

Food for Thought

MS AND NUTRITION



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Good nutrition is essential to everyone. For people with MS, the role of diet can have additional importance — from helping to manage MS symptoms to the possible impact on the progress of the disease. Eating well is a cornerstone to living well with MS.

This booklet offers information about the effects diet can have on symptoms of MS, and provides nutrition basics for living a healthy, balanced life with MS. Good nutrition is a matter of making choices that fit well with your lifestyle.

Feeding your special needs: MS symptoms and nutrition

As MS symptoms change, so can your nutritional requirements. Some symptoms can compromise your nutritional well-being, and diet can help manage some symptoms. Understanding the relationship between symptoms and diet can be an important step in maintaining optimal health.

Managing fatigue

Everyone gets tired; however, certain types of fatigue, such as neuromuscular fatigue, depression-related fatigue, and MS lassitude are particularly common in people with MS.

These types of fatigue can be treated with medications, management strategies and therapy. However, if fatigue goes unmanaged it may result in a decrease in appetite, activity, and a lack of interest in food preparation. If fatigue is interfering with your daily activities, discuss the problem with your healthcare provider.

If fatigue is an issue for you, notice your eating habits when you're tired. Do you skip meals, become reliant on fast foods, or just grab whatever might be around? Poor eating habits can contribute to being fatigued by depriving you of the energy and essential vitamins and minerals your body needs to function effectively. Food is your fuel, so missing meals can compromise your energy levels. And that's preventable!

Boosting your energy through diet

Make every meal count! Whether you eat three large meals a day or five to six mini-meals, choose foods that provide the nutrition you need to ensure your good health, and avoid those that provide little to your diet except calories. Appendix A (page 26) provides some healthful snack ideas that can keep energy levels high.

Keep meals quick and easy

- **Have a plan.** Try mapping out some meals in advance. Make a mental note or write down your ideas for later. Think of it as your "game plan" for the day or week.

- **Focus your effort.** Put your energy into one portion of your meal. If your main dish requires more attention, fix a simple vegetable or side dish.
- **Build a power pantry.** Keep healthy, basic staples on hand in the freezer, refrigerator and on pantry shelves for easy eating. Fast, healthy cooking can be your most valuable tool to nutritional success. Appendix B (page 30) highlights some of the items to keep at your fingertips.
- **Buy “ready-to-use.”** Purchasing pre-cut, pre-cleaned produce, shredded cheeses, chopped garlic and other products of convenience can cut cooking time by 10–15 minutes...and save even more in energy.
- **Arrange your kitchen.** Make sure that foods, utensils and equipment are arranged conveniently for quick work...and easy clean up.
- **Collect your stuff first.** Avoid running around the kitchen by gathering all your ingredients and equipment before you start meal preparation.
- **Double it up!** When you really have the time and energy to cook, make your efforts worthwhile. Double...or triple your favorite recipes and freeze them in meal-size portions. These frozen assets will be ready when you need them most!
- **Get others to help!** You don't need to go it alone! Have your children or other members of the house help with simple food preparation, setting and clearing the table or washing dishes.

- **Simplify clean-up.** Don't make cleaning up after dinner a part-time job. Serve straight from the pots on the stove or microwave cookware. Tuck leftovers away in freezer/microwave proof containers. The next time around it's straight from the freezer, to the microwave, to your table.
- **Identify healthy take-out options.** Get to know the restaurants in your neighborhood that offer healthful options. Keep copies of menus on hand for those times when your energy has run out.

Eating and emotions

Many people with MS struggle with changes in mood and depression at one time or another. While these changes can be subtle, they can have an adverse effect on motivation, sleeping patterns, eating habits, and energy. Each of these can, in turn, affect nutritional well-being.

Some people turn to food for solace when they are depressed. Certain foods create a sense of comfort. If it sometimes seems like food is the only thing that will make you feel better, pay special attention to the choices you make. The “comfort foods” you turn to may be high in fat and calories.

Other people experience a loss of appetite when they are depressed. If the “blues” have stolen your appetite, you could be missing the foods and calories you need to help you recharge. Tune in to how your mood affects your food choices and understand how they might be affecting your

health. Eating with others can help keep you connected. But if self-help strategies don't work, seek professional help. Depression is a treatable medical condition.

Changes in mobility

Keep your weight under control

If changes in mobility have caused your level of activity to drop off while your eating habits remain the same, the impact over time may be weight gain. Added weight can increase the sense of fatigue, further limit mobility, put a strain on the respiratory and circulatory systems and increase your risk for other chronic illnesses.

