

# NUTRITION UPDATES:

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What you **NEED** to know to keep your  
**BONES, GUT, & HEART Healthy!**



**Presented by: Julie Bender-Sibbio RDN, LD/N, cWC**  
*Certified Functional & Integrative Nutritionist*

**Celiac Support Group**

**March 18, 2017**

*Sustained Change* **JBS** *Abundant Living*  
Nutrition & Wellness

# Interpreting Nutrition Information

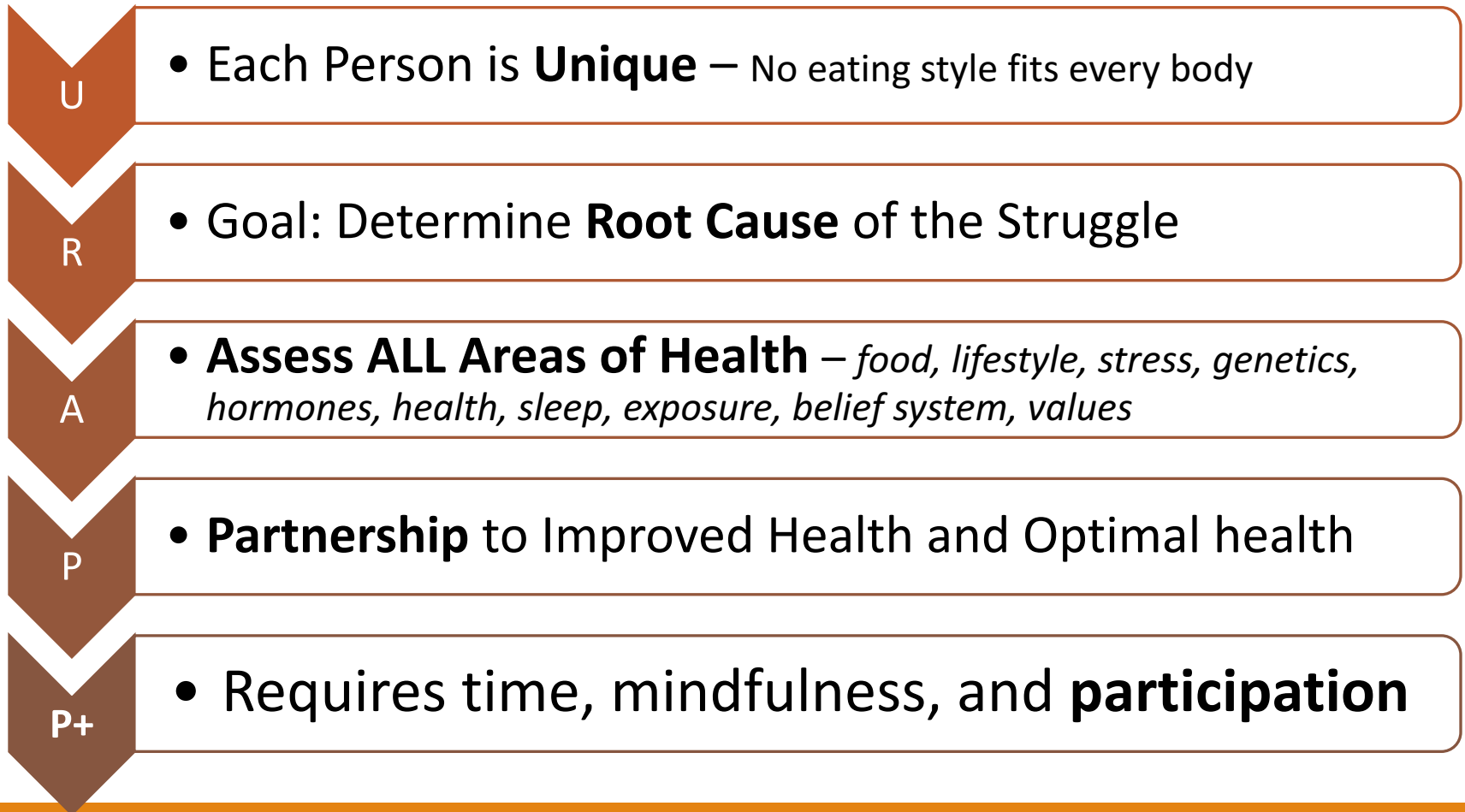
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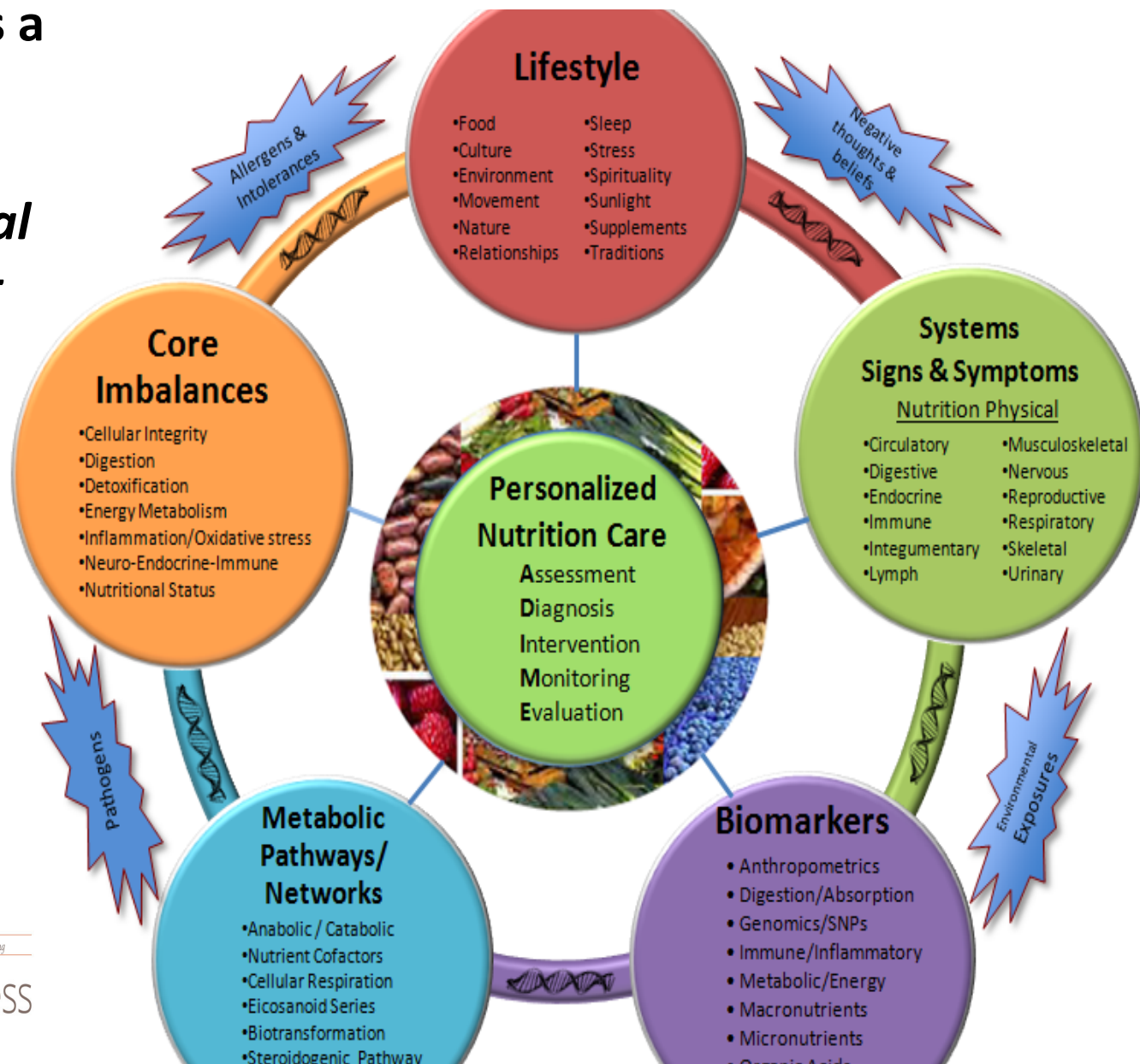
# Personalized Medicine/Nutrition

