

BEEF – IT'S WHAT'S FOR SCHOOL LUNCH

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Can Beef Be Part of a Healthy Diet?

Yes

Any food can be included in a healthy diet...but in moderation

Moderation & Portion Control is Key

A Little About Me.....

- . Grew up in small South Texas town, Crystal City
- . 4-Her for 10 years, variety of projects
- . Graduate of Texas A&M University
 - . BS Animal Science, MS Food Science, PhD Food Science
- . Registered Dietitian
- . Assistant Director, Bryan ISD School Nutrition
- . HLSR Volunteer for 21 years, Chair of Communications & Special Services Committee



Nutrition Overview

- . Macronutrients
- . Carbohydrates
- . Protein
- . Fat
- . Vitamins
- . Minerals
- . Fluids

Carbohydrates

- Best Energy Source
 - Glucose
 - Most efficient conversion to glucose
- Complex or Simple
- Phytochemicals
- 50-60% of calories



Carbohydrates

- Eliminating Carbohydrates,
you lose out on:

- Fiber

- Iron

- B Vitamins

- Glucose

- Refined Sugars



Fats

- Source of saturated fat & unsaturated fat
 - Solid fats = more saturated and/or trans fats
 - Liquid fats = more unsaturated fats
- Saturated fat & trans fats found in
 - Animal products, coconut oil, palm oil, spreads
 - Raise LDL cholesterol = Increased heart disease risk
- Unsaturated fats found in
 - Fish, nuts, oils, olives, avocados
 - Source of essential fatty acids, Vitamin E
 - Do not raise LDL
 - Help us absorb fat soluble vitamins - ADEK
 - Healthy or not, oils & fats still have calories
 - 20-30% of calories
 - Provide satiety



Protein

- 9 Essential Amino Acids
- Builds blocks (tissue, bone, enzymes, hormones, vitamins, blood)
- How much % of calories?
 - 15-25% of calories



Nutrition for Children & Adolescents

- USDA guidelines for nutrition
 - Calories, macronutrients, vitamins, minerals
- Children & Adolescent nutrition vital
 - Nutrition for growth = higher calorie intake = higher CHO, protein and fat intake
 - Brain development
 - Immune system
- Childhood is where healthy habits are formed

Beef Nutrition

. Protein

. B vitamins

. Iron

. Phosphorus

. Zinc

. Fat

Beef Nutrition - Protein

- Muscle maintenance, weight management, disease prevention
- Branched Chain Amino Acids (BCAAs) - **leucine**, isoleucine and valine
 - essential amino acids that need to be obtained from diet
 - found mostly in meat, chicken, fish, dairy products, eggs
 - have a critical role in promoting skeletal muscle mass as well as glucose uptake within the muscle
- Beef Protein vs Plant Protein – Beef contains all essential amino acids whereas plant proteins do not
- Impossible Burger – opportunity to have ‘beef’ if you cannot eat beef

How Much Daily Protein?

- Based on individual caloric needs
- Too much Protein in the diet? Yes, it can happen.
 - Intestinal discomfort and indigestion
 - Bad breath
 - Kidney damage
 - Increased cancer risk (due to lack of other nutrients, fiber)
 - Heart disease
- Can only process ~30 g protein at a time; more becomes waste
- Excess protein will be broken down and used for energy
- Studies show diet higher in protein can help with weight loss/management
- Research shows that eating 20-25 grams of protein at each meal is ideal for optimal body benefits

