



# Nutrition within Plant Parts

Roots, stems, leaves, flowers, fruits, and seeds



# Nutrition Components

- ▶ Fiber– helps control blood glucose (sugar) levels, may reduce cholesterol
- ▶ Minerals– vital for good health and disease prevention
- ▶ Vitamins– good for immune defense, growth and protection of various systems in the body
- ▶ Antioxidants– vitamins A, C, E, beta-carotene, and selenium, help prevent some cancers, heart disease, and stroke



## Fiber

- ▶ Lowers cholesterol
- ▶ Helps digestive system process foods
- ▶ Helps absorb nutrients
- ▶ Helps control appetite

▶ 18 g

- ▶ Legumes, fruits, rice, beans, oats, corn, cereals

Benefits

RDA and sources



## Minerals – Calcium

- ▶ Strong bones
  - ▶ Strong teeth
  - ▶ Nerve function
  - ▶ Blood clotting
  - ▶ Muscle contraction
- ▶ 800 mg
  - ▶ Green leafy vegetables, yogurt, milk, cheese, butter

Benefits

RDA and sources



## Minerals – Iron

- ▶ Red blood cells and muscle function
- ▶ White blood cells and immune system
- ▶ 14 mg
- ▶ Green leafy vegetables, nuts, whole grains, meat

Benefits

RDA and sources



# Minerals – Magnesium

- ▶ Cell repair
  - ▶ Converting energy from food
  - ▶ Building strong bones, teeth, muscles
  - ▶ Regulating body temperature
- ▶ 300 mg
- ▶ Green leafy vegetables, whole grains, nuts

Benefits

RDA and sources



## Minerals – Zinc

- ▶ Immune system
- ▶ Breakdown of proteins, fats, and carbohydrates
- ▶ 1.5 mg
- ▶ Whole grains, brown rice, milk, shellfish, meat

Benefits

RDA and sources



## Vitamins~ A- retinol

- ▶ Eyesight
- ▶ Growth
- ▶ Appetite
- ▶ taste

▶ 800 micrograms

▶ Carrots, green leafy vegetables, yellow fruits.

Liver, and milk products

Benefits

RDA and sources



# Vitamins~ B (1)-Thiamine

- ▶ Nervous system
  - ▶ Digestion
  - ▶ Muscles
  - ▶ Heart
  - ▶ Alcohol damaged nerves
- ▶ 1.4 mg
- ▶ Nuts, wheat germ, egg yolk, meats, cereal

Benefits

RDA and sources

# Vitamins~ B (6) – Pyridoxine

- ▶ Preventing skin conditions
- ▶ Preventing nerve problems
- ▶ Helping body absorb protein
- ▶ Helping body absorb carbohydrates

▶ 2 mg

▶ Fish, bananas,  
▶ Whole grains,  
and dried  
beans

Benefits

RDA and sources

# Vitamins~ B (2)- Riboflavin

- ▶ Growth
  - ▶ Skin, nails, hair
  - ▶ Sensitive lips and tongue
  - ▶ Eyesight
  - ▶ Breakdown of fat and carbohydrates
- ▶ 1.6 mg
- ▶ Green leafy vegetables, fish, cheese, milk, liver

Benefits

RDA and sources

A close-up photograph of a rosemary plant with green, needle-like leaves and small purple flowers. The background is a soft-focus green.

# Vitamins~ B 12 – Cobalamin

- ▶ Making red blood cells
- ▶ Formation of nerves
- ▶ 1 microgram
- ▶ Eggs, shellfish, poultry, cheese, fortified cereal, liver, meat

Benefits

RDA and sources

# Vitamins~ C – Ascorbic Acid

## Good For

- ▶ Immune defense
- ▶ Protection from viruses and bacteria
- ▶ Healing wounds
- ▶ Cell lifespan
- ▶ Prevents scurvy

▶ 60 mg

▶ Citrus fruits, green leafy vegetables, berries, tomatoes, cauliflower

## RDA and sources

A close-up photograph of a rosemary plant with green, needle-like leaves and small blue flowers. The background is blurred green foliage.

## Vitamin D

- ▶ Strong bones
- ▶ Strong teeth
- ▶ 5 micrograms
- ▶ Sunlight, cod liver oil, tuna, salmon

Benefits

RDA and Sources

# Folic Acid (Folates)

## Good For

- ▶ Production of red blood cells
- ▶ Essential in first 3 months of pregnancy to prevent spina-bifida, and cleft palate/lip

▶ 200 micrograms

▶ Carrots, green leafy vegetables, whole wheat, rye, beans, melon, avacado

## RDA and Sources

# Roots

- ▶ Absorption
    - Of water and inorganic nutrients
  - ▶ Anchoring
    - The plant body to the ground
  - ▶ Storage
    - Of food and nutrients
  - ▶ Prevents soil erosion
- ▶ Anchors, absorbs, stores...



