higher risk
with healthy
dietary pattern

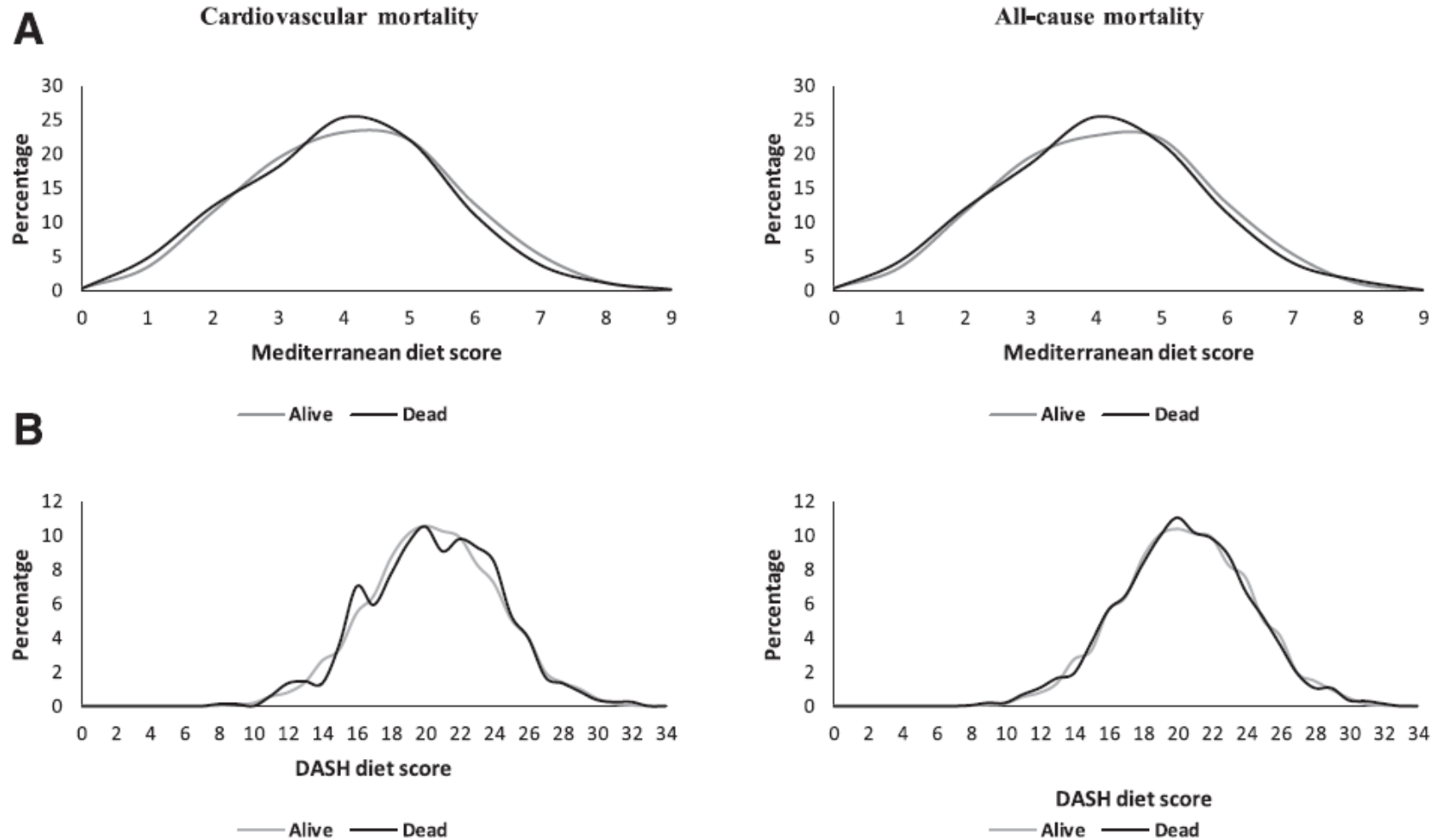
Test for statistical
heterogeneity
between different
studies; $P=0.47$;
 $I^2=0\%$



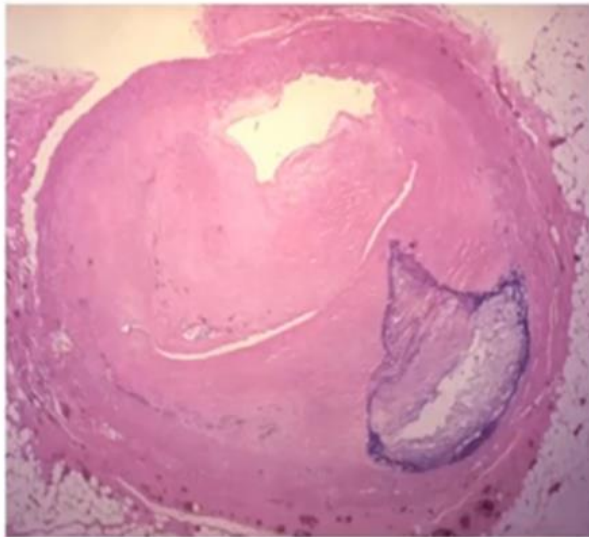
The Association of Mediterranean and DASH Diets with Mortality in Adults on Hemodialysis: The DIET-HD Multinational Cohort Study

J Am Soc Nephrol 2018.

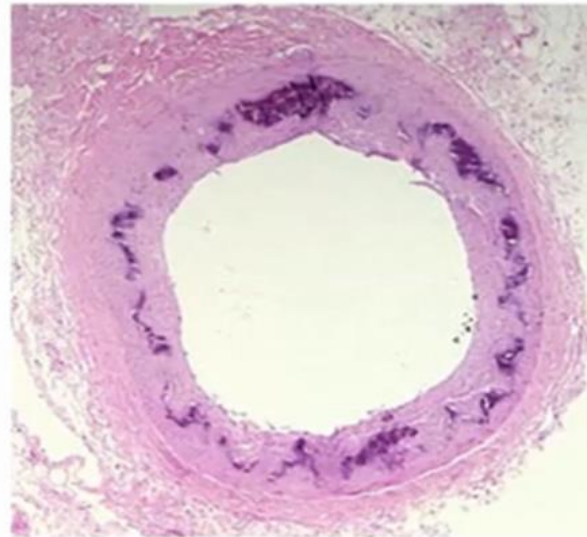
9.500 ασθενείς- 2.7 έτη παρακολούθησης



Vascular calcification in ESRD



Intimal calcification
Atherosclerosis



Medial calcification
Arteriosclerosis

Adopted from: <http://library.med.utah.edu/WebPath/CVHTML/CV007.html>
<http://library.med.utah.edu/WebPath/CVHTML/CV168.html>

ΚΛΕΙΔΙ 6: ΚΑΘΕ ΑΣΘΕΝΗΣ ΔΙΑΦΟΡΕΤΙΚΟΣ,
ΓΕΝΕΤΙΚΗ ΠΡΟΔΙΑΘΕΣΗ

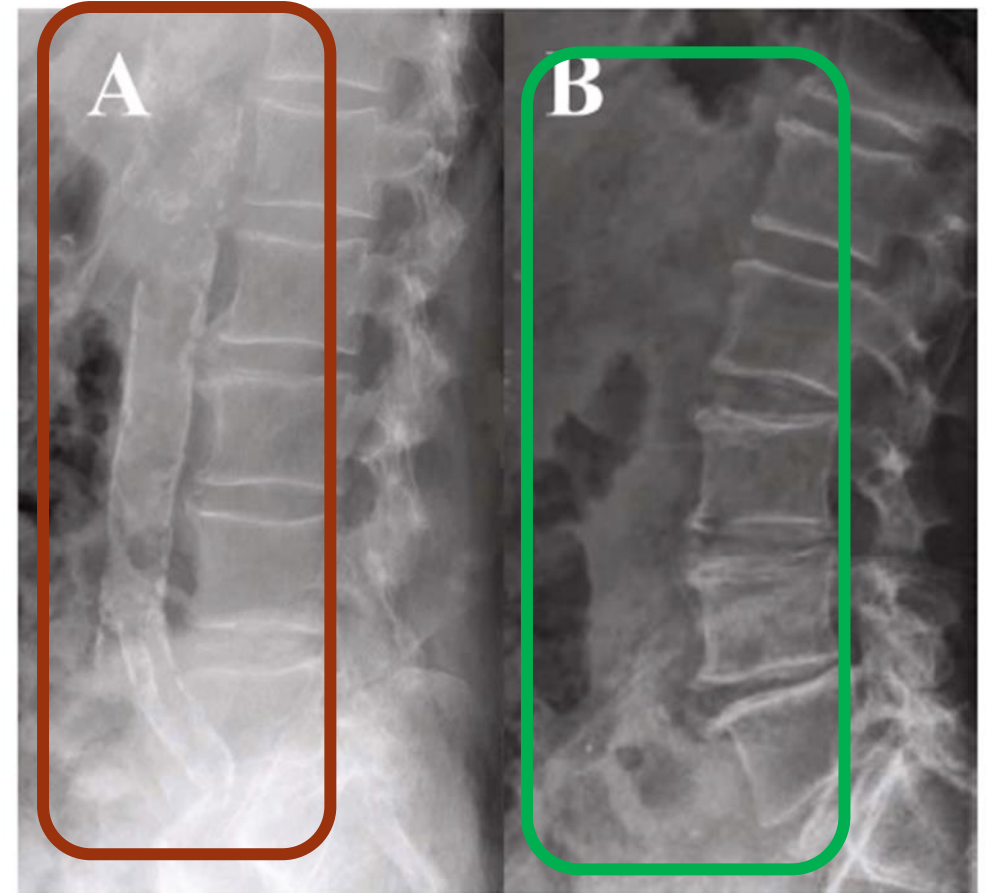


Fig. 5. Plain X-ray of (A) a 59-year-old patient with abundant abdominal aortic calcification (AAC = 21) and (B) a 73-year-old patient with no calcific deposits in the abdominal aorta (AAC = 0).



ELIMINATE INFLAMMATION



CAUSE INFLAMMATION



ΤΙ ΦΟΒΟΜΑΣΤΕ?
-ΥΠΟΘΡΕΨΙΑ
-ΥΠΕΡΚΑΛΙΑΙΜΙΑ

Dietary Intake in Hemodialysis Patients Does Not Reflect a Heart Healthy Diet

Georges Klosser, MD,* Alale Waked, MD,* Michael Goldman, MD,†
Eli El-Charkaty, MD,† Eileen Duvac, RD,‡ Marianne Smith, MD,§
Mortou Kleiser, MD,† James Lafferty, MD,*
Kamyar Kalantar-Zadeh, MD, MPH, PhD,**†† and Suzanne El-Sayegh, MD†

Colonic Contribution to Uremic Solutes JASN 2011

Pavel A. Aronov,* Frank J.-G. Luo,† Natalie S. Plummer,† Zhe Qian,‡ Susan Holmes,§
Thomas H. Hostetter,‡ and Timothy W. Meyer†
*Vincent Coates Foundation Mass Spectrometry Laboratory, and †Department of Statistics, Stanford University, Stanford, California; ‡Departments of Medicine, Veterans Administration Palo Alto Health Sciences Center and Stanford University, Palo Alto, California; and †Albert Einstein College of Medicine, New York, New York

Reduced protein bound uraemic toxins in vegetarian kidney failure patients treated by haemodiafiltration

Sakina KANDOLUZ,† Ali Shendi MCHAMED,†,‡ Yishan ZHENG,† Susan SANDEMAN,†
Andrew DAVENPORT†



ΜΟΝΟ ΤΟ ΛΙΠΟΣ...= ΧΟΛΗΣΤΕΡΙΝΗ...?