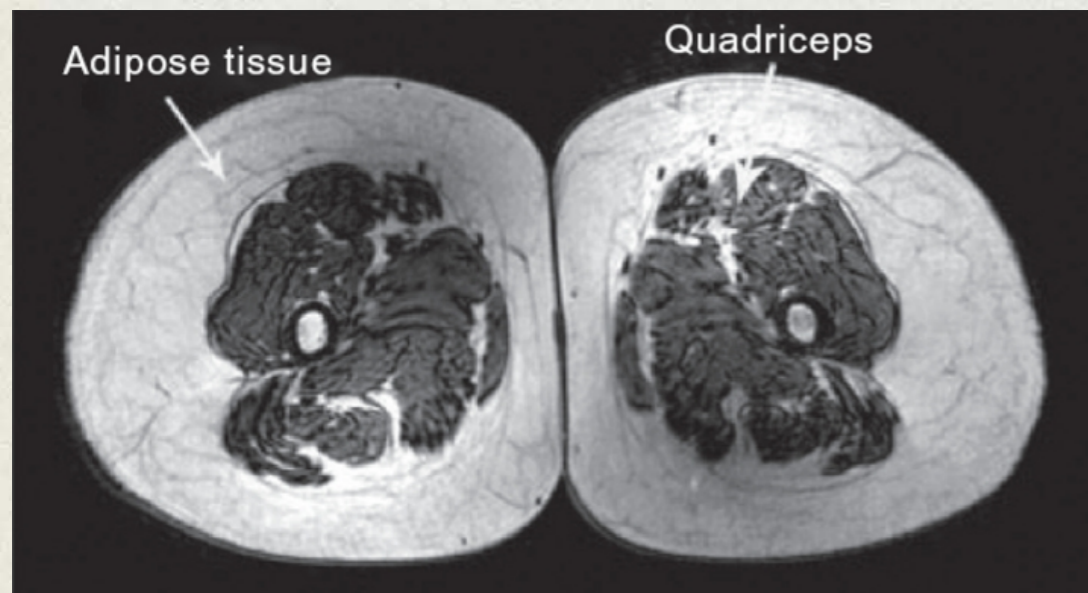
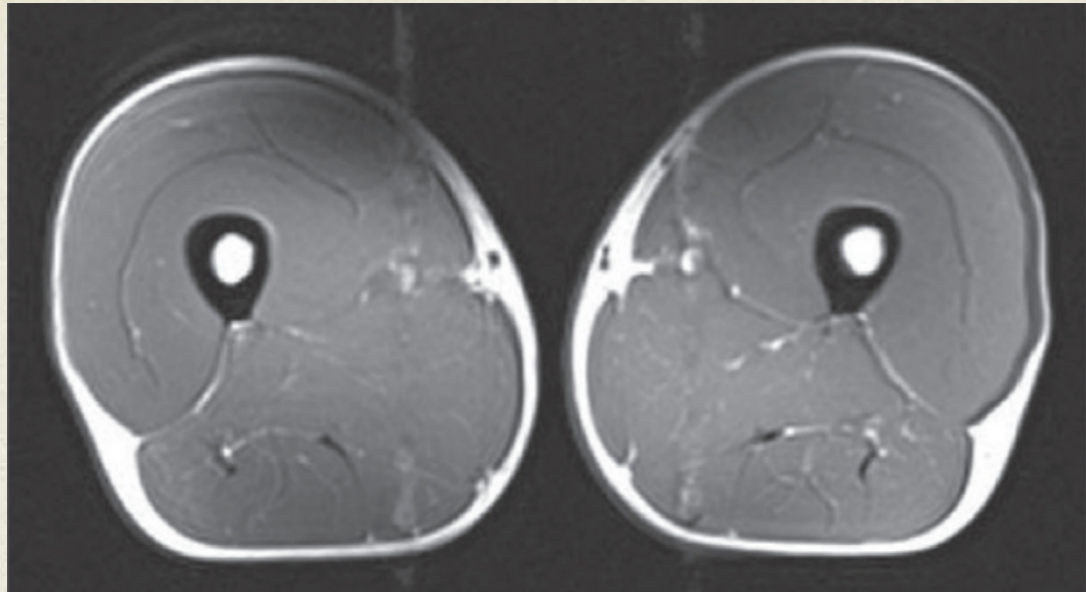


Protein for a Healthy Life

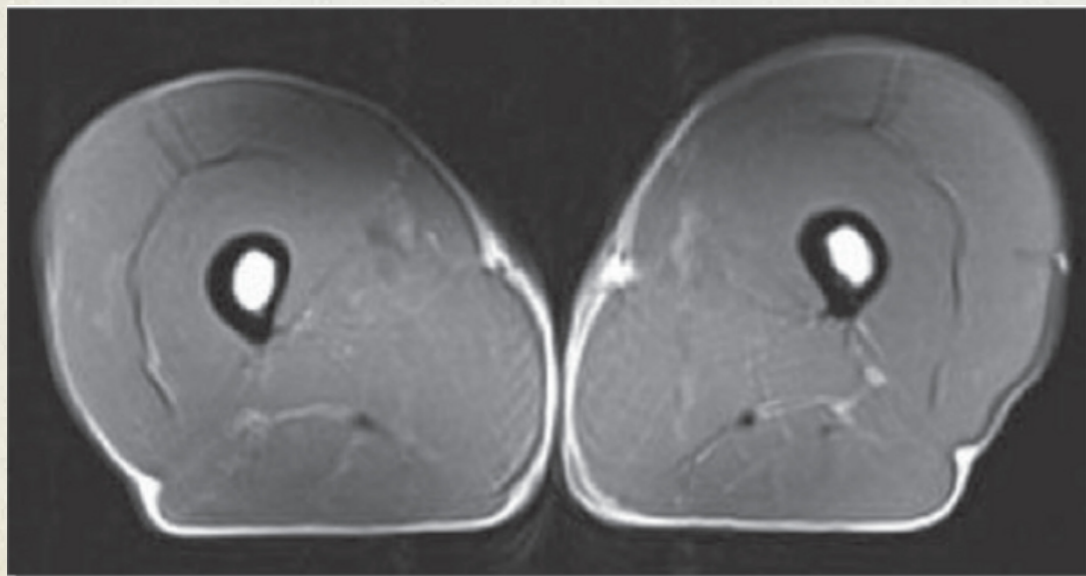
- Eating a more protein-packed diet may help reduce the risk of stroke
- People who eat more protein are have better bone mass as they age, thus lowering their risk of fractures and osteoporosis
- Protein deficiency - increased loss of muscle mass and risk for infections, an impaired immune system and prolonged recovery time from injuries.
- While essential for everyone, protein is important in seniors
 - Studies show that muscle loss (sarcopenia) starts at around 50 yr and a protein-balanced diet can help counteract it. Older adults will have increased protein needs compared to younger adults
- Resistance exercise is essential for muscle growth by stimulating muscle protein synthesis (MPS). Muscle synthesis must have amino acids (from protein) to build muscle cells.

