

Your child's low protein diet

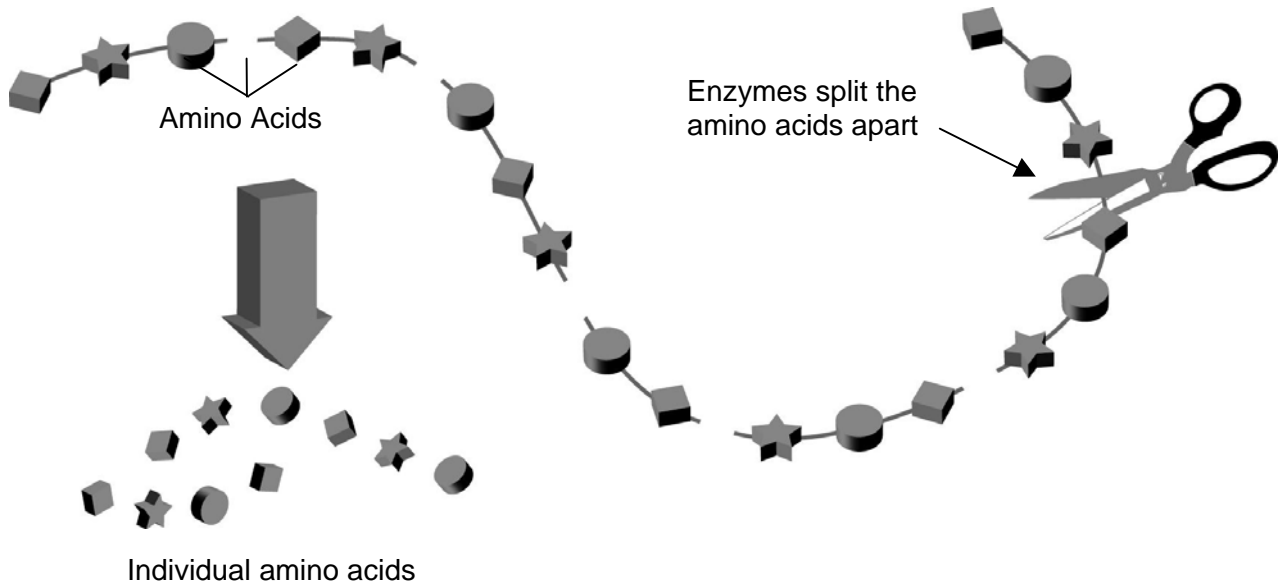
Children with certain metabolic disorders must restrict their intake of protein.

This handout will help you learn:

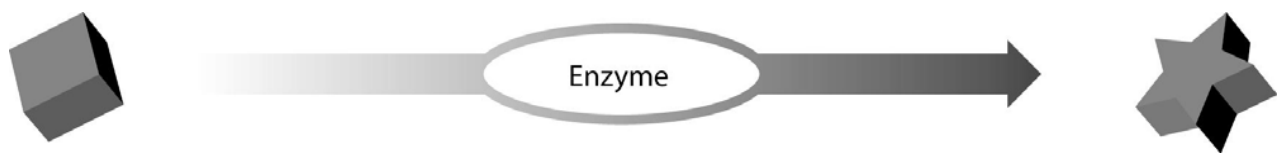
- why you must restrict your child's protein intake
- which foods are lower in protein and can be eaten in controlled amounts
- which foods have no protein and are called "free foods"

What is Protein?

Protein is a nutrient found in food that is important for the growth and repair of our body. Protein is made up of chains of smaller parts called amino acids. Our body breaks down protein into amino acids with the help of enzymes.

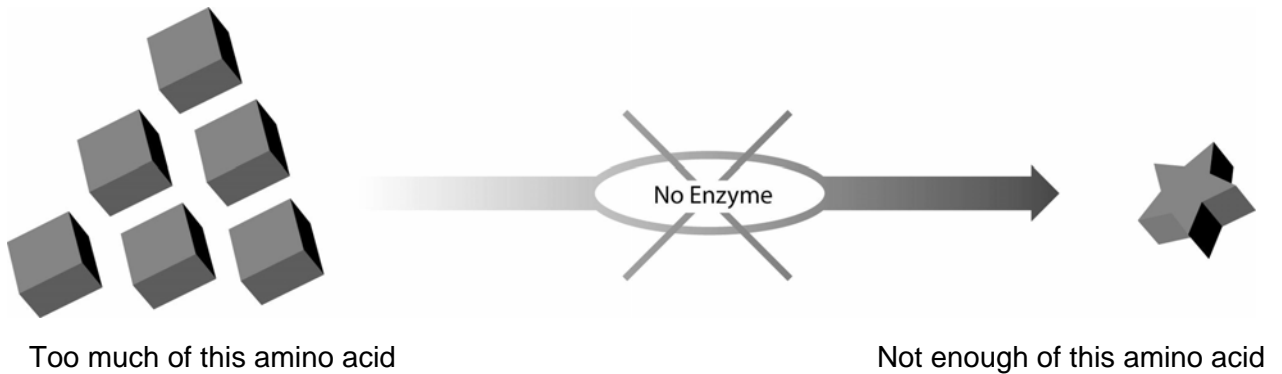


Enzymes are also used to change one type of amino acid into another as needed by our body.