Seven Countries Study

And



Early 60s

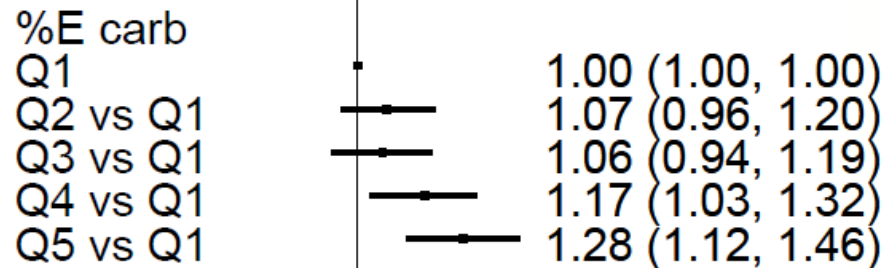
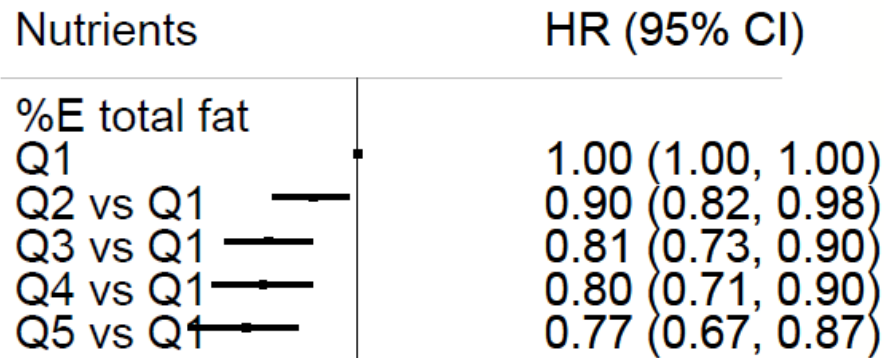
12,763 men, 40-59 yrs



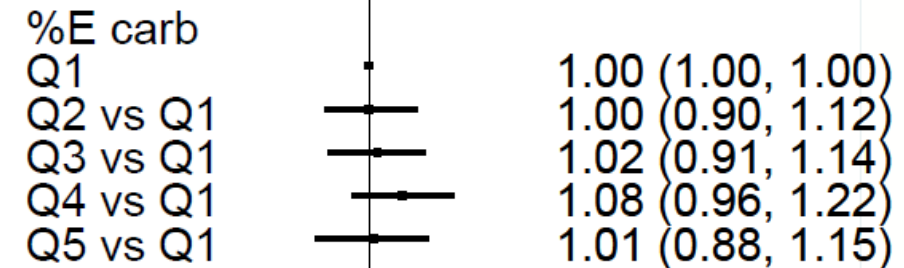
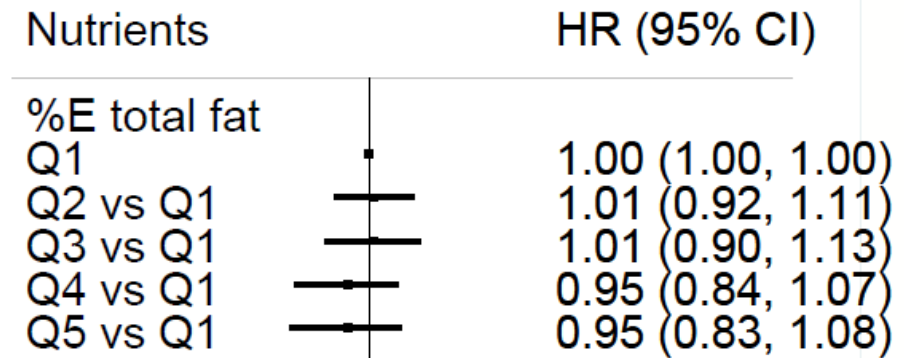
18 χώρες-135.335 ασθενείς

macronutrients

Mortality



Major CVD

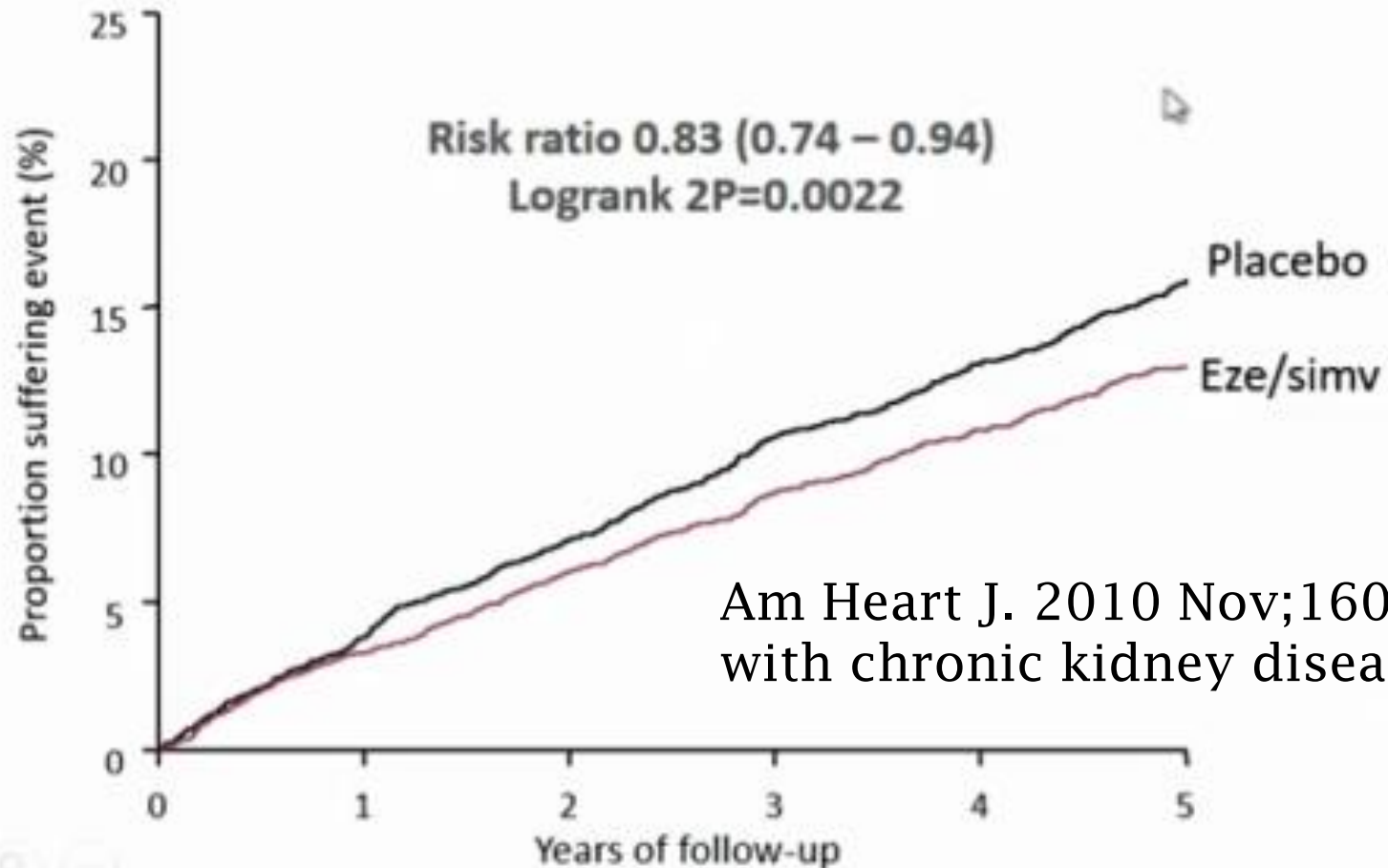


.6 1 1.5

.6 1 1.5

9

SHARP: Major Atherosclerotic Events: Simvastatin and Ezetimibe vs placebo

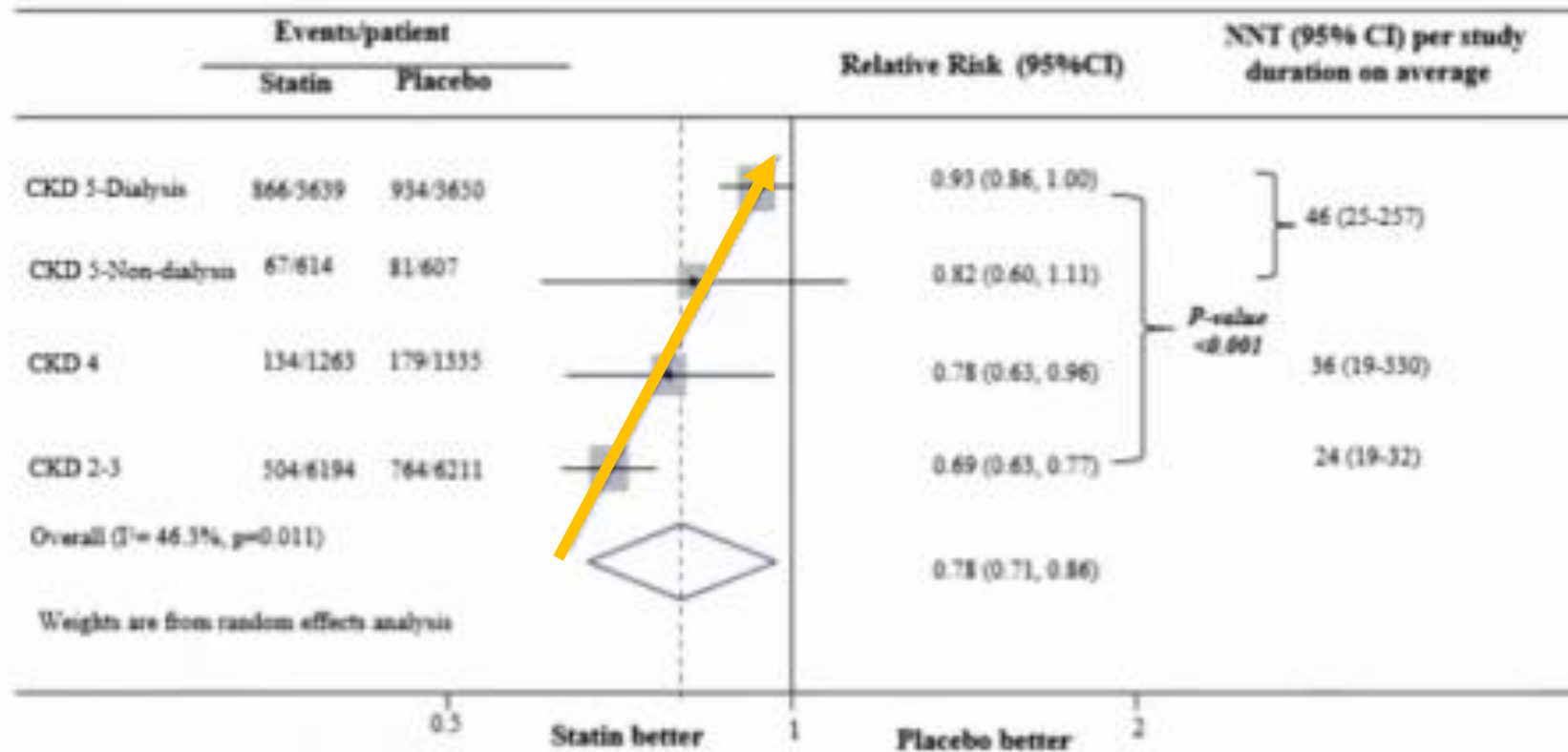


Am Heart J. 2010 Nov;160(5):9,438 patients with chronic kidney disease.



