Nutrition 101

Healthy Columbus Nutrition Seminar – September 26, 2013

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FRESH FOOD PERSPECTIVE

Overview

- What is Nutrition?
- Nutrients
  - Macronutrients
  - Micronutrients
  - Water
- Label reading

FRESH FOOD PERSPECTIVE

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Nutrition (Merriam-Webster)

"The process of eating the right kind of food so you can grow properly and be healthy"

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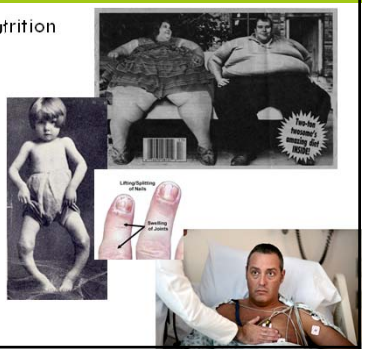
Nutrition

- Results of poor nutrition
  - Obesity
  - Cancer
  - Heart disease
  - Hypertension
  - Diabetes
  - Osteoporosis
  - Bones break, bend
  - Gums bleed
  - Skin rashes
  - Fatigue
  - Mental deficiencies



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Nutrients

Nutrients

Chemical substances in food that contribute to health

- Provide energy
- Provide materials needed to build, maintain and repair the body

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Nutrients

- Macronutrients (needed in grams/day)
  - Carbohydrates – provide calories
  - Protein – provide calories
  - Fat – provide calories
  - Water – provide no calories
- Micronutrients (needed in micrograms or milligrams/day)
  - Vitamins – provide no calories
  - Minerals – provide no calories

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Macronutrients

- Carbohydrates = 4 calories/gram
- Protein = 4 calories/gram
- Fat = 9 calories/gram
- Water = 0 calories

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Carbohydrates

- Provide body with energy by converting to glucose
- Protect muscles
- Regulate amount of sugar circulating in body
- Can help lower cholesterol levels and regulate blood pressure (complex carbohydrates, fiber)

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Carbohydrates

- Three types of carbohydrates:
  - **Simple** – quickly convert to sugar (glucose) in blood
  - **Complex** – convert more slowly to sugar (glucose in blood), more complex sugar and usually in fiber matrix
  - **Dietary Fiber** – unable for body to digest, provide no calories or energy

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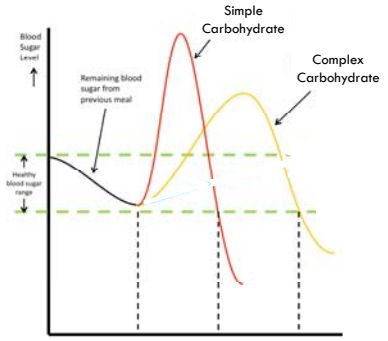
Carbohydrates

Simple Carbs- choose LESS often	**Complex Carbs– choose MORE often**
• "Whites" (white bread, white rice white pasta, regular crackers)	• Whole wheat/whole grain bread
• White potatoes	• Brown rice, Whole wheat pasta
• Soda, Juice	• Whole grain crackers
• Candy, Sweets	• Starchy vegetables (sweet potato, winter squash, corn, peas)
• Sugar, Honey, Jelly, Jam	• Whole fruits
	• Other whole grains (oats, quinoa, bran, bulger, etc)



Blood Sugar Levels after Eating

Carbohydrates

- Two types of fiber
  - **Soluble Fiber**
    - Dissolves in water & forms a gel
    - Helps with both diarrhea & constipation
    - Lowers cholesterol & regulates blood sugar
    - Examples: Apples, oats, squash, cheerios
  - **Insoluble Fiber**
    - Passes through digestion system intact
    - Adds bulk to stool
    - Helps with constipation
    - Removes waste from body quickly, lowers colon cancer risk
    - Examples: Skins of fruits & vegetables, whole grains, beans
- Recommendations: 25g/day for women, 35 g/day for men

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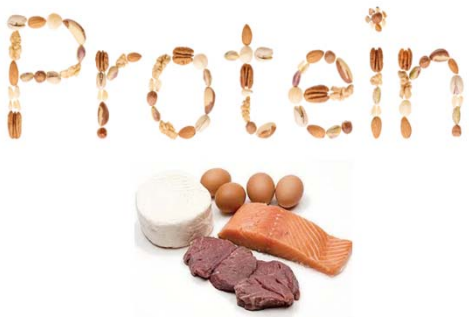

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Protein

- "Building blocks" of human body (main component of all cells, tissues, muscles, organs, blood)
- Make up enzymes and other compounds which help body function (i.e. food breakdown, hormone release, etc)
- Provide energy when no carbohydrates available

