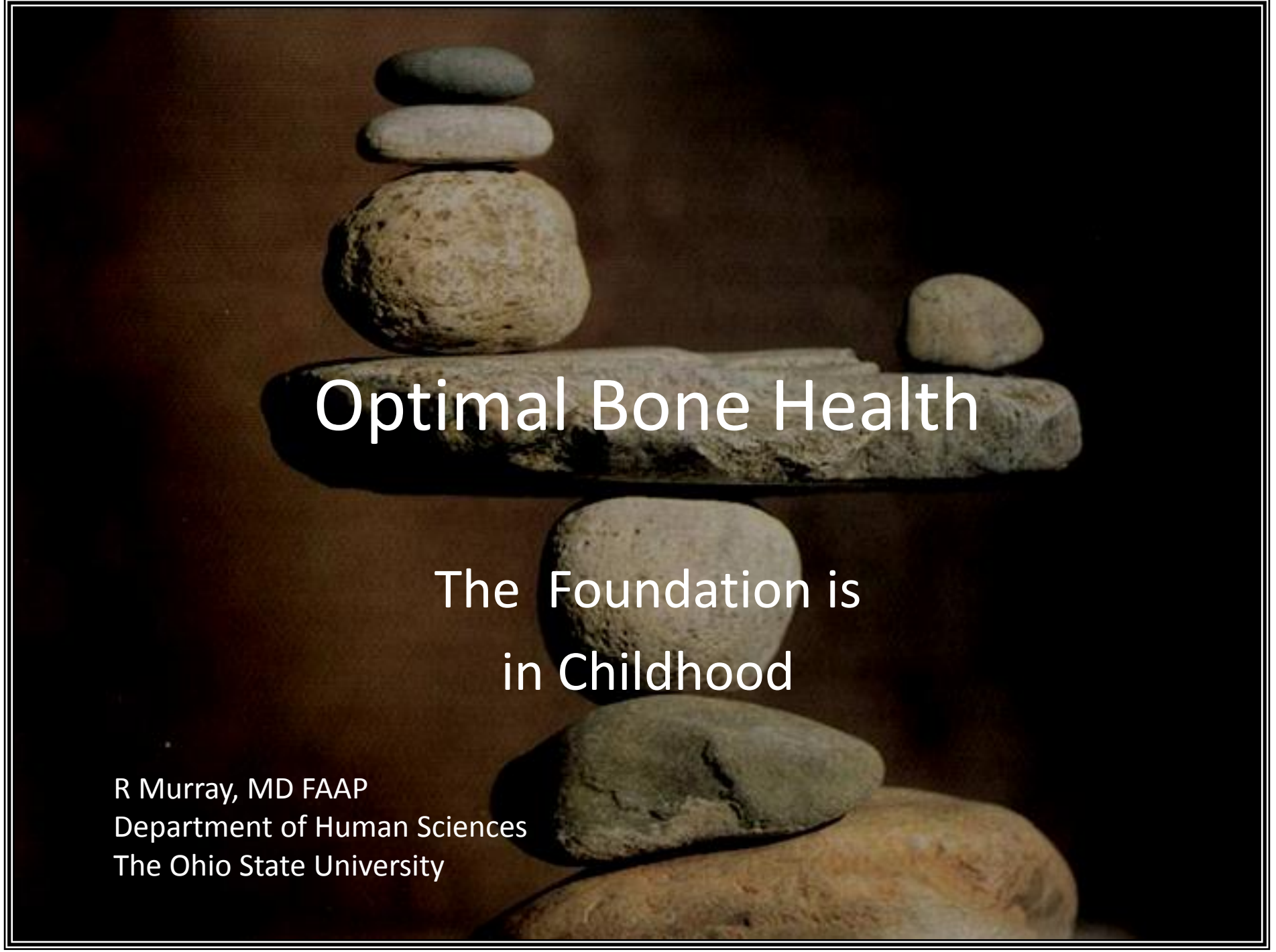
Simple Strategies for Yogurt in the Revised WIC Package to Improve Participation and Health

Robert Murray, MD, FAAP
Dena Herman, PhD, MPH, RD
Yvonne Bronner, ScD



Optimal Bone Health

The Foundation is in Childhood

R Murray, MD FAAP
Department of Human Sciences
The Ohio State University

Robert Murray MD: Disclosures

Advising
Speaking
Writing
Education

National Dairy Council
Abbott Nutrition
Dannon Co.
Cargill Inc.
Sabra Dipping Co.
Hass Avocado

The Power of WIC

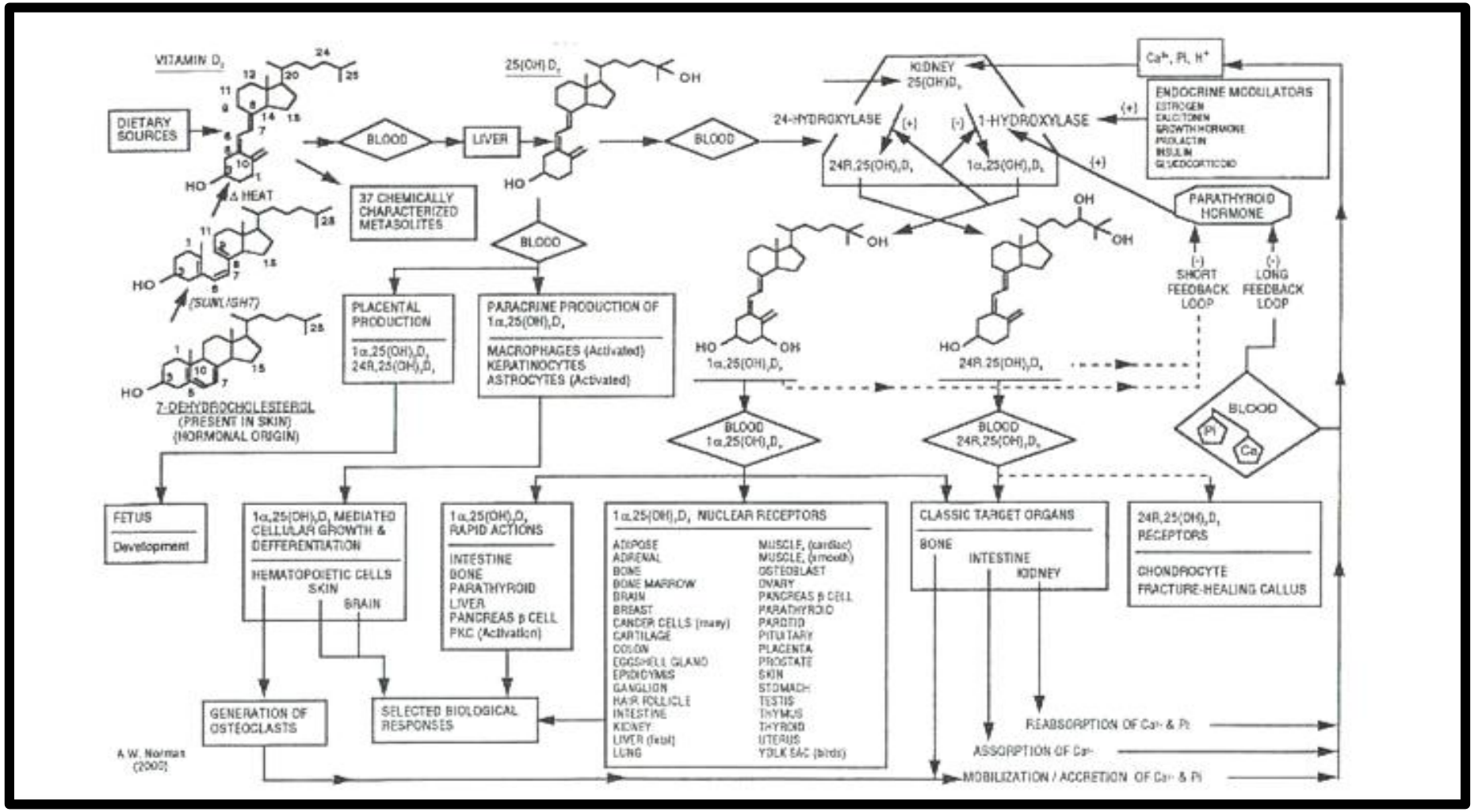
- Bone is living tissue
- Bone health is a childhood issue
- Steady dairy intake is crucial
- Mother and baby are both at risk
- Build a strong dietary pattern life-long

By 2020
one-half
of all Americans
over 50 years
will be at risk
for
osteoporotic fractures

Optimizing Bone Health in Children and Adolescents
Neville H. Golden, MD, Steven A. Abrams, MD, COMMITTEE ON NUTRITION
Pediatrics, Oct 2014; 134: e1229-1243

The Endocrinologist's Perspective

on Bone Formation



Bob's Perspective

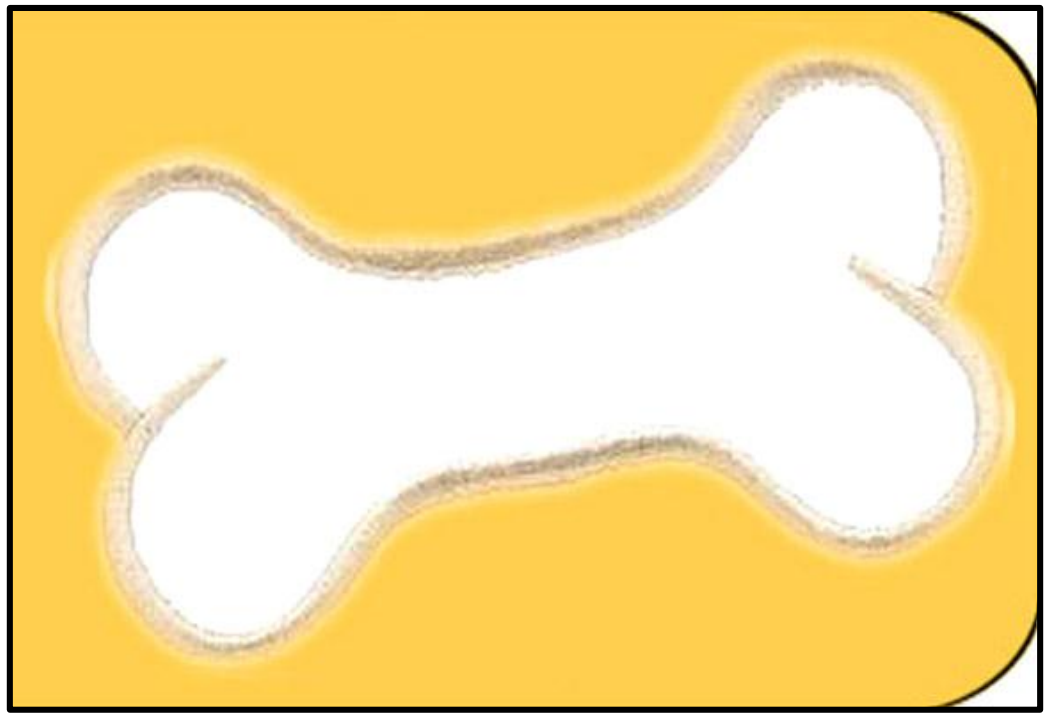
Parathyroid Hormone

GI Tract

Calcium +
Vit D

Calcium

Phosphorus

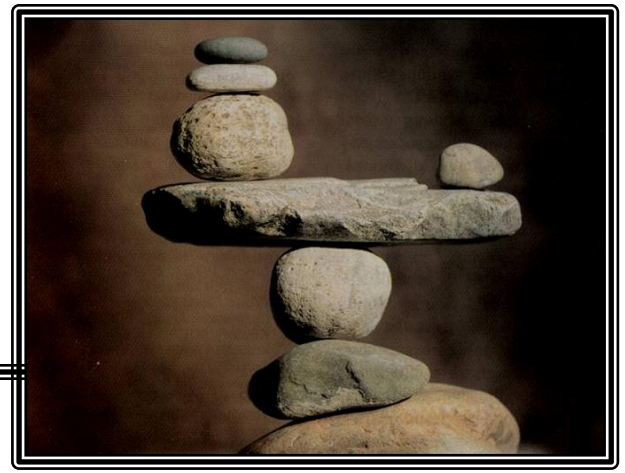


Skeleton

Calcium

Renal proximal tubule

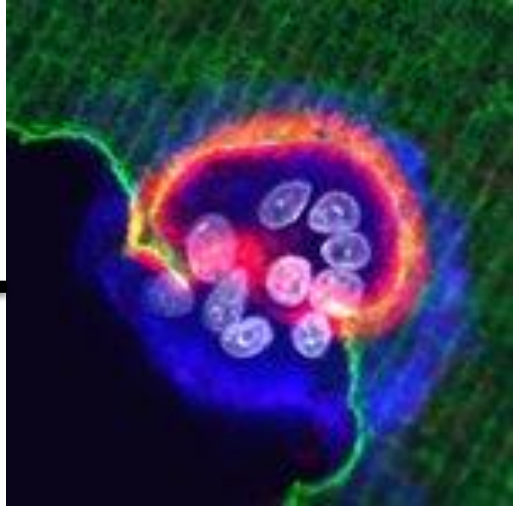
Bone Remodeling is Constant



- Remodels & then replaces tiny bits of bone
- Bone mineralization process
  - Calcium and phosphorus: blood ➡ bone
- *Any decrease* in circulating calcium
- PTH (parathyroid hormone) will re-establish levels

Calcium regulation is extremely precise

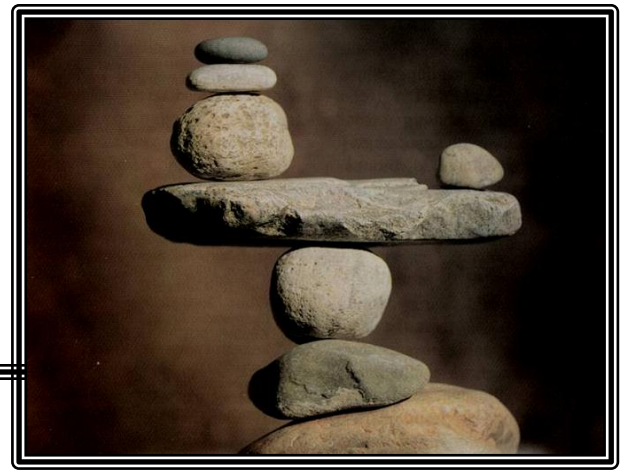
Bone Mineralization & Resorption



Bone growth
Or injury (with repair)
Or daily calcium intake triggers bone mineralization

- Calcium and phosphorus goes into bone
- Calcium in blood then falls
- PTH is released
- Resorption from bone restores calcium
- Leaves behind tiny pits in bone