Lipid lowering by CKD stage

Figure 2



ΒΑΣΙΚΑ ΣΗΜΕΙΑ ΥΓΙΕΙΝΗΣ ΔΙΑΤΡΟΦΗΣ ΣΕ ΣΧΕΣΗ ΜΕ ΤΟΝ ΝΕΦΡΟ-ΚΑΡΔΙΑΓΓΕΙΑΚΟ ΣΥΣΤΗΜΑ

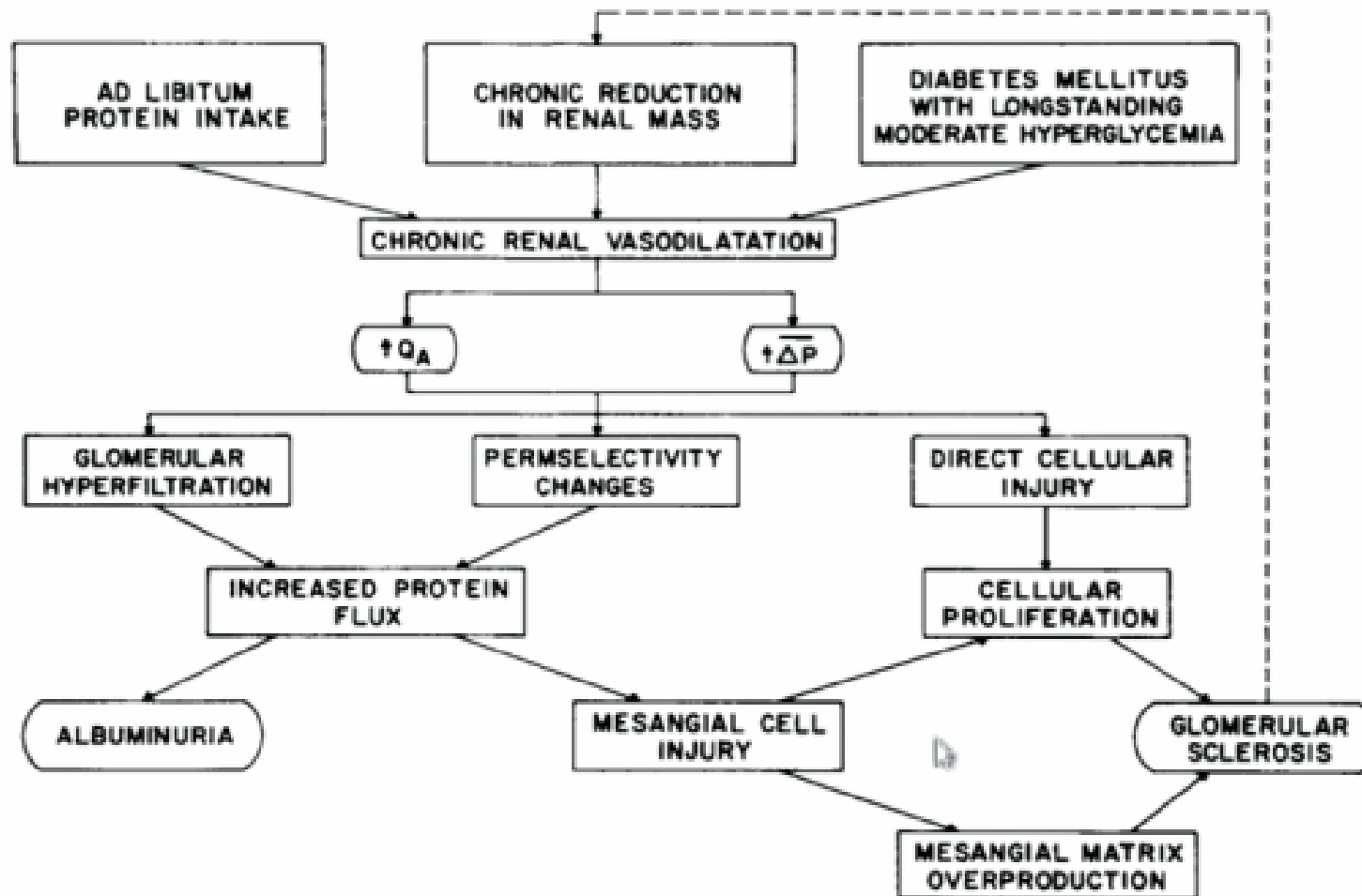
1. Χαμηλή πρωτεΐνη
2. Χαμηλό όξινο φορτίο, υψηλό αλκαλικό
3. Χαμηλό φορτίο φωσφόρου
4. Υψηλή σε Μαγνήσιο
5. Υψηλή σε φυτικές ίνες

1. Ευεργετική δράση στο εντερικό μικροβίωμα
2. Υψηλή σε «αντιοξειδωτικά»-Επαγωγή του NrF2
3. Θετική επίδραση στο επιγένωμα
4. Θετική επίδραση στην ινσουλινο- αντίσταση και στο λιπιδαιμικό προφίλ



1. ΠΡΩΤΕΪΝΗ

Role of Sustained Increments in Glomerular Pressures and Flows in Initiation and Progression of Glomerular Sclerosis

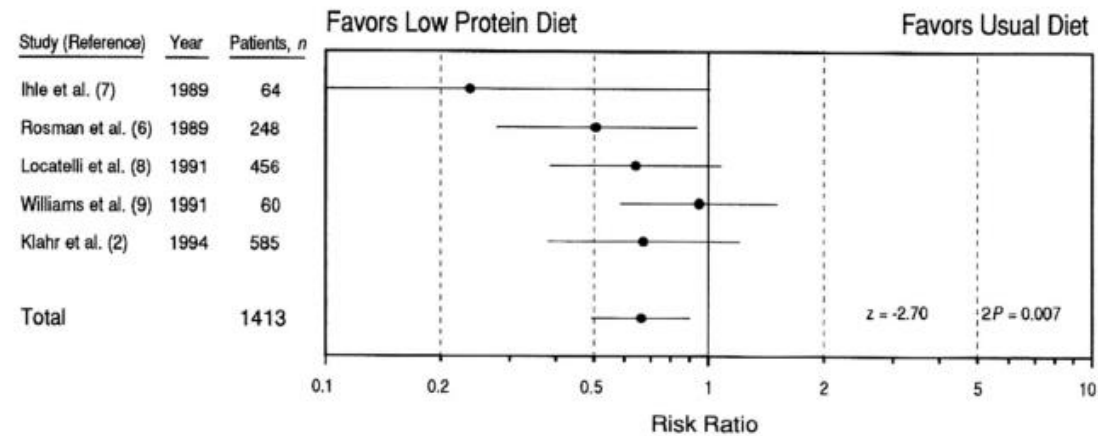


Brenner B, et al. N Engl J Med 1982

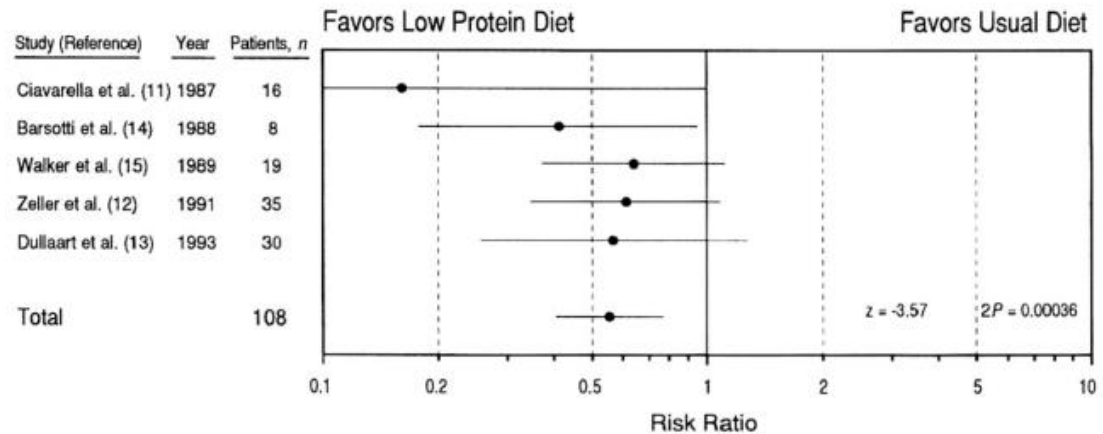


Individual Nutrients: Protein Restriction

- Non-diabetic



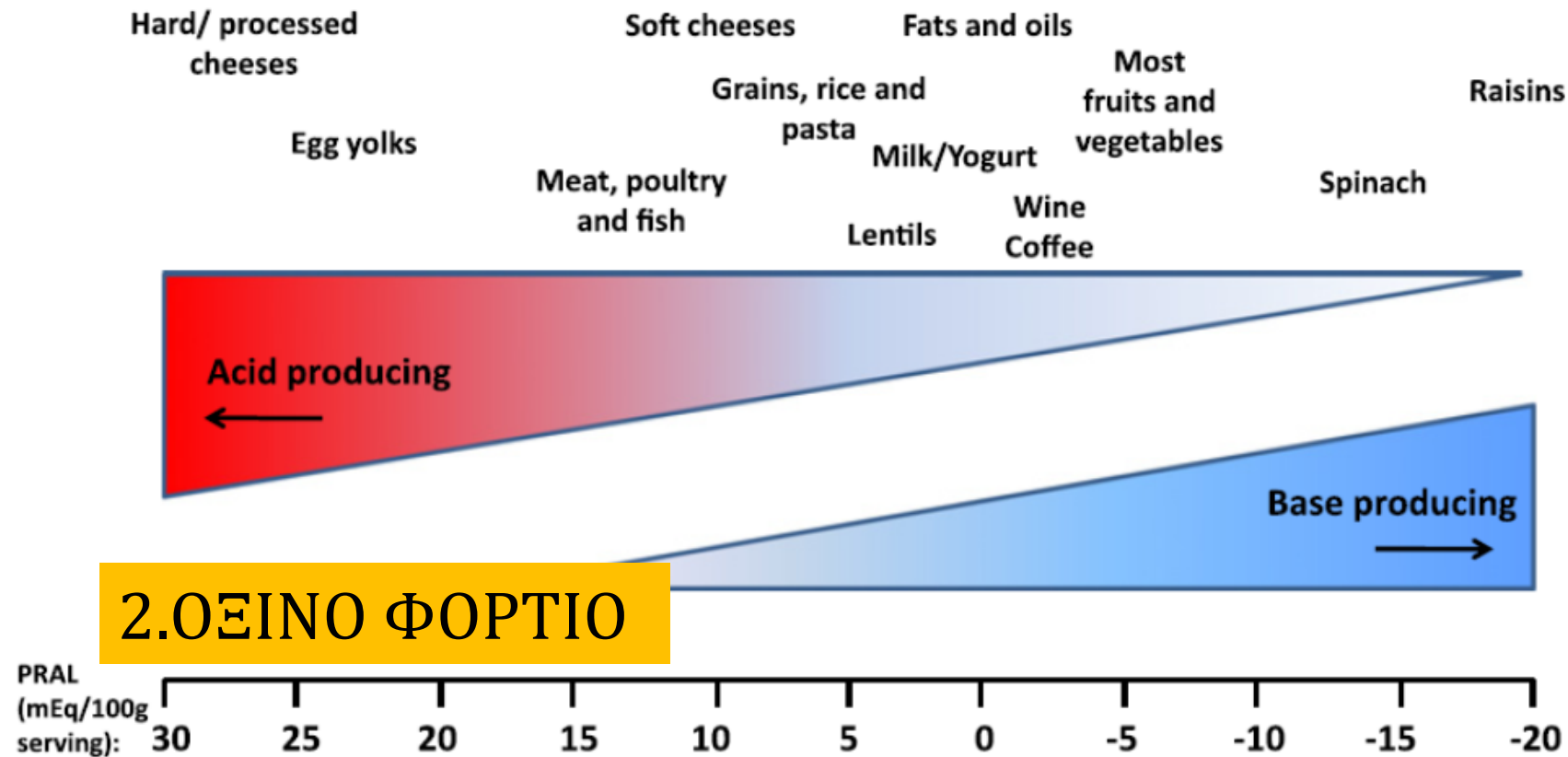
- Diabetic

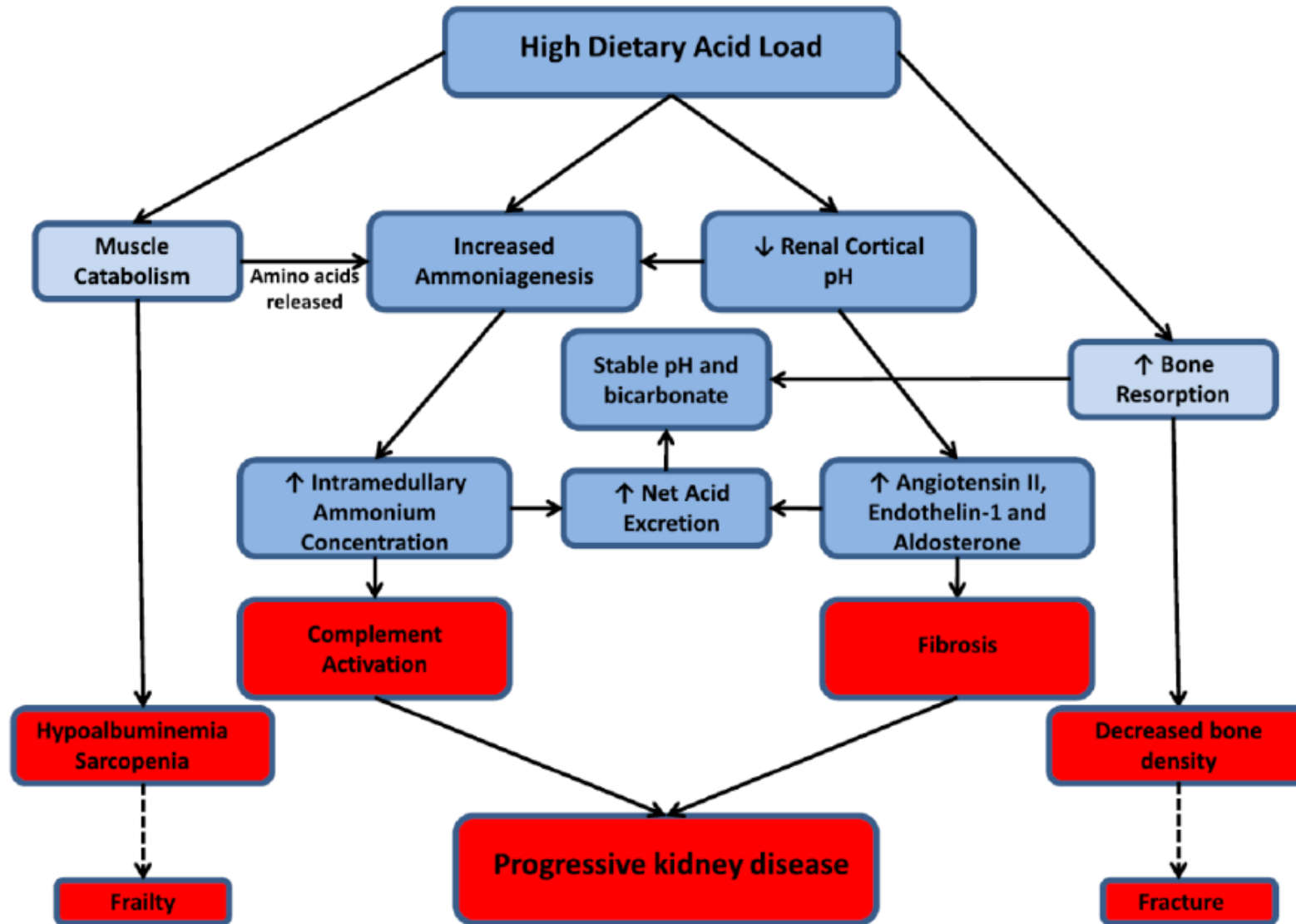


Pedrini M.T., et al. The Effect of Dietary Protein Restriction on the Progression of Diabetic and Non-diabetic Renal Diseases: A Meta-Analysis. *Ann Intern Med.* 1996;124(7):627-632.