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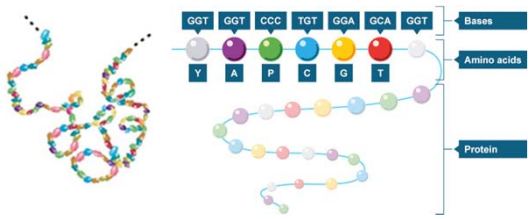
Protein

- Made up of chains of amino acids (23 total amino acids)



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Protein

- Two types of proteins
  - **Complete proteins** – contain all essential amino acids
    - Animal proteins, soy, quinoa
  - **Incomplete proteins** – contain only some essential amino acids
    - Grains, vegetables, nuts, beans, seeds, legumes

Essential amino acid – One which our body can not produce and MUST be consumed through diet (9 of the 23)

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Protein

Healthy Proteins

- **Lean meat/poultry, fish** -3 oz
- **Cheese** - 1 oz, 1 slice
- **Cottage cheese** - 1/2 cup
- **Eggs, egg whites** - 1 egg, 2 egg whites)
- **Greek yogurt** - 6 oz
- **Beans (black, kidney, lentils, etc)** - 1/2 cup
- **Hummus** - 1/4 cup
- **Nut butters (peanut, almond, cashew)** - 2 Tbs
- **Seeds, Nuts** - 1/4 cup

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Fat

- Body fat
  - Main form of energy storage in body
  - Cushion organs & maintain body temperature
  - Maintain skin elasticity
  - Act as transporters (i.e. cholesterol, hormones)
- Fat from food
  - Can have healthy or harmful effects in body depending on type

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Fat

- **"Good Fats"** – Lower cholesterol, reduce inflammation
- **"Bad Fats"** – Raise cholesterol, clog arteries, increase inflammation, increase risk for chronic disease (cancer, heart disease, diabetes)

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Fat

- Several types of fats
  - Trans fats – Unhealthy, avoid
  - Saturated fats – Unhealthy, limit
  - Unsaturated fats
    - Monounsaturated – Healthy, eat more
    - Polyunsaturated
      - Omega-6 fatty acids – Both, eat in moderation
      - Omega-3 fatty acids – Healthy, eat more

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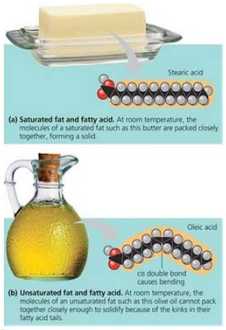
Fat



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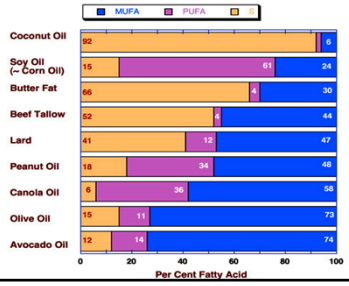
Fat

- Most foods made up of different types of fat but we classify it according to which is the main fat



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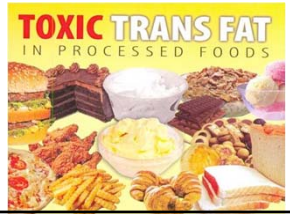
Trans Fats

- Man-made fats
- Wreck havoc in body
  - Increase risk for cancers, heart disease, diabetes
  - Banned in many places including NYC!



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Trans Fats

- Found in:
  - Margarine & vegetable shortening
  - Processed foods (commercially baked cookies, cakes, pastries, microwave popcorn, frozen meals)
  - Deep-fried fast foods (doughnuts, French fries, chicken nuggets)
- MUST READ INGREDIENT LIST!!
  - Can say 0g per serving but still contain trans fats
  - Look for words "hydrogenated oil"

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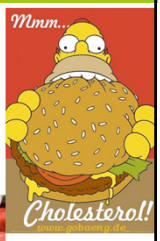
Saturated Fats

- Raise cholesterol so limit in diet
- Found in:
  - Animal products (meats, butter, full fat dairy)
  - Some plant-foods high in sat fats (i.e. coconut oil, palm oil)



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Monounsaturated Fats

- Help lower bad cholesterol (LDL) and raise good cholesterol (HDL)
- Decrease inflammation in the body
- Found in:
  - Olive oil, canola oil
  - Nuts (Almonds, pistachios, pecans, hazelnuts, macadamia)
  - Avocados

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Polyunsaturated Fats – Omega 6

- Have both pro and anti-inflammatory properties, consume in moderation
- Found in:
  - Vegetable oils, corn oil, sunflower oil, safflower oil

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Polyunsaturated Fats – Omega 3

- Many health benefits! Consume frequently
  - Decreased inflammation, reduce risk heart disease, possible improvement of certain cancer treatment side effects, reduction in depression
- Found in:
  - Fatty cold-water fish (salmon, mackerel, sardines, anchovies)
  - Walnuts
  - Flax seed, pumpkin seed, chia seed