Additionally, researchers have seen increased disability progression and more new brain lesions in those considered to be overweight or obese. While studies have not proved that obesity causes progression, this may offer additional health incentives to maintain an optimal weight.

Managing weight is a balancing act between how much you eat and what you spend through being physically active. If your activity level has dropped you may need to make changes in how you eat. Look to cut calories from foods that provide little nutritional value.

Other strategies to balancing calories:

- **Think small** — enjoying food is important, just eat less.
- **Substitute** — find a “lighter” version.

- **Take it slow** — pace yourself and be mindful of what you're eating. It's easy to eat too many calories when your attention is elsewhere.
- **Keep your eye on the size** — simple portion control techniques are some of the easiest ways to trim calories — and your weight.
- **Just say no** — if you can do without, cut it out.

Ask a registered dietitian or healthcare provider to recommend an optimal weight and a reasonable plan that's right for you. Make exercise an active partner with diet in managing weight changes.

Being underweight can also compromise your health, especially if it is caused by lack of appetite or fatigue that limits food intake. It's important that you meet your daily nutritional needs to ensure that your body is able to fight infection and maintain normal bodily functions.

Maintaining good bone health

Inadequate physical activity, lack of weight-bearing exercise, and an increasing sedentary lifestyle can also contribute to the risk of developing **osteoporosis** — a condition where bones can become thin and fragile. While building strong bones starts early in childhood, keeping them healthy as we grow older requires attention and care. Good nutrition — particularly daily sources of calcium — is important for maintaining bone health.

- Choose nonfat or low fat dairy products often.
- Eat any type of fish with edible bones, such as canned salmon or sardines.
- Choose low-oxalate dark green vegetables like kale, broccoli, turnip greens or mustard greens. The calcium in these veggies is better absorbed than the calcium found in spinach, rhubarb, beet greens and almonds.
- Calcium-fortified tofu, soymilk, orange juice, breads and cereals are excellent staples. Check the food labels to see just how much calcium has been added.

While foods remain the best sources of calcium, calcium supplements can be helpful for those who are not able to get enough from their diet. Supplements come in many forms. The two most popular are calcium carbonate and calcium citrate. Start by reading the label for the amount of **elemental calcium**. Always check with your health care provider before increasing or changing your calcium dosages.

Calcium Carbonate (e.g., Os-Cal, Tums) contains a high amount of elemental calcium and tends to be the best value. Calcium carbonate needs to be taken with food to help with absorption.

Calcium Citrate (e.g., Citracal, Solgar) contains less elemental calcium than calcium carbonate, but tends to be better tolerated. It is absorbed more easily and can be taken on an empty stomach.

The body can best handle about 500 mg of calcium at one time. Split doses of supplements throughout the day. Be sure to check with your doctor or pharmacist to determine whether a supplement will interact with any prescription medications you're taking. The National Osteoporosis Foundation advises avoiding calcium from unrefined oyster shell, bone meal or dolomite without the USP (United States Pharmacopeia) recommendation, as these historically have contained higher lead levels or other toxic metals.

Vitamin D also plays an important role in bone health by helping with the absorption of calcium. It is often called the “sunshine vitamin” because sun exposure is necessary for the body to manufacture the active form of vitamin D.

Vitamin D's known ability to enhance calcium absorption is key to building strong bones. However, recent research suggests vitamin D may also have important effects on the immune system.

The incidence of MS increases the farther one lives from the equator, and it's thought that reduced exposure to sunlight may be a factor. Vitamin D may help in lowering the risk of developing MS.

We are beginning to learn more about how vitamin D may affect the course of MS once it has begun. Several studies have suggested low blood levels of vitamin D may negatively impact disease progression.

For general health purposes, the current Adequate Intake (AI), which is the amount that is thought to meet the daily needs of individuals, is 600–800 international units (IU) daily. However, many experts feel that the AI should be increased. While this issue continues to be studied, daily intake of 4000 IU is considered the safe upper limit. Consult your physician regarding any need for vitamin D supplementation.

Reducing bladder concerns

Water is an essential part of your body's daily routine. It helps in the digestion and transport of other nutrients, controls body temperature, and is important for brain function. It's something we can't live without.

Self-imposed fluid restrictions are often used as a strategy to “manage” bladder problems when frequency and urgency are issues. This can lead to dry mouth, loss of appetite, swallowing difficulties, constipation, deficiencies in certain nutrients, and increased risk for bladder infection. Concentrated urine, which results from fluid restrictions, is an irritant to the bladder and can actually worsen symptoms. Dark color may be an indication that you are not getting enough fluids.