A functional and integrated nutrition approach

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# My work as a Certified Integrative & Functional Nutritionist involves:



# Today's Objective:

Educate, Empower, Encourage, & Engage!



- To share the most cutting edge research related to one essential nutrient that could impact your health...from head to toe
- Empower you to be your greatest health advocate
- To share my professional concerns with many outdated recommendations for bone health that could lead to health risk
- To demonstrate the importance of a individualized, comprehensive, and holistic approach to optimal health
- To have a lively and informative discussion!

Sustained Change **JBS** Abundant Living  
Nutrition & Wellness

*Answer questions related nutrition, celiac disease, gut health and more....*

# What Impacts Your Bone & Heart Health?

Steps to care for your bones & heart?



How is this tied to your gut?



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CALCIUM      VITAMIN D      WEIGHT TRAINING  
SUPPLEMENTS      BONE DENSITY

# 2017 Survey from ConsumerLabs

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## TOP 5 Most Popular Supplements:

1. ***Vitamin D***
2. Fish oil
3. CoQ10
4. Probiotics
5. Multivitamins

## Next 5 popular:

6. *B-vitamins*
7. *Magnesium*
8. *Curcumin/turmeric*
9. *Calcium*
10. *Vitamin C*

*\*\*What does this imply?*

# Osteoporosis – a new epidemic?

## FACTS:

- 1/3 women over the age of 50 experience osteoporotic fractures
- Osteoporosis-related fractures are a major public health burden, estimated at **1.6 million fractures per year**
- Bone health is more than calcium & Vitamin D
- Nutrition supplementation can cause harm

