Eating Well for Sickle Cell
Optimize Your Food Choices

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General Nutrition Considerations

- Choose a high calorie, high protein diet
- Balanced meals
  - Fruits & Vegetables
    - Variety AND color
    - Differing cooking methods
    - Fresh or frozen
    - Canned in natural juice or low sodium
  - Whole grains
    - Limit “enriched”
  - Beans and legumes
    - Low sodium
  - Nuts and seeds
  - Lean animal proteins
Carbohydrates

Body’s preferred source of energy.
Broken down into glucose which fuels our brain, muscles, and other vital organs.

Simple and Complex Carbohydrates

Simple Carbohydrates (aka simple sugars)
- Require little digestion and are quickly absorbed by our bodies
- Provide limited nutrients
- Less than 40 grams (10 teaspoons) per day

Complex Carbohydrates
- Slowly digested and absorbed
- Occur naturally in foods (fruit, milk, beans, whole grains, and starchy vegetables)
- Contain fiber and a variety of beneficial vitamins, minerals, and phytonutrients
Protein

Made from 20+ building blocks called amino acids

Many functions in the body:
• Cell growth, repair and maintenance
  • Muscle
• Fluid and electrolyte balance
• Antibodies
• Energy

Most people are able to meet protein needs with diet alone
• No need to supplement with powders or shakes

Protein needs are higher for individuals with sickle cell
• Focus on a variety of animal and plant based sources
  • Animal based: high in zinc in iron
  • May need to choose more plant based with iron overload
protein

SOURCES & AMOUNTS

**plant-based:**
- 3/4 cup tofu.........................19g
- 1/2 cup cooked soybeans.......15g
- 1/2 cup cooked lentils..........9g
- 2 tbsp. peanut butter..........7g
- 1/2 cup cooked beans..........7g
- 1 oz. nuts.........................6g
- 1/4 cup hummus...................5g
- 2 tbsp. seeds......................4g
- 1/2 cup cooked quinoa.........4g
- 1 cup almond milk.............1g

**animal-based:**
- 3 oz. chicken...................23g
- 3 oz. pork........................22g
- 3 oz. beef.........................21g
- 3 oz. shrimp......................19g
- 1 cup greek yogurt.............19g
- 3 oz. salmon.....................17g
- 1 cup milk........................8g
- 1 egg...............................7g
- 1 oz. cheese.......................7g
**Fat**

*Can be part of a healthy diet*

**Functions:**
- Gives our bodies energy
- Provides structure to cells
- Cushions organs to prevent damage
- Help absorb nutrients (Vitamin A, D, E, and K)

<table>
<thead>
<tr>
<th>Four Major Types</th>
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<tbody>
<tr>
<td><strong>Saturated fats</strong> (solid)</td>
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<tr>
<td>- Fatty meats, poultry skin, cream, butter, cheese, etc.</td>
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<tr>
<td>- Raise bad LDL cholesterol</td>
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<tr>
<td>- Can increase risk of heart disease and stroke</td>
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<tr>
<td>- Limit to 5-6% of calories (13 grams/day)</td>
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<tr>
<td><strong>Trans fats</strong> (solid)</td>
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<tr>
<td>- Fried foods, baked goods, stick margarines</td>
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<tr>
<td>- Raise bad LDL and lowers good HDL cholesterol</td>
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<tr>
<td>- Increase risk of heart disease, stroke, and diabetes</td>
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<tr>
<td>- Limit or avoid</td>
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<tr>
<td><strong>Monounsaturated fats</strong> (liquid)</td>
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<tr>
<td>- Oils - olive, canola, peanut, safflower, sesame</td>
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<tr>
<td>- Lower bad LDL cholesterol</td>
</tr>
<tr>
<td>- Replace saturated and trans fats with these</td>
</tr>
<tr>
<td><strong>Polyunsaturated fats</strong> (liquid)</td>
</tr>
<tr>
<td>- Fish, walnuts, sunflower seeds, tofu, oils – soybean</td>
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<tr>
<td>- <strong>Omega 3</strong> &amp; <strong>Omega 6</strong></td>
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<tr>
<td>- Replace saturated and trans fats with these</td>
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</table>
Balanced Meals

How to follow at breakfast:

- More fruits, vegetables, and whole grains
  - Add color
  - Eat whole fruit vs drinking fruit juice
- Less processed meats and sugar sweetened foods
Balanced Meals

How to follow at lunch and dinner:

- 2/3 of plate
  - vegetables, fruits, whole grains, beans
- 1/3 of plate (or less)
  - animal protein
Balanced Meals

How to follow at snacks:
- Choose 1 fruit, vegetable, or whole grain
- Pair with fat or protein
  - Promote satiety and increases calories
Vitamins and Minerals

Two main types of *micronutrients* required for survival and health.