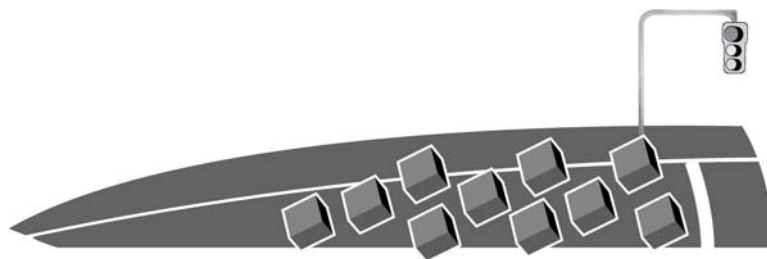


Why does your child need to follow a low protein diet?

Your child has been diagnosed with a metabolic disorder that changes the way some amino acids are used in his or her body. Certain amino acids are able to build up in the blood and cause harm. This is because an enzyme in your child's body is not working properly or is missing.



It is important that your child restricts his or her protein intake so these amino acids do not build up in the body. This will keep your child healthy.



The amino acids build up like a traffic jam.

What is a low protein diet?

A low protein diet is made up of foods that have very little protein in them.

To stay healthy, your child must:

1. **Avoid high protein foods including all:**

Meat and meat substitutes

- meat
- peanut butter
- eggs
- fish
- nuts
- poultry
- soy products such as tofu, miso and tempeh
- legumes (including chick peas, lentils, navy beans, fava beans, lima beans, red kidney beans, black-eyed peas, and black beans)

Dairy products

- milk
- cream
- ice cream
- cheese
- yogurt
- soy milk and soy cheese

Note: Another source of certain amino acids is the sweetener "aspartame". Depending on the condition your child has, aspartame may need to be avoided. Ask your dietitian if your child needs to avoid this chemical.

2. **Drink specialized protein formulas that have certain amino acids removed from them.**

These specialized formulas are "custom made" for your child's metabolic disorder and provide enough protein to keep your child healthy without causing harm. If it is needed, your metabolic health care team will prescribe formula for your child.

3. **Eat only foods that are low in protein.**

This includes special low protein foods that may be recommended by your dietitian.

Which foods are lower in protein?

- starchy foods such as potatoes and pasta
- fruits
- vegetables
- special low protein foods

Your child is able to eat these foods in **controlled** amounts.

How much starchy foods, fruits, vegetables, and special low protein foods is my child allowed to have?

Your child should eat no more than _____ grams of protein each day.

Use the lists on pages 6, 7 and 8 to find out the amount of protein in common starchy foods, vegetables and fruits. Your dietitian will provide information on the amount of protein in special low protein foods and where to buy them.

Low protein foods

Starchy foods	Amount of protein (in grams)	Serving size (in grams)*	Approximate household measure**
Chocolate chip cookies	0.6	10	1 piece
Corn, cooked (whole kernel)	0.7	20	2 tablespoons
Cream of wheat, instant	0.6	30	2 tablespoons
Egg noodles, cooked	1.6	20	2 tablespoons
Flour, cake and all purpose	1.4	18	2 tablespoons
French fries, fast food	0.2	4	1 piece
Macaroni, cooked	0.8	18	2 tablespoons
Popcorn, butter, popped	0.2	3	1/4 cup
Potatoes, boiled, mashed, with or without skin	0.4	20	2 tablespoons
Potato chips (2 inch diameter)	0.6	10	5 pieces
Pretzels	0.5	6	1 piece
Rice, cooked, white	0.6	20	2 tablespoons
Saltine crackers	0.3	3	1 piece
Spaghetti, cooked	0.8	18	2 tablespoons
Sweet potato, no skin	0.6	42	2 tablespoons