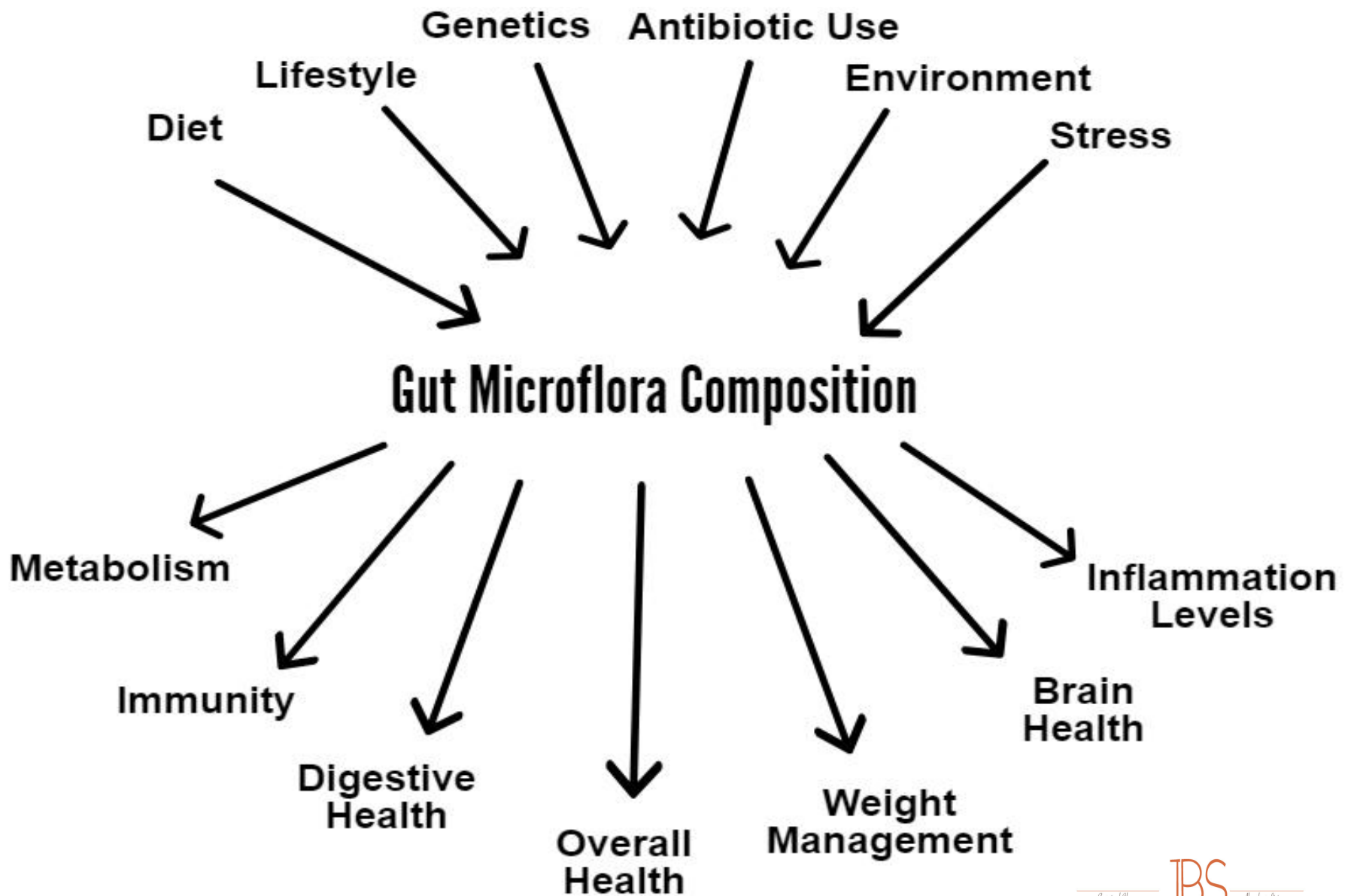
*“We must understand the biochemistry behind nutrients, a persons health history/genetics, dietary intake before we can responsibly recommend supplementation and steps to achieve optimal bone, heart, and gut health” ~ Julie*



# An Unhealthy Gut Will Impact Bone!

- Malabsorptive gut issues are unable to ***absorb key nutrients*** for bone health (ie. Calcium, Vitamin D, Magnesium, vitamin K)
- The gut is the only place that ***manufactures K2*** essential for bone health
- If you don't have a health gut flora (microbiome) you are unable to effectively:
  - ***Synthesize Vitamins K, B9 (folic acid), and B12***
  - ***Reduce inflammation***
  - ***Effectively detoxify the body***
  - ***Boost immune system***
  - ***Promote healthy digestion***
- Chronic inflammation = bone loss (Leaky gut, dysbiosis, SIBO)
  - ***> 95% of the inflammation in the body may come from the gut.***

STUDY: Probiotics may help with bone loss!



# Calcium

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- Its role and purpose
- Current recommendations
- Impact of age, diet, and medications on calcium absorption
- What is the best source? How well is it absorbed?
- Concerns, risks, and benefits
- Are supplements necessary if our bones are not improving?

**SOURCES:** Dairy, salmon, sardines, kale, broccoli, collards, mustard greens, turnip greens, tofu, Chinese cabbage, sesame seeds, blackstrap molasses, calcium-fortified products



Time Magazine 2005

## Do you know your calcium score?

- Is cholesterol really a good predictor?
  - Only 50% of people who have ↑ cholesterol develop heart disease.
  - C-reactive protein and homocysteine
  - *Calcium score shows calcification which is #1 risk factor for CAD.*
- 
- ✓ Excessive calcium can build up in the vessels and stiffen them, laying the foundation for heart disease.
  - ✓ Studies show that at ANY age if you have a higher vascular calcium level you are at risk

*WHY are we finding calcium in arteries?*



Studied: Calcium supplementation and impact on cardiovascular disease.

