

Low Protein Food Pattern

Before you begin . . .

This booklet has two purposes:

- to be a workbook to help you figure out how much protein your child is getting from food.

When you finish this workbook, you'll know how much protein your child needs and the foods that can provide this.

- to help you as you plan nutritious meals—meals that your child enjoys and which will help to keep your child's body functioning and growing at its best.

Remember,

Protein is needed for normal growth and development, but for some individuals, too much protein is harmful.

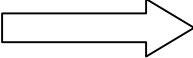
Your child's diet depends on her ability to tolerate protein. What is right for others is not always right for her.

At first a low protein diet may seem complicated, take it one step at a time. With patience and practice, you will feel much more comfortable.

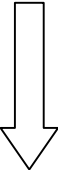


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Center on Human Development and Disability
University of Washington, 1997**

The amount of protein your child can have depends on his body weight and his body's tolerance of protein. Your physician and nutritionist will give you a prescription for protein based on your child's body weight. You can use the table below to translate that amount into a daily allowance.


Read across to find your child's prescription.

	1.0 g/kg	1.5 g/kg	2.0 g/kg
10 kilograms	10 grams per day	15 grams per day	20 g per day
15 kilograms	15 grams per day	20-25 g per day	30 g per day
20 kilograms	20 g per day	30 g per day	40 g per day
30 kilograms	30 g per day	45 g per day	60 g per day
40 kilograms	40 g per day	60 g per day	80 g per day



Read down to find your child's weight in kilograms (kg)

(To find kilograms, divide your child's weight by 2.2):

_____ pounds ÷ 2.2 = _____ kilograms.

For example:

If your toddler weighs 10 kilograms, and his prescription is 1.0 grams per kilogram, he needs 10 grams protein each day.

If your preschooler or kindergartner weighs 15 kilograms, and her prescription is 1.5 grams per kilogram, she needs 20-25 grams protein each day.

**Record your child's weight _____ and protein prescription _____.
How much protein does he/she need each day? _____**

Now, let's see how what your child ate yesterday compares to his prescription. On one of the pull-out pages of this booklet, list everything that your child ate yesterday. **You'll use this list as you complete the workbook. You can use the other page to practice keeping a record of your child's intake**

PROTEIN SOURCES: High Protein Foods

There are two types of protein, one type comes from animals and the other from plants. Animal proteins are foods such as meat, fish, poultry, eggs, and dairy products.

These foods are **always** high in protein.

Check the animal protein foods which your child enjoys:

beef	chicken	milk	pork
cheese	eggs	turkey	fish and seafood
ice cream, frozen yogurt	yogurt tuna	hot dogs cottage cheese	hamburgers

Other, non animal foods are high in protein as well.

Check the non-animal high protein foods that your child enjoys:

nuts, seeds, and their products (including nuts found in baked goods)	peanut butter dried peas and beans or legumes	soy beans and tofu
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- ⇒ How many of these foods did your child eat yesterday?
- ⇒ How many of these does your child usually eat in a day?
- ⇒ What are the usual portion sizes?

Because of the difficulty in “managing” portion sizes of foods other than milk, it is sometimes best to omit meats, fish, and chicken from the food pattern and use milk as the primary source of protein. This would be a good thing to talk about with your nutritionist.



SERVING SIZES OF HIGH PROTEIN FOODS

The following are some examples that are equal to one serving of protein:

1 ounce fish, poultry, meat	1 egg
1 ounce cheese	½ cup dried beans and peas
1 cup milk or yogurt	¼ cup cottage cheese
½ cup tuna or salmon	2 Tbsp peanut butter
¾ cup pudding, custard, ice cream	3 ounces tofu

Generally, foods in the high protein food group provide **8 grams** of protein per serving.

Estimating protein servings may be hard to do. A piece of *cooked* meat the size of a deck of cards (3 ½" x 3 ½" x ½") is usually about 3 ounces (3 servings). Here are some other examples:

hamburger patty (3 oz)	= 3 servings = 24 grams protein
1 pork chop (3 oz)	= 3 servings = 24 grams
½ chicken breast (3 oz)	= 3 servings = 24 grams
1 chicken drumstick (1 ½ oz)	= 1 ½ servings = 12 grams
3 inch by 3 inch fish fillet (3 oz)	= 3 servings = 24 grams
1 hot dog (1 ½ oz)	= 1 ½ servings = 12 grams
½ cup macaroni and cheese	= 1 ½ servings = 12 grams
1 slice medium-sized cheese pizza	= 2 servings = 16 grams

Now, estimate how many grams of protein your child got from high protein foods yesterday. (Use the food list that you made on the pull-out section of this booklet.) Remember to use the serving sizes listed above.