* To be accurate, weigh food on a scale that reads in grams

** All measures are level

Fruit	Amount of protein (in grams)	Serving size (in grams) *	Approximate household measure**
Apple, raw, whole	0.2	100	1 small
Apple juice	0.1	124	1/2 cup
Banana, raw	0.8	75	1/2 cup
Blueberries, raw	0.6	73	1/2 cup
Fruit cocktail, canned, heavy syrup	0.5	124	1/2 cup
Grapes (red or green)	0.5	76	1/2 cup
Grapefruit, raw	0.7	123	1/2 of fruit
Mangoes, sliced, raw	0.4	82	1/2 cup
Orange, raw	0.9	90	1/2 cup
Orange juice, canned, no sugar	0.7	124	1/2 cup
Peaches, raw	0.6	39	1/2 cup
Pears, raw	0.7	178	1 medium
Raspberries, raw	0.6	62	1/2 cup
Strawberries, raw	0.5	83	1/2 cup
Watermelon	0.5	76	1/2 cup

* To be accurate, weigh food on a scale that reads in grams

** All measures are level

Vegetables	Amount of protein (in grams)	Serving size (in grams) *	Approximate household measure**
Asparagus, cooked	0.4	15	1 spear (5" long)
Broccoli, raw	1.3	46	1/2 cup
Broccoli, cooked and chopped	1.9	78	1/2 cup
Cabbage, raw (green or red)	0.5	35	1/2 cup
Carrots, cooked	0.9	78	1/2 cup
Carrots, raw	0.6	64	1/2 cup
Cucumber, raw, slices	0.2	52	1/2 cup
Leaf lettuce	0.4	18	1/2 cup
Onions, cooked	1.4	105	1/2 cup
Peppers (green), diced, raw	0.4	50	1/2 cup
Spinach, raw, chopped	0.8	28	1/2 cup
Squash, summer, all varieties, fresh or frozen	0.8	90	1/2 cup
Tomatoes, cooked	1.3	120	1/2 cup
Tomatoes, raw	0.8	90	1/2 cup
Turnip, cubed, cooked	0.6	78	1/2 cup

* To be accurate, weigh food on a scale that reads in grams

** All measures are level

Here is a chart to help you with serving sizes:

Metric and Imperial Sizes
125 ml = 1/2 cup
60 ml = 1/4 cup
15 ml = 1 tablespoon
5 ml = 1 teaspoon
25 g = 1 ounce

Free foods

Some sugars, fat and drinks have **no protein** and are often called “free foods.”

Sugars

Sugars contain very few, if any, nutrients important for growth. However, since they contain no protein, they can be eaten as a treat or on special occasions.

The following are considered sugary “free foods”:

- gum drop candies
- hard candies
- popsicles
- Kool-Aid® sweetened with sugar
- maple syrup
- molasses, blackstrap
- pure sugar
- regular pop*

* Remember: Diet pop and other diet products contain aspartame and may need to be avoided. Ask your dietitian if your child needs to avoid aspartame.

Fat

Fat is a necessary part of a child's diet as it is needed to help absorb certain vitamins. It is also needed for growth and development.

Oil (olive and vegetable) and oil-vinegar dressings are considered to be healthy fat containing "free foods."

Other fats have small amounts of protein in them:

- Butter, stick (1 tablespoon or 14 grams): 0.1 grams of protein
- Soft margarine (1 tablespoon or 14 grams): 0.1 grams of protein
- Mayonnaise (1 tablespoon or 15 grams): 0.2 grams of protein

Drinks

Drinks such as water and brewed tea have no protein. Your child should enjoy beverages such as tea without milk or cream, as milk and cream are high protein foods.

Sample meal plan

On the next page is a sample one-day meal plan for a young child that is allowed to eat 8 grams of protein from non-formula sources a day. Remember, your child may be allowed to eat more or less protein.

Ask your health care team about how much protein your child can have.

Sample meal plan

Meal	Low Protein	Grams of Protein
Breakfast	Apple juice, 1 cup	0.2
	Low protein cereal, 1 cup	0.2
	Specialized protein formula	*
Snack	Grapes, 1 cup	1
Lunch	½ grilled cheese sandwich made with: 1 slice of low protein white bread	0.3
	1 slice of low protein cheese	0.7
	1 tablespoon of margarine	0.1
	Carrots, raw, 1/2 cup	0.6
	Raspberries, 1/2 cup	0.6
	Water, 1 cup	0
	Specialized protein formula	*
Dinner	Pizza, low protein, 1	1.1
	Broccoli, cooked, 1/2 cup	1.9
	Blueberries, 1/2 cup	0.6
	Specialized protein formula	*
Snack	Goldfish® crackers. 15	0.6
Total protein in meal plan		7.9

* Your health care team will give you information on the amount and type of specialized protein formula that will be used to supplement your child's diet if needed.