*Conclusion: "reassess the role of calcium for the management of bone loss/osteoporosis"*

BMJ

RESEARCH

2010

### Effect of calcium supplements on risk of myocardial infarction and cardiovascular events: meta-analysis

Mark J Boland, senior research fellow,<sup>1</sup> Alison Avenell, clinical senior lecturer,<sup>2</sup> John A Baron, professor,<sup>3</sup> Andrew Grey, associate professor,<sup>1</sup> Graeme S MacLennan, senior research fellow,<sup>2</sup> Greg D Gamble, research fellow,<sup>1</sup> Ian R Reid, professor<sup>1</sup>

<sup>1</sup>Department of Medicine, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92 019, Auckland 1042, New Zealand

<sup>2</sup>Health Services Research Unit, University of Aberdeen

<sup>3</sup>Department of Medicine, and Department of Community and Family Medicine, Fairbanks Medical School, FM, USA  
Correspondence to: I R Reid, [ireid@acth.auckland.ac.nz](mailto:ireid@acth.auckland.ac.nz)

#### ABSTRACT

**Objective** To investigate whether calcium supplements increase the risk of cardiovascular events.  
**Design** Patient level and trial level meta-analyses.  
**Data sources** Medline, Embase, and Cochrane Central Register of Controlled Trials (1966-March 2010), reference lists of meta-analyses of calcium supplements, and two clinical trial registries. Initial searches were carried out in November 2007, with electronic database searches repeated in March 2010.  
**Study selection** Eligible studies were randomised,

#### INTRODUCTION

Osteoporosis is a major cause of morbidity and mortality in older people.<sup>1</sup> Calcium supplements marginally reduce the risk of fractures,<sup>2,3</sup> and recent guidelines recommend adequate calcium intake as an integral part of the prevention or treatment of osteoporosis.<sup>4,5</sup> Consequently, calcium supplements are commonly used by people over the age of 50. Observational studies suggest that high calcium intake might protect against vascular disease,<sup>6,7</sup> and the findings are consistent with those of interventional studies of calcium sup-

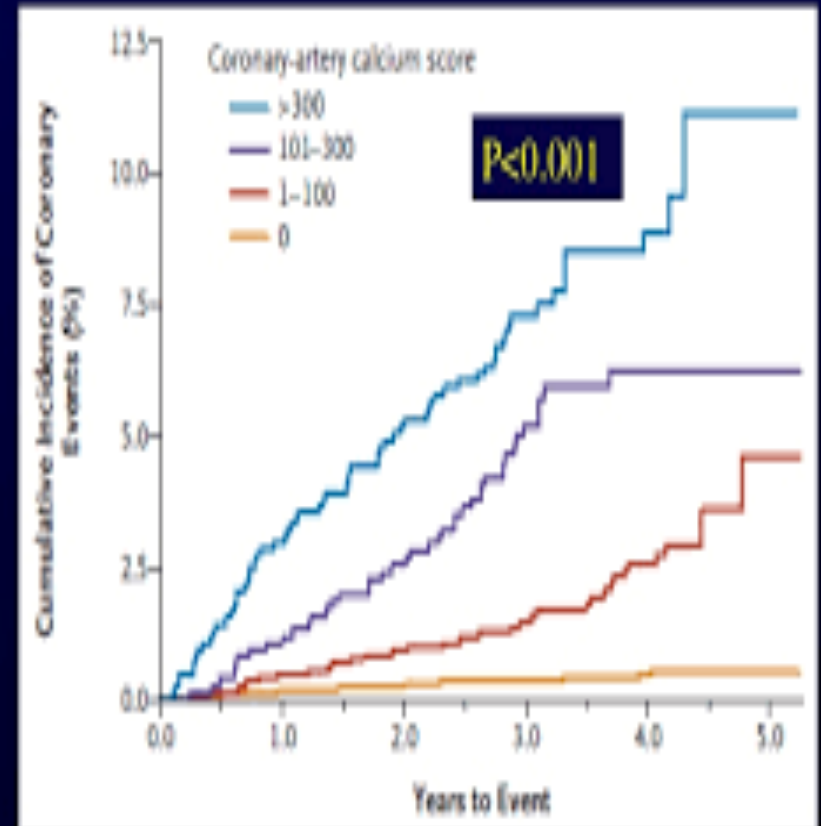
# Journal of the American Heart Association – *October 2016*

**NEW STUDY:** “Calcium Intake From Diet and Supplements and the Risk of Coronary Artery Calcification and its Progression Among Older Adults: 10-year Follow-up of the MESA Study”

## **Findings:**

\* 22% increase in likelihood of developing heart disease over the decade in people who used calcium supplements.

## Calcium Score & Any Coronary Events: MESA Study NEJM 2008;358:1336-45

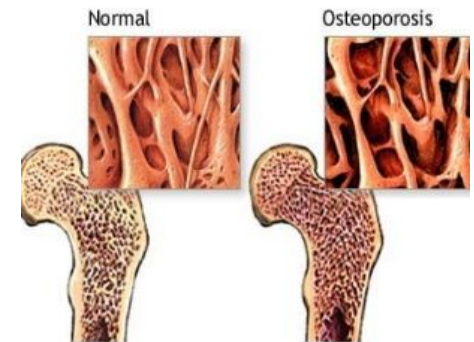


# Welcome Vitamin K2



- **Vitamin K1** (Phylloquinone) can be found in leafy green vegetables, such as spinach, kale, collards, and broccoli. The greener the plant, the higher the vitamin K content.
- **Vitamin K2-7** (Menaquinone), is the form produced by *intestinal bacteria* and also derived from putrefied fish meal, natto, fermented cheeses.
- Not found in our Western culture