Cross Section of Thigh

40 yr old triathlete



74 yr old sedentary man



70 yr old triathlete

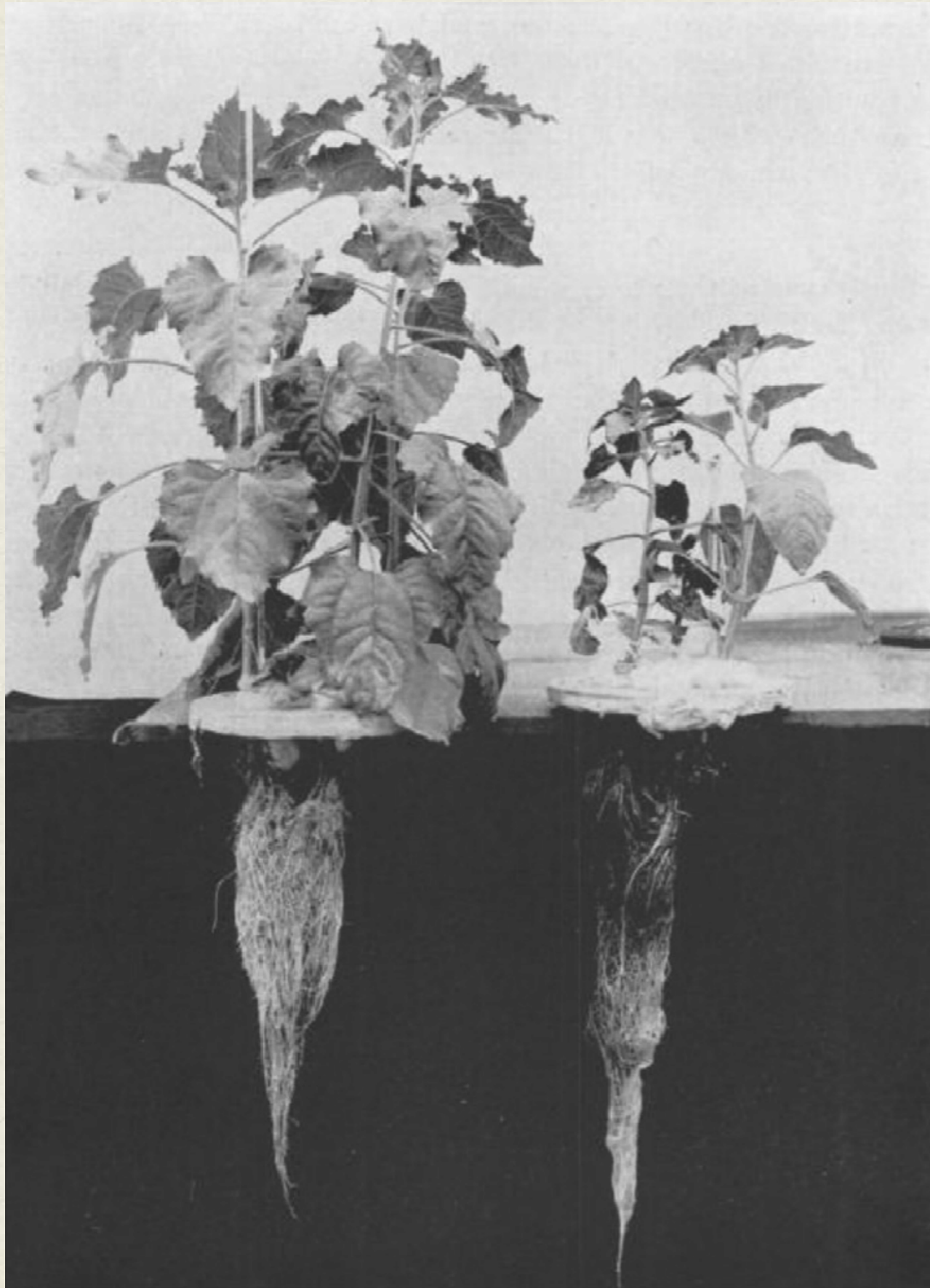
Beef Nutrition - Iron

- Iron deficiency
 - Without enough iron, your body can't produce enough hemoglobin
 - Hemoglobin carries oxygen to the cells, and oxygen is used in the energy process (ATP production).
 - Iron deficiency anemia results in fatigue, shortness of breath
- Iron deficiency is the most prevalent mineral deficiency the US, affecting 9-16% of female adolescents
- Heme-iron & non-heme iron
- Incorporate Vitamin C foods for better iron absorption