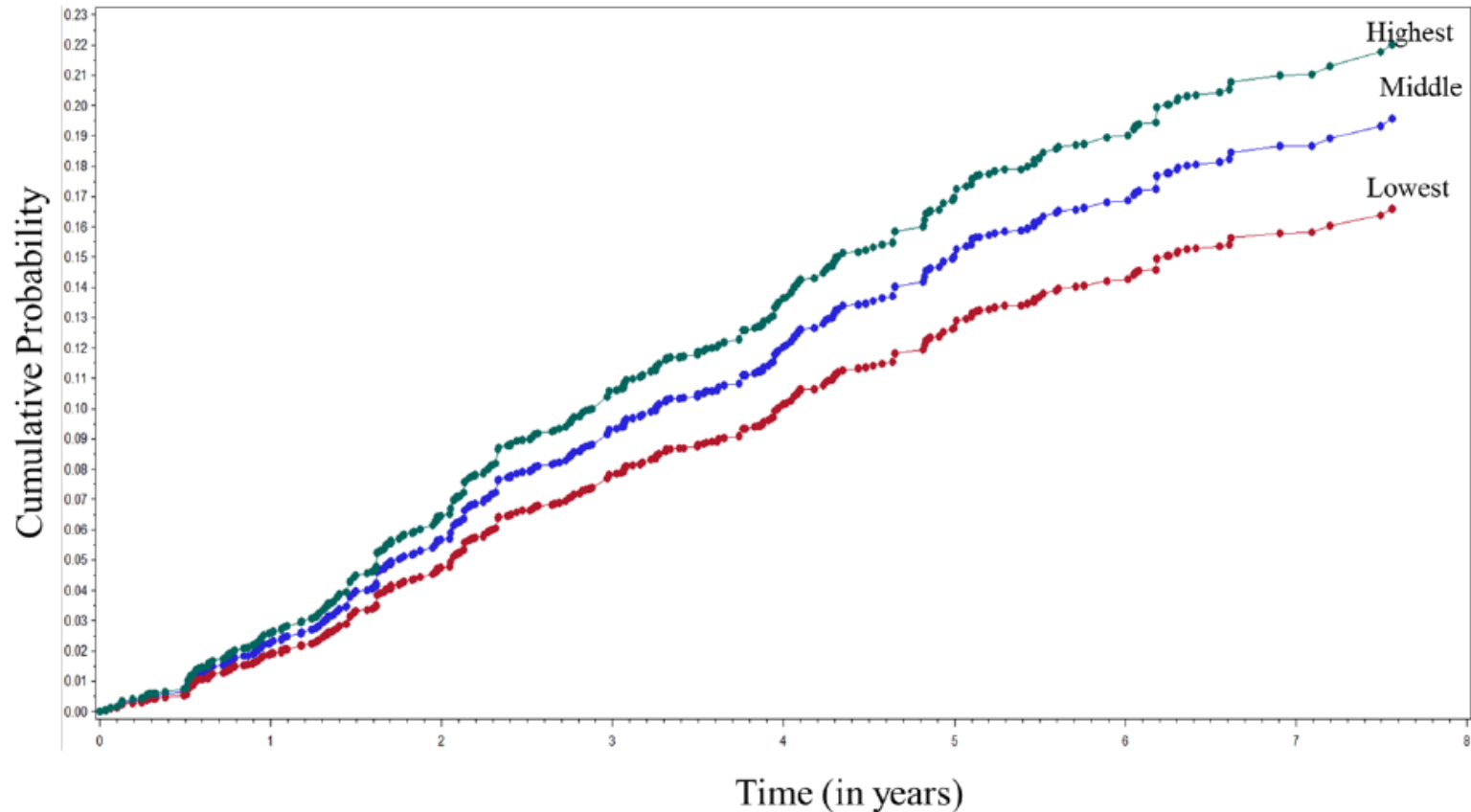


Mediterranean Diet and Dash Diet are both Low in Dietary Acid Load





Risk of ESRD for participants with varying levels of dietary acid load over 8 yrs of follow up



Banerjee T., Crews D., Wesson D., Tilia A., Saran R., Rios Burrows N., Williams D., Powe N. for the CDC CKD Surveillance Team. High dietary acid load predicts End Stage Renal Disease among Chronic Kidney Disease adults. *J Am Soc Nephrol*, 2015.

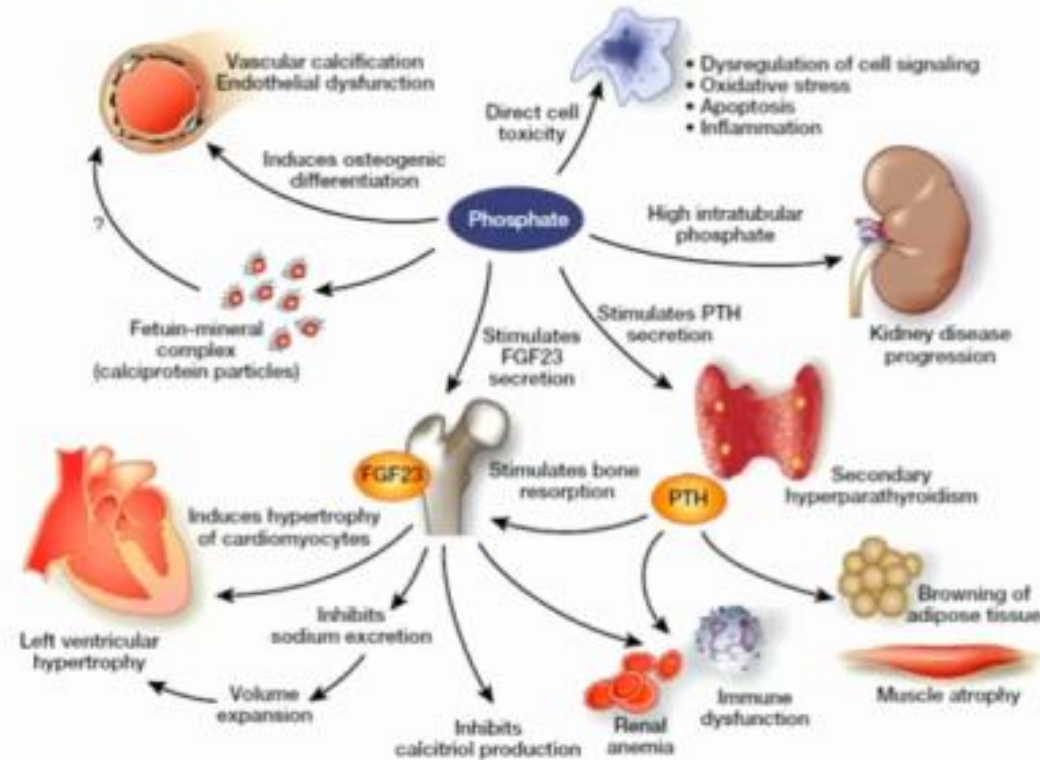


Phosphate—a poison for humans?

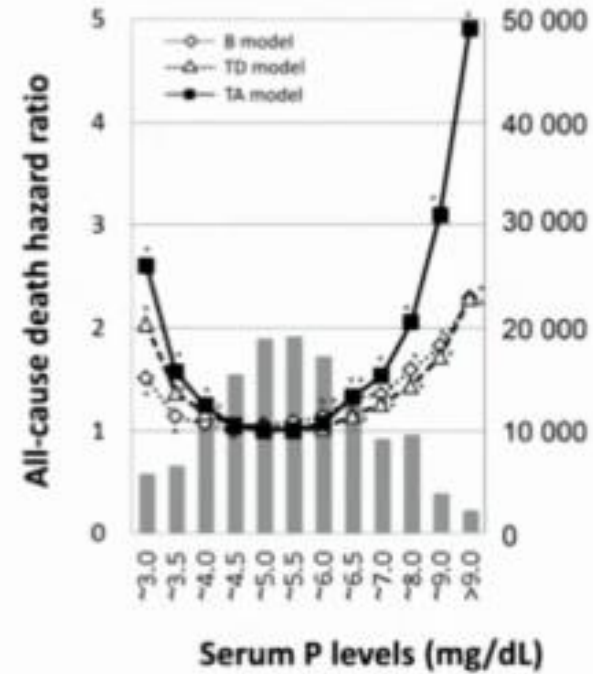
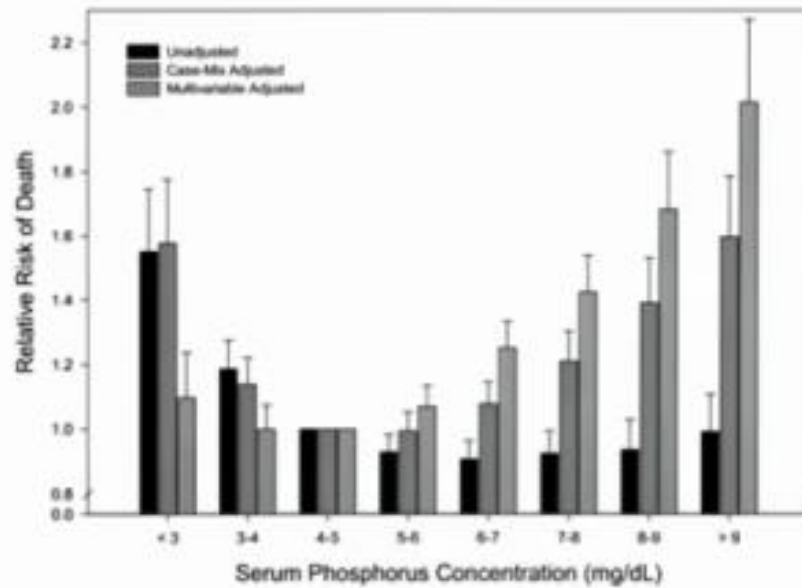


HirotaKa Komaba^{1,2,3} and Masafumi Fukagawa¹

¹Division of Nephrology, Endocrinology and Metabolism, Tokai University School of Medicine, Isehara, Japan; ²Interactive Translational Research Center for Kidney Diseases, Tokai University School of Medicine, Isehara, Japan; and ³The Institute of Medical Sciences, Tokai University, Isehara, Japan

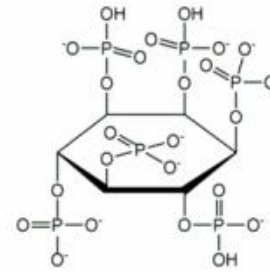
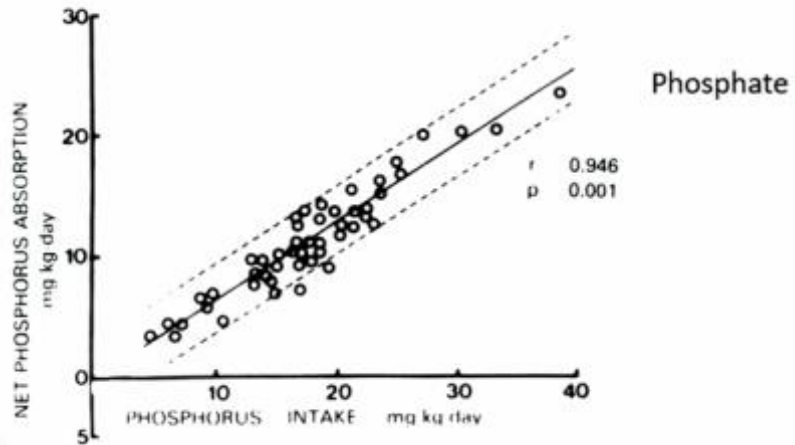
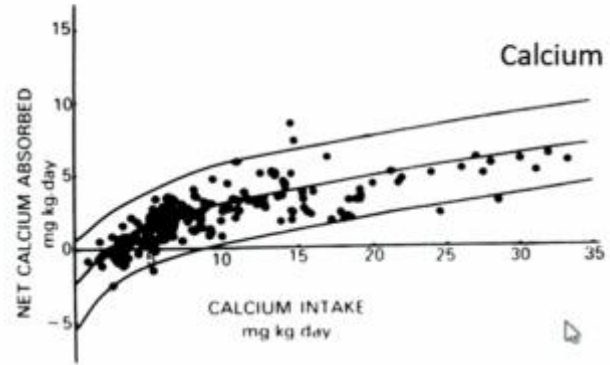