For example, if your child had a 3 ounce hamburger patty and 1 cup of milk, she got 3 servings from the hamburger and 1 serving from the milk, for a total of 4 servings. 4 times 8 is 32, so your child had about 32 grams of protein from high protein foods.

3 oz hamburger	=	3 servings	x	8 grams protein	=	24
1 cup milk	=	1 serving	x	8 grams protein	=	8
TOTAL:		4 servings	x	8 grams protein	=	32 g protein

How many grams of protein did your child get from high protein foods yesterday? _____

PROTEIN SOURCES: Medium & Low Protein Foods

Although these foods do not contain high amounts of protein, they do contribute some protein to your child's intake.

Check the foods from each group that your child enjoys:

- Cereals and Grains (generally have about 2 grams protein in $\frac{1}{2}$ cup or 1 slice. For small bagels, english muffins, 1 serving = $\frac{1}{2}$.)

cold cereals	hot cereals	noodles	bread
croutons	bagels	rolls	pita bread
tortillas	cookies	cake	popcorn
English muffins	animal crackers	goldfish (about 15)	saltines (about 5)
rice	potatoes	corn	yams

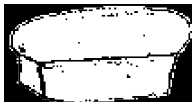
- Vegetables (generally have about 1 gram protein in $\frac{1}{2}$ cup)

broccoli	vegetable juices	mushrooms	squash
green beans/peas	cabbage	spinach	asparagus
cauliflower	radishes	lettuce	onions
carrots (1 whole or 10 baby)			

- Fruits ($\frac{1}{2}$ cup of fruit has a trace amount of protein)

apples	bananas	oranges	kiwis
raisins	fruit cocktail	apricots	pears
grapes	peaches	cherries	berries
tomatoes	fruit juices	melon	

- Cereals and Grains have about 2 grams protein in $\frac{1}{2}$ cup serving.
- Vegetables have about 1 gram protein in $\frac{1}{2}$ cup serving.
- Fruits have trace amounts of protein in $\frac{1}{2}$ cup serving—you can count trace amounts as zero.
- Corn and potatoes are in the cereals and grains group, not in the vegetable group.



Now that you can identify moderate and low protein foods, estimate how many grams of protein your child had yesterday. (Use the pull-out food list.)

For example, if your child had ½ cup of corn and ½ cup of apple juice, she had 2 grams of protein from the corn and trace amounts from the juice.

½ cup corn =	1 serving x	2 grams protein =	2 grams protein
½ cup apple juice =	1 serving x	0 grams protein =	0 grams protein
TOTAL:			2 grams protein

How many grams of protein did your child have from the low and medium protein food groups? _____

Now, add up your child’s total protein intake. How many grams of protein did your child have yesterday? _____

If your child’s prescription for protein is _____ grams per day, how close was your child’s protein intake to the prescribed amount?

HOT TIP:
Measure your household utensils and dishes to see how your serving sizes compare with the serving sizes in this booklet. (For example, how much cereal do you put in your child’s bowl?)

PROTEIN SOURCES: Foods with NO Protein

These foods provide extra energy, but do not have any protein.

Check the foods that your child enjoys:

gum drops	jams and jellies	hard candy
soft drinks	popsicles	oils and shortening
fruit ices	ketchup	low protein breads and pasta
mustard	mayonnaise	margarine and butter

These foods are “free foods,” and contain no grams of protein per serving.

A special situation . . .

What would you have your child do if your family was at a picnic where the following items were served?

hot dogs	baked beans	fruit salad
cheeseburgers	corn on the cob	green salad

- Eat everything but the baked beans, hot dogs and cheeseburgers?
- Eat a small serving of the hamburger (with no cheese), eat ½ serving of corn, skip the beans, and fill up on the salads?
- Eat no high protein foods, but plenty of salad, fruit, and a bun?

Actually, each of these solutions is alright, but which is right for you and your child?
Can you think of some other situations which may require some planning or creativity?