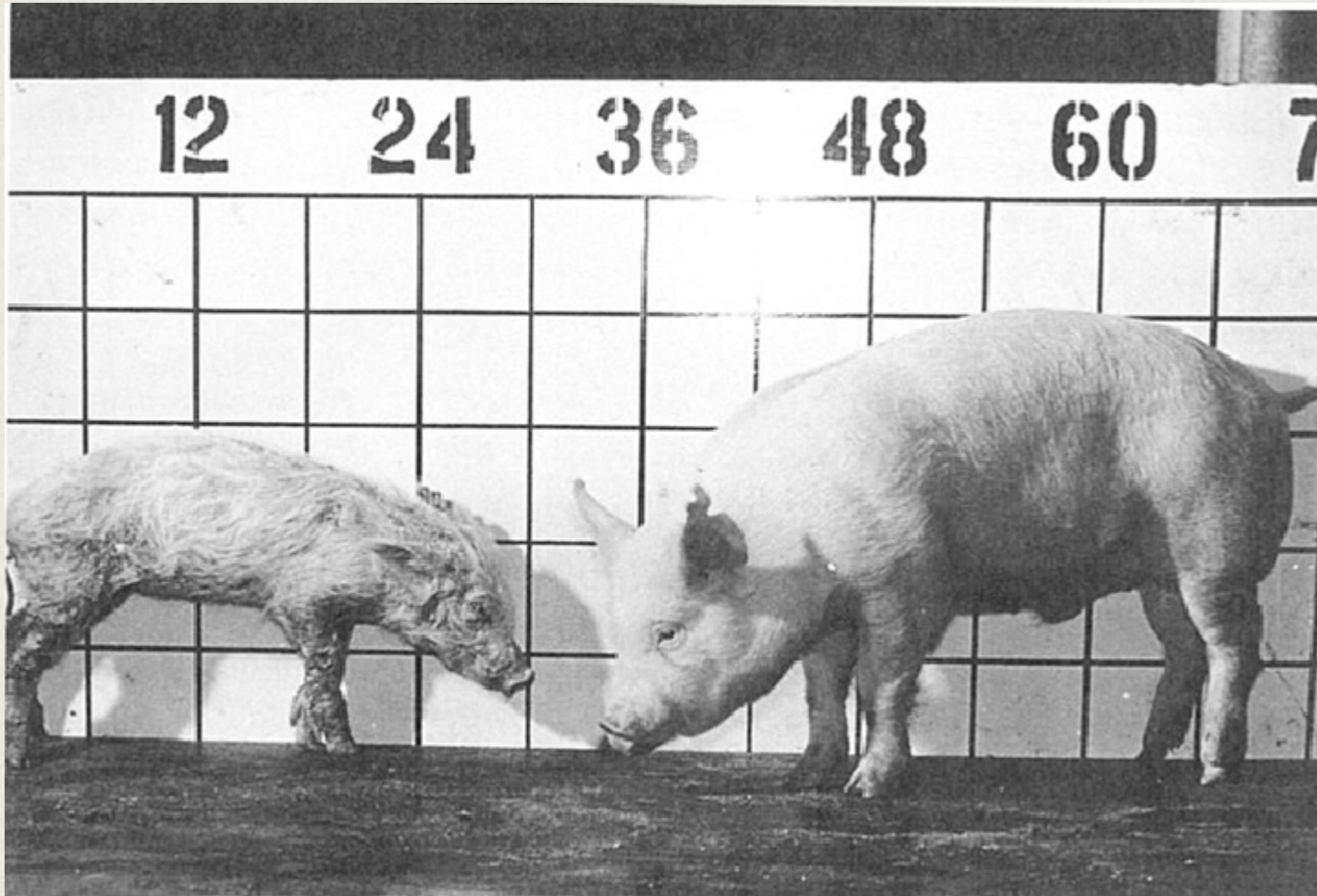


Beef Nutrition - Zinc

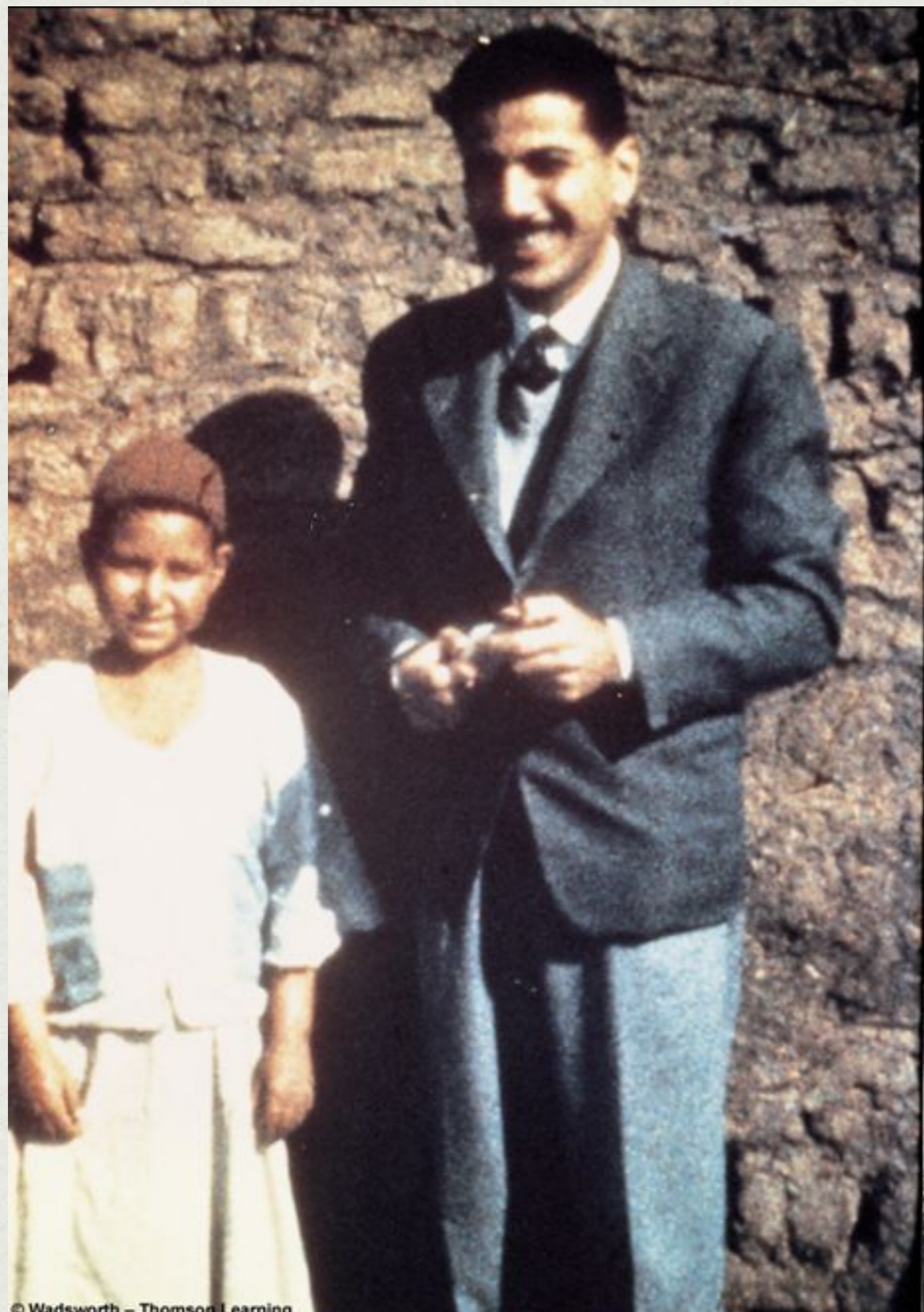
- Plays a role in more than 300 metabolic reactions in the body
- ~60% of total body Zinc is present in muscle
- During growth, Zinc is critical in immune system development, improving recall skills and reasoning, promoting physical growth and developing cognitive skills
- Zinc is highly available from animal products but is not readily absorbed from plant foods, especially foods containing phytates (inhibit Zn absorption)
- Like Iron, consuming Zinc containing foods w/ organic acids (such as citric acid), may enhance Zinc absorption
- Low Zinc status can impair immune function, retard growth, and delay sexual maturation
- 3 oz Beef = 5-7 mg Zinc



Sunflowers grown
with (left) and
without (right)
Zinc



Signs of Zinc
deficiency in pigs
Decreased growth,
parakeratosis



© Wadsworth – Thomson Learning

What happens in
humans?

Right – adult of
average height

Left – 17 yr old
boy, 4 ft tall

Beef Nutrition – B Vitamins

- Thiamine (B1), **riboflavin (B2)**, **niacin (B3)**, pantothenic acid (B5), **pyridoxine (B6)**, biotin (B7), folate (B9) and **cobalamin (B12)**
- Niacin - involved in various critical functions in the body. Supports energy production and metabolism. Low niacin intake associated with increased risk of heart disease.
- Vitamin B6 – involved in over 100 metabolic reactions including blood formation, brain function, and energy metabolism.
- Vitamin B12 - essential for red blood cell formation, brain and nervous system, DNA synthesis for growth and development, and aids in energy production.
 - Only found in foods of animal origin

Beef Nutrition – Phosphorus

- 2nd most abundant mineral in the body
- Essential in how the body stores and uses energy
- Necessary for building bones and teeth
- Needed for growth, maintenance and repair of all tissues and cells, and for production of DNA and RNA
- Deficiency results in rickets (children) and osteomalacia (adults)
- Imbalance between phosphorus and calcium may cause osteoporosis

Beef Nutrition – Fat

- Source of unsaturated fat, saturated fat & cholesterol
- ~Half the fatty acids in beef are monounsaturated fatty acids
 - Can help lower cholesterol levels
- Omega 3 FA
 - Brain development and health, heart health
 - Amount depends on the animal's diet and breed; grass fed ~ twice as much Omega 3s than regular beef
 - GF Beef 22.9 mg/oz; Wild Salmon 500 mg/oz
- ‘Rib sticking’ factor