How do you know if you're getting enough?

Most people get the fluids they need each day if they just drink when thirsty. Just in case, here are a few tips to staying well hydrated:

- Take your daily oral medications with full glasses of water.
- Build in regularly scheduled "water breaks" throughout your day.
- Include other beverages at meal and snack time like juice, milk or sparkling water.
- Carry your own personal water supply when you are out and about. Be careful not to sip throughout the day, because then you will have to urinate throughout the day. Have standard drink breaks at the same time daily.

Don't like to drink water?

In addition to beverages, the foods you eat can help satisfy your body's thirst. In fact, about 20 percent of our daily water intake comes from food, with fruits and vegetables having some of the highest water content (upwards of 80 percent). Topping the list of juicy fruits and vegetables are lettuce, squash and watermelon (95 percent), tomatoes and broccoli (92 percent) and strawberries and peaches (90 percent).

A common serving of the following foods contributes about 8 ounces of fluids:

- Spaghetti with meat sauce
- Oatmeal with blueberries
- Chicken noodle soup
- Low fat cottage cheese with pineapple

Special considerations for bladder-related MS symptoms

- **Limit intake of fluids that contain caffeine, aspartame (the artificial sweetener), or alcohol.** These substances can act as bladder irritants and contribute to storage dysfunction.
- **Limit fluid intake beginning about two hours before starting any activity where no bathroom will be available.** This can help manage issues around urgency. Avoid restricting fluid intake on a continuous basis as it may increase the risk of infection by interfering with the normal flushing of the bladder.
- **For those prone to urinary tract infections, include cranberry juice (or tablets).** In addition to providing fluids, cranberry juice can be of added benefit in **preventing** urinary tract infections by preventing bacteria from sticking to the cells that line the urinary tract.

Managing constipation

Whether constipation is a result of your MS or your habits, don't despair. A diet that provides 25–30 grams of fiber each day is recommended to promote good bowel function.

Fiber is a substance found in the cells of plants — foods like cereal grains, nuts, seeds, vegetables and fruits. Plants count on fiber for their structure and shape. For us, fiber — particularly insoluble fiber — is not fully digested or absorbed by the body, and that is why we count on its structure to “bulk up” the contents of our intestine and keep things moving through (animal products do not contain any dietary fiber).

There's an added benefit for the weight conscious — the extra bulk can provide a more lasting sense of fullness, helping to cut back on what you eat.

Start slowly

Fiber should be added into the diet gradually. Too much fiber too fast can cause gas, cramps, diarrhea and discouragement.

Here are some useful strategies to help start fitting fiber into your diet:

- Start your day with a high-fiber breakfast cereal or add 2 Tbsp. of high fiber cereal to your favorite.
- Switch to whole grain breads.
- Eat more beans, peas and lentils in dishes like soups, stews, burritos or added to salads.
- Take advantage of ready-to-use vegetables.
- Experiment with more whole grains — like brown rice, barley and whole wheat pasta.
- Make snacks count — choose dried fruits and raw vegetables.
- Include fruit at every meal — it makes a great dessert.

Splitting your desired fiber intake across three meals can make it more manageable: 10 grams at breakfast, lunch and dinner. Five servings of fruits and vegetables, ½ cup of beans, and two servings of whole grains will supply you with about 25 grams of fiber. In addition to reading

nutrition labels on food products, **The Complete Book of Food Counts** is a valuable resource to keep in your kitchen to see how much fiber you are getting from fresh fruits and vegetables as well as some restaurant foods (available in bookstores or online booksellers).

If you find it difficult to reach the recommended level of fiber each day, fiber supplements can also be used. One tablespoon of these commercial sources of fiber provides 15 grams of fiber. Remember, these products are not laxatives, but fiber substitutes. Be sure to consult your physician before using any of these products.

Don't forget the fluids

Fiber absorbs water; so as you increase the fiber in your diet, remember to increase your fluid intake as well.

Just move!

In addition to the many other benefits of physical activity, exercise can also aid in preventing constipation.

Bowel incontinence can be aggravated by dietary factors. Surprisingly, in MS, bowel incontinence is often caused by constipation. A sudden loss of control occurs when the stool breaks through or leaks around a blockage. Be sure to discuss bowel problems with your doctor or nurse. You don't need to accept them as part of your life with MS.

Chewing and swallowing

Discuss swallowing problems with your health care provider. You may be referred to a speech pathologist who can suggest changes in the way you prepare foods or in the way you sit and breathe while you eat. You may need to change the form of your foods in order to eat a nutritionally sound diet.