Functions

Example



# Roots

- ▶ Folates 27% RDA
- ▶ Vitamin C 8% RDA
- ▶ Niacin (vit B) 2% RDA
- ▶ Iron (mineral) 10% RDA
- ▶ Fiber 7% RDA

Roots that we eat include:  
Carrots, sweet potatoes,  
beets, and turnips



Nutritive Value

Examples

# Stems

- ▶ Growth of plant toward sunlight for photosynthesis
- ▶ Usually the petiole part of plant that joins leaf to stem
- ▶ High in fiber and water

## Examples



## Functions

# Stems

- ▶ Vitamin K 44% RDA
- ▶ Vitamin A 10 % RDA
- ▶ Vitamin C 14% RDA
- ▶ Iron 1% RDA
- ▶ Calcium 4% RDA
- ▶ Fiber 9% RDA
- ▶ Stems we eat include:  
celery, asparagus,  
rhubarb



Nutritive Value

Examples

# Bulb

- ▶ An underground storage organ
- ▶ Formed from the stem and leaves
- ▶ Save energy for future growth



Functions

Examples

# Bulb

- ▶ Vitamin C 2%
- ▶ Calcium 1 %
- ▶ Antioxidants (phytochemicals)
- ▶ Bulbs we eat are:
  - ▶ Onions, garlic, shallots, fennel



Nutritive Value

Examples

# Tuber

- ▶ Fleshy storage stems
- ▶ Usually located underground
- ▶ Important source of starch



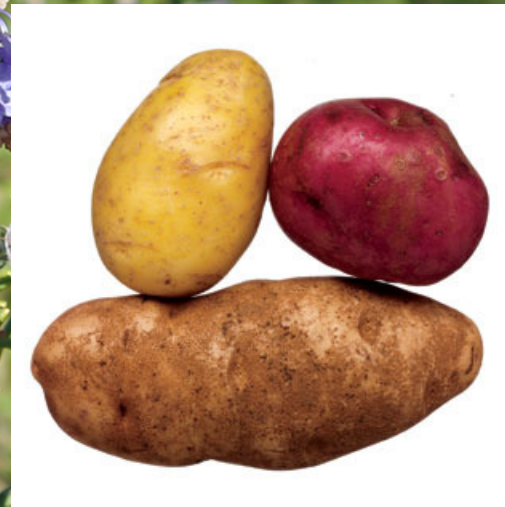
Functions

Examples

# Tuber

- ▶ Vitamin C 121 %
- ▶ Calcium 4%
- ▶ Iron 21%
- ▶ Fiber 32%

Tubers that we eat are: Potatoes, cassava, ginger



Nutritive Value

Examples

# Leaf

- ▶ Leaf is site of photosynthesis
- ▶ Food source for plant (glucose)



Functions

Examples



# Leaf

- ▶ Vitamin C 19%
- ▶ Vitamin A 82%
- ▶ Calcium 2%
- ▶ Fiber 4%
- ▶ Leaves we eat:  
lettuce, herbs,  
spinach...



Nutritive Value

Examples

# Flower

- ▶ Vitamin C 77%
- ▶ Calcium 2%
- ▶ Iron 2%
- ▶ Fiber 10 g
- ▶ High in antioxidants
- ▶ We eat broccoli, cauliflower, capers



Nutritive Value

Examples

# Flower

- ▶ Reproductive structure of plant
- ▶ Have not yet matured when we eat
- ▶ Usually green



Functions

Examples



## Fruit

- ▶ Protects the seeds
- ▶ Provides nourishment
- ▶ Derived from ovaries
- ▶ Method of dispersal

Includes: peaches, oranges, grapes...

# Fruit

- ▶ High in Vitamin C
- ▶ High antioxidants
  
- ▶ Those we eat:
- ▶ Tomatoes, oranges, peaches, beans, apples



Nutritive Value

Example

# Seed



- ▶ High in fiber
- ▶ Very nutritious
- ▶ High in protein
- ▶ High in starch

▶ Examples include peanut, sunflower, pea, corn

A close-up photograph of a rosemary plant with green, needle-like leaves and clusters of small, light blue flowers. The background is a soft-focus green. The text 'Exercises' is overlaid in blue at the top right. A blue and black decorative graphic is in the bottom left corner.

# Exercises

- ▶ Brain exercises
  - “Namaste Breath”
  - Tree Hugger–Open up ribs
  - “Tree Pose”–both legs
  - “Namaste Breath”

# Resources

- ▶ <http://www.nutrition-and-you.com/beets.html>
- ▶ [http://www.netdoctor.co.uk/health\\_advice/facts/](http://www.netdoctor.co.uk/health_advice/facts/)
- ▶ <http://www.netdoctor.co.uk/focus/nutrition>
- ▶ <http://images.search.yahoo.com/>
- ▶ <http://celerynutritions.com>
- ▶ <http://www.theseedsite.co.uk/bulbs>
- ▶ This project is funded under a grant from the State of Tennessee
- ▶ Organized by the UTIA Human Dimensions Research Lab ECO Garden
  - ▶ 2011–2015