OTHER ISSUES

School Lunch

The amount of protein in a school lunch varies between districts and grade levels. Check with your child's school district to find out the exact amount. The table below lists approximate protein levels for an average lunch:

<i>Meal Component</i>	<i>Pre-School</i>	<i>Grades K-6</i>	<i>Grades 7-12</i>
MILK	6 oz = 6 grams protein	6 oz = 6 grams protein	8 oz = 8 grams protein
MEAT (Entrée)	1.5 oz = 12 grams protein	2 oz = 16 grams protein	2 oz = 16 grams protein
FRUITS and VEGETABLE	½ cup = 1-2 grams protein	¾ cup = 2-3 grams protein	1 cup = 3-4 grams protein
GRAINS	1-2 servings = 2-4 grams protein	2-3 servings = 4-6 grams protein	3 servings = 6 grams protein
Total	21-24 grams protein per day	28-31 grams protein per day	33-35 grams protein per day

Some families choose to send a sack lunch that is lower in protein than the regular school lunch. In other families, the child agrees to eat a portion of the served meal. For example, skipping the entrée and drinking the milk lowers the protein content of the K-6 meal to about 12-15 grams protein. You will find an arrangement that works well for your child's situation and protein prescription.

Other modifications

Some families find it easier to cut meat, eggs and cheese out of their diets than to measure the amount of protein from these foods. If you decide to follow a meat-free diet it is still important to make sure that your child gets some foods from the high protein foods list. Protein is essential for growth and development, including building muscles and repairing wounds. You will want to talk to your child's nutritionist before beginning a vegetarian diet.

Most families find it helpful to have a set meal plan and stick to it. For example, a child may have milk at breakfast and lunch, then a small serving (2 ounces) of meat at dinner. This may make it easier to stay within your child's protein allowance.

Supplements

Because your child is following a restrictive diet, he should receive a general children's multivitamin with iron daily.

If your child is drinking less than 3 cups of milk per day, she should take a calcium supplement. Talk to your dietitian about selecting an appropriate one. Do not buy a supplement made from oyster shell.

Low Protein Products

Special, low protein products (especially breads and pastas) are available for people who need to follow a low protein diet. These foods can be purchased by mail. You can contact the companies directly:

Ener-G Foods
PO Box 84487
Seattle, WA 98124-5787
1 (800) 331-5222

Dietary Specialties
PO Box 227
Rochester, NY 14601
1 (800) 544-0099

Egg and milk substitutes can be used sometimes, but be sure to check their protein contents first.

More specific information about the protein content of foods can be found on food labels. Books which list values are also available:

Bowes and Church's Food Values
by Jean Pennington
and JB Lippincott

The Low Protein Foods List
by Virginia Schuett
Contact Dietary Specialties

Below is a menu that has too much protein. Can you make changes so it contains 35-40 grams of protein? (Grams of protein are in parentheses.) Some suggestions for changes are on the next page.

Breakfast

1 cup cereal (4 grams protein)
1 cup milk (8 grams)

Lunch

2 slices bread (4 grams)
1 ounce cheese (4 grams)
1 ounce ham (8 grams)
½ cup lentil soup (2 grams)

Snack

3 celery sticks
2 Tbsp peanut butter (8 grams)

Dinner

3 ounce hamburger (24 grams)
1 ½ ounce cheese (12 grams)
lettuce and tomato
1 bun (4 grams)
½ cup French fries (2 grams)
½ cup corn (2 grams)

children's chewable multivitamin
calcium supplement

SAMPLE MENUS

Here are some examples of meal plans to get you started. Your child's nutritionist can teach you to plan more menus that have the right amount of protein for your child.

10-20 grams protein, 1200-1300 calories. This plan is appropriate for a 10-15 kg preschooler, following a 1.0-1.5 gram per kg diet. *A child following this diet would need a children's multiple vitamin and a calcium supplement.*

½ bagel with butter and jelly	2 grams protein
½ banana	
1 cup orange juice	
½ cup raisins	
15 goldfish crackers	2 grams protein
½ cup vegetable soup	2 grams protein
5 saltine crackers	1 gram protein
½ cup grapes	
1 apple	
1 cup noodles	2 gram protein
1 ounce chicken, cut up	8 grams protein
½ cup mixed vegetables w/butter	1 gram protein
1 popsicle	
TOTAL :	18 grams protein