Beef Nutrition – Hormones

Food Items	Estrogen activity level
3 oz non-treated beef	1.3 ng
3 oz treated beef	1.9 ng
3 oz chicken	2.5 ng
3 oz pork	2.95 ng
8 fl oz milk	34 ng
3 oz cabbage	2000 ng
3 oz potatoes	225 ng
1 Tbsp Soybean Oil	28,370 ng
3 oz Tofu	19,306,350 ng
1 Birth Control Pill	20,000-50,000 ng

* 41,500 ng Pre-Pubescent Male Child, 54,000 ng Pre-Pubescent Female, 136,000 ng Adult Man, 513,000 ng Adult Woman, 19,600,000 ng Pregnant Woman

School Meals & Nutrition

- Must offer certain 'components' at meals
 - Breakfast – Bread/Grains, Fruit/Juice/Vegetable, Milk
 - Lunch – Meat/Meat Alternate, Bread/Grains, Vegetable, Fruit, Milk
- No 'protein food' required at Breakfast....no meat, eggs, yogurt, cheeses, nuts
- Protein foods are more expensive; school districts may choose not to serve

Beef & School Meals

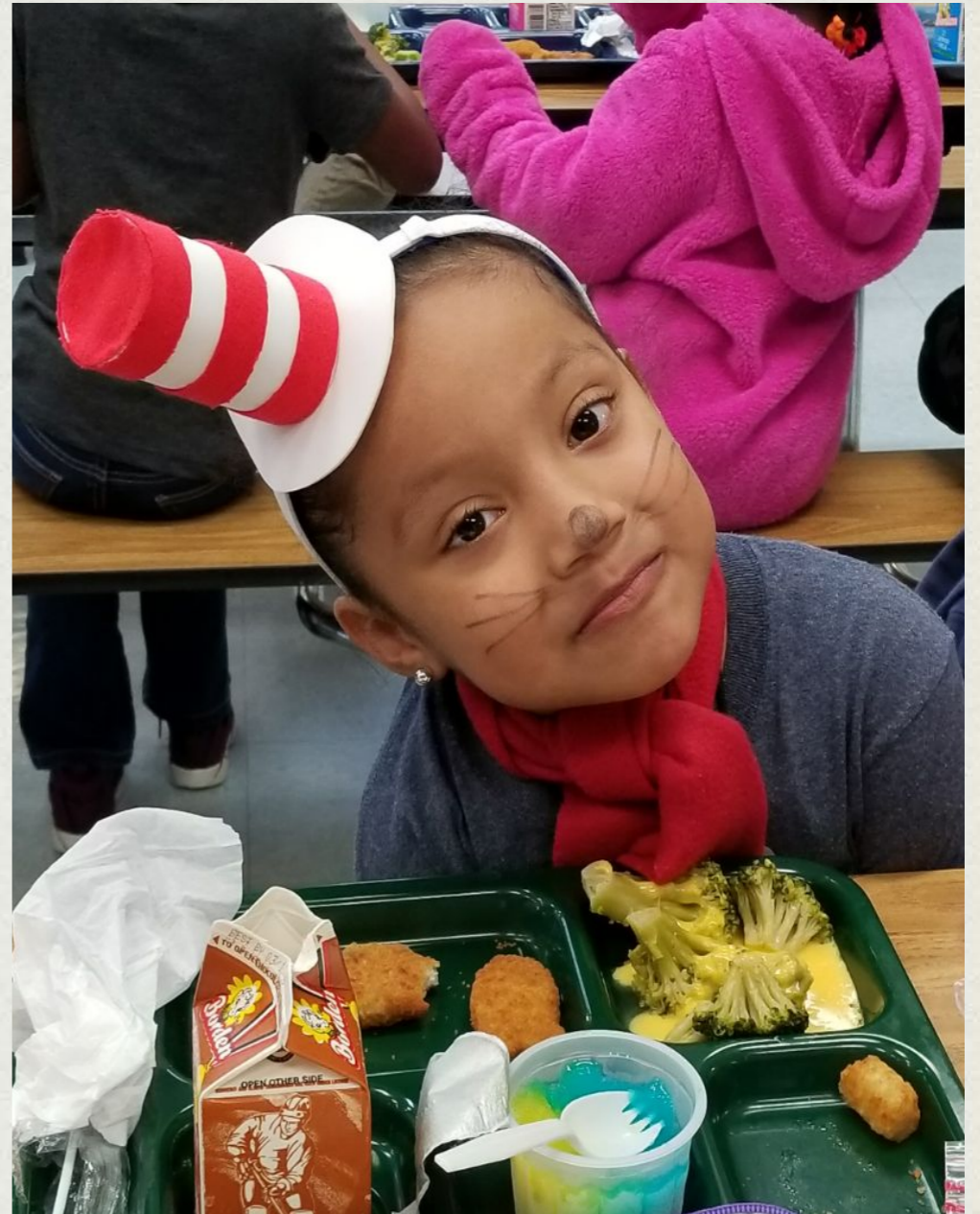
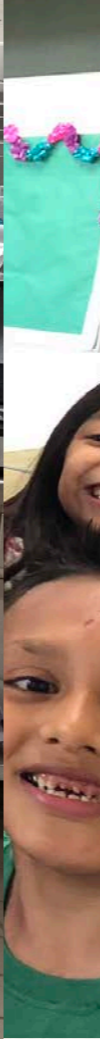
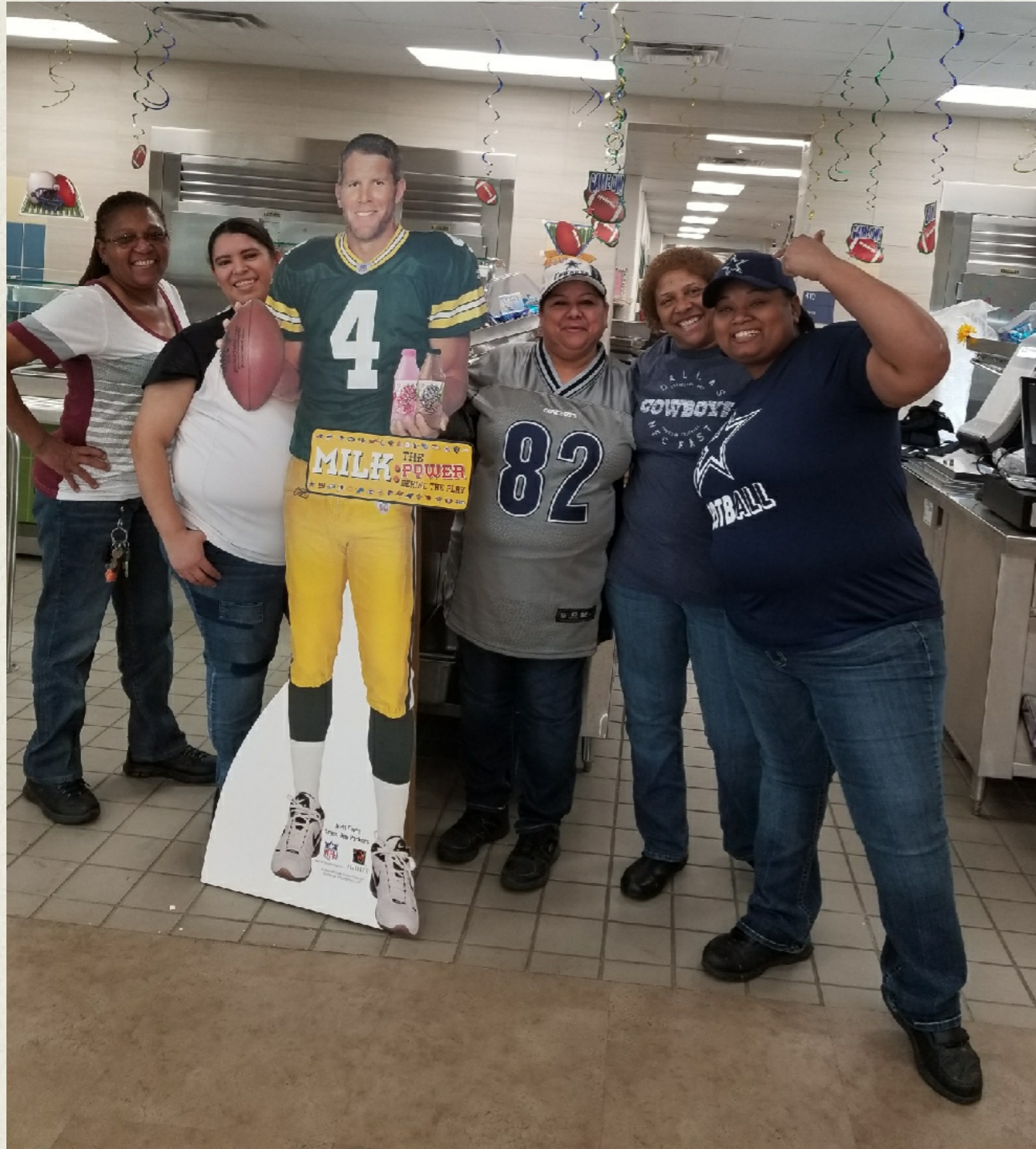
- USDA Commodity program
 - Lack of beef products
 - Many 'beef' products are turkey or chicken based
- Poultry is consistent, lacks variability. Beef...every animal differs.
- Products that have beef in them are not set up to use beef commodity



School Meals – Meal Planning

- . How do I get them to eat with me....so that they get the nutrition they need?
 - . What do the kids like?
 - . What are kid favorite restaurants/chains serving?
 - . Can I meet their nutritional needs with those foods?
 - . Can I get something comparable that is a more nutritious choice?
 - . Can I make meal time ‘fun’?
- . Beef is nutritious. Beef meets their growing needs. Beef can be ‘fun’.
- . Kids like beef.