**2 FORMS (K2-4 and K2-7)**



# Vitamin K1 and K2 Comparison

	Vitamin K1	Vitamin K2
Forms	Phylloquinone	Menaquinone ( <b>MK-7</b> )
Main Sources	Dark green veggies	Natto or fermented cheeses ( <i>not found in US or Western culture</i> )
Half life time	About 1-2 hours	About 3 days
Main uptake in tissues	Hepatic (liver) tissue	Bones and arteries
Role	Clotting Factors	Activation of osteocalcin

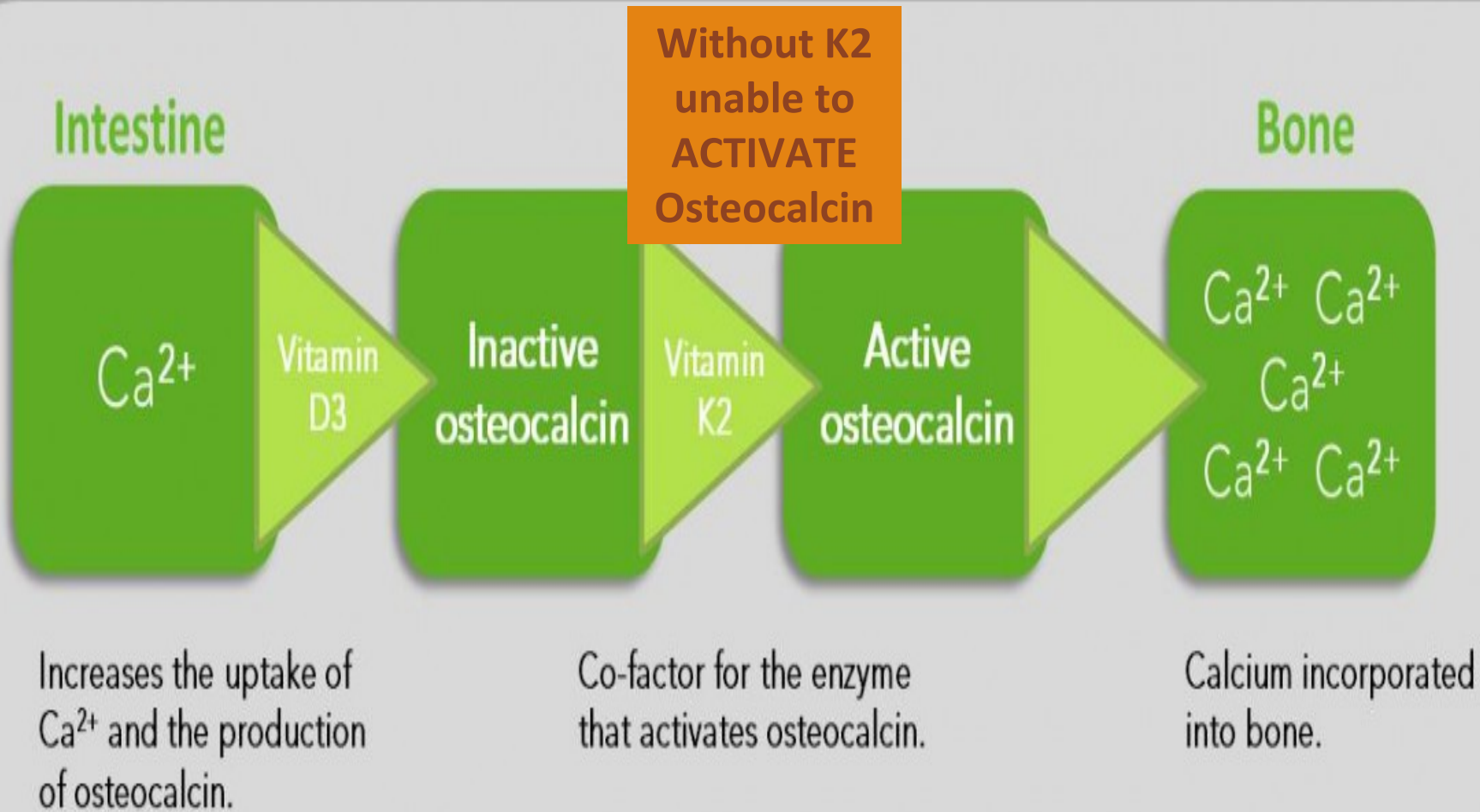
# How Vitamin K uptake works?

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- Liver takes 1<sup>st</sup> what it needs
- Remaining K is left for other tissues
- K-deficiency occurs outside the liver within tissue
- Effects of Vitamin K deficiency is most pronounced in bone, cartilage, and arteries.



*Why and how??*



Bones thrive only with the trifecta – **calcium, Vitamin D3, and K2-7**  
*(Plus other essential nutrients)*

# What can go wrong?

1. Deficiency in Vitamin D3 = unable to release osteocalcin
2. Deficiency of Vitamin K2 = unable to activate “active” osteocalcin
  - Osteocalcin is dependent on Vit. K2 to create bone matrix upon which calcium crystallizes – it is the GLUE that holds calcium in the bone
  - Vitamin K2 activates osteocalcin through process called “carboxylation”
  - IF vitamin K2 is not present = “undercarboxylated osteocalcin” (ucOC) = calcium is not able to lay down on bone – circulates through body.....