When the Balance Tips



- Blood calcium is tightly controlled
- Dietary calcium & vitamin D promotes denser bone
- ***But if* dietary intake is chronically low**:

more calcium is removed
from from bone pits
to keep blood calcium constant

<u>without</u> new bone replacing it

Bone Fractures are a Preventable Outcome

The 4 Bone Factors

A Quality Dietary Pattern

- **5 food groups – meals & snacks**
  - **Fruits**
  - **Vegetables**
  - **Whole grains**
  - **Low-fat milk and dairy**
  - **Quality protein sources**

Promote

- **Nutrient Rich Foods**
- **Nutrients of Concern**:

  Calcium, Vit D, potassium, fiber

Limit:

- Saturated fats
- Added sugars
- Sodium
- Excess calories

A Quality Dietary Pattern & Regular Activity = *Health*

- Heart Disease
- Stroke
- Diabetes
- Obesity
- Hypertension
- Metabolic syndrome
- Osteoporosis
- Cancers
- Alzheimer’s

Science Seeks Mechanisms & Causes

OBESERVATION

High-Risk
Dietary Patterns

RESEARCH

Search for
Risk Factors

- Cholesterol
- Fat
- Saturated fat
- Trans fat
- Sodium
- Sugars

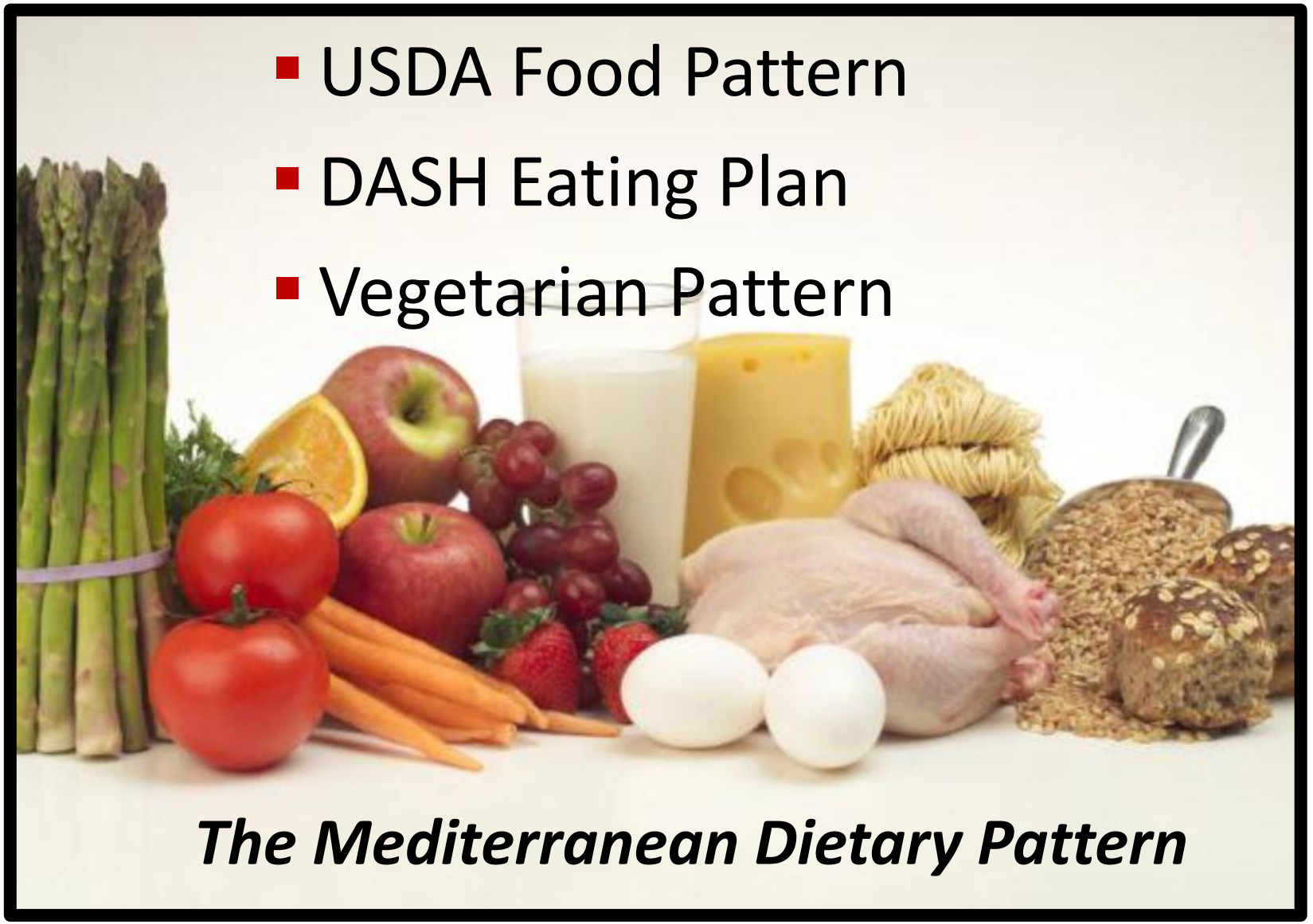
High-Benefit
Dietary Patterns

Search for
Benefit Factors

- Plant sterols
- Flavonoids
- Anti-oxidants
- Omega 3 FA
- MUFA, PUFA
- Vitamin D
- Homocysteine

But…*Factors are not Food*

Nutrient Rich *Eating Pattern* ★



Dairy Protects Health

- Osteoporosis
- Hypertension
- Cardiovascular disease
- Stroke
- Type II diabetes
- Cancers – breast, colon, prostate
- Obesity
- Metabolic syndrome

- **Calcium (30% DV*)**
- **Potassium (11% DV)**
- **Phosphorus (20% DV)**
- **Protein (16% DV)**
- **Vitamin A (10% DV)**
- **Vitamin D (25% DV)**
- **Vitamin B12 (13% DV)**
- **Riboflavin (24% DV)**
- **Niacin (10% DV)**
- **90-150 kcal/ 8 oz**

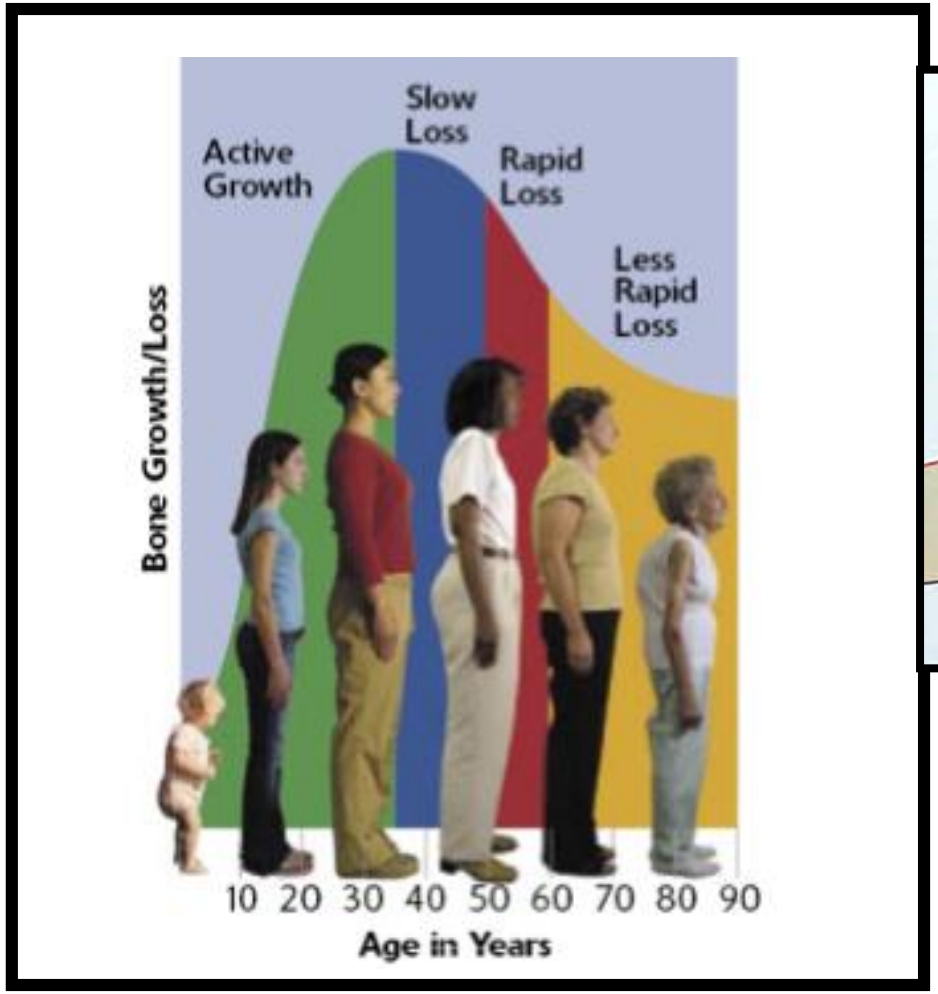
Rice et al. Adv Nutr 2011; 2: 396-407
Kratz et al. Eur J Nutr 2013; 52:1-24

Two Different Paths to Health

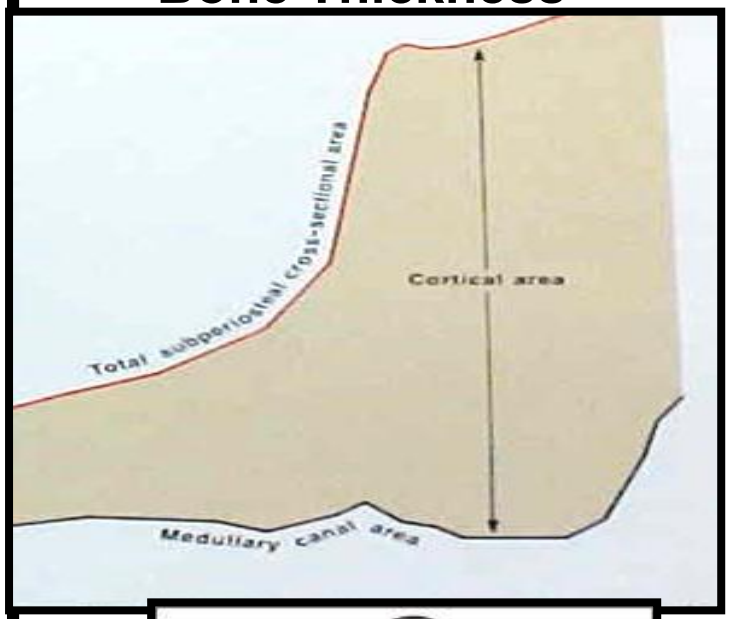
Avoidance of…

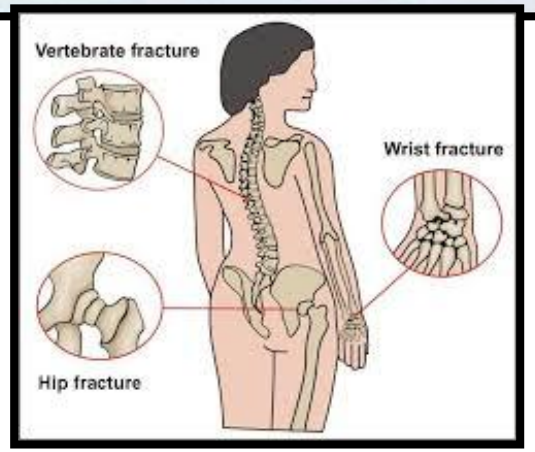
Dietary Pattern rich in…

Bone Grows Most in Teen Years



Bone Thickness





Peak Bone Mass = Teens

- 40-60% of bone mass built in adolescence
- 25% within 2 years of peak height
- Peak:
  - Boys: 14 yrs
  - Girls: 12.5 yrs

After peak,
a slow steady decline
for life

Dietary Reference Intakes

CALCIUM

	RDA	Upper Limit (UL)
0-6 mos	**200 mg/d**	1000 IU/d
6-12 mos	**260**	1500
1-3 yrs	**700**	2500
4-8 yrs	**1000**	2500
9-13 yrs	**1300**	3000
14-18 yrs	**1300**	3000

VITAMIN D

	RDA	Upper Limit (UL)
0-6 mos	**400 mg/d**	1000 IU/d
6-12 mos	**400**	1500
1-3 yrs	**600**	2500
4-8 yrs	**600**	3000
9-13 yrs	**600**	4000
14-18 yrs	**600**	4000

Institute of Medicine, 2011

Problem Nutrients
High School Students

- **Males**
- Vit A, Vit C, Vit E
- Magnesium, potassium
- Fiber
- Calcium

- **Females**
- Vit A, Vit C, Vit E, Vit D*
- Magnesium, potassium *
- Vit B-6
- Folate *
- Thiamin
- Iron *
- Phosphorous
- Zinc
- Fiber *
- Calcium *

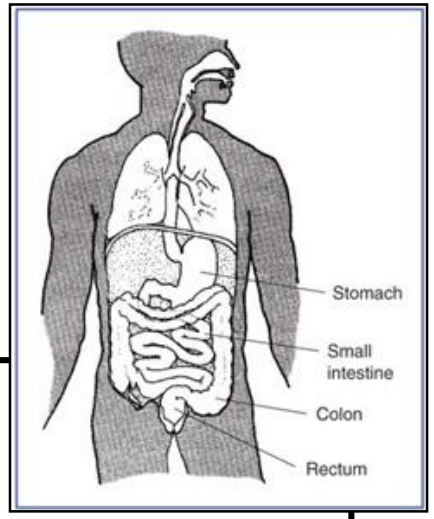
Clark, Fox, JADA 2009; s44

Women in Child-bearing Years

- Intake high:
  - saturated fat and sodium
- Deficiency common:
  - iron, vitamin D
- Intake low:
  - fiber, vitamin E, calcium, magnesium and potassium
- Intake moderately low:
  - vitamins A, C, B-6 and Folate

14-50 years of age

What is the Importance of Vitamin D?