Eating to Live, not Living
to Eat

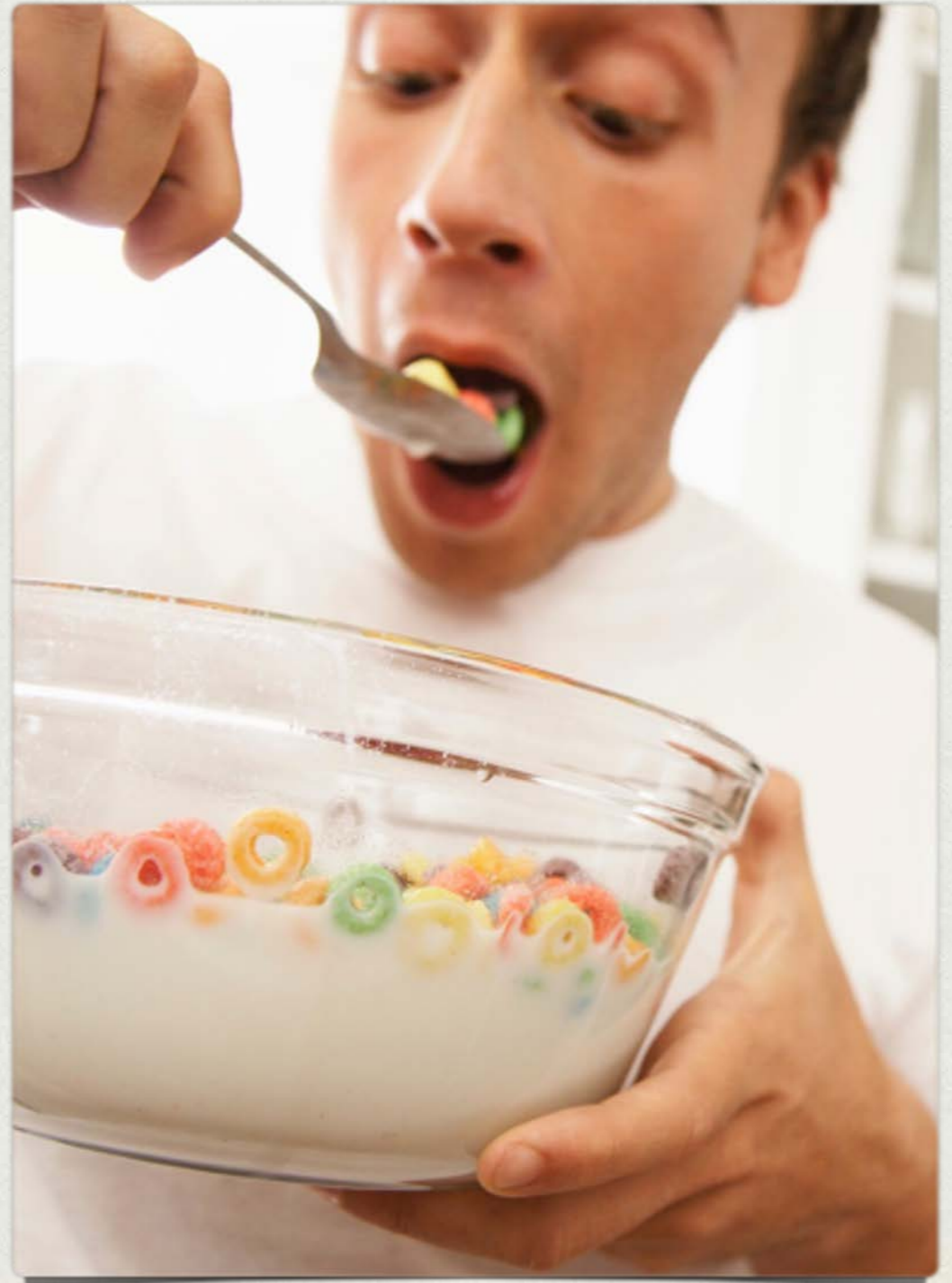
Balance

- 50-60% CHO, 20-30% FAT, 15-25% PRO
- 4 - 4 1/2 cups Fruits & Vegetables Daily
- 3 servings of Dairy Daily
- Don't skip meals
- Snack in between meals
- Portion Control
- Variety; be Creative



Portion Control

- Portion Control is KEY
- No matter how 'healthy', can still consume excess calories
- Can help any food fit into diet
- Follow USDA serving sizes





Balanced Diet + Mindful Eating

- 80%/20% theory
- Give eating it's due attention –
 - Focus on eating while eating
 - Set a time and place
 - Eat with others
 - Use dinnerware
- Listen to your body – Full? Hungry?
- Leave emotions out – eat for Health & Nutrition versus Emotional eating
- Look beyond the meal, consider the food or ingredients, and their origin

Variety

- Give your diet VARIETY
- Eat a rainbow - COLORS
- Hot & Cold - TEMPERATURES
- Confuse the mouth -
TEXTURES
- Vary your food choices





*I like mine with
Lettuce and Tomato
- Jimmy Buffett*

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