Hyperphosphatemia and mortality



Block GA et al. S J Am Soc Nephrol 15, 2004
 Taniguchi M et al. Ther Apher Dial 17, 2013





Phytates

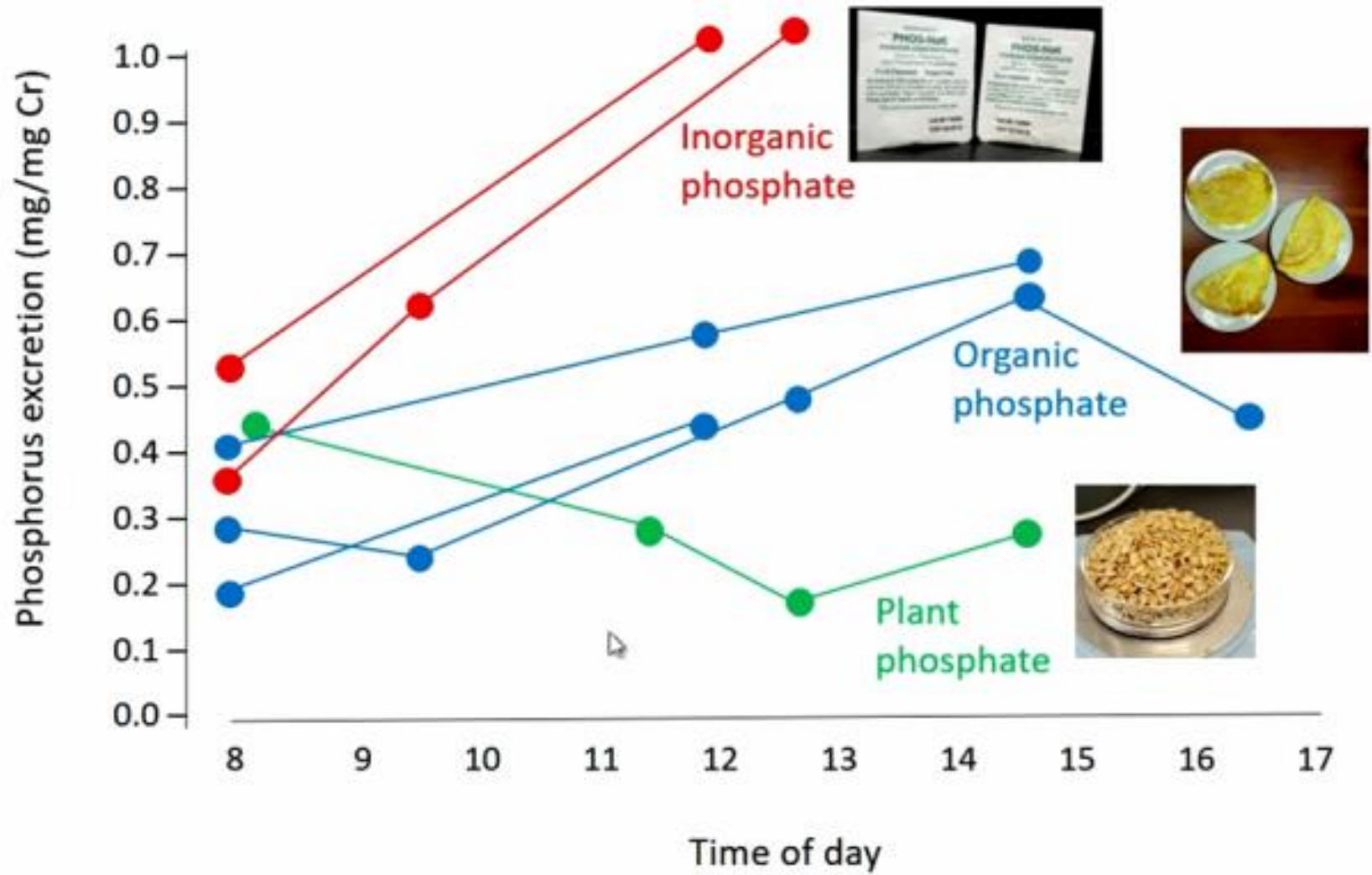


Organic



Inorganic





4. ΜΑΓΝΗΣΙΟ

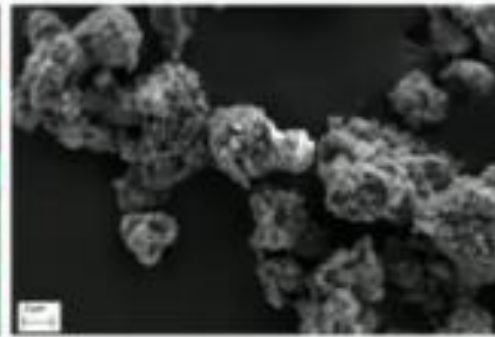
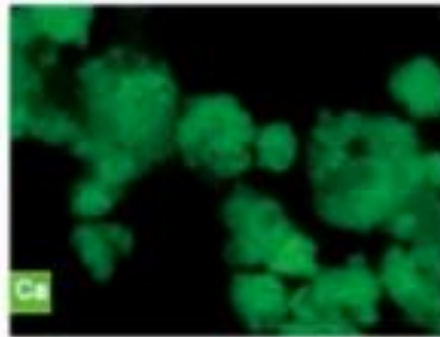
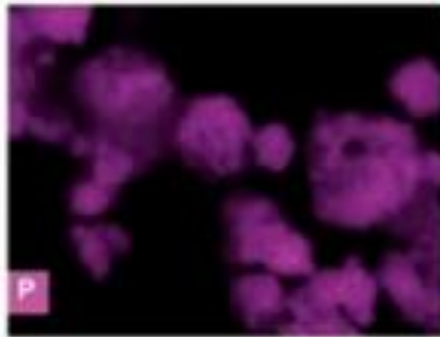
Μελέτη σε ασθενείς σε ΠΚ (95): Το υψηλό Mg αίματος σχετίζεται με χαμηλότερη επασβέστωση κοιλιακής αρτηρίας (EUROPD Dublin 2018)

Mg is a strong inhibitor of CaP crystallization in vitro

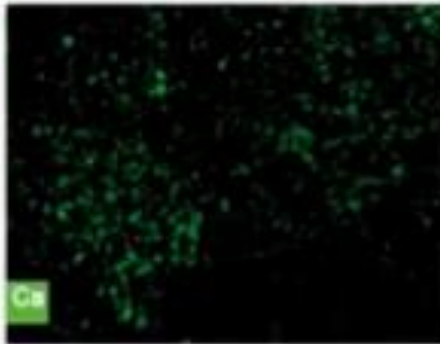
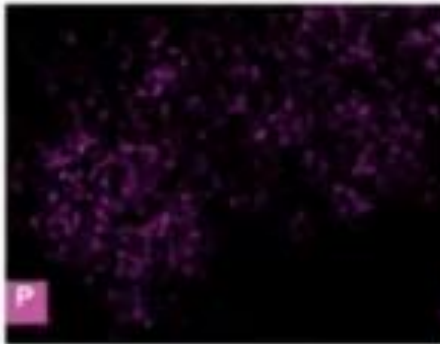
SEM-EDX mineral mapping

Hydroxyapatite

without Mg



+2mM Mg



Ter Braake AD. Sci Rep 2018



Protective Effects of Mg on the Cardiovascular Systems

Λείες μυικές ίνες

- Ca^{2+} antagonism
- \uparrow Vasodilation
- \downarrow PVR

Endothelium

- \uparrow NO, PGI_2
- \downarrow IL-1, IL-6, VCAM-1, PAI1
- \downarrow platelet adhesion/aggregation
- \downarrow free radical production

Ενδοθήλιο

Mg^{2+}

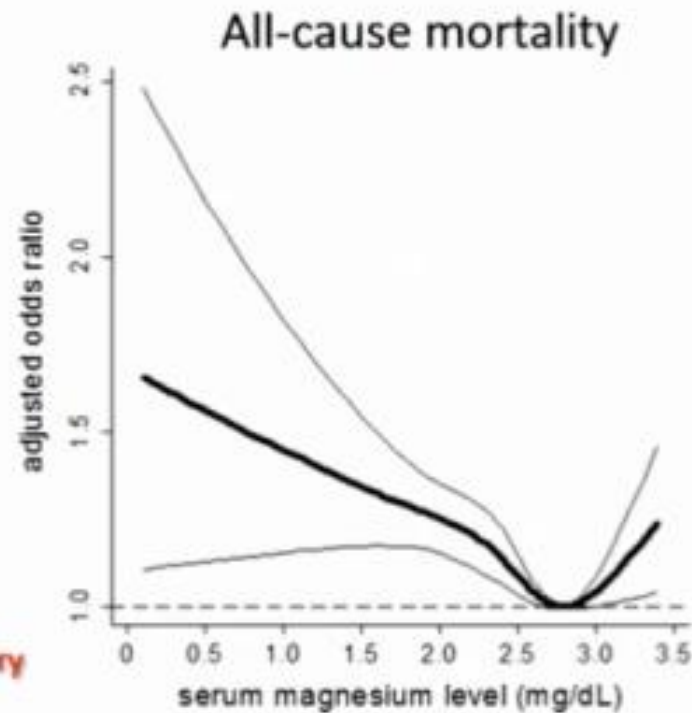


Μυοκάρδιο:
Αντι-ισχαιμική
Αντι-αρρυθμική
δράση



Το υψηλό Mg διαλύματος προστατεύει απο θνητότητα σε ΠΚ (95 ασθ) (EUROPD 2019)

Serum Mg levels and mortality risk in 142,555 HD patients



Adjusted for
age, gender, BMI, dialysis vintage, DM
Alb, CRP, Ca, IP, ALP, PTH, Hb, P-binders,
cinacalcet, vit.D analogue, PTx
past history of CVD and hip fracture

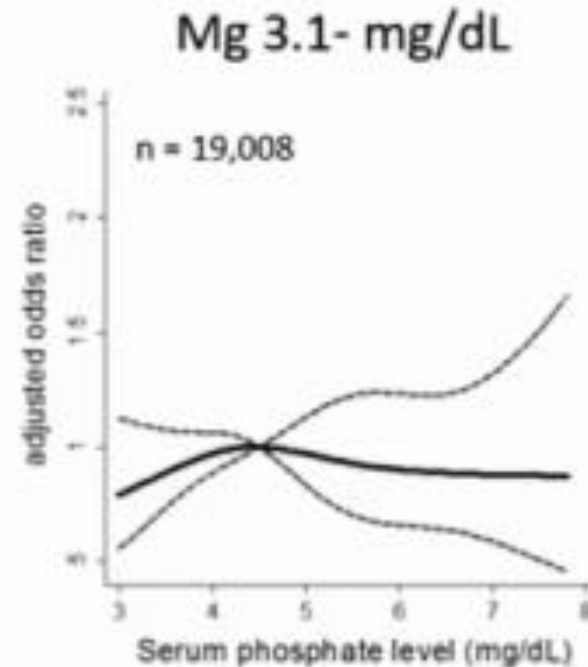
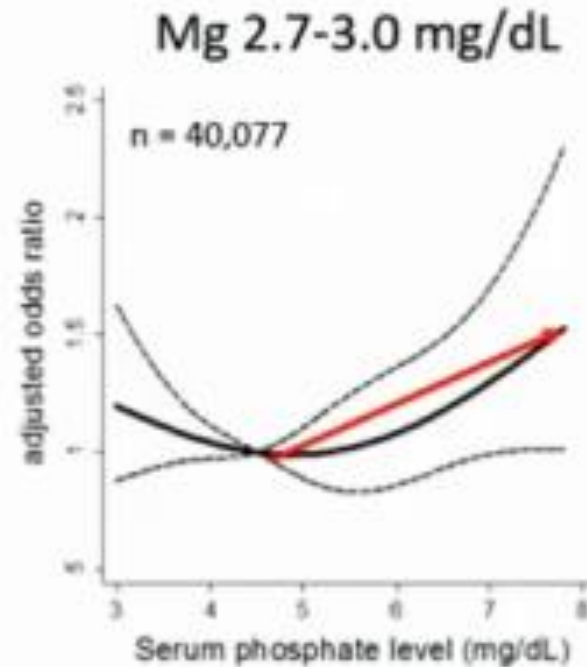
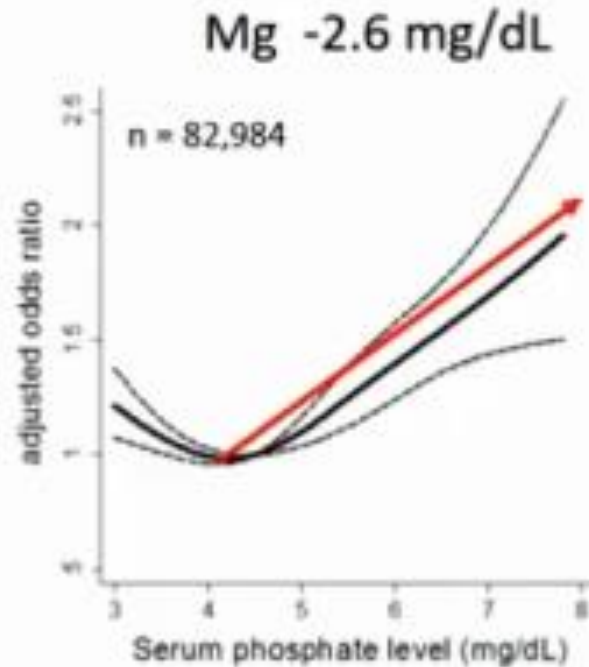
ISDT-Renal Data Registry