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Water

- Body 70-85% water
- Functions:
  - Digest food
  - Carry waste from body
  - Regulate body temperature
- Body does not store water so must take in new water each day!
  - Recommendation: at least 64 oz (8 cups)/day

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Macronutrient Recommendations

- Amount needed depends on many factors:
  - Body size, energy expenditure, dietary specifications
- Conflicting opinions on best ratio
  - USDA: Carbohydrates 45-65% total calories
    Proteins 10-35% total calories
    Fats 20-25% total calories
- Type important!!
  - Best to choose complex carbohydrates, lean proteins and healthy fats

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Micronutrients

- Vitamins = 0 calories
- Minerals = 0 calories
- Often found in supplement form but through food!
  - Supplements needed if poor diet, malabsorption, deficiency

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Vitamins

- Main functions:
  - Build body tissues (bones, skin, glands, nerves, blood)
  - Help metabolize macronutrients
  - Promote healing
  - Prevent nutrient deficiency
- Two types:
  - **Fat soluble (ADEK)**
    - Can build up in body, risk for taking too much
  - **Water soluble (B vitamins, C)**
    - Do not store so must intake regularly

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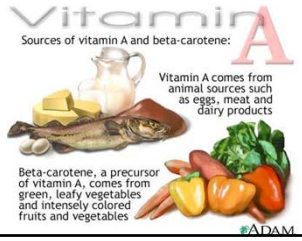
Vitamin A

- Helps vision
- Promotes growth
- Prevents drying of skin & eyes
- Helps keep immune system strong



FRESH FOOD PERSPECTIVE

Vitamin A

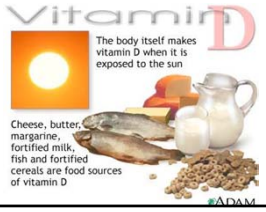
Food Item and Amount	Vitamin A (micrograms RAE*)	Adult Male RDA=900 micrograms %RDA	Adult Female RDA=700 micrograms %RDA
RDA	700-900 micrograms	100%	100%
Fried beef liver, 1 ounce	3042	338%	435%
Sweet potato, ½ cup	958	106%	137%
Spinach, ½ cup	494	55%	71%
Mango, 1	402	45%	57%
Baby carrots, 5	375	42%	54%
Acorn squash, ½ cup	244	27%	35%
Cooked kale, ½ cup	206	23%	29%
Nonfat milk, 1 cup	150	17%	21%
Broccoli, 1 cup	138	15%	20%
Apricot, 3	137	15%	20%
Cheddar cheese, 1 ounce	78	9%	11%
Romaine lettuce, 1 cup	72	8%	10%
Margarine, 1 pat	50	6%	7%
Scallions, 1 tablespoon	32	4%	5%
Peach, 1	26	3%	4%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

* Retinol activity equivalents

Vitamin D

- Increase absorption of calcium & phosphorus
- Helps keep bones strong
- Low levels now associated with many diseases & conditions (cancer, fatigue, obesity)



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Vitamin D

Food Item and Amount	Vitamin D (micrograms)	Vitamin D (IU)	Adult Male and Female AI=5 micrograms %AI
AI	5	200	100%
Baked herring, 3 ounces	44.4	1775	888%
Smoked eel, 1 ounce	25.5	1020	510%
Baked Salmon, 3 ounces	6.0	238	119%
Sardines, 1 ounce	3.4	136	68%
Canned tuna, 3 ounces	3.4	136	68%
1% milk, 1 cup	2.5	99	50%
Nonfat milk, 1 cup	2.5	98	49%
Soft margarine, 1 teaspoon	1.5	60	30%
Italian pork sausage, 3 ounces	1.1	44	22%
Soy milk, 1 cup	1.0	40	20%
Raisin Bran cereal, ½ cup	1.0	38	19%
Baked bluefish, 3 ounces	0.9	34	17%
Special K cereal, ¼ cup	0.8	30	15%
Cooked egg yolk, 1	0.6	25	13%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Vitamin E

- Anti-oxidant – helps prevent against cancer
- Prevents breakdown of other important nutrients (i.e. vitamin A, unsaturated fatty acids)
- May help with menopausal symptoms

Vitamin E is found in corn, nuts, olives, green, leafy vegetables, vegetable oils and wheat germ

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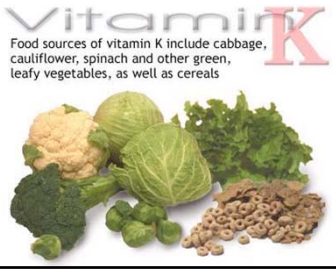
Vitamin E