Major function: increase calcium absorption

– Promotes bone mineralization

But also…

Maintains muscles, prevents gingivitis,
helps control diabetes, arthritis, and inflammation,
lowers cancer risk, and lowers risk of cardiovascular disease

<u>Other Sources</u>

Sun, fish, cereals (fortified), juices, egg, liver, supplements

Vitamin D deficiency is Common

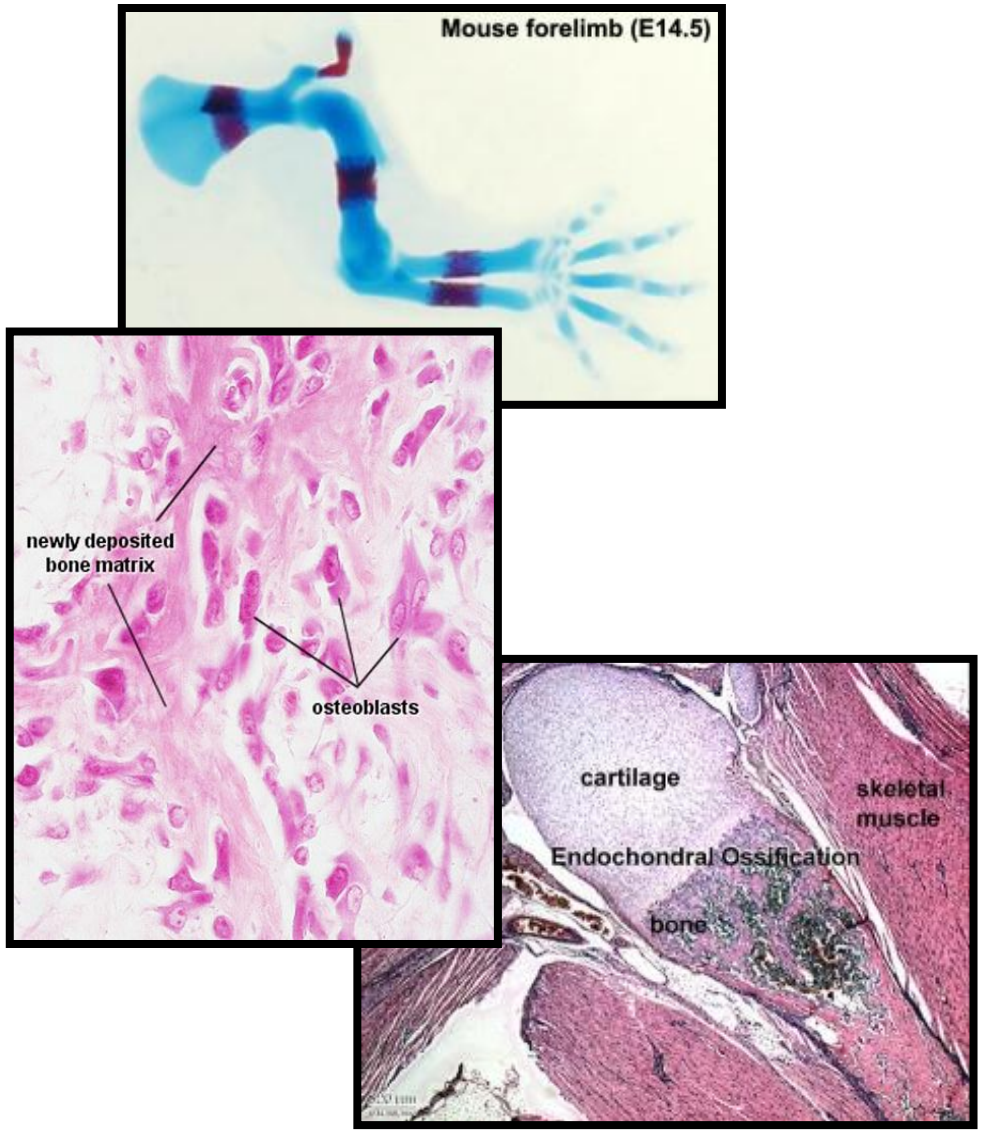
in ¾ Teens and Adults
in pregnant women
in African Americans & Hispanics

- Breastfed infants
  - 25 IU/d
- Low exposure to sun
- Dark skin (melanin)
- Seniors
- Lactose intolerance
- Vegans
- Poor dietary intake

- Fat loss from disease
  - Crohns
  - Pancreatic insufficiency
  - Cystic Fibrosis
  - Liver disease
  - Biliary disease
  - Surgery

- Under age 50 - 400-800 IU daily**
- Over age 50 - 800-1,000 IU daily**

Fetal Skeletal Growth Timeline



- Starts: end of week 2
- Cartilage, muscle, bone
- Ossification of bone matrix 2nd trimester
- Skeletal growth: 3rd trimester
- Continues postnatally
- Fully mature: 20s

Pregnancy & Bone Health

- Higher rate of calcium absorption
- Estrogen protects bone
- Bone mass falls during pregnancy & lactation
- Usually repletes rapidly
- Weight-bearing exercise is critical
- *Risk*: teen mothers

Website: http://www.womenshealth.gov/pregnancy

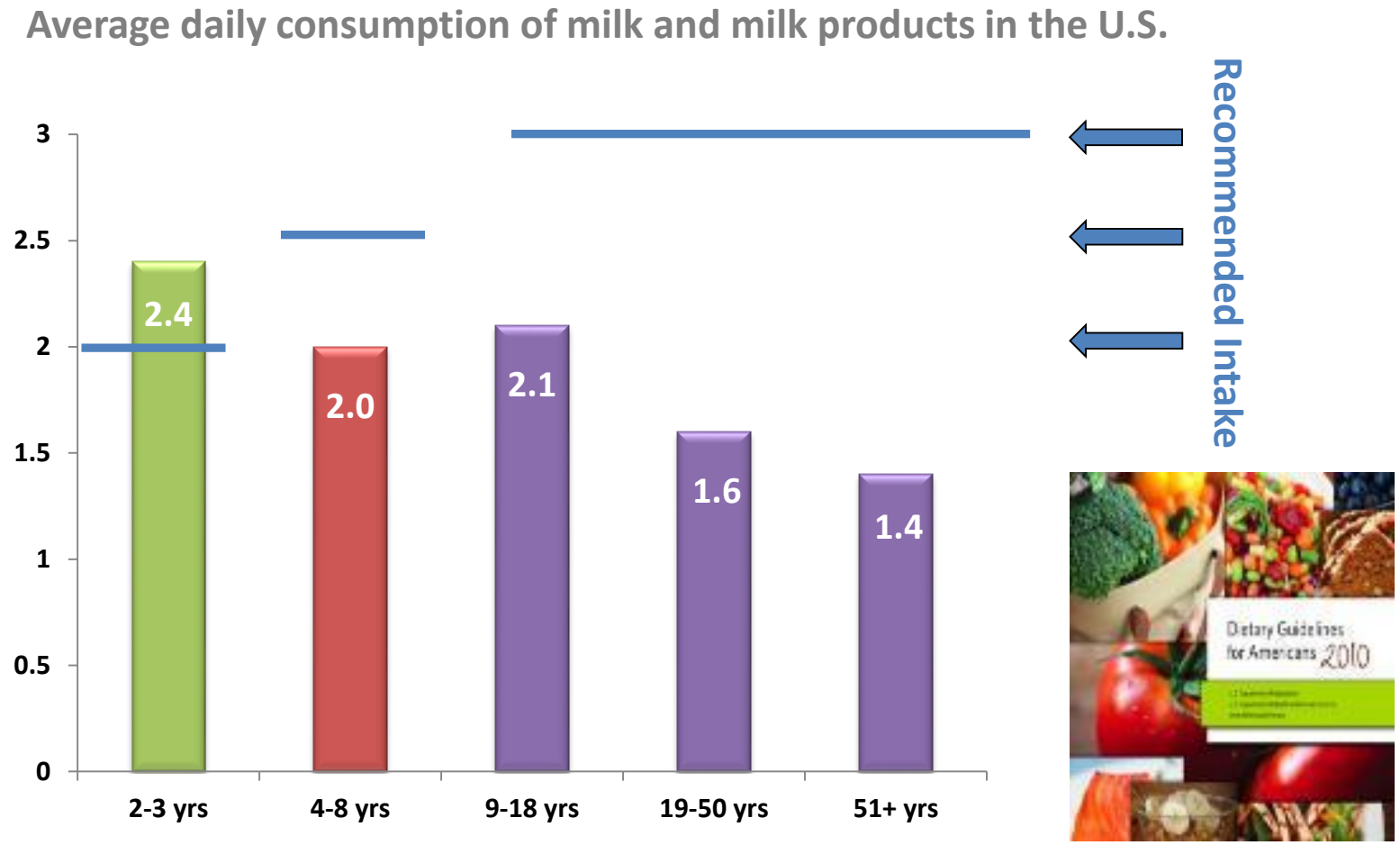
Dietary Patterns Matter

Very High Sodium and Protein
increase urinary calcium loss

Chronic Conditions can <u>Reduced Bone Mass</u>

- Genetic disorders
- Chronic diseases
- Inflammatory Diseases
- Eating Disorders
- Endocrine disorders
- Certain medications

Dairy intake falls below recommended intake by 4 years old



Dairy Research Institute
NHANES 2007-2008

The Power of WIC

- Pregnant women
- Babies
- Children
- Bone health foundation

- Reach daily dairy goals throughout life
- Establish a strong dietary pattern early


thanks!

Dena Herman, PhD, MPH, RD

Associate Professor, Department of Family and Consumer Sciences, California State University Northridge

Dr. Herman is an Associate Professor in the Department of Family and Consumer Sciences at California State University, Northridge.

Dr. Herman's research and experience focuses on maternal and child nutrition with a current focus on childhood obesity. Her site-randomized trial of an economic intervention to increase fruit and vegetable intake demonstrated the efficacy of adding fruits and vegetables to the WIC food package that has now become national policy.

Dr. Herman provides ad hoc advisory services for Dannon.

The Revised WIC Food Package: Can Yogurt Be Utilized to Increase Fruit and Vegetable Consumption?

DENA HERMAN, PHD, MPH, RD

NATIONAL WIC ASSOCIATION MEETING

MAY 18TH, 2015

Learning Objectives

- Understand the current research on utilization of new foods offered as part of the revised food packages
- Enhance current educational activities to increase fruit and vegetable intake
- Identify food combination methods to improve intake of dairy products for vulnerable populations

What does WIC Food Package Research Tell Us?

Fruits and Vegetables

Fresh

28.6%

17.5%

Fresh

27.8%

Frozen

Andreyeva & Luedicke, Public Health Nutrition, 2014.

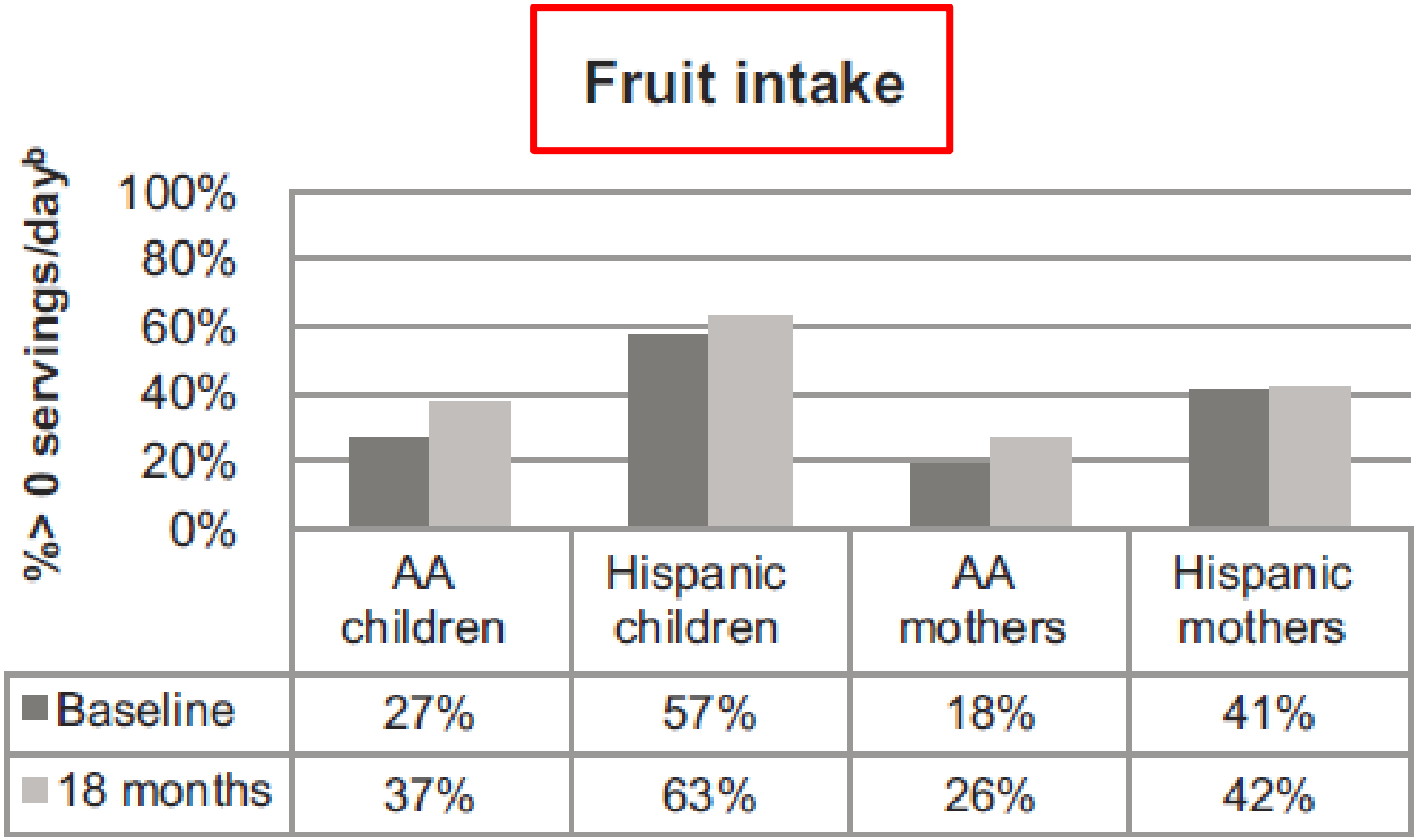
Who is Eating More Fruits and Vegetables?