## RESEARCH ALERT!!

**“High ucOC demonstrated a 6-fold increase in fracture risk”**

*Szulc et al.*

# Osteocalcin, BMD, Fracture Rate

## The RESEARCH

Szulc et al: “ucOC inversely correlated for BMD”

Knapen et al: “ucOC inversely correlated with BMD”

Vergnaud et al: “serum ucOC predicts hip fracture”

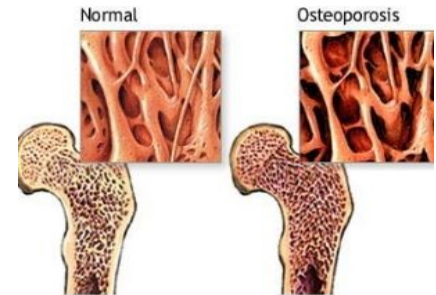


### **Natural Vitamin K2 at MK-7 from Natto is Effective**

- ❖ 2001- High consumption of MK-7 levels from natto resulted in better levels of activated osteocalcin and reduced fracture
- ❖ 2006 – natto consumption helps prevent the development of osteoporosis
- ❖ 2008 – *Yaegashi demonstrated that better vitamin K status attributed to Natto resulted in the reduction of hip fracture risk*

# What else can Vitamin K2-7 for your bones?

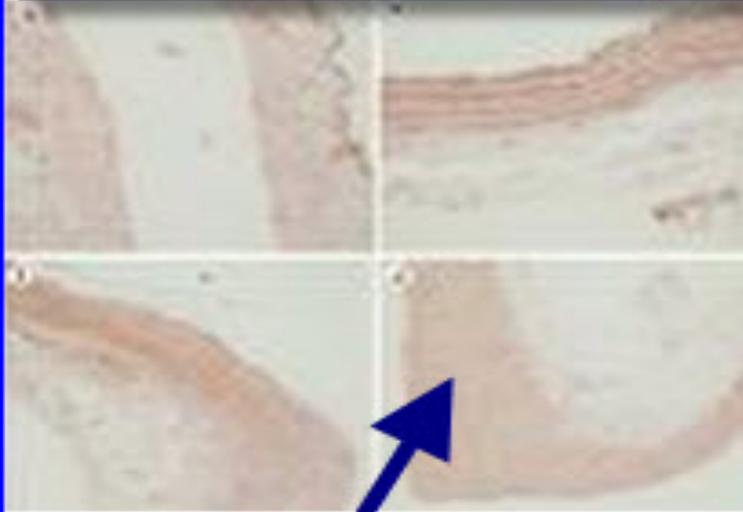
1. Estrogen depletion = bone loss due to bone reabsorption.  
(releases calcium from the bone = bone loss in menopause) **Vitamin K2-7** has been found to **INHIBIT** (prevent) reabsorption of bone!
2. With adequate nutrients and K2-7 it can help:
  - Slow down loss of bone
  - Rebuild bone



## Concerns with Hypervitaminosis D:

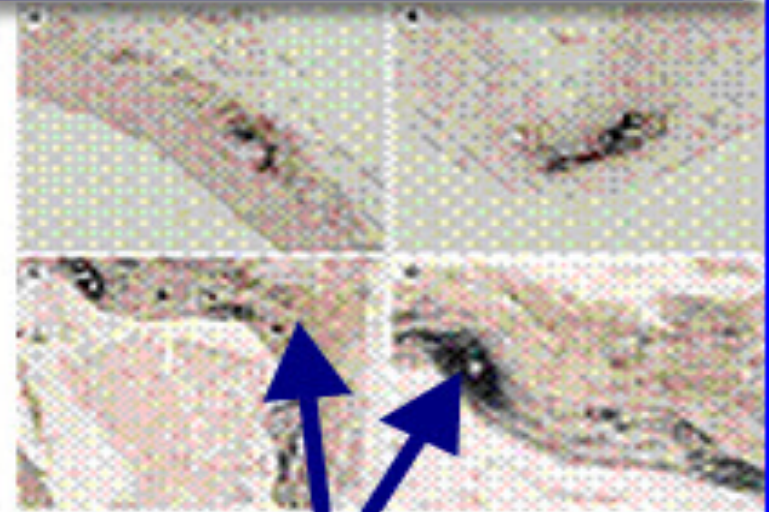
1. Increase calcification all over the body if D is releasing osteocalcin – extra Osteocalcin is using up all the Vitamin K2 for activation of Vitamin D!