Food Item and Amount	Vitamin E (milligrams)	Vitamin E (IU)	Adult Male and Female RDA=15 milligrams %RDA
RDA	15	22-33	100%
Total Raisin Bran cereal, ½ cup	22.5	33.5	150%
Sunflower oil, 2 tablespoons	16.3	24.3	109%
Dry-roasted sunflower seeds, 1 ounce	14.3	21.2	95%
Dry-roasted almonds, 1 ounce	7.5	11.1	50%
Safflower oil, 1 tablespoon	5.9	8.7	39%
Canola oil, 2 tablespoons	5.7	8.5	38%
Wheat germ, ¼ cup	5.2	7.7	35%
Almonds, 1 ounce	4.5	6.8	30%
Oil-roasted sunflower seeds, 1 tablespoon	3.4	5.0	23%
Italian dressing, 2 tablespoons	3.1	4.5	21%
Mayonnaise, 1 tablespoon	3.0	4.5	20%
Avocado, 1	2.7	4.0	18%
Chunky peanut butter, 2 tablespoons	2.4	3.6	16%
Mango, 1	2.3	3.5	15%
Peanuts, 1 ounce	2.1	3.1	14%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Vitamin K

- Helps with blood clotting
- Helps promote healthy bones



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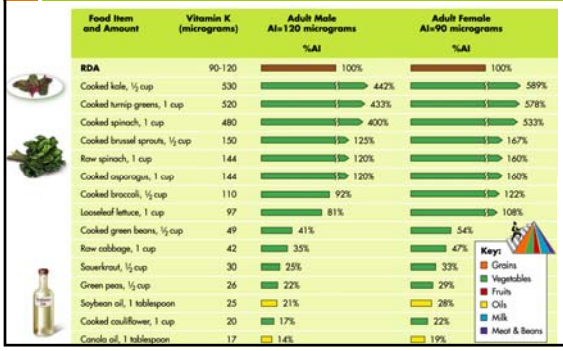
Vitamin K

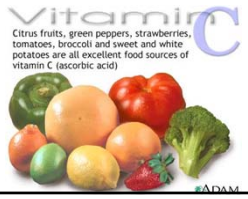


Food Item and Amount	Vitamin K (micrograms)	Adult Male AI=120 micrograms %AI	Adult Female AI=90 micrograms %AI
RDA	90-120	100%	100%
Cooked kale, ½ cup	530	442%	589%
Cooked turnip greens, 1 cup	520	433%	578%
Cooked spinach, 1 cup	480	400%	533%
Cooked brussel sprouts, ½ cup	150	125%	167%
Raw spinach, 1 cup	144	120%	160%
Cooked asparagus, 1 cup	144	120%	160%
Cooked broccoli, ½ cup	110	92%	122%
Looseleaf lettuce, 1 cup	97	81%	108%
Cooked green beans, ½ cup	49	41%	54%
Raw cabbage, 1 cup	42	35%	47%
Sauerkraut, ½ cup	30	25%	33%
Green peas, ½ cup	26	22%	29%
Soybean oil, 1 tablespoon	25	21%	28%
Cooked cauliflower, 1 cup	20	17%	22%
Canola oil, 1 tablespoon	17	14%	19%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Vitamin C

- Helps joints & connective tissues
- Keeps immune system strong
- Helps with hormone & neurotransmitter production
- Anti-oxidant activity – may protect against cancers



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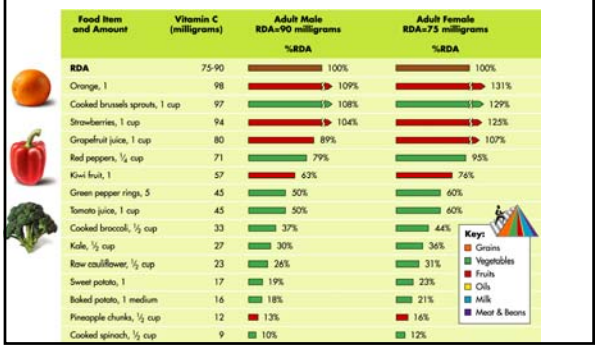
Vitamin C