0.34 servings fruit/day

0.24 servings fruit/day

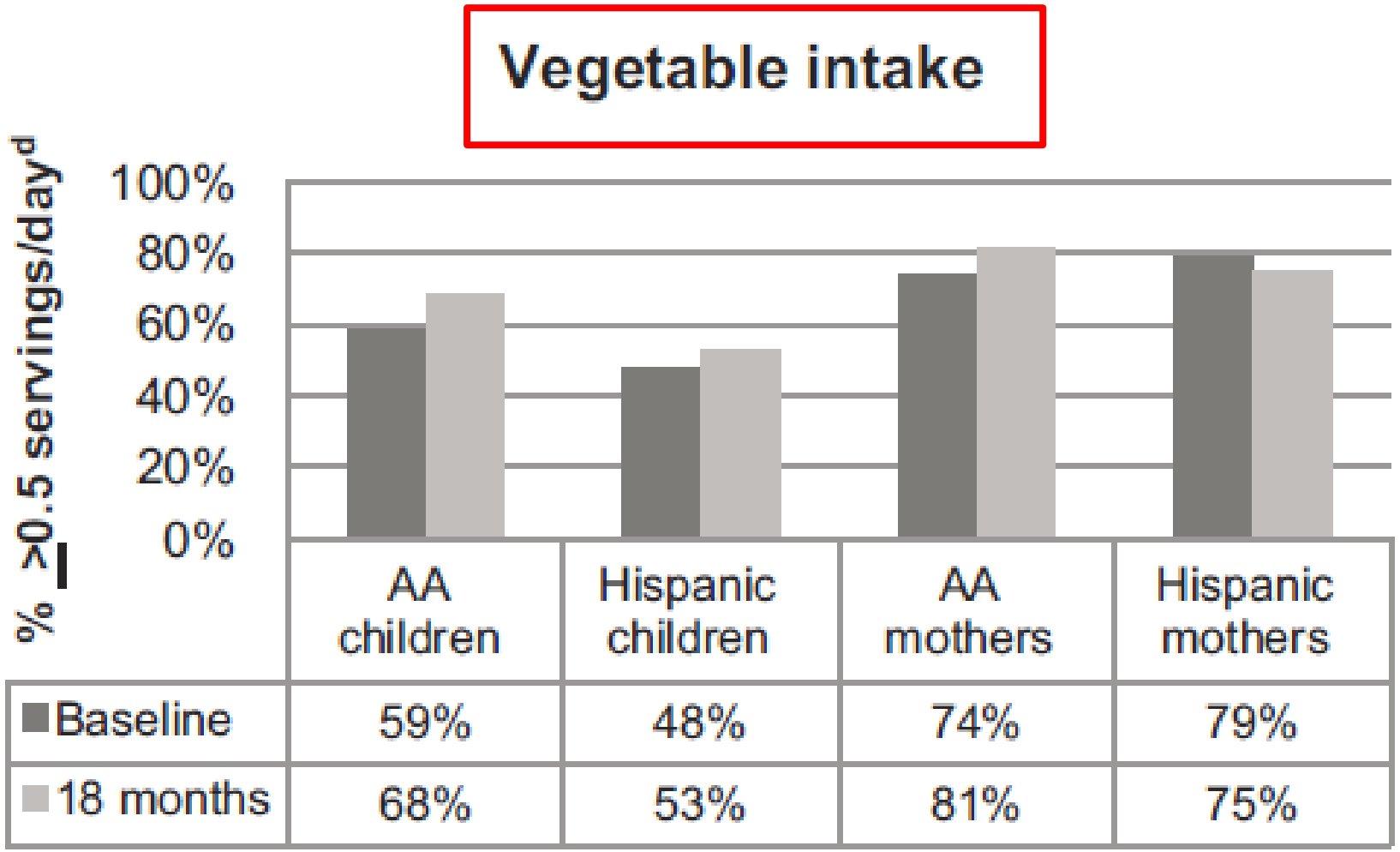
Odoms-Young et al, Public Health Nutrition, 2014.

Who is Eating More Fruits and Vegetables?



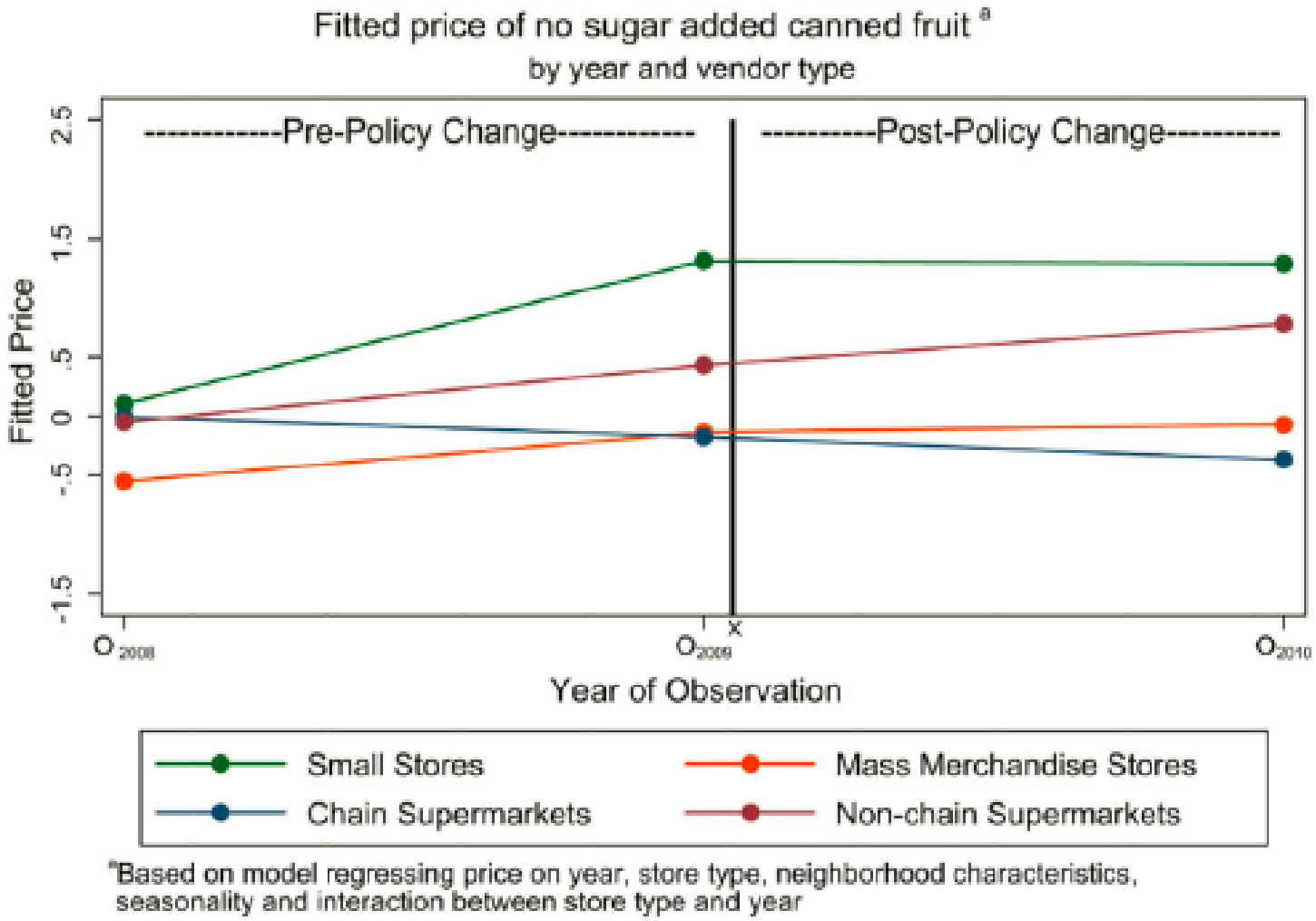
Kong et al, Am J Prev Med, 2014.

Who is Eating More Fruits and Vegetables?



Kong et al, Am J Prev Med, 2014.

Did Food Package Changes Affect Prices of FVs?



Zenk et al, J Acad Nutr Dietetics, 2014

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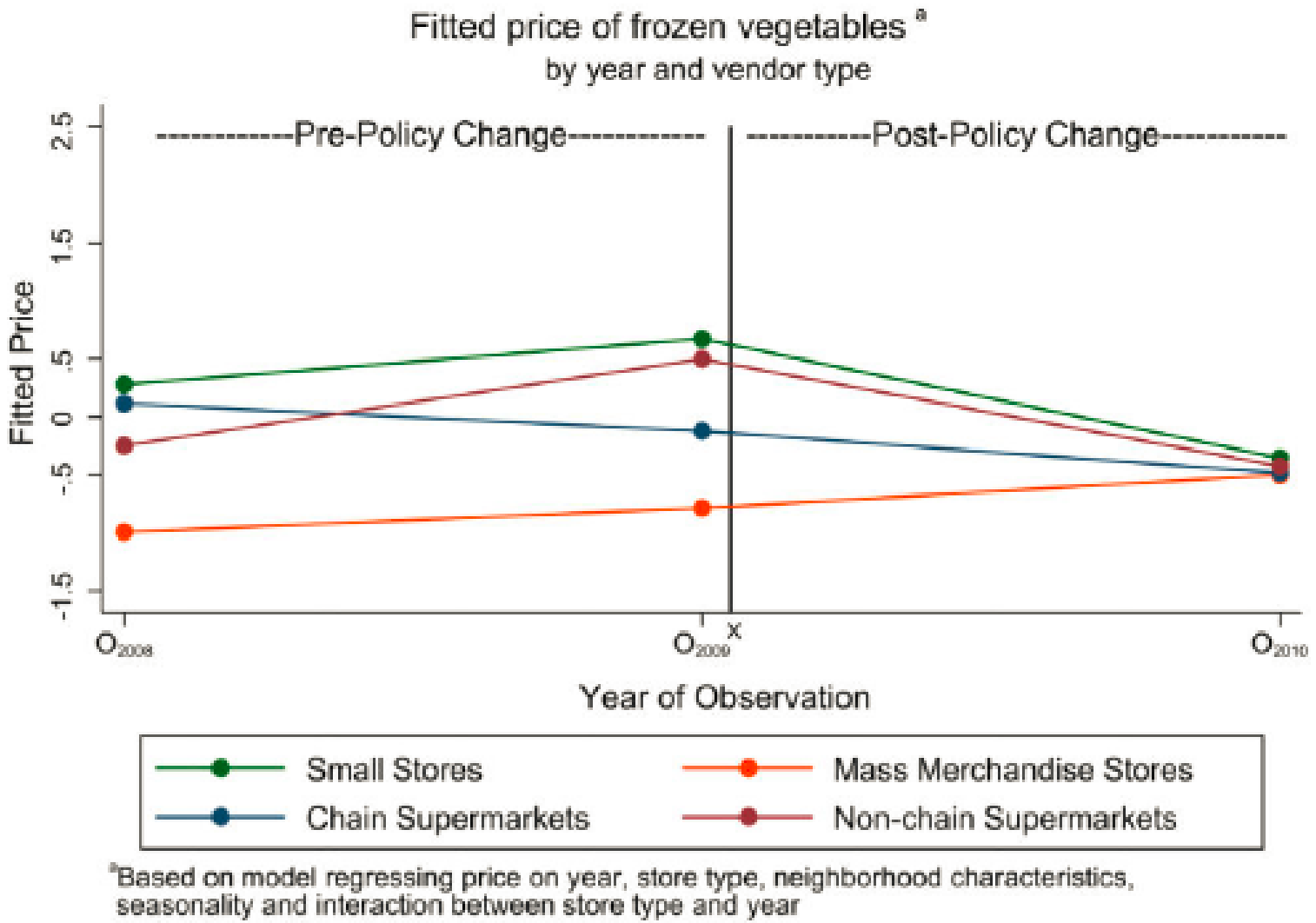
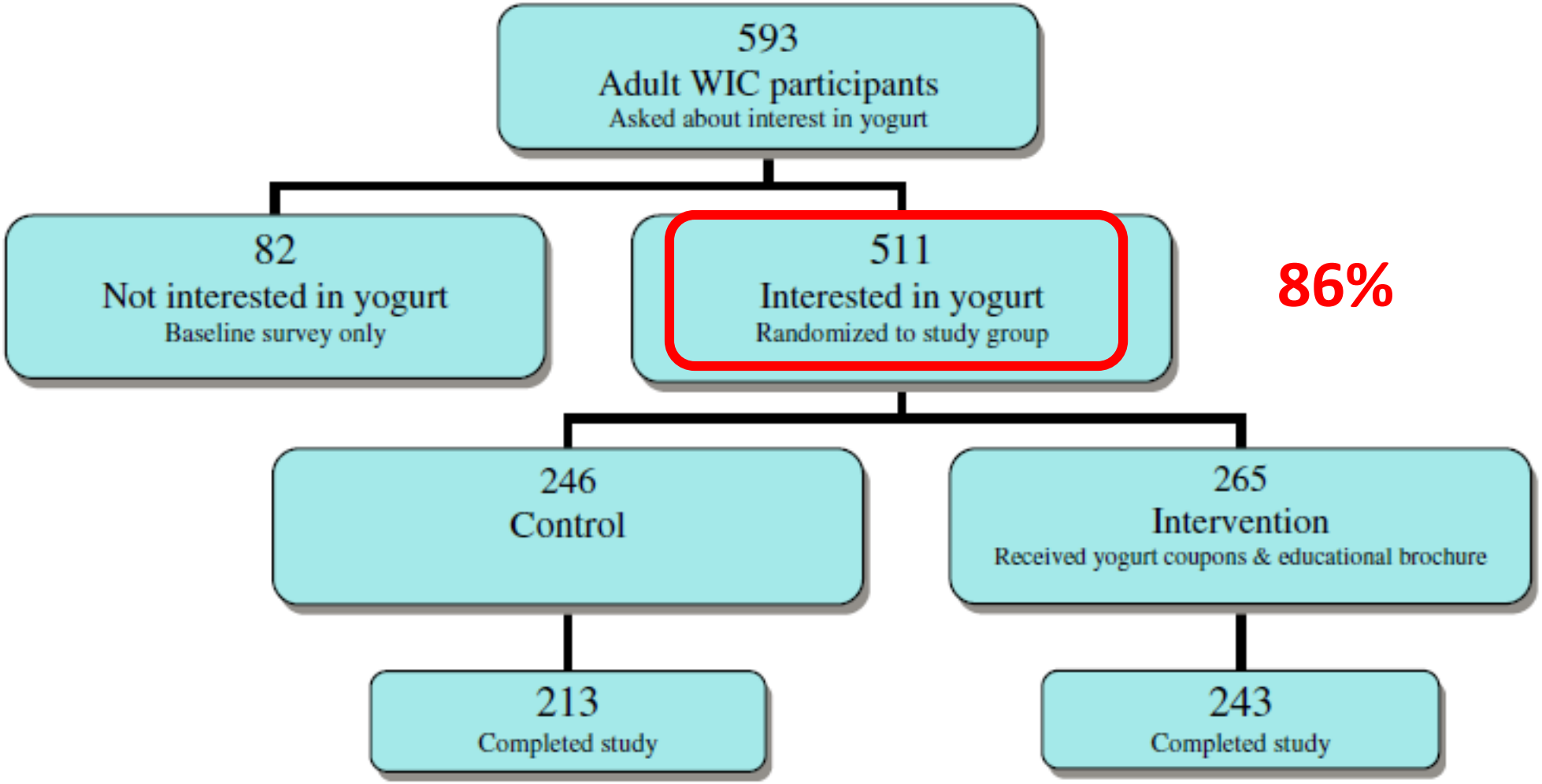


[a]Based on model regressing price on year, store type, neighborhood characteristics, seasonality and interaction between store type and year

Zenk et al, J Acad Nutr Dietetics, 2014

Would WIC Participants Like to Substitute Yogurt for Milk?