Sakaguchi Y. Kidney Int 2014



Mg modifies the association between P and CV mortality among 142,069 HD patients

Outcome: CV mortality



ISDT-Renal Data Registry

P-value for interaction (Mg x P) = 0.03

Sakaguchi Y. PLoS One 2014

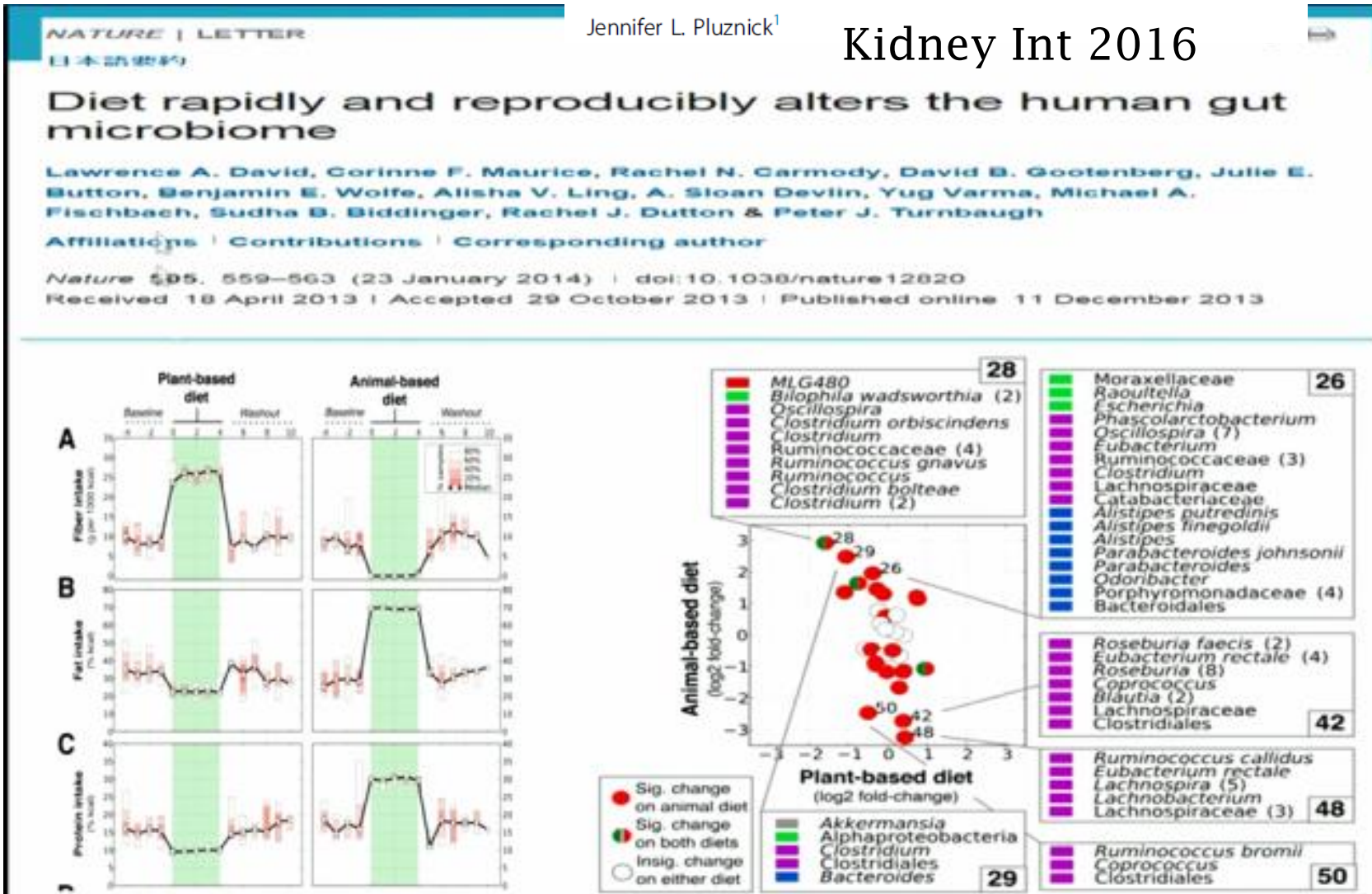


5. ΦΥΤΙΚΕΣ ΙΝΕΣ

Gut microbiota in renal physiology: focus on short-chain fatty acids and their receptors

Jennifer L. Pluznick¹

Kidney Int 2016



Bacterial members clusters with the three largest positive and negative fold-changes on the animal-based diet are also displayed and colored by phylum : Firmicutes (purple), Bacteroides (blue), Proteobacteria (green), Tenericutes (red), and Verrucomicrobia (gray).



RESEARCH

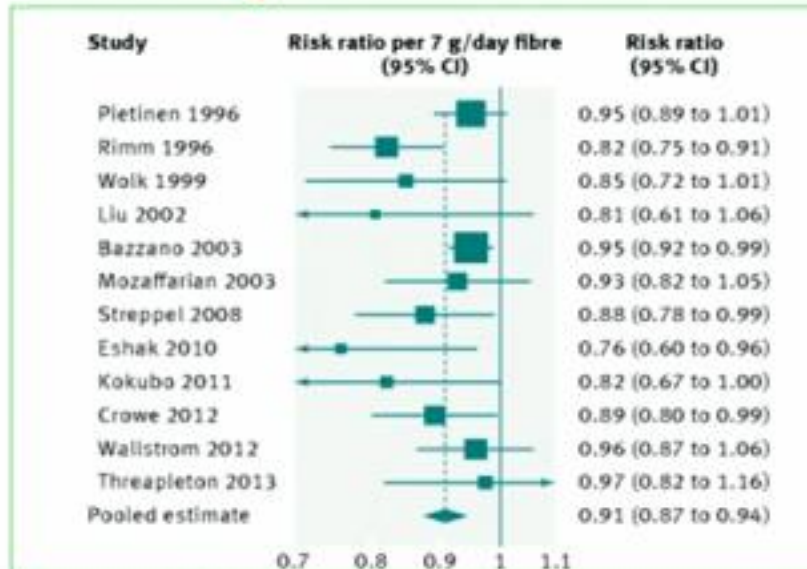
Dietary fibre intake and risk of cardiovascular disease: systematic review and meta-analysis

OPEN ACCESS

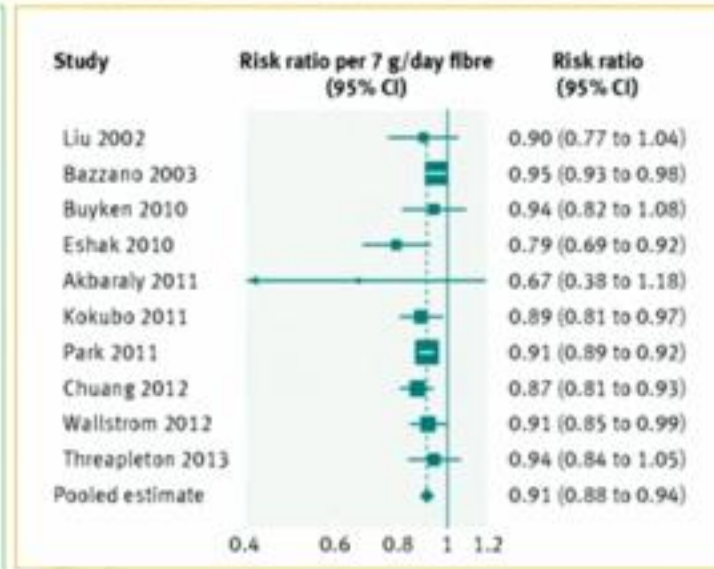
Diane E Threapleton *doctoral student*¹, Darren C Greenwood *senior lecturer in biostatistics*², Charlotte E L Evans *lecturer in nutritional epidemiology*¹, Christine L Cleghorn *research fellow*¹, Camilla Nykjaer *research assistant*¹, Charlotte Woodhead *research assistant*¹, Janet E Cade *professor of nutritional epidemiology group*¹, Christopher P Gale *associate professor of cardiovascular health sciences*², Victoria J Burley *senior lecturer in nutritional epidemiology*¹

¹Nutritional Epidemiology Group, School of Food Science and Nutrition, University of Leeds, Leeds LS2 9JT, UK; ²Centre for Epidemiology and Biostatistics, University of Leeds, UK

Coronary Heart Disease



Cardiovascular Disease



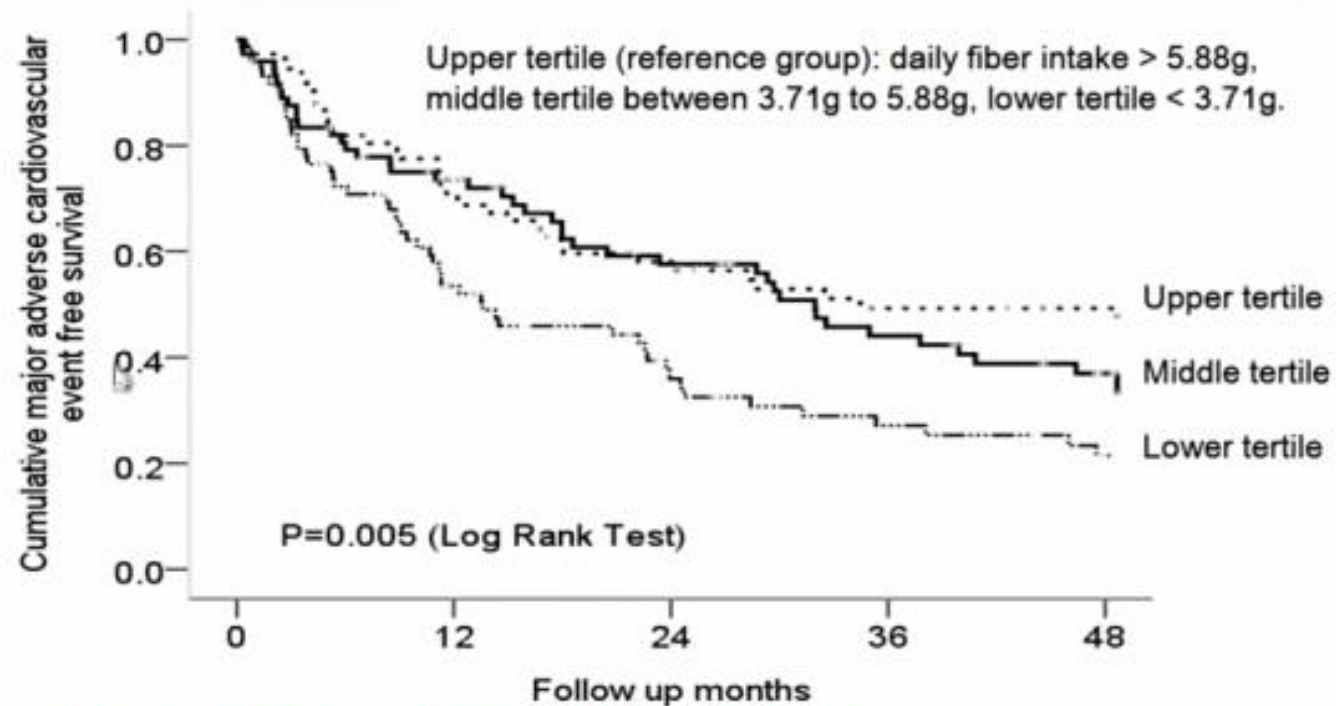
Dietary Intake of CAPD Compared to Controls