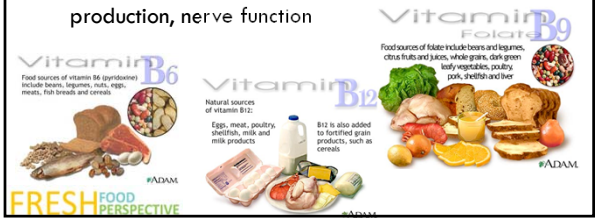


Food Item and Amount	Vitamin C (milligrams)	Adult Male RDA=90 milligrams %RDA	Adult Female RDA=75 milligrams %RDA
RDA	75-90	100%	100%
Orange, 1	98	109%	131%
Cooked brussels sprouts, 1 cup	97	108%	129%
Strawberries, 1 cup	94	104%	125%
Grapefruit juice, 1 cup	80	89%	107%
Red peppers, ½ cup	71	79%	95%
Kiwi fruit, 1	57	63%	76%
Green pepper rings, 5	45	50%	60%
Tomato juice, 1 cup	45	50%	60%
Cooked broccoli, ½ cup	33	37%	44%
Kale, ½ cup	27	30%	36%
Raw cauliflower, ½ cup	23	26%	31%
Sweet potato, 1	17	19%	23%
Baked potato, 1 medium	16	18%	21%
Pineapple chunks, ½ cup	12	13%	16%
Cooked spinach, ½ cup	9	10%	12%

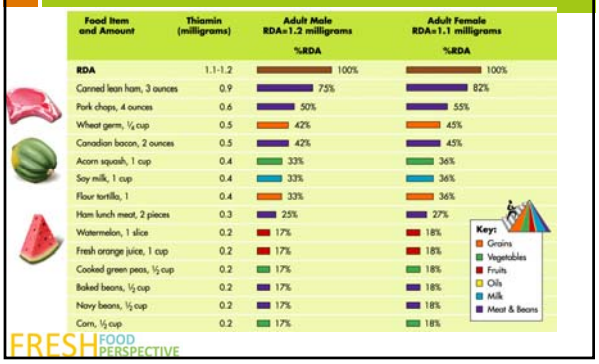
Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

B Vitamins

- Include B-1 (Thiamin), B-2 (Riboflavin), B-3 (Niacin), B-6, B-9 (Folate), B-12, Pantothenic Acid, Biotin)
- Important for cell function, metabolism, energy production, nerve function



Vitamin B1 (Thiamin)



Food Item and Amount	Thiamin (milligrams)	Adult Male RDA=1.2 milligrams %RDA	Adult Female RDA=1.1 milligrams %RDA
RDA	1.1-1.2	100%	100%
Canned lean ham, 3 ounces	0.9	75%	82%
Pork chops, 4 ounces	0.6	50%	55%
Wheat germ, ¼ cup	0.5	42%	45%
Canadian bacon, 2 ounces	0.5	42%	45%
Acorn squash, 1 cup	0.4	33%	36%
Soy milk, 1 cup	0.4	33%	36%
Flour tortilla, 1	0.4	33%	36%
Ham lunch meat, 2 pieces	0.3	25%	27%
Watermelon, 1 slice	0.2	17%	18%
Fresh orange juice, 1 cup	0.2	17%	18%
Cooked green peas, ½ cup	0.2	17%	18%
Baked beans, ½ cup	0.2	17%	18%
Navy beans, ½ cup	0.2	17%	18%
Corn, ½ cup	0.2	17%	18%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Vitamin B3 (Niacin)

Food Item and Amount	Niacin (milligrams)	Adult Male RDA=16 milligrams %RDA	Adult Female RDA=14 milligrams %RDA
RDA	14-16	100%	100%
Tuna, 3 ounces	11.3	71%	81%
Roasted chicken, 3 ounces	10.1	63%	72%
Peanuts, ½ cup	9.9	62%	71%
Baked salmon, 3 ounces	8.6	54%	61%
Turkey lunch meat, 3 ounces	5.4	34%	39%
Ground beef, 3 ounces	5.0	31%	36%
Raw mushrooms, 5	4.7	29%	34%
Lean steak, 4 ounces	4.5	28%	32%
Chunky peanut butter, 2 tablespoons	4.4	28%	31%
Fried beef liver, 1 ounce	4.1	26%	29%
Raisin Nut Bran cereal, ¾ cup	3.8	24%	27%
Tortilla, 1	2.6	16%	19%
Baked cod, 3 ounces	2.1	13%	15%
Potato, 1	2.1	13%	15%
Broiled halibut, 3 ounces	1.6	10%	11%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Pantothenic Acid (B Vitamin)

Food Item and Amount	Panthothenic Acid (milligrams)	Adult Male and Female AI=5 milligrams %AI
AI	5	100%
Total corn flakes cereal, ¾ cup	11.8	236%
Power bar, 1	10.0	200%
Luna bar, 1	9.9	198%
Sunflower seeds, ¼ cup	2.3	46%
Fried beef liver, 1 ounce	1.7	34%
Raw mushrooms, 5	1.7	34%
Plain yogurt, 1 cup	1.5	30%
Acorn squash, 1 cup	1.2	24%
Peanuts, ½ cup	1.0	20%
1% milk, 1 cup	0.9	18%
Roasted chicken breast, 3 ounces	0.8	16%
Broccoli, 1 cup	0.8	16%
Baked potato, 1	0.7	14%
Legumes, ½ cup	0.7	14%
Cooked egg yolk, 1	0.6	12%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Biotin (B Vitamin)