86%

Fung et al, J Nutr Educ Beh, 2012

Thoughts about Dairy Food at Baseline for Control and Intervention Groups Combined Enrolled in the WIC Yogurt Intervention Study

Measure	Agree (%)
Yogurt is available where shop for food	96.0
Family likes to eat yogurt	96.0
When buy yogurt, usually buy small containers (4, 6, or 8 oz)	83.3
Yogurt costs too much	61.8
Like eating yogurt more than drinking milk	61.5
Do not know how to include yogurt in recipes	59.8
Like the taste of milk more than yogurt	53.1
Yogurt spoils too quickly	28.1
Have trouble digesting things made with milk	19.3
Yogurt is not as nutritious as milk	17.9

Fung et al, J Nutr Educ Beh, 2012

Response (%) to Yogurt Coupon Provision After the Intervention by Intervention Group Participants Enrolled in the WIC Yogurt Intervention Study

Measure	Agree a lot	Agree a Little	Disagree a Little	Disagree a Lot
Like taste of yogurt from coupons	95.4	0.5	2.6	1.5
Used coupons for yogurt for self to eat	84.7	10.7	3.6	0.5
Brochure on yogurt was helpful	70.8	27.7	1.0	0.0
Would take vouchers for yogurt in place of some of milk	70.1	20.6	5.7	3.0
Used coupons for yogurt for family to eat	67.5	17.3	6.3	6.3
Prefer different flavors	56.7	11.9	13.4	17.0
Used brochure information to include yogurt in snacks	45.1	39.9	7.3	7.3
Used brochure information to include yogurt in meals	44.3	39.7	8.3	6.7
Prefer different carton sizes	41.4	20.4	7.9	28.8
Prefer different brands	32.8	12.5	13.5	39.6

Fung et al, J Nutr Educ Beh, 2012

How can we Increase Fruit and Vegetable Intake?

- Make participants aware of **how** they can use fresh, frozen, and canned fruits and vegetables
- Offer taste tests, cooking demonstrations, supermarket tours, partner with Farmer's Markets
- Focus more on **vegetables** – intake of fruits is higher, participants less familiar with different types of vegetables

How Can Promoting Yogurt Increase Fruit and Vegetable Intake?

- Participants indicate preference for yogurt over milk
- Use yogurt as “vehicle” to increase fruits and vegetables in the daily diet
- Yogurt as “flavor enhancer” as sauce or dip for raw and cooked vegetables
- Yogurt pairs well with other food groups to strengthen healthful dietary patterns

Summary and Recommendations

- Changes to the WIC Food Package have resulted in minor increases in fruit and vegetable intake
- Hispanic WIC participants consume more fruit, while African-American participants tend to consume more vegetables
- Yogurt is desired as a substitute for milk by WIC participants
- Yogurt can be used as a means for increasing fruit and vegetable intake among all WIC participants

THANK YOU!

THE IMPLICATIONS FOR BONE HEALTH FROM INCLUDING YOGURT IN THE WIC PACKAGE

National WIC Association Meeting

May 18, 2015

YVONNE BRONNER, ScD

PROFESSOR, DEPARTMENT OF BEHAVIORAL HEALTH SCIENCES, MORGAN STATE UNIVERSITY

Dr. Bronner is a professor in the Department of Behavioral Health Sciences and founder of the MPH/DrPH program at Morgan State University.

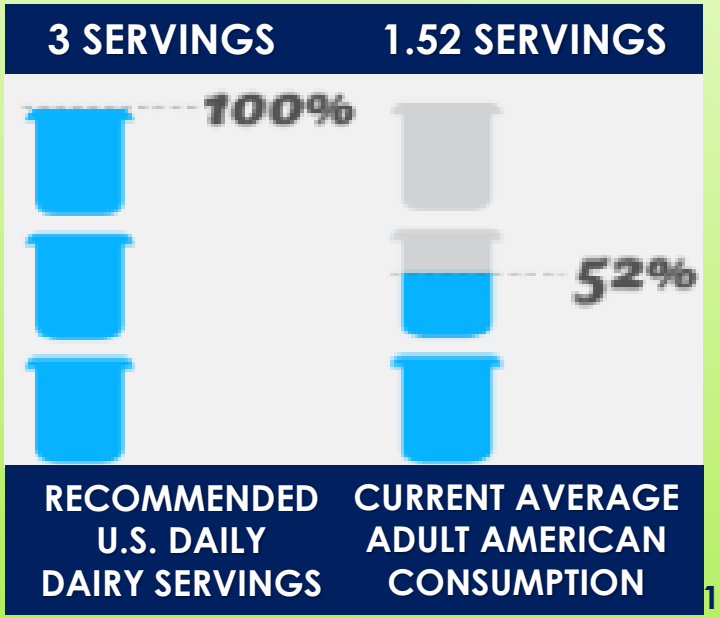
Dr. Bronner's research and experience focuses on nutrition and maternal and child health. Dr. Bronner served on the 2005 Dietary Guidelines Advisory Committee, and has been a spokesperson for the Academy of Nutrition and Dietetics.

Dr. Bronner is currently a Nutrition Advisor for The Dannon Company's One Yogurt Every Day initiative.

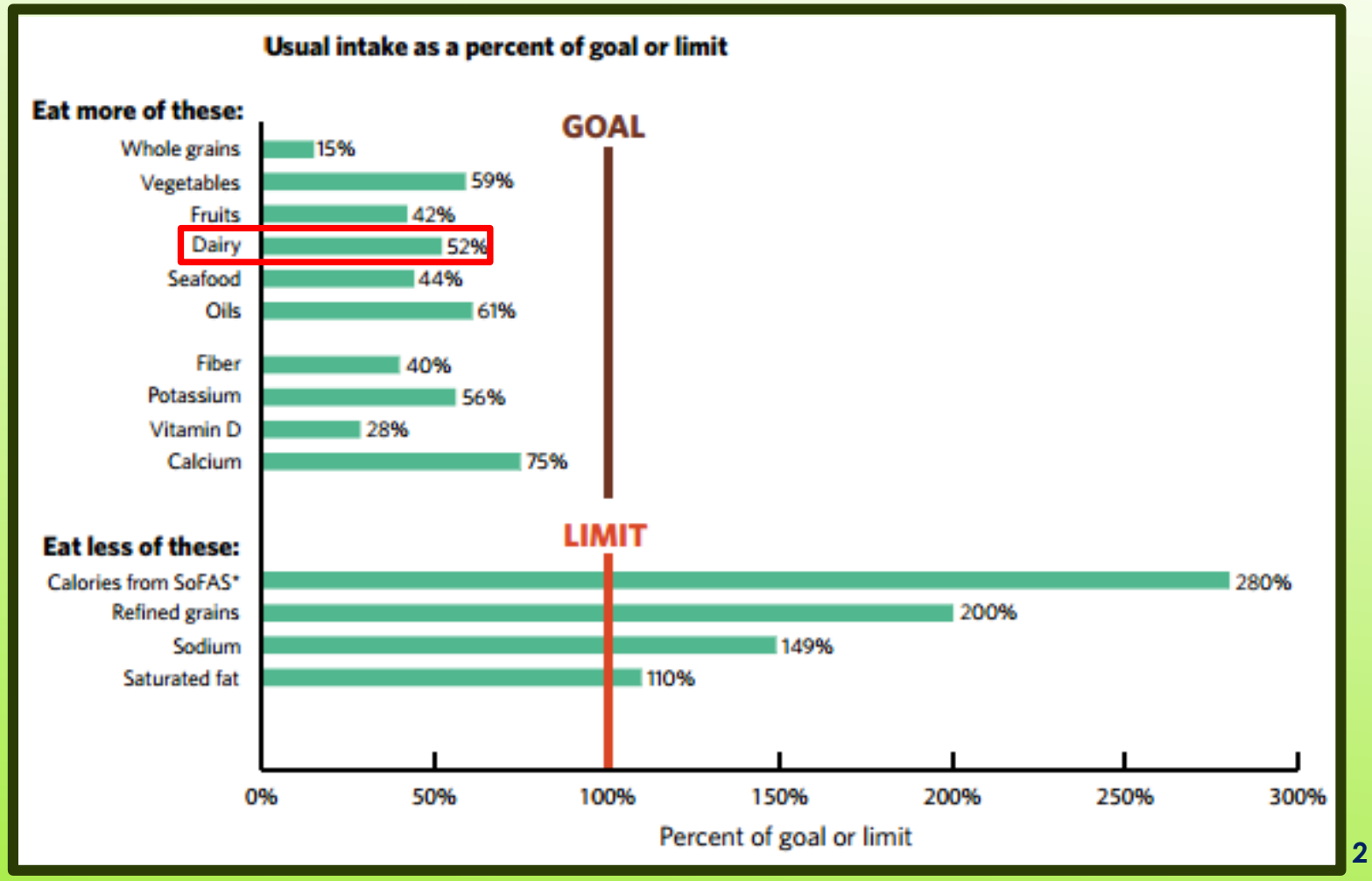
OVERVIEW

- Most Americans do not meet recommended intake of dairy foods
- A lack of dairy may contribute to nutrient gaps in dietary intake
- Nutrient gaps – especially at certain ages like adolescence, during pregnancy and later adulthood – are related to key health concerns
- Concerns about lactose intolerance
- Education and implementation examples are key – dairy is nutrient dense, and yogurt is convenient, versatile and “healthy”

AMERICANS AREN'T MEETING DAIRY REQUIREMENTS



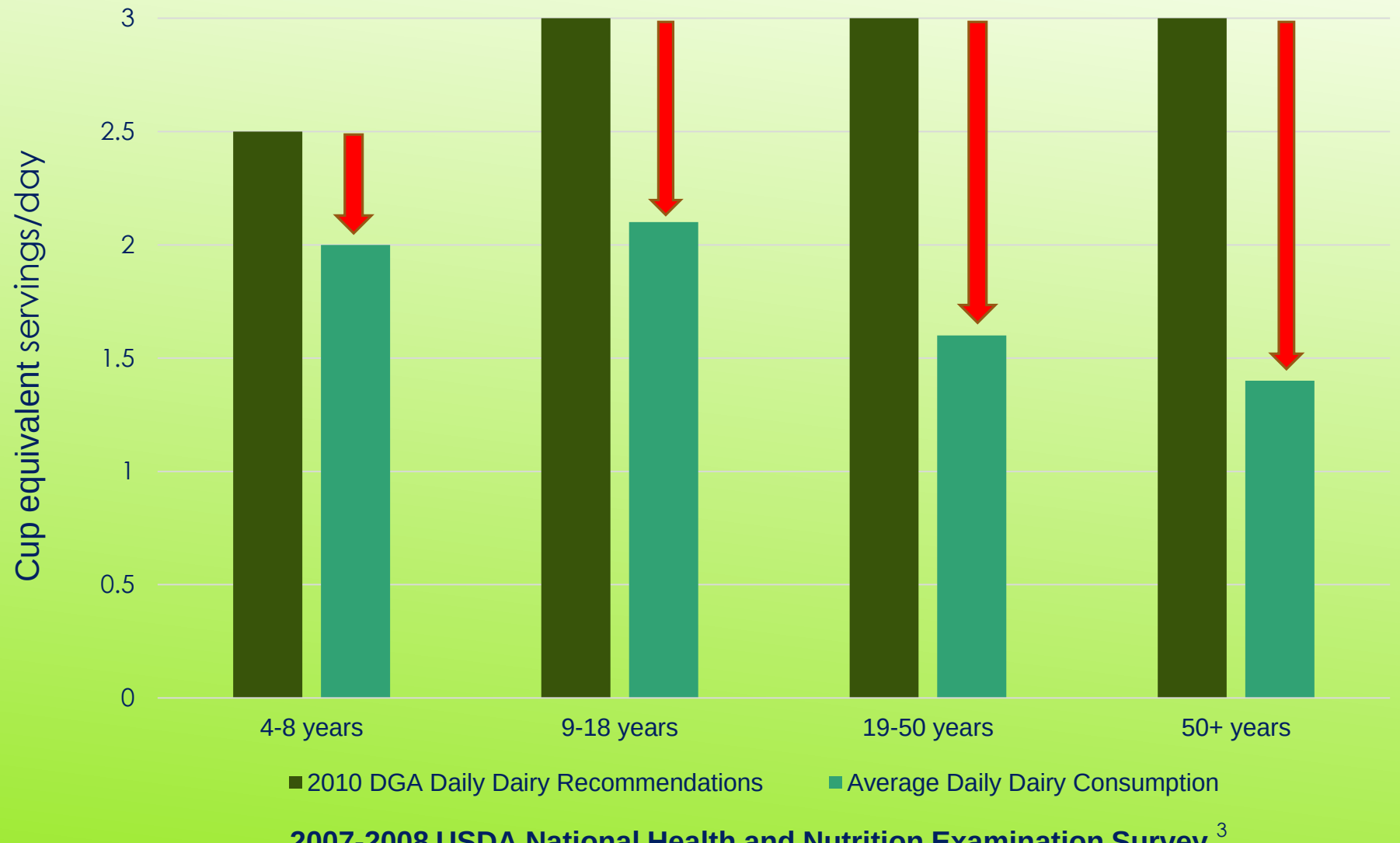
[1]



[2]

[1] U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.
[2] U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010. Based on data from: U.S. Department of Agriculture, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. What We Eat in America, NHANES 2001–2004 or 2005–2006.