**Vitamins**

- **Vitamin A**
  - Dairy products, fish, eggs, leafy greens, orange and yellow vegetables, and tomatoes

- **Vitamin D**
  - Sunlight, liver, cheese, egg yolks, fortified foods (milk, orange juice, cereal), mushrooms

- **Vitamin E**
  - Plant-based oils, sunflower seeds, almonds, peanuts, greens, pumpkin, red bell pepper, asparagus, avocado

- **Folate**
  - Dark green leafy vegetables, beans, peanuts, sunflower seeds, fruit, whole grains, seafood, eggs

**Minerals**

- **Zinc**
  - Shellfish, beef, poultry, pork, legumes, nuts, seed, whole grains

- **Copper**
  - Shellfish, nuts, seeds, bran cereal, whole grains, chocolate

- **Magnesium**
  - Nuts, seeds, beans, spinach, potatoes, brown rice, oatmeal, salmon, beef poultry, banana, raisins, chocolate

A well-balanced diet usually provides our bodies with plenty of vitamins/minerals. However, nutrient needs are higher than normal in SCD.
Vitamins and Minerals
Supplements

All supplements should be managed by physician

Prioritize whole food sources
• Naturally contain substances that promote good health

Supplements may be needed with deficiencies

Common supplements in SCD
• Multivitamin with minerals (50-150% RDA for folate, zinc and copper)
  • No iron
  • Omega 3

Supplements do not come without risk
• Are not regulated
  • Cannot guarantee the ingredients are accurate
  • Look for independent testing (NSF or USP)
Phytonutrients (Antioxidants)

Beneficial compounds naturally found in food
Provide a plant with color, aroma, and flavor

The colors, fragrances, and taste of the plant hint at the phytochemicals it contains.

Stimulate the immune system
Destroy free radicals
Limit oxidative stress
Prevent DNA damage

Stick to food sources
Phytochemicals in supplement form may not be as easily absorbed as those from food
Water

All cells in our body need water to function

- Important for proper metabolism of food and medications
- Dehydration occurs with inadequate fluids or high losses
  - My impact energy levels and electrolytes
- Important to replace lost fluids

Fluid Needs: One-Size does NOT fit all

- Fluid needs vary
  - Activity level
  - Environment
- Typically recommend 8-12, 8 oz glasses per day (~2-3L)
- Drink mostly water and unsweetened drinks
  - Fruit and herb infused water
  - Unsweetened tea or coffee
Tips to Improve Hydration

1. Drink frequently (1-2 hours)
2. Aim for 8-12 cups per day
3. Keep a water bottle with you
4. Keep a glass of water next to couch or bed
5. Choose other beverages besides water
   - Diluted fruit juices, flavored waters, decaffeinated coffee/tea, sports drinks, etc.
6. Eat foods high in fluids
   - Fruit, vegetables (e.g. cucumber), soups, gelatin, fruit ices, popsicles, smoothies
7. Limit drinks with caffeine (2 per day)
Infused Water IDEAS

Try These Refreshing Combinations

Lemon → Cucumber → Mint
Strawberries → Basil → Cucumber
Raspberries → Lime → Mint
Watermelon → Raspberries → Basil
Blueberries → Lemon → Lavender
Green Apple → Raspberries → Rosemary
Pineapple → Cucumber → Mint
Orange → Cinnamon → Clove
Mango → Pineapple → Mint

Helpful tips:
- Steep loose herbs and flowers in a tea infuser.
- Crush herbs or fresh ginger to release flavors.
- Keep it simple! Think of flavor combinations you like in other recipes and build from there.
# Decreased Appetite

Loss of appetite is common during episodes of pain or fatigue and could lead to weight loss and undernutrition.

<table>
<thead>
<tr>
<th>Eat 5 or 6 small meals per day.</th>
<th>Eat the largest meal when you are the most hungry.</th>
<th>Eat the high protein foods on your plate first.</th>
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</thead>
<tbody>
<tr>
<td>Large meals may be overwhelming</td>
<td>Typically in the morning</td>
<td>Poultry, fish, eggs, beans, nuts, dairy, etc.</td>
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<tr>
<td>Aim to eat every 1-2 hours</td>
<td></td>
<td></td>
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<tr>
<td>View meals as “snacks”</td>
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</tbody>
</table>

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<tr>
<th>Stock up on healthy high calorie foods.</th>
<th>Try to be as physically active as possible.</th>
<th>Speak up to friends and loved ones.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smoothies, avocados, dried fruit, nuts, nut butters, high fat dairy, etc.</td>
<td>To help stimulate your appetite</td>
<td>They can help prepare or purchase food</td>
</tr>
</tbody>
</table>
Food Safety

Salmonella and other food borne bacteria, can be dangerous for individuals with SCD.

Tips to reduce risk:

• Wash hands before and after making food
• Wash fresh fruits and vegetables with warm water
• Have separate cutting boards
  • Meat, poultry fish
  • Raw fruits and vegetables
  • Ready to eat foods – bread and cheese
• Avoid raw, rare, and undercooked foods
• Refrigerate leftovers within 2 hrs of cooking
• Check the “use by” or “best by” date on food
• Do not use dented, rusted or leaking cans
Thank you!

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