To get that menu to 35-40 grams of protein (but not take away too many calories), you could make these changes:

Breakfast

½ cup cereal (2 grams)
 ½ cup milk (4 grams)
 ½ grapefruit

Lunch

2 slices bread (4 grams)
 1 ounce cheese (8 grams)
 2 T mayonnaise
 1 apple

children's chewable multivitamin

Snack

½ cup raisins
 3 celery sticks

Dinner

2 ounce hamburger (16 grams)
 lettuce and tomato
 ½ cup green beans (1 gram)
 plantain chips
 1 cup milk (8 grams)

calcium supplement

20-30 grams protein, 1700-1800 calories This plan is appropriate for a 25-30 kilogram school-aged child following a 1.0 gram per kg diet. *A child following this diet would need a children's multiple vitamin and a calcium supplement.*

½ cup Cheerios	2 grams protein
½ cup milk	4 grams protein
¼ cup strawberries	
1 teaspoon sugar	
fruit roll up	
2 slices bread	4 grams protein
1 ounce cheese	8 grams protein
lettuce and tomato and mayo	
¼ cup raisins	
1 cup Kool Aid	
1 cup milk	8 grams protein
½ cup rice with butter	2 grams protein
½ cup broccoli	1 gram protein
1 cup Kool Aid	
TOTAL:	29 grams protein

2000-2200 calories, 30-40 grams protein This menu is appropriate for a 30-35 kilogram child, following a 1.0 gram per kilogram diet. *A child following this diet would need a children's multiple vitamin and a calcium supplement.*

2 frozen waffles with butter and syrup ½ grapefruit	4 grams protein
½ cup fruit cocktail Kool Aid drink box Bagel Sandwich:	
1 bagel	4 grams protein
1 ounce cheese	8 grams protein
Italian Dressing alfalfa sprouts and tomato slices	
1/3 cup dried apricots 1 cup juice	
1 cup rice	4 grams protein
1 ½ cup stir fried veggies	3 grams protein
3 ounces tofu	8 grams protein
½ cup milk	4 grams protein
TOTAL:	35 grams protein

We hope this has been helpful. If you have any questions, please call:

Clinic _____ Phone Number _____

Nutritionist _____ Phone Number _____

Use this card as a quick reference when you are planning meals.

Meat and Meat Alternatives

3 oz meat, fish, poultry (deck of cards) = 24 gms 3 oz tofu = 8 gms
2 Tbsp peanut butter = 8 gms 1 hot dog = 12 gms
¼ cup tuna or salmon = 8 gms ½ cup dried beans or lentils = 8 gms

Dairy Products: each serving = 8 grams protein

1 oz cheese (1 slice processed, or 1' cube) 1 cup milk
¼ cup cottage cheese ¾ cup ice cream, sherbet, or frozen yogurt
1 cup yogurt ¾ cup pudding

Grains: each serving = 2 grams protein

1 slice bread 2- 4 inch rice cakes
½ bagel or English muffin 1- 6 or 7 inch tortilla = 2 gms
½ cup rice or pasta ½ cup cereal
15 goldfish crackers ¾ oz chips (15-20)
5 saltines ½ cup popcorn
10 wheat thins 10 animal crackers
3- 2½ inch graham crackers 1 granola bar
4½ inch waffle 2- 4 inch pancakes
2 cookies ½ cup corn = 2 grams
½ cup potatoes (3 oz) = 2 grams

Vegetables: each serving (except potatoes and corn) = 1 gram protein

½ cup broccoli ½ cup mushrooms
½ cup green beans or peas ½ cup vegetable juice
1 whole or 10 baby carrots

Fruit (all contain trace amounts, 1 serving = ½ cup)

apples	bananas	oranges	kiwi	cherries
raisins	tomatoes	peaches	pears	juice and nectar
apricots	berries	grapes	melon	applesauce

Other Foods

½ cup macaroni and cheese = 12 gms 1 taco with meat & cheese = 22 gm
1 slice cheese pizza (medium) = 12 gms 1 cup soup = 10 gms
3 oz french fries (15-20) = 2 gms margarine and butter = 0 gms
gum drops, hard candy = 0 1 fun size chocolate bar = 2 gms
jams and jelly = 0 gms ½ cup gelatin = 2 gms
¼ cup chocolate chips = 2 gms 1 Tbsp nuts = 2 gms