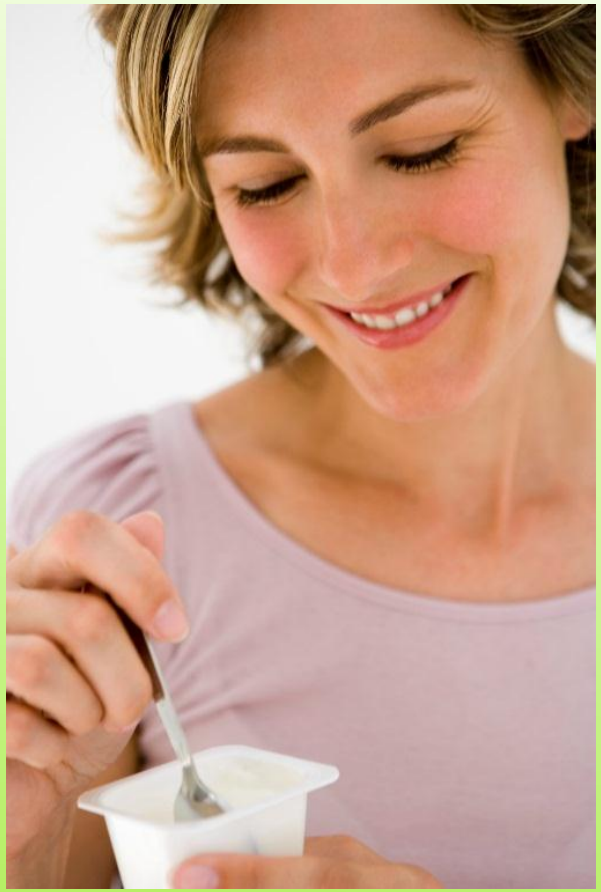
AFTER AGE OF 3, THE CONSUMPTION GAP WIDENS



2007-2008 USDA National Health and Nutrition Examination Survey [3]

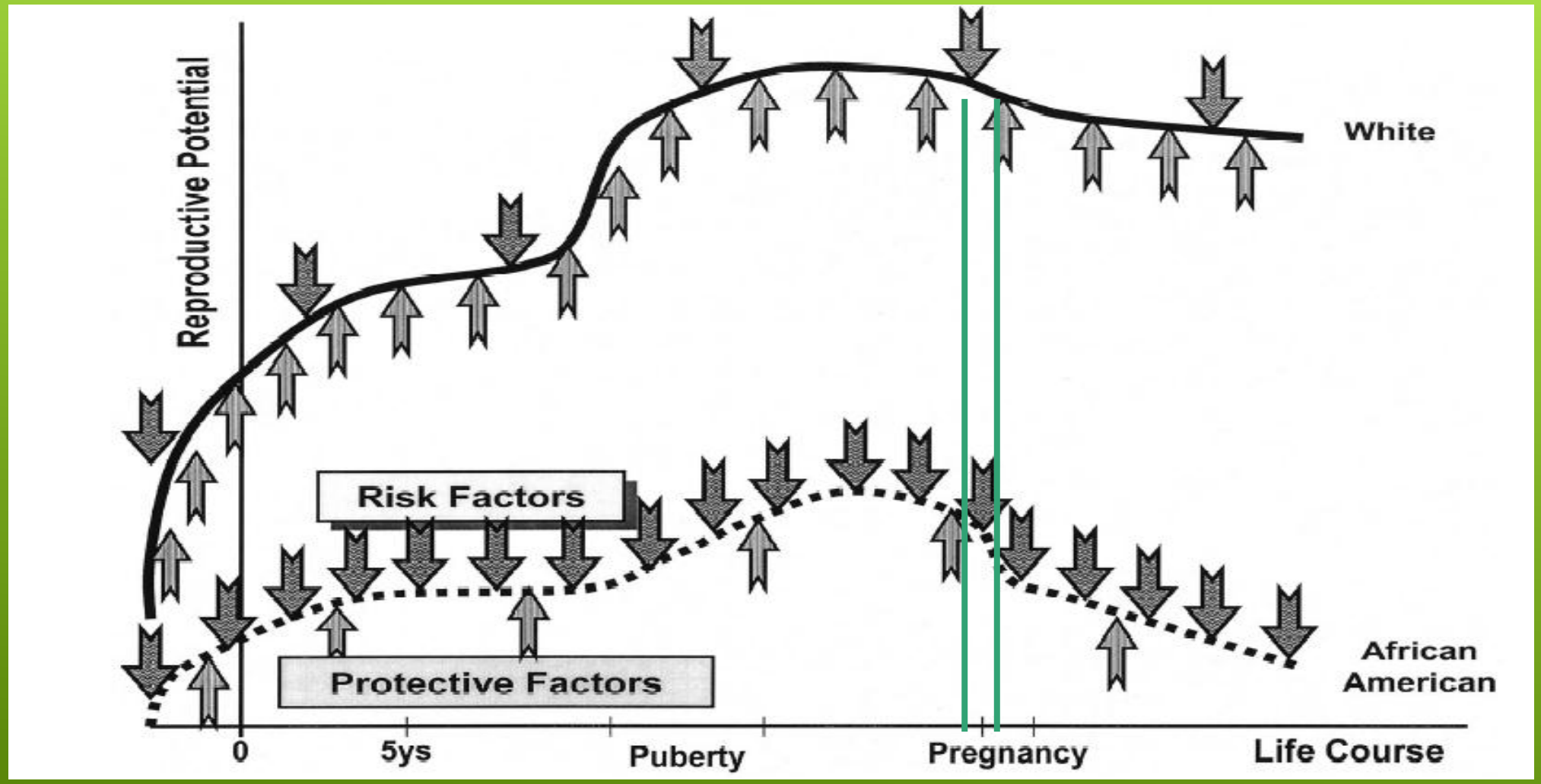
WHY ARE WE CONCERNED?

- Most dairy contains key nutrients that are important for health such as calcium, vitamin D, potassium, protein and magnesium.[4]
- In fact, calcium, vitamin D and potassium are 3 of 4 nutrients of concern in the 2010 Dietary Guidelines for Americans.[1]
- A dairy gap is often a nutrient gap.



[4] U.S. Department of Agriculture, Agricultural Research Service, National Nutrient Database for Standard Reference, Release 27.
[1] U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.

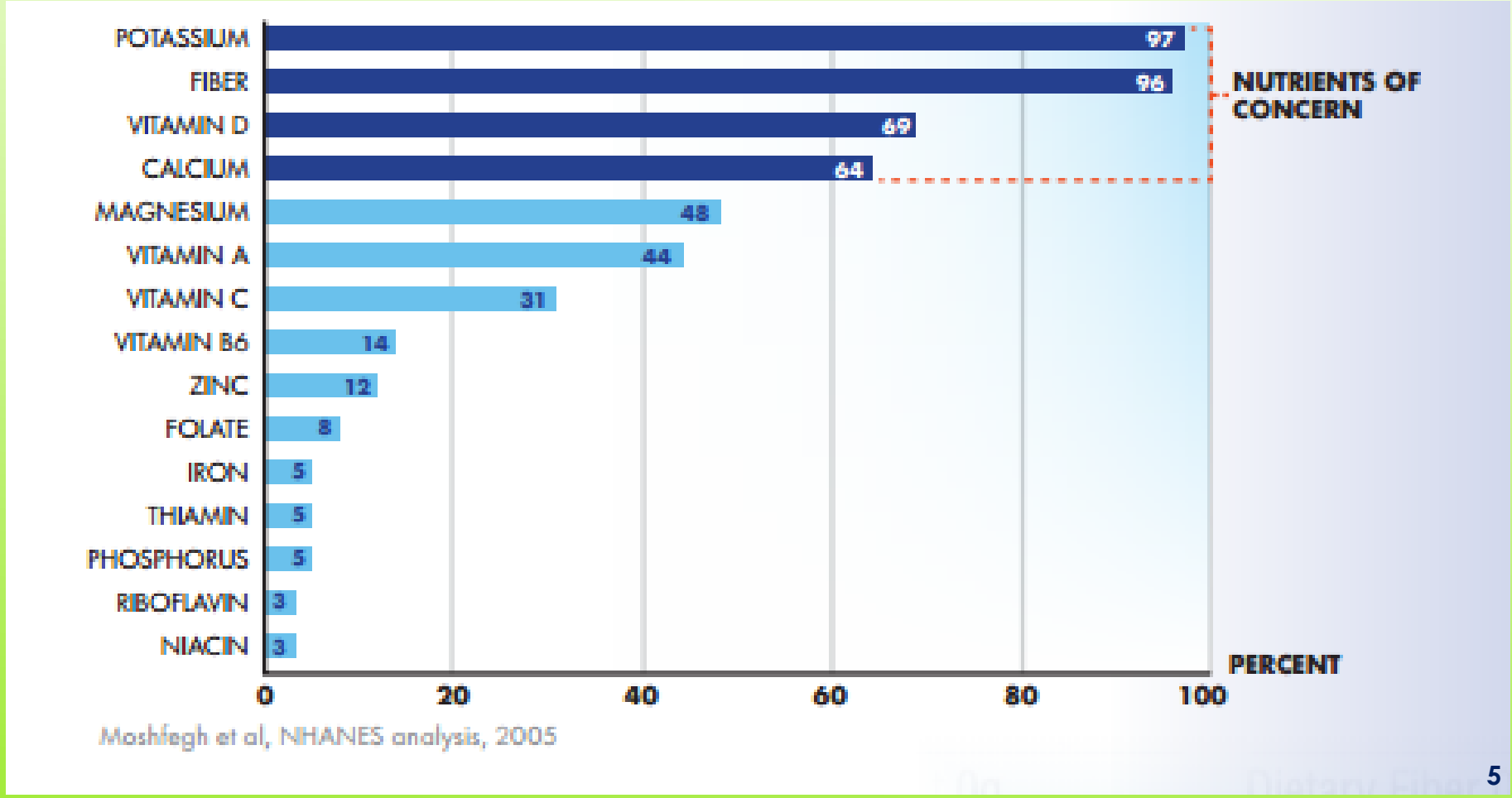
LIFE COURSE PERSPECTIVE



Lu MC, Halfon N. Racial and ethnic disparities in birth outcomes: a life-course perspective. Matern Child Health J. 2003;7:13-30.