Food Item and Amount	Biotin (micrograms)	Adult Male and Female AI=30 micrograms %AI
AI	30.0	100%
Smooth peanut butter, 2 tablespoons	30.1	100%
Cooked lamb liver, 1 ounce	11.6	39%
Boiled egg, 1	9.3	31%
Cooked egg yolk, 1	8.1	27%
Yogurt, 1 cup	7.4	25%
Wheat germ, ¼ cup	7.2	24%
Roasted peanuts, 5	6.5	22%
Wheat bran, ¼ cup	6.4	21%
Nonfat milk, 1 cup	4.9	16%
Salmon, 3 ounces	4.3	14%
Egg noodles, 1 cup	4.0	13%
Swiss cheese, 2 ounces	2.2	7%
Cheddar cheese, 2 ounces	1.7	6%
Raw cauliflower, 1 cup	1.5	5%
American cheese, 2 ounces	1.4	5%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Vitamin B6

Food Item and Amount	Vitamin B-6 (milligrams)	Adult Male and Female RDA=1.3 milligrams %RDA
RDA	1.3	100%
Baked salmon, 3 ounces	0.8	62%
Baked potato, 1 medium	0.7	54%
Banana, 1	0.7	54%
Avocado, 1	0.6	46%
Roasted chicken breast, 3 ounces	0.5	38%
Acorn squash, 1 cup	0.5	38%
Special K cereal, ¾ cup	0.5	38%
Fried beef liver, 1 ounce	0.4	31%
Roasted turkey lunch meat, 3 ounces	0.4	31%
Sirloin steak, 3 ounces	0.4	31%
Lean ham, 3 ounces	0.4	31%
Watermelon, 1 slice	0.3	23%
Sunflower seeds, ¼ cup	0.3	23%
Cooked spinach, ½ cup	0.2	15%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Vitamin B9 (Folate)

Food Item and Amount	Folate (micrograms)	Adult Male and Female RDA=400 micrograms %RDA
RDA	400	100%
Asparagus, 1 cup	263	66%
Cooked spinach, 1 cup	262	66%
Cooked lentils, ½ cup	179	45%
Black-eyed peas, ½ cup	179	45%
Romaine lettuce, 1½ cups	114	29%
Great Grains cereal, ¾ cup	114	29%
Tortilla, 1	89	22%
Cooked turnips, ½ cup	85	21%
Cooked broccoli, 1 cup	78	20%
Sunflower seeds, ¼ cup	76	19%
Fresh orange juice, 1 cup	75	19%
Cooked beets, ½ cup	68	17%
Kidney beans, ½ cup	65	16%
Fried beef liver, 1 ounce	62	16%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Vitamin B12

Food Item and Amount	Vitamin B-12 (micrograms)	Adult Male and Female RDA=2.4 micrograms %RDA
RDA	2.4	100%
Fried beef liver, 1 ounce	31.7	1321%
Baked clams, 1 ounce	15.7	654%
Boiled oysters, 2	14.4	600%
Lobster, 3 ounces	2.7	113%
Pot roast, 3 ounces	2.5	104%
Plain yogurt, 1 cup	1.4	58%
Corn Flakes cereal, ¾ cup	1.1	46%
Shrimp, 3 ounces	1.0	42%
1% milk, 1 cup	0.9	38%
Soy milk, 1 cup	0.8	33%
Boiled egg, 1	0.6	25%
Lean ham, 3 ounces	0.6	25%
Beef hot dog, 1	0.5	21%
Ham lunch meat, 2 ounces	0.4	17%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Calcium

Food Item and Amount	Calcium (milligrams)	%AI
AI*	1000	100%
Plain yogurt, 1 cup	450	45%
Parmesan cheese, 1 ounce	390	39%
Fortified orange juice, 1 cup	350	35%
Romano cheese, 1 ounce	300	30%
1% milk, 1 cup	300	30%
Buttermilk, 1 cup	285	29%
Swiss cheese, 1 ounce	275	28%
Spinach, 1 cup	250	25%
Salmon (with bones), 3 ounces	210	21%
Cheddar cheese, 1 ounce	200	20%
Total Raisin Bran cereal, ¾ cup	180	18%
Sardines (with bones), 2 ounces	170	17%
Chocolate pudding, ½ cup	160	16%
Tofu, ½ cup	140	14%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Minerals

- Help form strong bones & teeth
- Regulate muscle contractions (including heart rhythm, breathing)
- Maintain fluid balance in tissues
- Help control nervous system