Please note that this is a sample meal plan and all protein values for the above mentioned foods must be double checked for accuracy.

Where can I get more information about the amount of protein in food?

1. Nutrition Facts table

The Nutrition Facts label is the best place to see how much protein is in a food product. The Nutrition Facts table is usually found on the side or back of a package.

Many facts are listed including calories, fat, carbohydrate, and protein. Pay attention to the protein and the serving size. This will tell you how much protein is in one serving.

Nutrition Facts	
Per 2 cookies (24 g)	% Daily Value
Amount	
Calories 120	
Fat 5 g	8%
Saturated 3.0 g + Trans 0 g	
Cholesterol 0 mg	0%
Sodium 95 mg	4%
Carbohydrate 17 g	6%
Fibre 1 g	
Sugars 9 g	
Protein 1 g	
Vitamin A	0%
Vitamin C	0%
Calcium	0%
Iron	8%

Serving size: In this example, 1 serving is 2 cookies

Amount of protein in one serving: In this example there is 1 gram of protein in 2 cookies or 0.5 grams in 1 cookie.

Tip: Even if a label states that a food contains “0” grams of protein, there may be protein in the food. This “0” may be a rounded number and the product may contain up to 0.49 grams of protein. Be sure to check the label for high protein ingredients or speak to your dietitian.

2. Cookbooks/Web-sites/Food Companies

Cookbooks

Apples to Zucchini: A Collection of Favorite Low Protein Recipes (2005)
by Virginia Schuett and Dorothy Corry.

<http://www.lowprodiet.org/>

1-800-365-7534

Low Protein Cookery for PKU, Third Edition (1997) by Virginia Schuett.
The University of Madison Press, Madison, WI, USA.

Low Protein Cuisine (1990) by C. Lormier. Glendale Heights, IL, USA.

Websites

Cook for Love at: <http://www.cookforlove.org/>

Contains low protein recipes.

The Canadian Nutrient File. Available through Health Canada at:

<http://www.hc-sc.gc.ca/fn-an/nutrition/fiche-nutri-data/index-eng.php>

Contains nutrient values (including protein) of Canadian foods.

The United States Department of Agriculture (USDA) National

Nutrient Database at: <http://www.nal.usda.gov/fnic/foodcomp/search/>

Low Protein Product Resources

Cambrooke Foods
4 Copeland Drive
Ayer, MA 01432
1-866-4-LOW-PRO
www.cambrookefoods.com

Ener-G Foods, Inc.
5960 First Avenue South
P.O. Box 84487
Seattle, WA 98124-5787
1-800-331-5222
www.ener-g.com

Kingsmill Foods Co, Ltd.
17-1399 Kennedy Road
Toronto, Ontario M1P 2L6
416-755-1124
www.kingsmillfoods.com

Maddy's Low Protein Food
1-800-605-0410
www.dietforlife.com

Med-Diet
3600 Holly Lane, Suite 80
Plymouth, MN 55447
1-800-633-3438
www.med-diet.com/

Taste Connections
1-310-371-8861
www.tasteconnections.com

Medical Food Companies

The following food companies have many resources on a variety of metabolic disorders:

Abbott Nutrition Canada
P.O. Box 6150
Station Centre-Ville
Montreal, QC H3C 3K6
1-800-361-7852
www.abbottnutrition.ca/

Applied Nutrition Corporation
10 Saddle Road
Cedar Knolls, NJ 07927
1-800-605-0410
www.medicalfood.com/

Cambrooke Foods, LLC
4 Copeland Drive
Ayer, MA 01432
1-866-4-LOW-PRO
www.cambrookefoods.com/

Mead Johnson Nutrition
Corporate office: 1-847-832-2420
Global Operations Center: 1-812-429-5000
www.mjn.com/

Nutrica Canada
4517 Dobrin Street
St. Laurent, QC
H4R 2L8
1-877-636-2283
www.shsna.com/

Vitaflou
211 N Union Street Suite 100
Alexandria, VA 22314
1-888-VITAFLO (1-888-848-2356)
www.vitaflousa.com/

3. The dietitian on your metabolic health care team.

Dietitian: _____

Contact: _____

Clinic: _____

Contact: _____

Remember: At first, providing your child a low protein diet can be extremely overwhelming. However, feeding your child will become easier as he or she grows older and you become more comfortable with the diet. Teach your child about the low protein diet as soon as he or she is old enough to understand it.

A low protein diet is recommended for life, however the amount of protein allowed may change as your child grows up. Your dietitian will let you know if the amount of protein changes in your child's diet.

Notes