	Control subjects	CAPD patients	P-value
Dietary energy input (kcal/kg per day)	33.3 ± 10.4	24.7 ± 8.7	<0.0001
Protein (g/kg per day)	1.52 ± 0.56	1.10 ± 0.45	<0.0001
Fat (g/kg per day)	1.05 ± 0.44	0.82 ± 0.37	<0.0001
Carbohydrate (g/kg per day)	4.52 ± 1.42	3.25 ± 1.25	<0.0001
Fat-soluble vitamins			
- Vitamin A (mg)	4.5 ± 3.2	2.2 ± 2.0	<0.0001
- Dietary vitamin D (µg)	14.2 ± 19.9	9.4 ± 14.1	<0.0001
Water-soluble vitamins			
- Thiamin (mg)	0.96 ± 0.40	0.57 ± 0.30	<0.0001
- Riboflavin (mg)	1.03 ± 0.41	0.61 ± 0.29	<0.0001
- Niacin (mg)	16.6 ± 6.8	11.1 ± 5.8	<0.0001
- Ascorbic acid (mg)	152 ± 97	84 ± 56	<0.0001
- Pyridoxine (mg)	1.70 ± 0.65	1.01 ± 0.47	<0.0001
- Cobalamin (mg)	3.49 ± 3.59	1.32 ± 1.01	<0.0001
- Folic acid (µg)	198.15 ± 98.12	111.34 ± 58.72	<0.0001
Fiber (g)	8.21 ± 3.99	4.95 ± 2.53	<0.0001



Wang ISN Frontiers in Tokyo Feb 2018: Kidney Disease and Cardiovascular Disease

Major Adverse Cardiovascular Event-Free Survival in relation to Dietary Fiber Intake



**Adjusted hazard ratio in relation to dietary fiber intake
0.89 (95% CI, 0.81- 0.97), P=0.008**

Adjusting for age, gender, energy and protein intake, background AVD, DM, duration of dialysis, residual GFR, pulse pressure, serum albumin, CRP, interleukin-6, fetuin, cardiac troponin T, NT-pro-BNP and LV mass index.

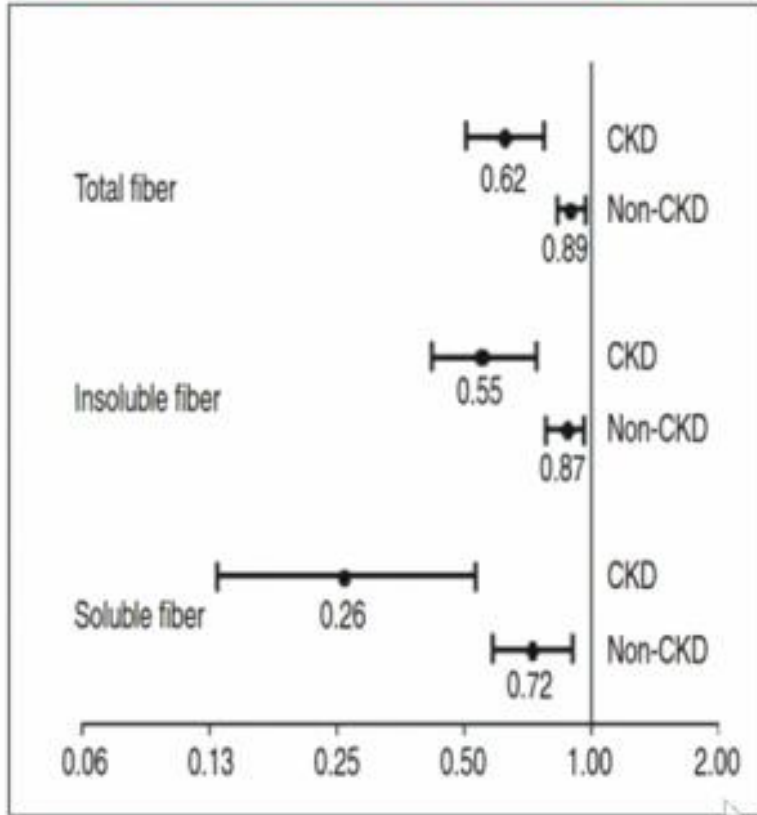
Wang AY, et al. Under submission



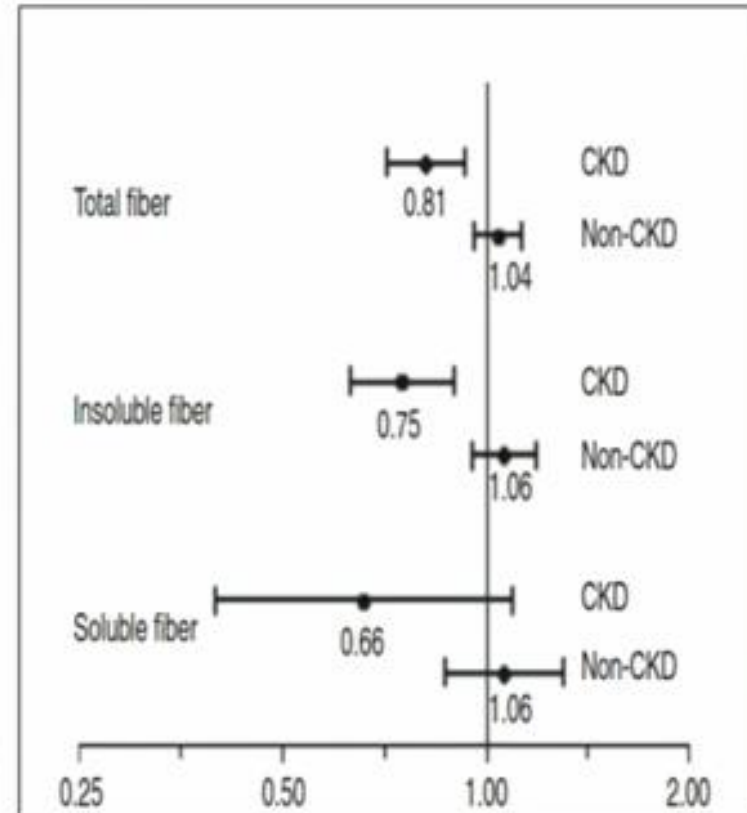
High dietary fiber intake is associated with decreased inflammation & all-cause mortality in CKD patients

Dietary Fiber and CRP $\geq 3\text{mg/dL}$

14,543 participants from NHANES database, 5.8% CKD



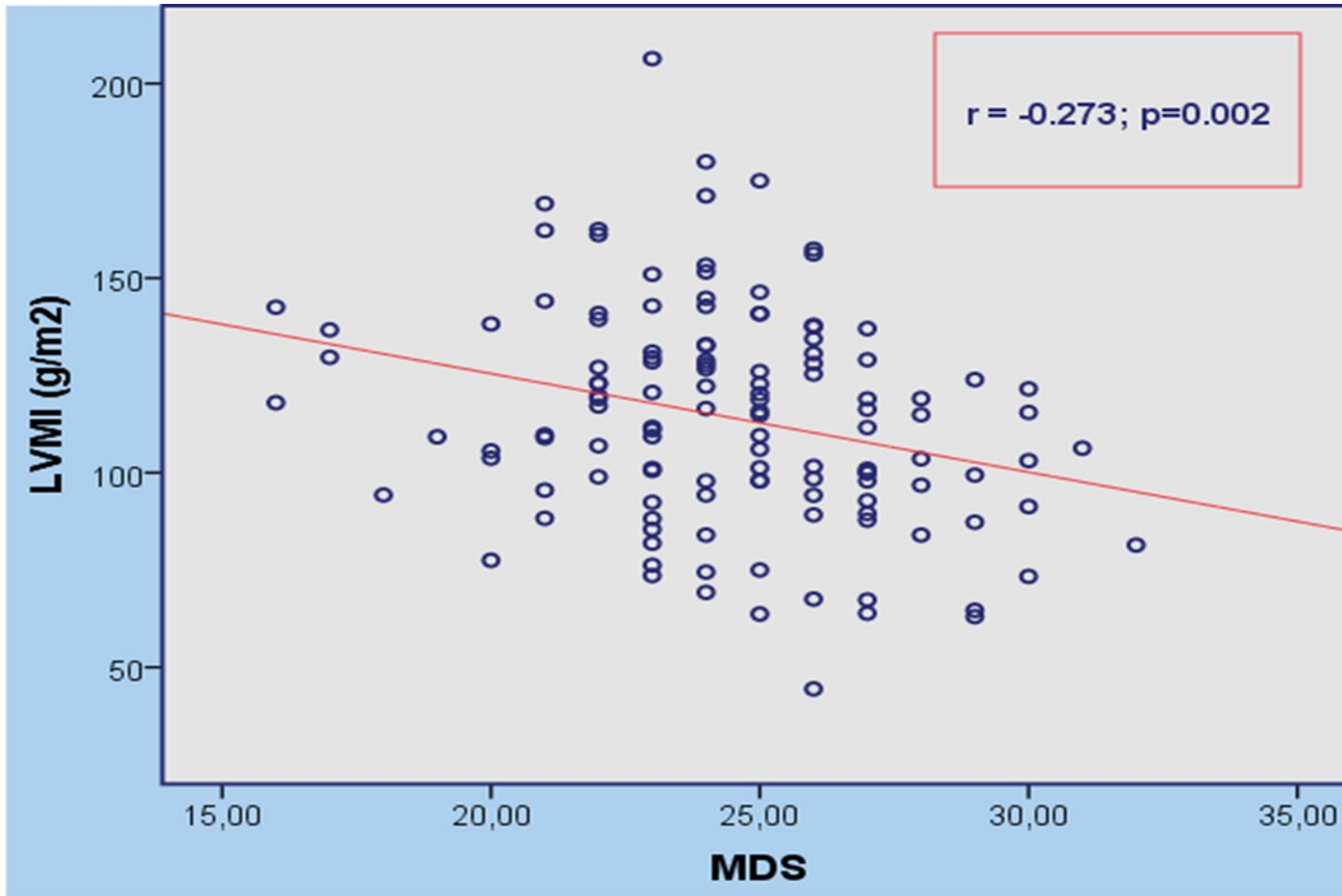
Dietary Fiber and All-Cause Mortality



Krishnamurthy VMR, et al. Kidney Int 2012



ADHERENCE TO **MEDITERRANEAN DIET** PREDICTS THE PRESENCE OF LEFT VENTRICULAR HYPERTROPHY (LVH) AND PATTERNS OF LV REMODELING IN PATIENTS WITH STAGE 5 CHRONIC KIDNEY DISEASE (CKD) ON DIALYSIS

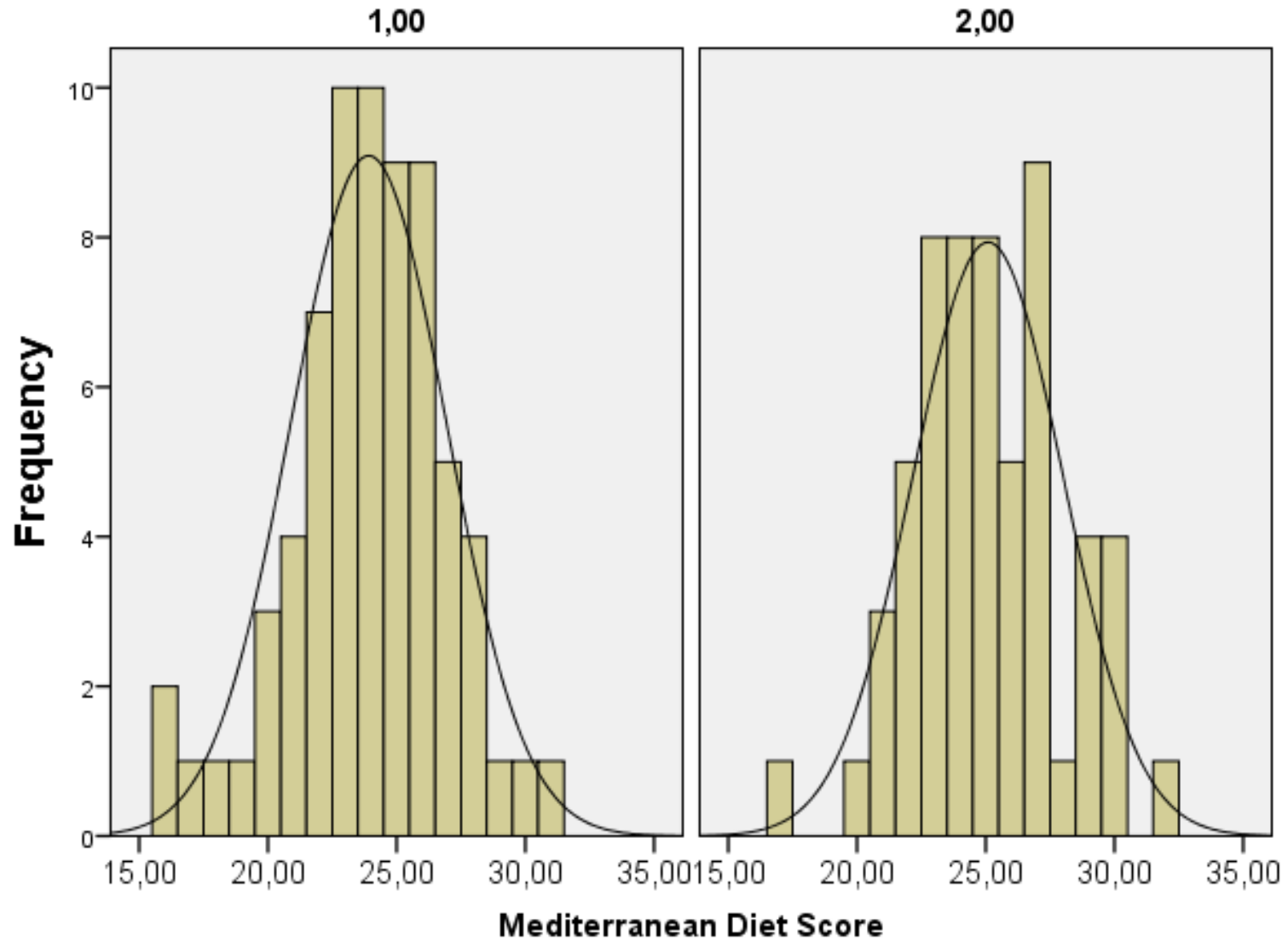


127 ασθενείς σε
AMK (69)/ΠΚ(58)