- Thicker drinks tend to be easier to swallow. Such drinks might include milk shakes, juices in gelatin form, fruit sauces, sherbets, and puddings.
- Foods that crumble easily can cause choking. Avoid chips, crackers, toast, and cakes.
- Soft foods need less chewing. Eat mashed or baked potatoes instead of fried, cooked vegetables and stewed fruits instead of raw. Make use of a blender or food processor to get foods to the texture easiest for you to handle.
- Eat small, frequent meals so that you don't become tired from chewing and swallowing.
- Taking smaller bites can help reduce fatigue and the risk of choking.

Nutrition basics for healthy living with MS

Just as life with MS is a balancing act, so is eating the right way. The key to nutritional success means making choices that fit **your** lifestyle. Here are a few tips to start down that road of living well by eating well.

1. Choose your fats wisely

About unhealthy saturated fats

Saturated fats have long been associated with a wide range of negative health effects including high blood pressure, heart disease, stroke and some forms of cancer. These fats are usually solid at room temperature and most often come from the animal foods in our diets. Saturated fats can be found in highly-marbled meats, the skin on poultry, rich, creamy cheeses, butter and whole milk dairy products. Plant sources that are high in saturated fats include coconut oil, palm oil and palm kernel oil (often called tropical oils), and cocoa butter.

Trans fats act like saturated fats and are typically found in shortening, margarine, cookies, crackers, snack foods, and fried foods. Most trans fats are man-made through a process called hydrogenation — where a liquid oil (like corn oil) is made into a more solid form, like margarine or shortening.

the total amount of unhealthy saturated fat and trans fat.* Here's how it works. When comparing like food products, add the grams (g) of saturated fat and trans fat on a food label and choose the lowest in the combined amount.

| Nutrition Facts | |
|---------------------------|-----------------------|
| Serving Size 1 Tbsp (14g) | |
| Servings Per Container 32 | |
| <hr/> | |
| Amount Per Serving | |
| Calories 100 | Calories from Fat 100 |
| <hr/> | |
| | % Daily Value |
| Total Fat 11 g | 17% |
| Saturated Fat 2 g | ← 10% |
| <i>Trans</i> Fat 3 g | ← |
| Cholesterol 30 mg | 10% |

Nutrition Label, Stick Margarine

| | |
|---------------------|-----|
| Saturated Fat: | 2 g |
| + <i>Trans</i> Fat: | 3 g |
| <hr/> | |
| Combined Amount: | 5 g |

*The U.S Food and Drug Administration plans to ban trans fats in our food supply by 2018.

Healthy unsaturated fats

Unsaturated fats play a very important role in our diet and support many essential functions in the body:

- They promote growth and healthy skin.
- They help the body make hormone-like substances.
- They help in the absorption of vitamins A, D, E and K.
- They help regulate blood pressure and the immune system.
- They are important components of myelin and the central nervous system.
- They are mildly anti-inflammatory

They include both **mono-unsaturated fats** — found in olive, canola and peanut oils; avocados, and nuts including almonds, hazelnuts, peanuts, and **polyunsaturated fats** — found in other vegetable oils such as safflower, sunflower seed, corn and soybean oils, seeds and nuts including walnuts and brazil nuts. When these fats replace saturated fats in the diet, they can help to lower blood cholesterol and the risk of heart disease.

There is some evidence that certain types of polyunsaturated fats in the diet — specifically **omega-3 fatty acids** and **omega-6 fatty acids** in limited amounts — could actually have a beneficial effect on MS. While the research is mixed, there have been a few studies that demonstrated that a low-fat diet balanced in these types of fatty acids might decrease severity and duration of MS attacks.

Some of the best sources of omega-3 fats can be found in fatty fish like mackerel, herring, sardines, albacore tuna and salmon. These fish contain two omega-3 fatty acids — EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid). The American Medical Association suggests that the benefits of eating fish outweigh the risk of mercury when consumed according to U.S. Food and Drug Administration (FDA) recommendations, and the American Heart Association recommends eating fish twice a week for heart health. Children and pregnant women are recommended to avoid high-risk fish. See website resources at the end of the booklet for further information.

Plant sources (soybeans, canola oil, walnuts and flaxseeds) contain ALA (alpha-linolenic acid), a less potent form of omega-3. Good sources of omega-6 fatty acids, which contain alpha-linolenic acid, are the oils of seeds and nuts, such as safflower oil, sunflower oil, and sesame seed oil.