## Arterial Health: Hardening of the Arteries



**Sufficient Vitamin K**

No calcium deposition  
Arteries are more  
elastic and soft



**Lack of Vitamin K**

Calcium deposition  
Arteries are more **STIFF**  
and **HARD**

# Vitamin K and Vascular Health

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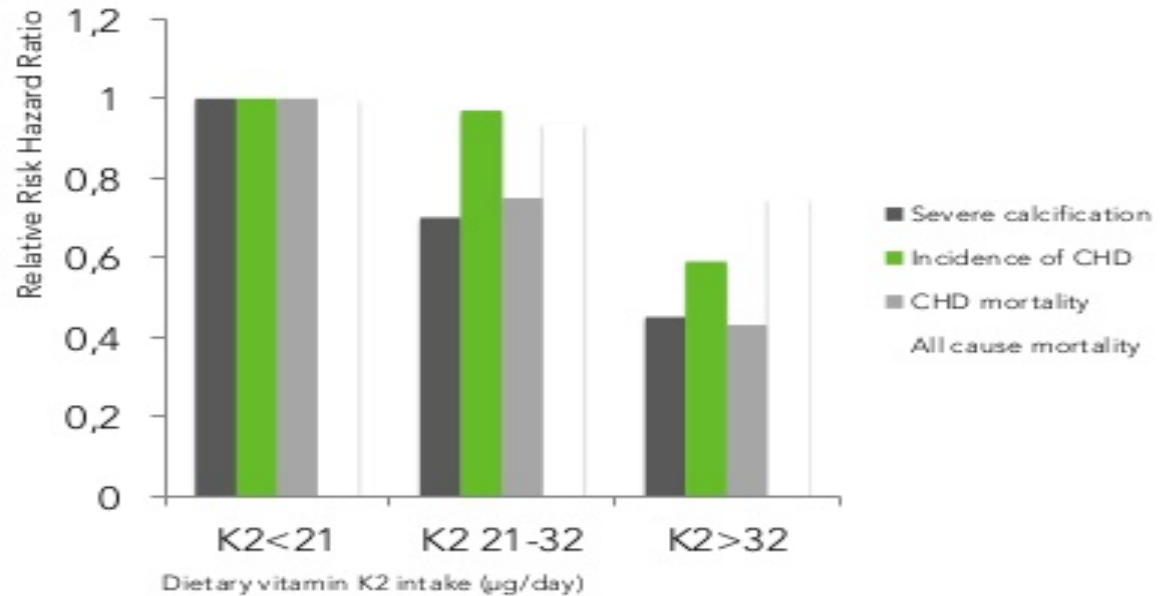


## A high menaquinone intake reduces the incidence of coronary heart disease

G.C.M. Gast<sup>a,b,\*</sup>, N.M. de Roos<sup>a</sup>, I. Sluijs<sup>a,b</sup>, M.L. Bots<sup>a</sup>, J.W.J. Beulens<sup>a</sup>,  
J.M. Geleijnse<sup>b</sup>, J.C. Witteman<sup>c</sup>, D.E. Grobbee<sup>a</sup>,  
P.H.M. Peeters<sup>a</sup>, Y.T. van der Schouw<sup>a</sup>

# *The Rotterdam study*

4807 Dutch people followed 10 years



**Objective:** To study the association of dietary intake of K1 and K2 with aortic calcification, CVD, and total death.

# K2 and Cardiovascular Disease

## Results of Study:

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### CONCLUSIONS:

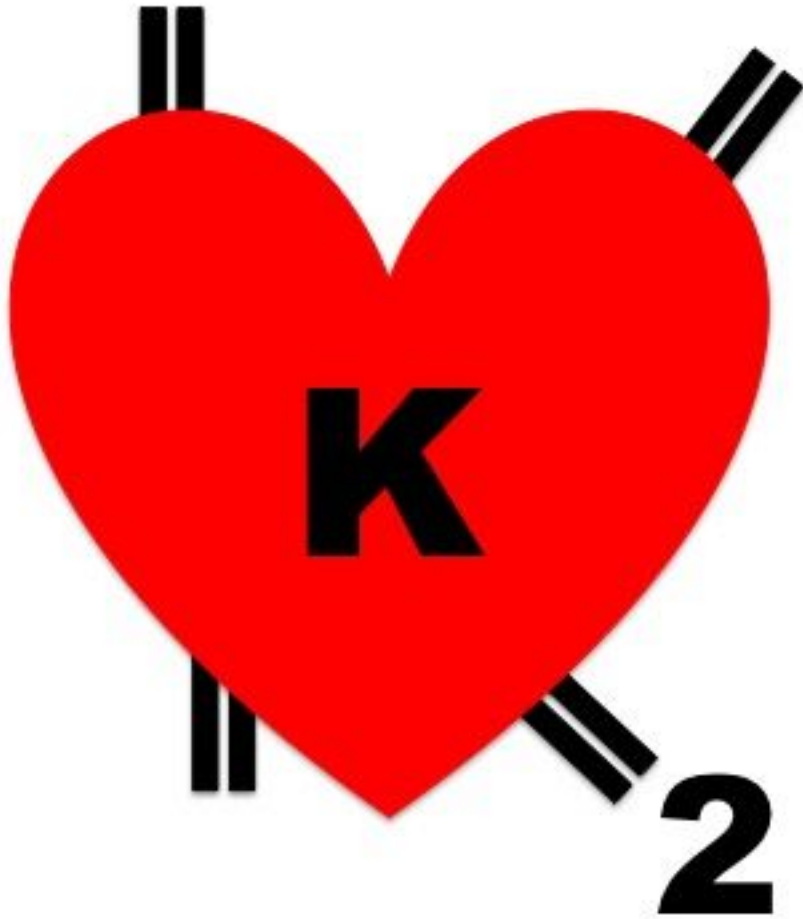
When consuming daily **45ug dietary K2-7** you have:

- **50% reduction of arterial calcification**
- **50% reduction of cardiovascular health**
- **25% reduction of all cause mortality**

As compared to low intake of dietary K2

There was NO correlation with vitamin K-1 in this study!





**Cardiovascular  
Health\***



**Bone & Soft Tissue  
Health\***



**Healthy Brain  
Function\***



**Arterial  
Calcification\***



# K2-7 may become the most important AntiAging Nutrient?

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Aging is a factor of mitochondrial health, cardiac output, and vascular health.