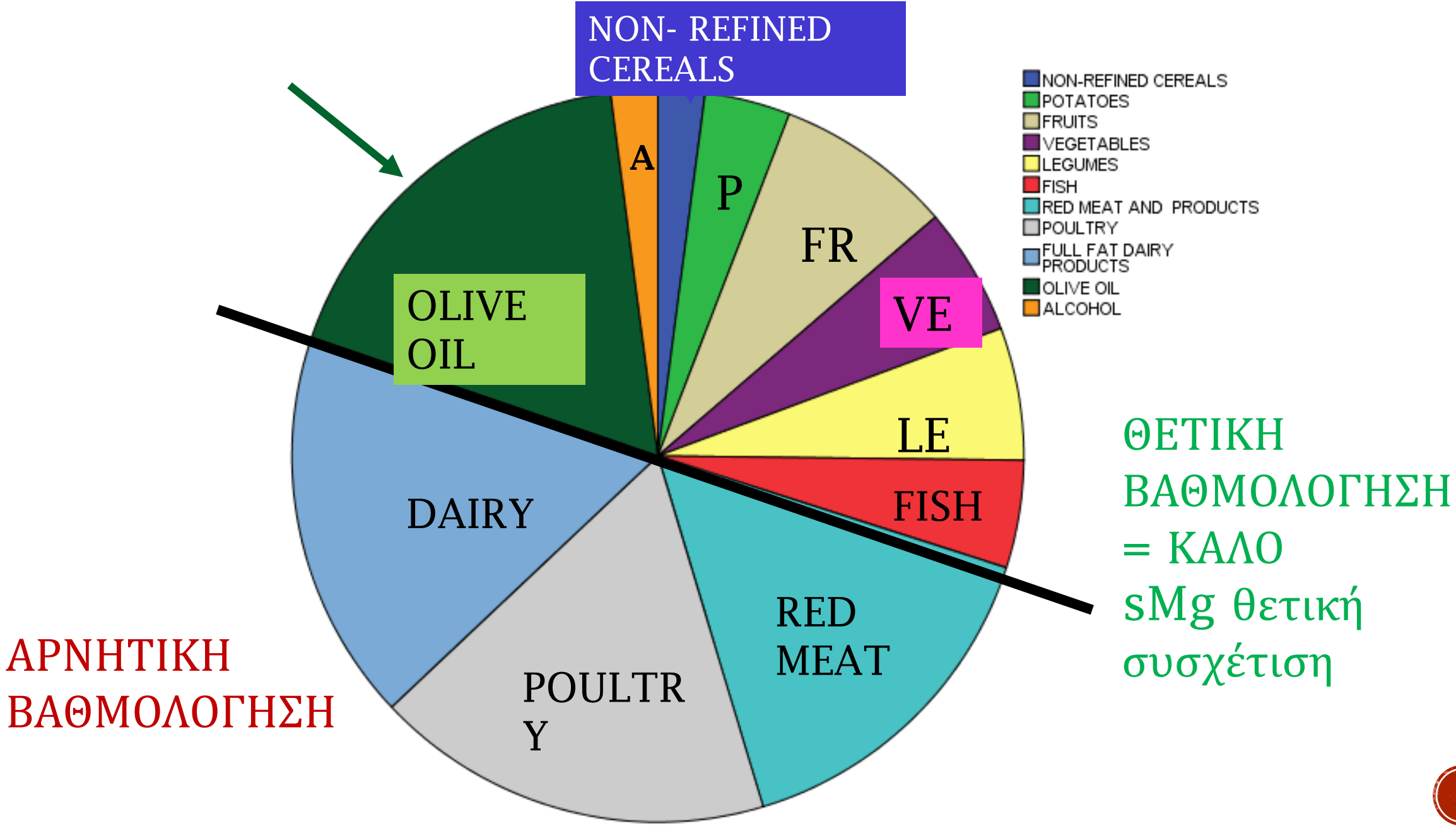
ASN 2018



1=HEMODIALYSIS (N=68), 2=PERITONEAL DIALYSIS (N=58)



Distribution of food categories of MDS in HD and PD patients



1. Η ΥΓΙΕΙΝΗ ΔΙΑΤΡΟΦΗ «ΕΠΙΒΑΛΛΕΤΑΙ» ΓΙΑ ΤΗΝ ΕΠΙΒΙΩΣΗ ΤΩΝ ΑΣΘΕΝΩΝ, ΤΟΥ ΣΥΣΤΗΜΑΤΟΣ ΥΓΕΙΑΣ ΚΑΙ ΤΟΥ ΠΛΑΝΗΤΗ

2. ΧΝΝ ΑΠΟΤΕΛΕΙ ΙΔΙΑΤΕΡΗ ΠΛΗΘΥΣΜΙΑΚΗ ΟΜΑΔΑ ΜΕ ΑΥΞΗΜΕΝΗ ΚΑΡΔΙΑΓΓΕΙΑΚΗ ΚΑΙ ΟΛΙΚΗ ΘΝΗΤΟΤΗΤΑ

3. Ο ΠΛΗΘΥΣΜΟΣ ΓΗΡΑΣΚΕΙ ΜΕ ΣΥΝ_ ΝΟΣΗΡΟΤΗΤΕΣ, ΙΔΙΑΙΤΕΡΩΣ ΣΤΗΝ ΧΝΝ

4. ΦΛΕΓΜΟΝΗ ΣΥΝΔΕΟΜΕΝΗ ΜΕ ΤΟ ΓΗΡΑΣ (inflammaging) ΚΑΤΑΛΥΤΗΣ ΣΤΗΝ ΠΑΘΟΦΥΣΙΟΛΟΓΙΑ

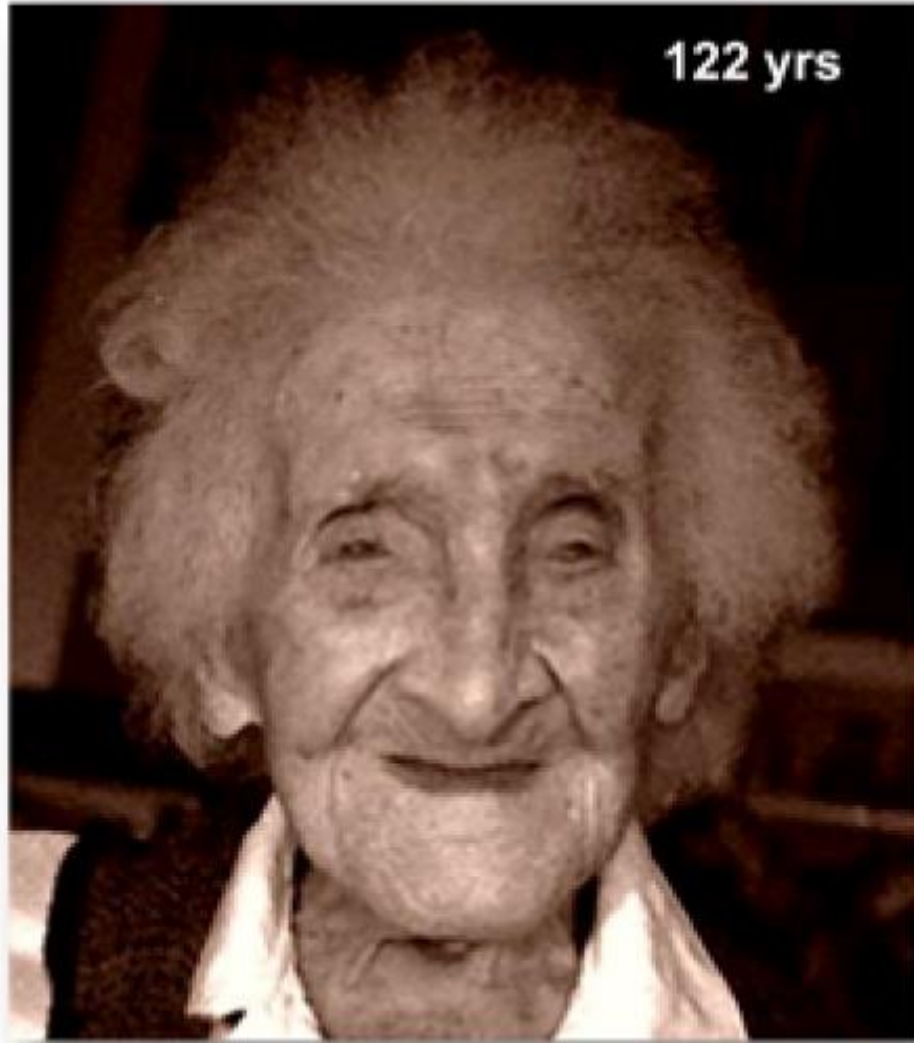
5. Η «ΑΝΤΙΓΗΡΑΝΤΙΚΗ» ΔΙΑΤΡΟΦΗ ΣΕ ΣΧΕΣΗ ΜΕ ΤΗΝ ΝΕΦΡΙΚΗ ΚΑΙ ΚΑΡΔΙΑΓΓΕΙΑΚΗ ΝΟΣΟ ΔΡΑ ΣΕ ΠΟΛΛΑΠΛΑ ΜΟΝΟΠΑΤΙΑ (ΛΙΠΙΔΙΑ, ΙΝΣΟΥΛΙΝΟΑΝΤΙΣΤΑΣΗ, ΕΝΤΕΡΙΚΟ ΜΙΚΡΟΒΙΩΜΑ, ΦΛΕΓΜΟΝΗ, ΕΠΙΓΕΝΩΜΑ)

6. ΚΑΘΕ ΑΣΘΕΝΗΣ ΔΙΑΦΟΡΕΤΙΚΟΣ (ΓΕΝΕΤΙΚΗ ΠΡΟΔΙΑΘΕΣΗ, ΣΥΝ ΝΟΣΗΡΟΤΗΤΕΣ)-ΠΡΟΣΟΧΗ ΣΤΗΝ ΕΡΜΗΝΕΙΑ ΜΕΛΕΤΩΝ

7. ΚΥΡΙΕΣ ΣΥΝΙΣΤΩΣΕΣ «ΑΝΤΙΓΗΡΑΝΤΙΚΗΣ ΔΙΑΤΡΟΦΗΣ»
**ΠΡΩΤΕΪΝΗ, ΟΞΙΝΟ ΦΟΡΤΙΟ, ΦΩΣΦΟΡΟ, ΜΑΓΝΗΣΙΟ, ΦΥΤΙΚΕΣ ΙΝΕΣ,
ΦΥΤΟΧΗΜΙΚΕΣ ΟΥΣΙΕΣ**



Longest Documented Lifespan in History



Jeanne Calment 1875-1997



Τα μυστικά της....

- Τένις, κολύμβηση, rollerskating
- Άρχισε ξιφασκία στα 85
- 1κιλό σοκολάτα /εβδομάδα, κρασί, λάδι στο φαγητό
- Σταμάτησε το κάπνισμα στα 117...