Fitting in fat

While fat is an important part of a healthy diet, moderation is key. Leading health agencies recommend that less than 30 percent of your total daily calories come from fat and that unhealthy saturated and trans fats be limited (less than 7 percent of total calories) and replaced with healthier unsaturated fats. Here are some ideas to help bring these strategies to life in your diet:

- **Keep your protein choices lean** — lean meats and poultry without skin and prepare them without added saturated and trans fat.

- **Choose low fat, 1% or nonfat dairy** — including milk and yogurt. Cheeses and frozen desserts should have less than 3 grams of fat per serving.
- **Include omega-3 rich seafood** — two to three 3 oz. servings/week.
- **Experiment with more beans, peas and lentils** — a great plant-source of protein without the saturated fat.
- **Substitute packaged snack foods with nuts or seeds** — to cut the trans fats and increase healthy unsaturated fats.
- **Use fats and oils sparingly** — choose liquid vegetable oils like safflower, sunflower, olive or canola and liquid or tub margarines that are low in saturated and trans fats.

2. Include 5 servings of antioxidant-rich fruits and vegetables

Color may be your best clue to spotting foods that are rich in antioxidants — a substance that may protect the cells in our body from the damage caused by free radicals. The damage caused by free radicals may contribute to a host of health issues like aging, cancer, and heart disease — and may be involved in the disease process in MS.

Antioxidants and MS

Studies suggest that antioxidants may even be therapeutic. There are no well-documented published studies of people with MS that show a clinical benefit related to antioxidant supplements, and the safety of taking antioxidants for people with MS has not been established.

There is an important theoretical risk to consider. Antioxidant vitamins (e.g., vitamin C, vitamin E and beta-carotene) stimulate the immune system. In MS, where an overactive immune system appears to be part of the disease process, vitamin supplementation may be of concern.

Look for the colors of the rainbow

When it comes to antioxidants, food sources appear to be preferred to supplements (foods rich in vitamin C, vitamin E and beta-carotene). An added benefit is that foods are packed with other complementary nutrients that help you absorb them in the right form and right amount. Make half your plate fruits and vegetables and let the color be your guide — red, yellow, orange, blue and green fruits and vegetables are your best choices for these antioxidants.

3. Eat less salt and sugar

The most recent Dietary Guidelines for Americans released by the FDA advise cutting back on salt and added sugars. While these recommendations can play a critical role in reducing the risk of obesity, heart disease, and diabetes there may also be a potential factor in MS disease activity.

Shaking the salt habit

Sodium, a component of salt, is the culprit in this nutritional dilemma. In the typical Western diet, 77 percent of the sodium we consume comes from packaged and

restaurant foods...and another 11 percent we add ourselves in cooking and at the table. Here are a few simple tips to give sodium the shake:

- Read the food label and check for lower sodium options
- Prepare your food when you can; use herbs and spices instead of salt or season salts
- Opt for fresh, or frozen foods over canned
- Rinse sodium-containing canned foods
- “Unsalt” your snacks

Slashing added sugar

Added sugars — those that are added during processing or preparation and do not occur naturally in foods — provide little more than extra calories in the diet that can contribute to weight gain. Additionally it’s possible that their pro-inflammatory nature could negatively impact MS.

Look beyond the obvious sources of sugar like candy, baked goods and sweetened beverages. Read the food labels for hidden sugar and make alternative choices when sugar comes up in the one of the first three ingredients on the label. You may be surprised to find sugar added to foods like yogurt, cereals, tomato sauce, salad dressings, and other condiments.

4. Be active whenever you can

Make a healthy weight your target. There are many reasons why a person with MS may gain or lose weight, but controlling weight is the same story for everyone. Watch the calories and do regular physical activity. Calories are a measure of the energy locked inside the carbohydrates, fats, and proteins found in foods. This energy fuels our body, but what we don't use gets stored as fat, and over time results in extra weight.

Physical activity and good nutrition are perfect partners in managing weight. Not only does physical activity burn calories, it can help you:

- Make the most of your potential muscle strength, or even build strength, depending on your program.
- Increase your endurance.
- Maximize range of motion and joint flexibility.
- Strengthen your heart.
- Decrease feelings of fatigue. (Really. Even with MS.)
- Decrease symptoms of depression.
- Maintain regular bowel and bladder functions.
- Minimize the risk of skin breakdown and irritation.
- Protect your weight-bearing bone mass.
- Improve cognition.

5. Be aware of the impact of different symptoms.

Since the course of MS is often unpredictable, focusing on those aspects of health you can control becomes even more meaningful. Working to improve your diet to maximize the positive effects it can have on MS symptoms is one area where you're in charge!