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Phosphorus

Food Item and Amount	Phosphorus (milligrams)	%RDA
RDA*	700	100%
Plain yogurt, 1 cup	350	50%
Swiss cheese, 2 ounces	345	49%
Almonds, ½ cup	340	49%
Sunflower seeds, 1 ounce	330	47%
1% milk, 1 cup	235	34%
Cheddar cheese, 1.5 ounces	220	31%
Salmon, 3 ounces	220	31%
Raisin Bran cereal, 1 cup	215	31%
Sirloin steak, 3 ounces	210	30%
Egg, 2 hard boiled	200	29%
Chicken breast, 3 ounces	180	26%
Roasted turkey, 3 ounces	180	26%
Pot roast, 3 ounces	170	24%
Lean ham, 3 ounces	165	24%
American cheese, 1 slice	155	22%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Magnesium

Food Item and Amount	Magnesium (milligrams)	Adult Male RDA=400 milligrams %RDA	Adult Female RDA=310 milligrams %RDA
RDA	310-400	100%	100%
Spinach, 1 cup	157	39%	51%
Squash, 1 cup	105	26%	34%
Wheat germ, ¼ cup	90	23%	29%
Raisin Bran cereal, 1 cup	90	23%	29%
Navy beans, ½ cup	54	14%	17%
Peanut butter, 2 tablespoons	51	13%	16%
Black-eyed peas, ½ cup	46	12%	15%
Plain yogurt, 1 cup	43	11%	14%
Kidney beans, ½ cup	43	11%	14%
Sunflower seeds, ¼ cup	41	10%	13%
Broccoli, 1 cup	37	9%	12%
Banana, 1 medium	34	9%	11%
1% milk, 1 cup	34	9%	11%
Watermelon, 1 slice	32	8%	10%
Oatmeal, ½ cup	28	7%	9%
Whole-wheat bread,1 slice	25	6%	8%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Iron

Food Item and Amount	Iron (milligrams)	Adult Male RDA = 8 milligrams %RDA	Adult Female RDA =18 milligrams %RDA
RDA		100%	100%
Oat bran cereal, 1 cup	15	188%	83%
Baked clams, 3 ounces	14	175%	78%
Spinach, 1 cup	6.4	80%	36%
Kidney beans, 1 cup	5.3	66%	29%
Pot roast, 4 ounces	3.9	49%	22%
Sirloin steak, 4 ounces	3.8	48%	21%
Parsley, 1 cup	3.7	46%	21%
Fried beef liver, 2 ounces	3.6	45%	20%
Shrimp, 3 ounces	2.7	34%	15%
Braunschweiger sausage, 1 piece	2.7	34%	15%
Flour tortilla, 1	2.4	30%	13%
Garbanzo beans, ½ cup	2.4	30%	13%
Navy beans, ½ cup	2.3	29%	13%
Baked potato, 1	1.7	21%	9%
Artichoke, 1	1.6	20%	9%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Zinc

Food Item and Amount	Zinc (milligrams)	Adult Male RDA = 11 milligrams %RDA	Adult Female RDA =8 milligrams %RDA
RDA		100%	100%
Steamed oysters, 3	24.9	226%	311%
Sirloin steak, 4 ounces	7.4	67%	93%
Pot roast, 3 ounces	4.6	42%	58%
Special K cereal, 1 cup	3.8	35%	48%
Wheat germ, ½ cup	3.5	32%	44%
Lamb chops, 3 ounces	2.7	25%	34%
Peanuts, ½ cup	2.4	22%	30%
Black-eyed peas, 1 cup	2.2	20%	28%
Plain yogurt, 1 cup	2.2	20%	28%
Lean ham, 3 ounces	1.9	17%	24%
Swiss cheese, 1.5 ounces	1.7	15%	21%
Ricotta cheese, ½ cup	1.7	15%	21%
Sunflower seeds, 1 ounces	1.5	14%	19%
Cheddar cheese, 1.5 ounces	1.3	12%	16%
Enriched white rice, ½ cup	1.1	10%	14%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Sodium

Food Item and Amount	Sodium Content (milligrams)	%AI
AI*	1500	100%
Pepperoni pizza, 2 slices	2045	136%
Ham, sliced, 1 ounce	1215	81%
Chicken noodle soup, canned, 1 cup	1106	74%
V8 vegetable juice, 8 ounces	620	41%
Macaroni salad, ½ cup	561	37%
Hard pretzels, 1 ounce	486	32%
Hamburger with bun, 1 each	474	32%
Green beans, canned, ½ cup	390	26%
Saltine crackers, 6 each	234	16%
Cheddar cheese, 1 ounce	176	12%
Peanut butter, 2 tablespoons	156	10%
Nonfat milk, 1 cup	127	8%
Seven grain bread, 1 slice	126	8%
Animal crackers, 1 ounce	112	7%
Grape juice, 1 cup	10	1%

Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Potassium

Food Item and Amount	Potassium (milligrams)	%AI
AI*	4700	100%
Kidney beans, 1 cup	715	15%
Winter squash, ¾ cup	670	14%
Plain yogurt, 1 cup	570	12%
Orange juice, 1 cup	495	11%
Cantaloupe, 1 cup	495	11%
Lima beans, ½ cup	480	10%
Banana, 1 medium	470	10%
Zucchini, 1 cup	450	10%
Soybeans, ½ cup	440	9%
Artichoke, 1 medium	425	9%
Tomato juice, ¾ cup	400	9%
Pinto beans, ½ cup	400	9%
Baked potato, 1 small	385	8%
Buttermilk, 1 cup	370	8%
Sirloin steak, 3 ounces	345	7%

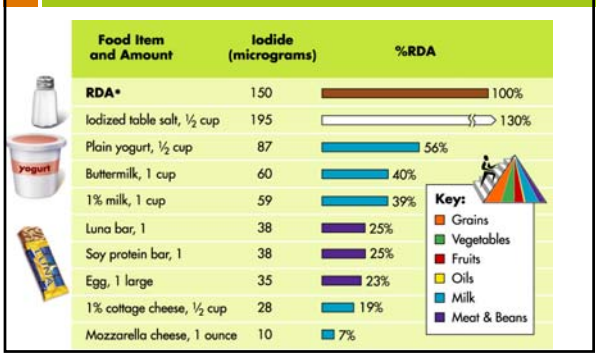
Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Selenium

Food Item and Amount	Selenium (micrograms)	%RDA
RDA*	55	100%
Tuna, 3 ounces	68	124%
Sirloin steak, 5 ounces	47	85%
Lean ham, 3 ounces	42	76%
Clams, 3 ounces	41	75%
Salmon, 3 ounces	40	73%
Egg noodles, 1 cup	35	64%
Chicken breast, 3 ounces	20	36%
Special K cereal, 1 cup	17	31%
Oat bran cereal, 1 cup	14	25%
Whole-wheat bread, 1 slice	10	18%
Cooked oatmeal, 1 cup	10	18%
White bread, 1 slice	9	16%
Raisin bran cereal, 1 cup	4	7%

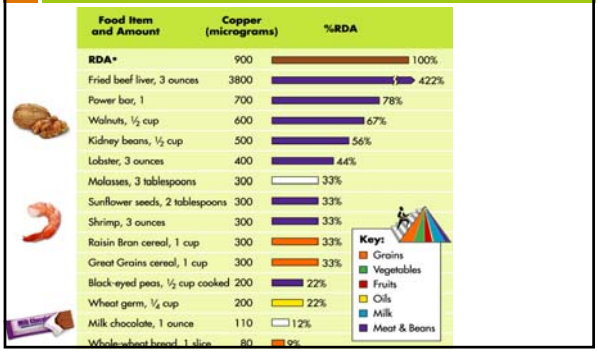
Key: Grains, Vegetables, Fruits, Oils, Milk, Meat & Beans

Iodide



Food Item and Amount	Iodide (micrograms)	%RDA
RDA*	150	100%
Iodized table salt, ½ cup	195	130%
Plain yogurt, ½ cup	87	56%
Buttermilk, 1 cup	60	40%
1% milk, 1 cup	59	39%
Luna bar, 1	38	25%
Soy protein bar, 1	38	25%
Egg, 1 large	35	23%
1% cottage cheese, ½ cup	28	19%
Mozzarella cheese, 1 ounce	10	7%

Copper



Food Item and Amount	Copper (micrograms)	%RDA
RDA*	900	100%
Fried beef liver, 3 ounces	3800	422%
Power bar, 1	700	78%
Walnuts, ½ cup	600	67%
Kidney beans, ½ cup	500	56%
Lobster, 3 ounces	400	44%
Molasses, 3 tablespoons	300	33%
Sunflower seeds, 2 tablespoons	300	33%
Shrimp, 3 ounces	300	33%
Raisin Bran cereal, 1 cup	300	33%
Great Grains cereal, 1 cup	300	33%
Black-eyed peas, ½ cup cooked	200	22%
Wheat germ, ¼ cup	200	22%
Milk chocolate, 1 ounce	110	12%
Whole-wheat bread, 1 slice	80	9%

Micronutrient Recommendations

- Vary according to age, sex

- **RDA (Recommended Daily Allowance)**
  = amount sufficient to meet requirements of 97.5% of healthy individuals
- **AI (Adequate Intake)**
  = used when no RDA established, what is believed to be adequate for everyone in demographic group
- **UL (Tolerable Upper Level)**
  = highest level of daily consumption that is considered safe

****Dangers of exceeding recommended amounts! Always use caution when supplementing****

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Reading Nutrition Labels

Questions??

THANK YOU!!

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