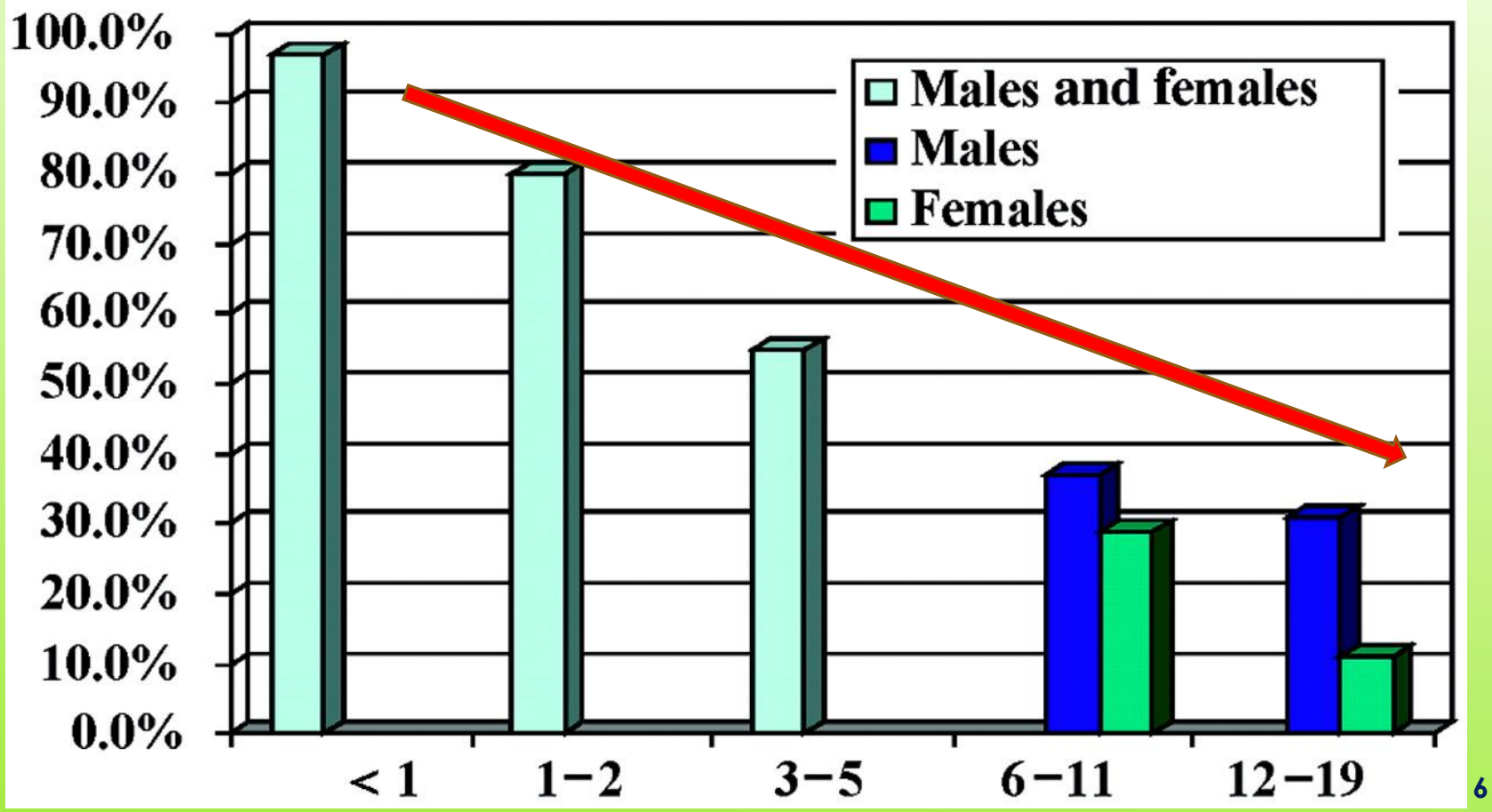
AMERICANS ARE NOT MEETING NUTRIENT RECOMMENDATIONS

% of Americans *not* meeting nutrient recommendations



CHILDREN AND ADOLESCENTS ARE NOT MEETING CALCIUM RECOMMENDATIONS

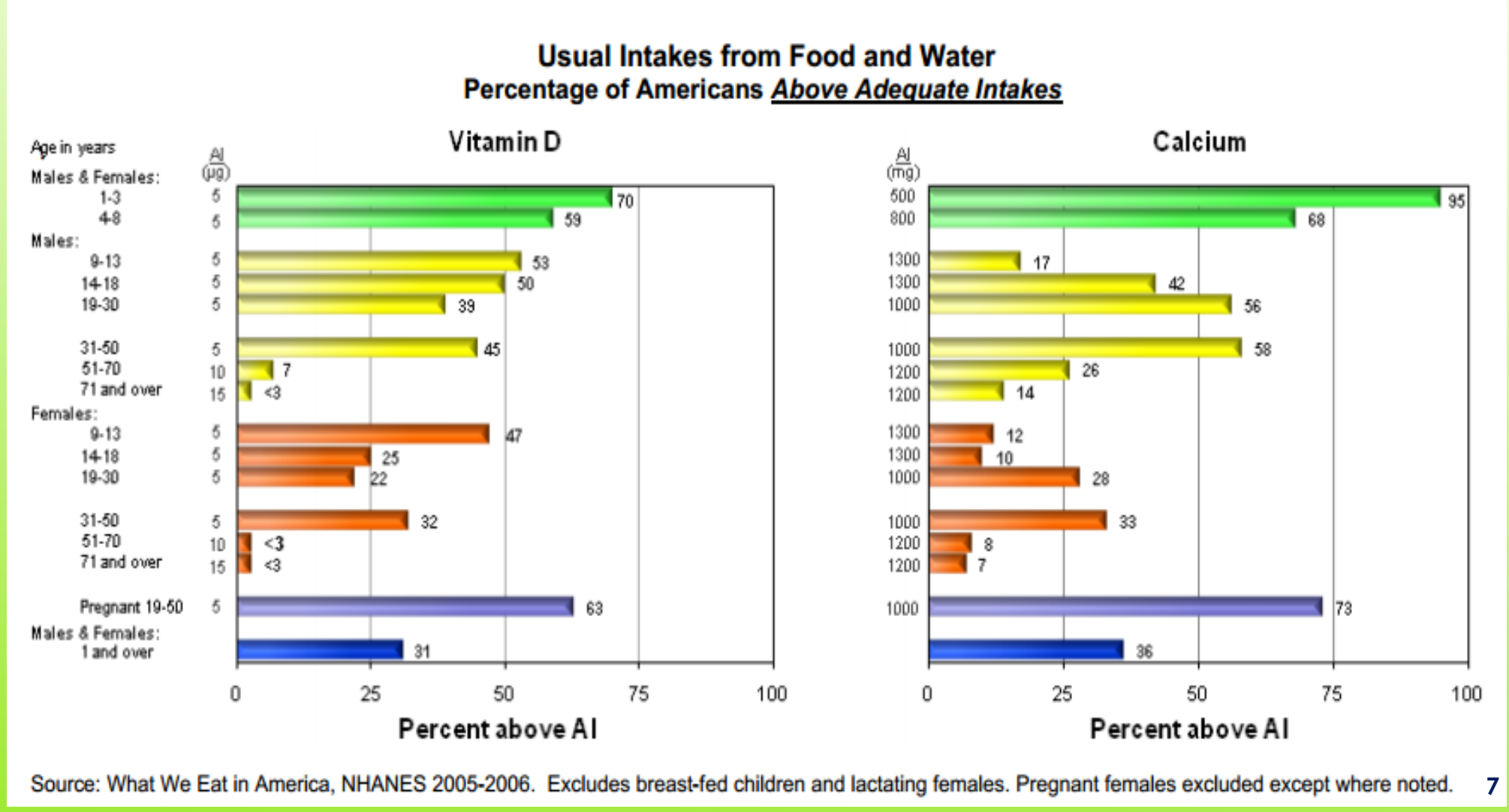
Percentage of children achieving the recommended daily adequate intake for calcium



[6]

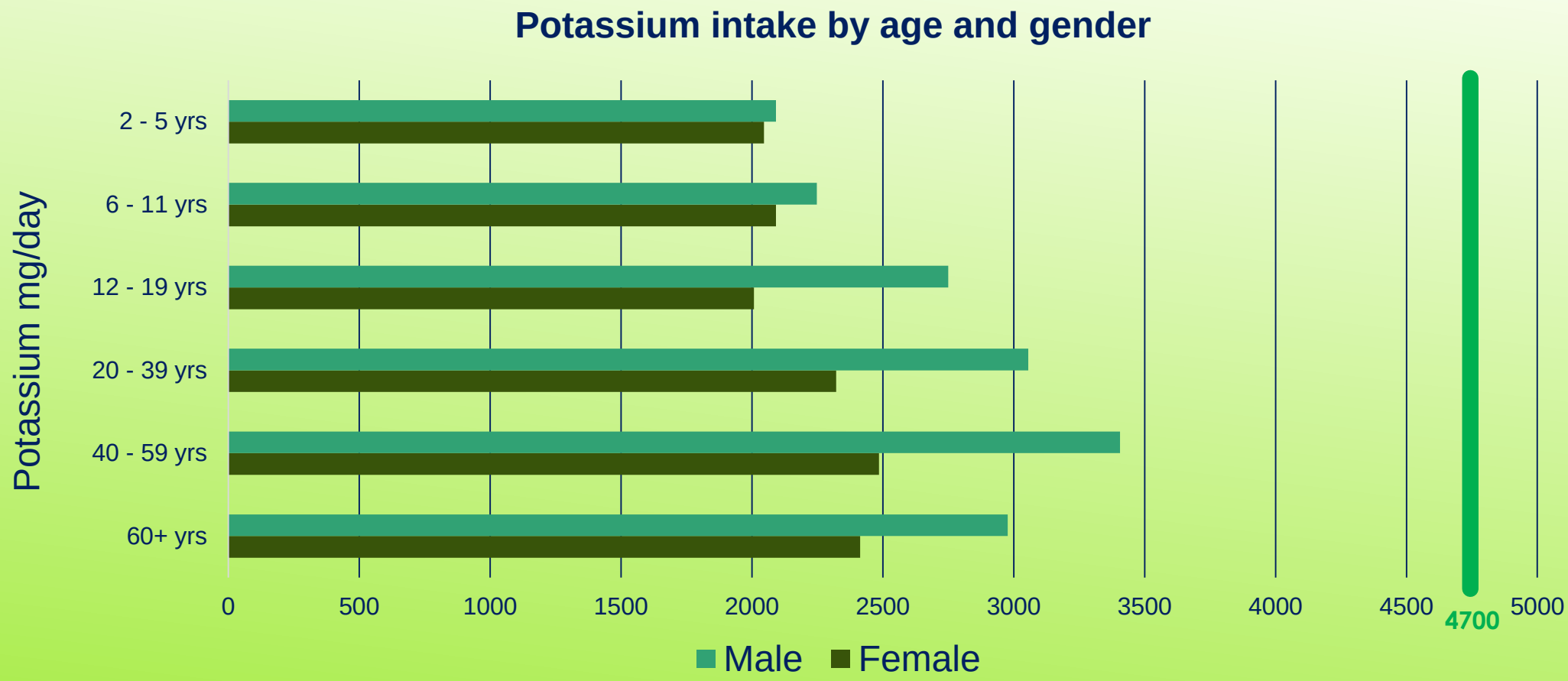
[6] Greer, Frank R. Krebs, Nancy F. and Committee on Nutrition. Optimizing Bone Health and Calcium Intakes of Infants, Children, and Adolescents. Pediatrics 2006;117:578-585.

IN FACT, ROUGHLY 2/3 OF ALL AGES FALL SHORT ON INTAKE OF CALCIUM AND VITAMIN D



Source: What We Eat in America, NHANES 2005-2006. Excludes breast-fed children and lactating females. Pregnant females excluded except where noted.

FEMALES ACHIEVE ONLY ABOUT HALF OF THE RECOMMENDED POTASSIUM INTAKE PER DAY



The Institute of Medicine recommendation for Adequate Intake of Potassium is 4700 mg per day. The average potassium intake of the U.S. population 2 years and older is 2640 mg per day.[8]

[8] Hoy MK, Goldman JD. Potassium Intake of the U.S. Population: What We Eat In America, NHANES 2009-2010. Food Surveys Research Group Dietary Data Brief No. 10. September 2012.

POTASSIUM BENEFITS

- Eating foods with potassium is important in controlling blood pressure because potassium blunts the effects of sodium.
- The more potassium we eat, the more sodium we pass out of the body through urine.
- Potassium also helps relax blood vessel walls, which helps lower blood pressure.

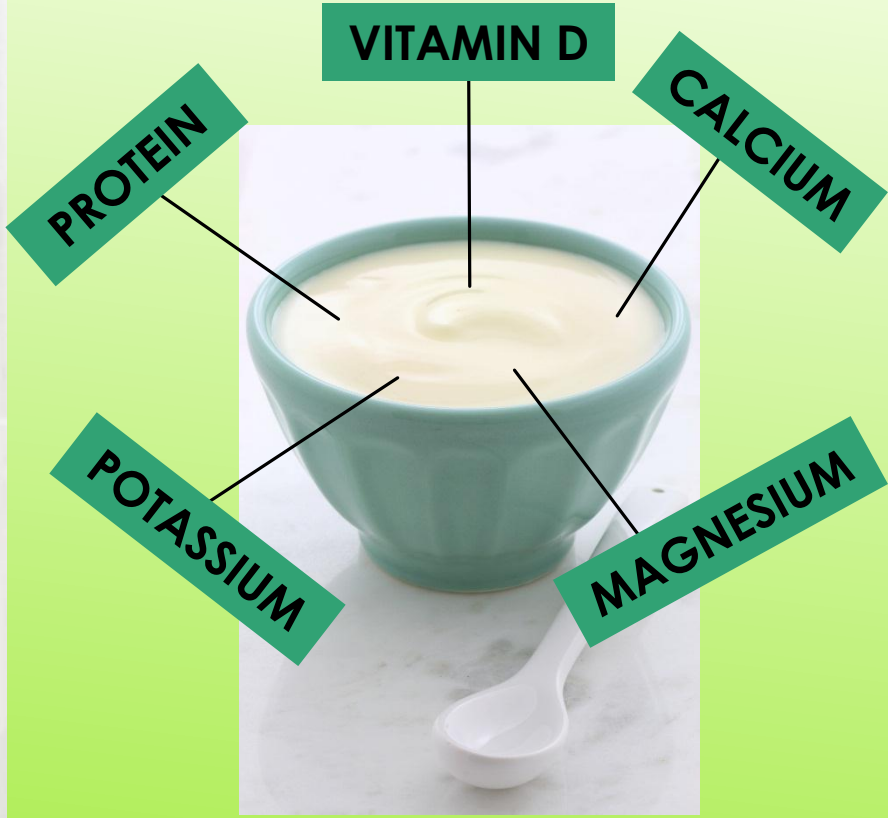
WHAT FOODS HAVE POTASSIUM?

- Fruits, vegetables, fat-free or low-fat (1%) dairy foods and fish — are good natural sources of potassium
- For example, a medium banana has about 420 mg of potassium
- A half cup of plain mashed sweet potatoes has 475 mg