Appendix A: Snack ideas that keep energy levels high

Fiber fillers

Power mix — This snack can travel with you anywhere. In a plastic bag mix together your favorite:

- dried fruit (cranberries, blueberries, raisins, cherries, etc)
- dry cereal (Cheerios, GrapeNuts, lowfat granola or some other fiber rich choice)
- nuts (walnuts, almonds, peanuts...even sunflower seeds)

Sandwich-like snacks — These “open-face” sandwiches can be made on a number of your favorite whole grain bases (English muffins, whole wheat bread or bagel, tortillas):

- Toast half of a whole wheat bagel and spread it with your favorite nut butter (peanut, almond, etc). Top with sliced apples or pears.
- Lay a large tomato slice on top of an English muffin half and sprinkle with shredded low-fat mozzarella cheese. Broil in the toaster oven or broiler for a melted treat.
- Spread whole wheat toast with a peanut butter spread made with equal parts of peanut butter, honey and wheat germ or ground flax seeds. Add sliced bananas on top.

From the garden

Veggie dunk — If you're looking for a change from celery and carrot sticks try sugar snap peas, cucumber or jicama slices or red or yellow bell peppers cut into thin strips. Dip in hummus or a low-fat ranch dressing.

Baked sweet potato — Bake a sweet potato or yam in the microwave and top with 1 teaspoon maple syrup.

Hidden treasure — For those who don't like to eat vegetables outright, make them a part of something you already enjoy.

- Try rolling blanched asparagus in a slice of ham or turkey and low fat Swiss cheese.
- Add a cup of finely chopped red/yellow bell peppers or celery to tuna salad or chicken salad.
- Fill out your favorite sandwich with a slice of tomato, sliced fresh mushrooms or sprouts.

Bone builders

With these snacks try to choose low-fat or non-fat varieties of dairy products to trim the fat and calories.

Give yogurt an extra zip

- Add four graham crackers.
- Chop fresh kiwi or figs into strawberry yogurt (the seeds of these fruits add a fiber boost).
- Make a yogurt parfait layering it with your favorite cereal and sliced fruit. Top with chopped walnuts.

Cottage cheese blend — Try adding sliced strawberries, chopped pineapple or mandarin oranges to cottage cheese. Or drop an ice cream scoop of cottage cheese into half a cantaloupe.

Grab and go snacks — pack these as you're heading out

- Reduced-fat cheese sticks.
- Pre-packaged salads or lunch kits (complete with all ingredients).
- Yogurt (in cartons or sticks).
- Individual packaged veggies — some come complete with dip.
- Hard boiled eggs.
- Whole fruit — complete with their natural wrapper.

Chilled treats to help keep you cool

Smoothie — Blend low-fat milk, fortified soy milk or orange juice, yogurt and fruit (great use for brown or soft bananas) in a blender to make a delicious frosty drink.

Banana Pops — Roll a peeled banana in your favorite yogurt and then in crushed cereal and/or finely chopped nuts. Put on a tray in the freezer until frozen. Store in a container or plastic wrap.

Grape-sicles — Put a bunch of grapes into the freezer. These make great frozen treats you can pop into your mouth whenever you get the urge for something cool and refreshing.

Appendix B: Stocked for success — building your power pantry

On the Shelf

Canned beans

A great source of fiber and protein. Choose kidney beans, black beans, garbanzo beans or other favorites. Use in soups, stews, side dishes and salads, or as an ingredient wrapped in your favorite tortilla, pita or flat bread.

Canned broth

Broth is low in fat. Choose reduced-sodium varieties. Use beef, chicken or vegetable broth to boost the body and flavor of sauces/stews. A great base for quick soups.

Prepared tomato products

Canned tomatoes, (stewed or diced, seasoned or plain) and prepared pasta/pizza sauces — an instant flavor accelerator for fish or chicken.

Fast cooking grains and pastas

Select whole grains for a fiber boost. Couscous, bulgur, rice, quick barley, orzo and other pastas make fast side dishes, and great additions to soups, casseroles and other one-dish meals. Quinoa is another fast cooking grain that offers an excellent source of protein.

Canned tuna

Look for water-packed tuna as a lower-fat choice. Handy for casseroles or sandwiches. Some come packaged with crackers and light mayonnaise for an easy lunch.

Salad dressings and sauces

Choose reduced fat varieties. Use on salads and much more! They make great marinades and add flavor to steamed or stir-fried vegetables. Don't forget mustards and salsas to add excitement to dishes. Tofu is another great base for a salad dressing that adds protein. See Appendix C (page 35) for recipe ideas.