- Removes calcium from arteries (only thing natural!)
- Slows down progression of diabetes
- Every cell in the body gets more nutrients and blood supply
- Increases mitochondrial function, so each cell can produce more energy and we can regenerate dying cells
- Prevents aging related tissue degeneration

**It is proposed that likely ALL of us may be sub-clinically deficient in this key nutrient!**

# How much is required?

\* 100-300mcg is supported in the literature

- There is NO toxicity
- Take in conjunction with co-factors for optimal absorption
- Avoid Chinese source of K2-7
- Prescription is offered in Italy, Poland, India

ONLY Product known on the Market is **MegaQUINONE K-7**

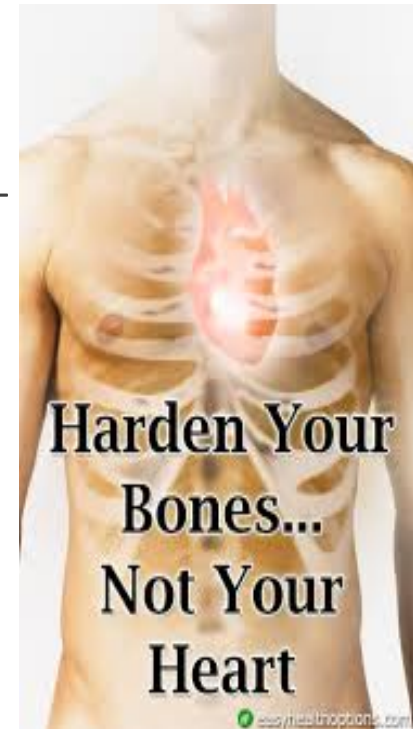
- *ONLY pharmaceutical grade with natural vitamin K2-7 with 320mg*
- *ONLY supplement that contains chelated minerals that are essential K2-cofactors*
- *Soy, allergen, dairy, gluten, and non-GMO (Kosher / Vegan)*
- *NOT recommended for those on blood thinning medications*



# Observations, Conclusions, Considerations:

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- Vitamin K2-7: missing nutrient in bone & heart health!?
  - Consider in the prevention and treatment
  - May go much further than this - overall health!
- Caution should be used with calcium supplementation - food sources are preferred
  - It is estimated that average person in US consumes ~ 700mg calcium day
  - Food food labels
  - If you DO take calcium, do so in divided doses in a well-assimilated form
  - Avoid foods that impact absorption of calcium when taking supplements
- Vitamin D levels should be monitored annually and addressed to determine cause and proper treatment.



# Observations, Conclusions, Considerations:

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- Comprehensive nutrition plan must be tailored to bone health
  - essential nutrients (*protein, calcium, Vitamin D, magnesium, Vitamin A, K, boron*) and supporting nutrients (*B6, B12, folic acid, Vitamin C*)
- Understand that just because you have good BMD that it is not always a predictor of strong healthy bones from the inside.
- Discuss with physician the impact of medication on nutrient absorption and utilization (Especially PPI's, chronic use of antibiotics.)
- Exercise and Lifestyle habits
- EACH person is unique.

*“Osteoporosis: an imbalance in the body’s chemistry. Bone Loss is a direct correlation with your biochemistry”*

# Julie's Research Based Protocol for Osteoporosis

- 1. Diet:** Avoid refined sugar. Avoid excessive intake of caffeine, cola beverages, and sodium chloride. Test for celiac disease in patients with unexplained osteoporosis. Consider investigating food allergies in selected cases. *Consider eating dried plums*
- 2. Environment:** Attempt to minimize exposure to aluminum, lead, cadmium, and tin.
- 3. Calcium:** 600–1,200 mg/day. (preferably non-dairy sources for most – supplements as indicated)
- 4. Vitamin D:** 800-2000IU/day
- 5. Magnesium:** 300–600 mg/day
- 6. Vitamin K:** 100–1,000  $\mu$ g/day of vitamin K<sub>1</sub>. *Vitamin K<sub>2-7</sub> at a dose of 100-300 mg/day* . (Menaquinone-4 at a dose of 45 mg/day may be considered in selected cases.)

# Julie's Research Based Protocol for Osteoporosis

7. **Probiotic and prebiotic foods** – optimize gut health.

8. **Additional supportive nutrients** (daily doses in parentheses): **vitamin B<sub>6</sub>** (10–25 mg), **folic acid** (0.4–5.0 mg); **vitamin B<sub>12</sub>** (20–1000 µg), **vitamin C** (100–500 mg), **zinc** (10–30 mg), **copper** (1–3 mg), **manganese** (3–20 mg), **boron** (1–3 mg), **silicon** (1–5 mg), **strontium** (2–6 mg).

9. Strontium: 170–680 mg/day only selected cases. Consider a dosage reduction or stopping after 1 yr. Based on new research may not be indicated.

10. Hormone-replacement therapy: DHEA, estrogens, progesterone, and testosterone (individually or in various combinations) (per MD)

Gaby, Alan R., M.D.. *Nutritional Medicine (Second Edition)*. Alan R. Gaby, M.D., 04/2017. VitalBook file.

\*Over 300 references available upon request.

# Food for Thought.....

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**“Achieving Optimal Health is a complex interplay between your “one of a kind genes”, dietary intake, biochemistry, metabolism, hormones, emotions, exercise, stress, sleep, exposure to toxins, inflammation, and belief system.”**



**"FOOD HAS THE POWER TO HEAL US.  
IT IS THE MOST POTENT TOOL WE  
HAVE TO HELP PREVENT AND TREAT  
MANY OF OUR CHRONIC DISEASES."**

*DR. MARK HYMAN*





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***THE WINNER IS.....***