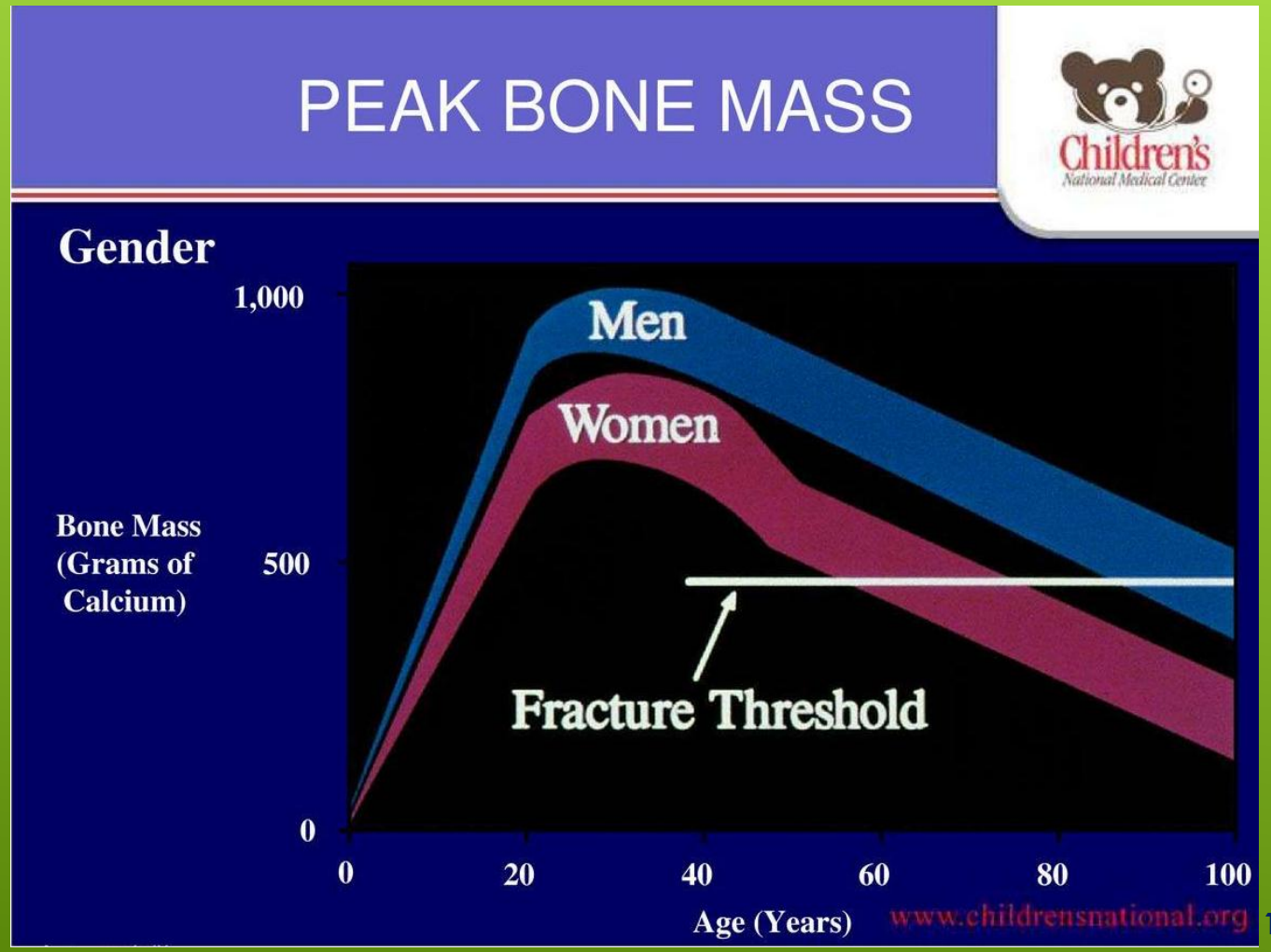
IMPLICATIONS OF NUTRIENT GAPS

1. Adolescent bone health
2. Prenatal development
3. Osteoporosis
4. Health disparities

DAIRY NUTRIENTS ARE KEY FOR DEVELOPING BABIES, ADEQUATE DIET DURING PREGNANCY AND MOTHERS' LONG TERM BONE HEALTH



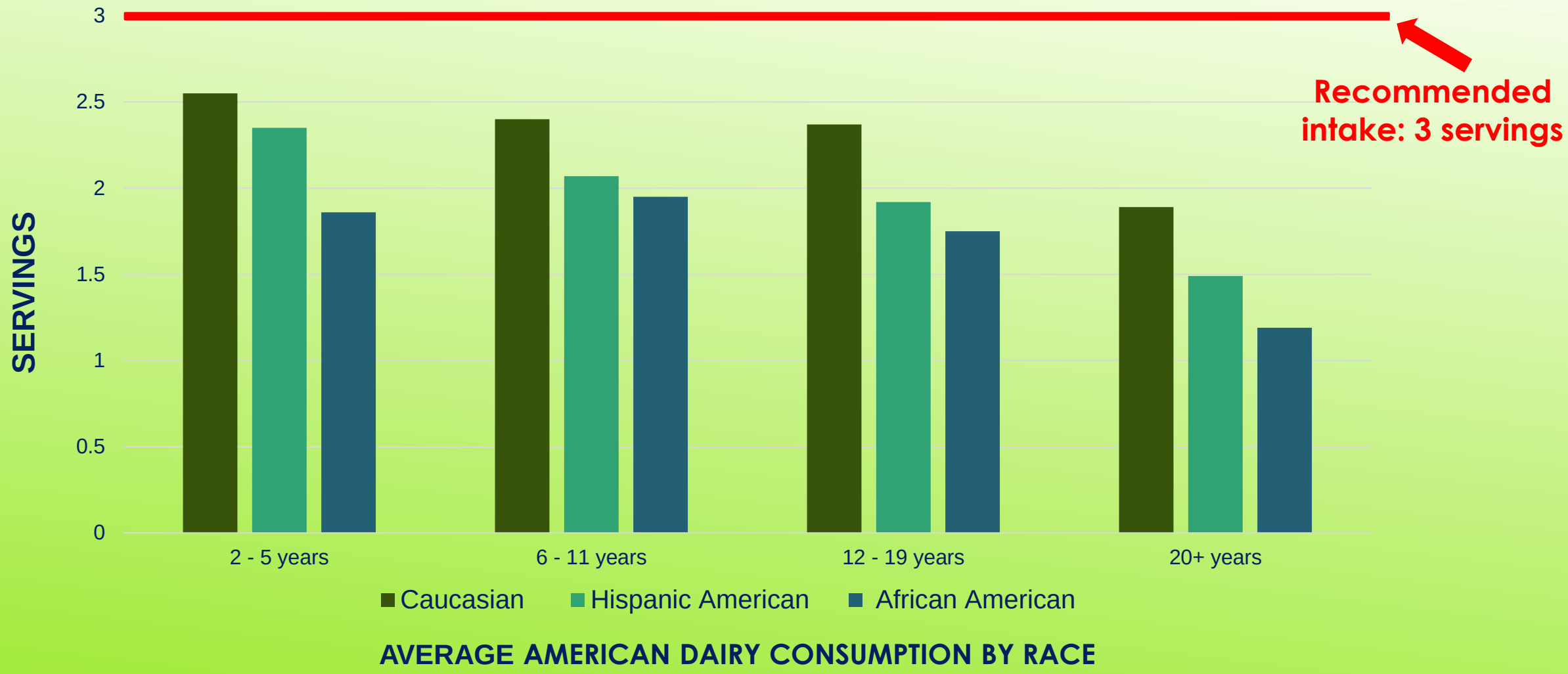
NEARLY HALF OF BONE MASS IS ACCUMULATED DURING TEEN YEARS AND 90% IS ATTAINED BY 20 YEARS OF AGE[9]



[10]

[9] National Institute for Health, Osteoporosis and Related Bone Diseases National Resource Center.
[10] Tosi, Laura L. Pediatric Bone Health from Bench to Bedside. Children's National Medical Center. January 2011.

AFRICAN AMERICANS AND HISPANICS CONSUME LESS DAIRY



AVERAGE AMERICAN DAIRY CONSUMPTION BY RACE

[16] U.S. Department of Agriculture, Agricultural Research Service. 2013. Food Patterns Equivalents Intakes from Food: Mean Amounts Consumed per Individual, by Race/Ethnicity and Age, What We Eat in America, NHANES 2009-2010.

NUTRIENT GAPS MAY CONTRIBUTE TO HEALTH DISPARITIES

- Heart disease, hypertension, obesity and type 2 diabetes tend to disproportionately affect minorities.[17]
- Yogurt is linked to decreased risk of such diseases and linked to improved blood pressure and metabolic profile.[18,19]
- Minorities are also disproportionately affected by lactose intolerance, and yogurt is an easily digestible dairy option.[17,20]
- Yogurt was recently added to the WIC package recommendations[21], and can help bring key nutrients to WIC participants.

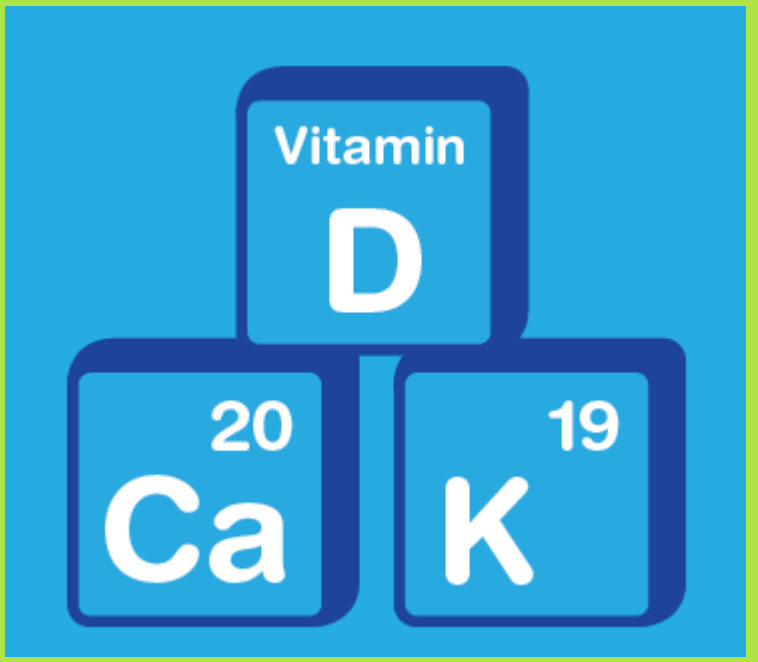
[17] Bailey RK, Fileti CP, Keith J, Tropez-Sims S, Price W, Allison-Ottey SD. Lactose intolerance and health disparities among African Americans and Hispanic Americans: An updated consensus statement. J Natl Med Assoc. 2013;105(2):112-27.
[18] Webb, D, Donovan, SM and Meydani, SN. The role of yogurt in improving the quality of the American diet and meeting dietary guidelines. Nutrition Reviews 2014; 72:180–189.
[19] Wang H, Livingston KA, Fox CS, Meigs JB, and Jacques PF. Yogurt consumption is associated with better diet quality and metabolic profile in American men and women. Nutrition Research. 2013;33(1):18-26.
[20] Lomer, Miranda CE, Parkes, Gareth C, Sanderson, Jeremy D. Review article: lactose intolerance in clinical practice – myths and realities. Aliment Pharmacol Ther. 2008;27: 93–103.
[21] U.S. Department of Agriculture, Food and Nutrition Service, Women, Infants and Children. Final Rule: Revisions in the WIC Food Packages. March 2014.

WHAT IS LACTOSE INTOLERANCE?

- Lactose intolerance is a condition in which people have digestive symptoms—such as bloating, diarrhea, and gas—after eating or drinking milk or milk products.

HOW DOES LACTOSE INTOLERANCE AFFECT HEALTH?

- Lactose intolerance may cause unpleasant symptoms that keep people from consuming milk and milk products that are major sources of calcium, potassium, vitamin D and other nutrients in the diet.



IS THERE A SOLUTION?

- Most people with lactose intolerance can eat or drink some amount of lactose without having digestive symptoms. Individuals vary in the amount of lactose they can tolerate.
- What most people don't know is that yogurt can be a more easily digestible alternative to milk because it contains live and active cultures that aid lactose digestion.[17]
- Additionally, yogurt, on average, contains less lactose than milk and may allow more people to enjoy dairy products with fewer associated symptoms.[20]

[17] Bailey RK, Fileti CP, Keith J, Tropez-Sims S, Price W, Allison-Ottey SD. Lactose intolerance and health disparities among African Americans and Hispanic Americans: An updated consensus statement. J Natl Med Assoc. 2013 Summer;105(2):112-27.

[20] Lomer MCE, Parkes GC, Sanderson JD. Review article: lactose intolerance in clinical practice—myths and realities. Aliment Pharmacol Ther. 2008;27:93–103.

DAIRY FOODS ARE NUTRIENT DENSE

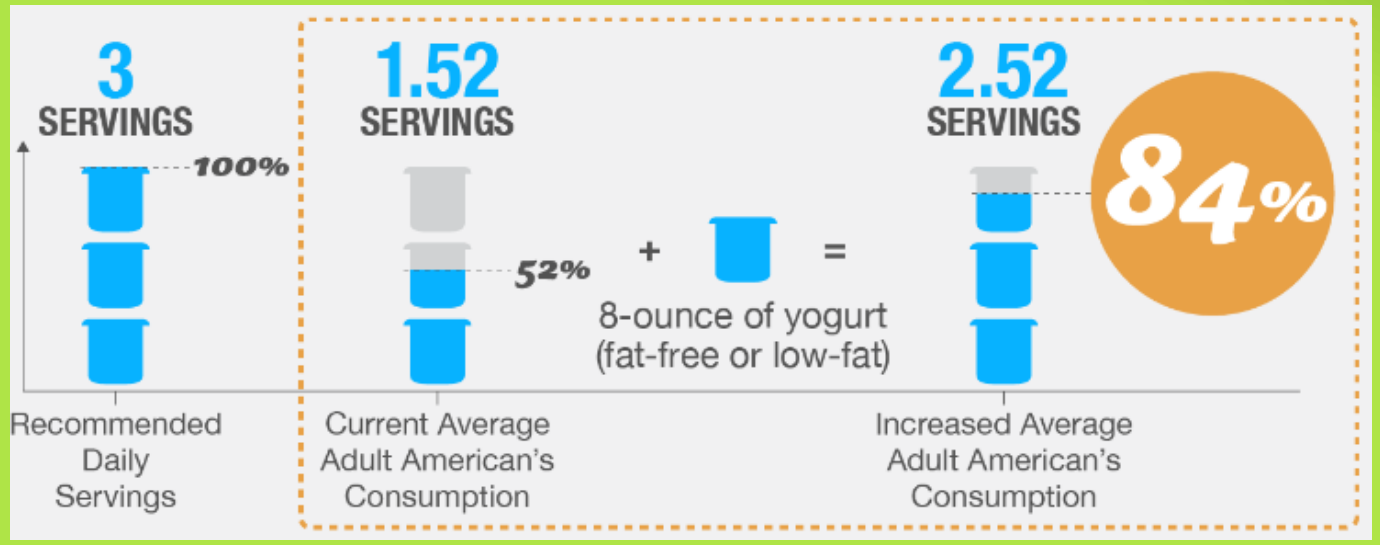
Dairy foods including low-fat and nonfat yogurt, milk and cheese are nutrient dense and contribute high quality protein and calcium, among other nutrients, to the diet.

Nutrient	Fruit NF Yogurt* (8 oz)	Plain NF Greek Yogurt (8 oz)	NF Milk* (1 cup)	NF Cheddar Cheese (1 oz)	American Cheese* (1 oz)
Protein	9.99	24.97	8.75	9	5.08
Carbohydrate	43.13	8.82	12.3	2	1.34
Calcium	345	270	316	250	293
Magnesium	34	27	37	4	7
Potassium	440	345	419	18	37
Vitamin D (IU)	118	0	120	1	84
Saturated Fat	0.27	0.29	0.4	0	5.06
Calories	216	145	91	44	102

*Fortified with vitamin D

[4] U.S. Department of Agriculture, Agricultural Research Service, National Nutrient Database for Standard Reference, Release 27.

YOGURT: A SOLUTION



- Adding one yogurt to the diet every day would increase consumption of dairy from 52% (current average) to 84%.[1]
- Yogurt consumption is associated with bone mineral density and improved bone health.[23]
- Yogurt is a source of high-quality protein.[18]
- Yogurt consumers tend to have better metabolic profile and blood pressure.[18,19]

[1] U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.
[22] Sahni S, Tucker K, Kiel D, et al. Milk and yogurt consumption are linked with higher bone mineral density but not with hip fracture: the Framingham Offspring Study. Arch Osteoporos. 2013;8:119.
[18] Webb, D, Donovan, SM and Meydani, SN. The role of yogurt in improving the quality of the American diet and meeting dietary guidelines. Nutrition Reviews 2014; 72:180–189.
[19] Wang H, Livingston KA, Fox CS, Meigs JB, and Jacques PF. Yogurt consumption is associated with better diet quality and metabolic profile in American men and women. Nutrition Research. 2013;33(1):18-26.

YOGURT:
CONVENIENT, VERSATILE, ACCESSIBLE

- Pairs well and therefore may encourage the consumption of fruits, vegetables and whole grains.
- Low-fat or nonfat yogurt is a healthful choice from the dairy group that:
  - Is low in saturated fat.[4]
  - Is a lower sodium dairy option.[4]
  - Has lower lactose, with active cultures for easier digestion.[20]
  - Provides 25% more potassium than an equal 8 oz serving of milk.[4]

[4] U.S. Department of Agriculture, Agricultural Research Service, National Nutrient Database for Standard Reference, Release 27.
[20] Lomer, Miranda CE, Parkes, Gareth C, Sanderson, Jeremy D. Review article: lactose intolerance in clinical practice – myths and realities. Aliment Pharmacol Ther. 2008;27: 93–103.

SUMMARY

- Most Americans do not meet recommended intake of dairy foods.
- A lack of dairy may contribute to nutrient gaps in dietary intake.
- Nutrient gaps – especially at certain stages like preconception, pregnancy, childhood, adolescence and later adulthood – are related to key health concerns.
- Education is key – one yogurt every day works well with other strategies to increase nutrient density and improve total diet quality.

GOOD NUTRITION IS A PROTECTIVE FACTOR THAT WIC PROMOTES AND PROVIDES!!

RESOURCES

1. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010.

2. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Dietary Guidelines for Americans, 2010. 7th Edition, Washington, DC: U.S. Government Printing Office, December 2010. Based on data from: U.S. Department of Agriculture, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. What We Eat in America, NHANES 2001–2004 or 2005–2006.

3. U.S. Department of Agriculture, Agricultural Research Service and U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. What We Eat in America, NHANES 2007–2008.

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17. Bailey RK, Fileti CP, Keith J, Tropez-Sims S, Price W, Allison-Ottey SD. Lactose intolerance and health disparities among African Americans and Hispanic Americans: An updated consensus statement. J Natl Med Assoc. 2013;105(2):112-27.

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THANK YOU!
QUESTIONS??

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