Seasoned rice vinegar

Splash onto every kind of salad — from cucumber to coleslaw.

Dried fruits

A great source of fiber. Apricots, raisins, apple rings, dates — all can add sweetness and texture to sauces or make a great nonfat snack.

Tortillas

Corn or nonfat flour tortillas are lowest in fat. Use them in casseroles, burritos, sandwiches and more.

Nut butters

Choose natural style and pour off the oil. Tahini, peanut butter and almond butter — rich in protein.

Bread products

Whole grains are richest in fiber (look at the label for at least 3 grams per serving). Wrap and freeze what you can't use in a week. Bagels, pita, English muffins and whole grain breads are your best bet.

In the Freezer

Chicken breasts

White meat is lower in fat and cholesterol. Cut 10–15 minutes off cooking time by buying boneless, skinless versions.

Fish fillets

A great source of omega-3 fats! A wide variety of fish come quick-frozen and packaged in ready-to-eat servings. Store in an air-tight freezer bag to preserve quality.

Cooked meatballs

Keep these on hand to use in soups, pasta sauces and in casseroles. They also make a great topping for quick pizzas.

Stuffed pastas

Quick-cooking tortellini, ravioli and gnocchi come filled with meat, cheese or vegetables. Great as a main dish or in salads.

Pasta sauces

Select reduced-fat versions of pesto and Alfredo sauces to trim fat...and calories. These can be thawed and heated for an easy topping for pasta, potatoes and vegetables.

Vegetables

Vegetables are a good fiber source. Peas, spinach, chopped broccoli, or frozen vegetable blends. Toss with rice or pasta, add to soups and stir-fry, or use as a side dish. Great to keep in stock when fresh vegetables are not available. Buy the products in the loose packages so you can use as much or little as you need.

Frozen dinners

Look for choices low in fat and sodium. Keep a few of these in the freezer for times when you just don't feel well enough to cook.

Bread dough

Choose whole grain for fiber boost. In addition to using these for rolls, breads and bread sticks, these make great pizza crusts and calzones.

Frozen fruit and fruit juices

These are great for a quick dessert or fruit smoothie.

In the Refrigerator

Vegetables

Good sources of fiber, vitamins, minerals and antioxidants. Enjoy at least five servings a day. Choose pre-cut produce to cut cooking time by 10–15 minutes. Many varieties of salad greens, spinach, and coleslaw come pre-rinsed and pre-cut. Also available are sliced mushrooms, sliced bell peppers, carrots, celery, jicama, and even chopped onions.

Minced garlic

Jars of pre-chopped garlic can save prep time for garlic lovers.

Fresh fruit

Leave the peels on for a fiber boost. Most naturally come in ready-to-eat servings. Choose pieces of fruit at various stages of ripeness. If you buy pre-cut fruits, like melon chunks, check "use by" date.

Shredded cheeses

Look for reduced fat varieties (<5 g fat/oz). Great topper for salads, pasta, Mexican dishes, potatoes, or use wrapped in tortillas.

Tofu

Low-fat source of protein with no cholesterol. This versatile soy product makes a great addition to pasta dishes and stir-fry. A wonderful alternative to meat. Firm or extra firm tofu works best cubed and eaten in a dish like a stir-fry, whereas silken tofu works really well as a dressing or sauce.

Dairy products

A great source of calcium. Select nonfat or 1% varieties of milk, yogurt, cottage cheese, sour cream and cream cheeses.

Eggs

Limit use to four yolks per week. Keep a few hard boiled on hand for a protein-rich snack.

Buy by the ounce

Choose lean deli meats like turkey, ham and roast beef. When whole heads of broccoli or cauliflower or full packages of luncheon meats and salads are too much, order just what you need from the deli department of your market.

Appendix C: Meals in minutes

Can healthy meals be quick and easy? You bet — especially when you keep your Power Pantry (and refrigerator) stocked with all the right ingredients. Here are just a few meals along with the ingredients you can have on hand to pull any of these simple dishes together. Each recipe takes 15 minutes or less to prepare and makes one to three fulfilling servings.

Easy Breakfast Egg Muffin

Make a healthy start to your morning in the time it takes to toast an English muffin!

1 whole wheat English muffin

1 egg

2 Tbsp shredded cheese of choice

Optional condiments: avocado, salsa, bruschetta, sliced tomato

Slice muffin and toast. Take a ramekin about the size round as your muffin. Crack egg into the ramekin, add shredded cheese and stir gently with a fork, just breaking the yolk and blending the cheese. Microwave for 30 seconds; remove and stir gently; microwave for 30 more seconds until done. To assemble your sandwich you can spread whatever you'd like on your muffin — try avocado, salsa, or bruschetta as a substitute for mayonnaise. Add a slice of tomato instead of bacon. Enjoy!

Hearty Lentil Soup

This protein-rich, fiber-rich entrée-style soup couldn't be easier.

1 can lentil soup

4 oz precooked chicken

Pre-washed baby spinach (in a bag)

Empty soup into a microwave-safe bowl. Cover and heat on high for two minutes. Cut or break chicken into bite-size chunks. Stir chicken and $\frac{3}{4}$ cup of baby spinach into soup. Heat another two minutes in microwave or until all ingredients are heated through and spinach wilts.

Milanese Chicken Strips

This quick and easy entrée is a family favorite and healthy replacement for frozen chicken nuggets. Keep the sides simple with a quick cooking grain, mixed salad and/or your favorite steamed vegetables.

1 tsp minced garlic

2 Tbsp Dijon mustard (or other mustard of choice)

$\frac{1}{4}$ tsp ground black pepper

1 lb package of chicken tenderloin strips (or chicken half breasts if desired)

$\frac{3}{4}$ cup bread crumbs

$\frac{1}{2}$ cup grated Parmesan or Romano cheese

Line a baking sheet with parchment paper or foil (for easy clean up.)

In a small bowl combine garlic, mustard and black pepper; mix well. Lightly spread mixture over one side of each chicken strip or on one side if using chicken breasts.

In a shallow pan combine bread crumbs and Parmesan cheese. Press each piece of chicken into bread crumb mixture. Place on a baking sheet. Sprinkle any remaining crumb mixture over chicken.

Bake in preheated 450-degree oven for 10–12 minutes until cooked through or coating is a golden brown.

Creamy Dill Dressing (dairy-free)

This makes a great creamy dill dressing similar to ranch.

1, 12 oz package of silken tofu

3 Tbsp of rice vinegar

2 tsp garlic powder

½ tsp dried dill

2 Tbsp lemon juice

Blend together all ingredients.

Appendix D: Website resources

For a much more complete list of fiber and other content in foods, visit the USDA Food and Information Center at **fnic.nal.usda.gov** and browse by subject, “Food Composition,” then go to the USDA Nutrient Data Laboratory, which provides various searchable resources and reports.

Visit **neurologycare.net** for more information about omega-3 fatty acids and MS as well as regularly updated information on other complementary and alternative medicines and MS.

For more information about mercury and fish, read the EPA and FDA’s Advisory at **epa.gov/fish-tech/epa-fda-advisory-mercury-fish-and-shellfish**

“Eating Fish: Health Benefits and Risks”
jama.ama-assn.org/cgi/content/full/296/15/1926

For information on “Fish, Levels of Mercury and Omega-3 Fatty Acids,” go to **heart.org**. Type “fish” in the search field at the top of the page.

The National Multiple Sclerosis Society (“Society”) is proud to be a source of information on multiple sclerosis related topics. The information provided is based on professional advice, published experience, and expert opinion, but does not constitute medical or legal advice. For specific medical advice, consult a qualified physician. For specific legal advice, consult a qualified attorney.

The Society does not endorse products, services or manufacturers. Such names appear here solely because they are considered helpful information. The Society assumes no liability for the recipient’s use of any product or service mentioned. The Society does not independently verify whether the information provided by each service provider is accurate. The Society undertakes no responsibility to verify whether the service provider is appropriately licensed and certified and has applicable insurance coverage.

Early and ongoing treatment with an FDA-approved therapy can make a difference for people with multiple sclerosis. Learn about your options by talking to your healthcare professional and contacting the National MS Society at **[nationalMSSociety.org](https://www.nationalmssociety.org)** or 1-800-344-4867.

The Society publishes many other resources about various aspects of MS. Visit **[nationalMSSociety.org/brochures](https://www.nationalmssociety.org/brochures)** or call 1-800-344-4867.

Other popular resources include:

- [Vitamins, Minerals and Herbs in MS: An Introduction](#)
- [Exercise as a Part of Everyday Life](#)
- [Urinary Dysfunction & MS](#)
- [Bowel Problems: The Basic Facts](#)

The National MS Society's mission is for people affected by MS to live their best lives as we stop MS in its tracks, restore what has been lost and end MS forever. To fulfill this mission, the Society funds cutting-edge research, drives change through advocacy, facilitates professional education, collaborates with MS organizations around the world, and provides services designed to help people with MS and their families move their lives forward.



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1-800-344-4867