

Module 13

Nutrition and Healthy Weight Management for MS

Learning Objectives

1. Learn the 10 Tips to a Healthy Plate set by the
2. Learn how MSers can maintain a healthy weight, lose weight, and gain weight properly and apply effective mealtime tips.
3. Learn the proper nutrition mindsets for MSers to be successful
4. Learn specific foods to enjoy and avoid in order to reduce inflammation and other symptoms of MS
5. Learn about effective nutrient timing to optimize nutrition in the body.
6. Learn how an MSer can plan meals and eat healthy on a budget.

Chapter Thirteen

Nutrition and Healthy Weight Management

Another important component of a comprehensive health and fitness program is proper nutrition. This involves choosing healthy foods that can work to heal and repair the body and make it stronger against disease. This section addresses how to eat healthy and achieve a healthy body weight. In order to educate Americans on the importance of healthy eating and exercise, the USDA and the US Department of Health and Human Services developed the Choose My Plate Food Guide. The Choose MyPlate Food Guide helps one choose the foods and amounts that are healthy and encourages one to be active every day. Food choices and activity level affect one's health – both now and in the future. To adopt a healthy lifestyle and maintain a healthy weight, one should set daily nutrition and activity goals. Living a healthy lifestyle and following the Choose My Plate Food Guide is important for people of all ages, with and without multiple sclerosis. One should consult with a registered dietitian about specific nutrition needs. (See Figure 13.1)

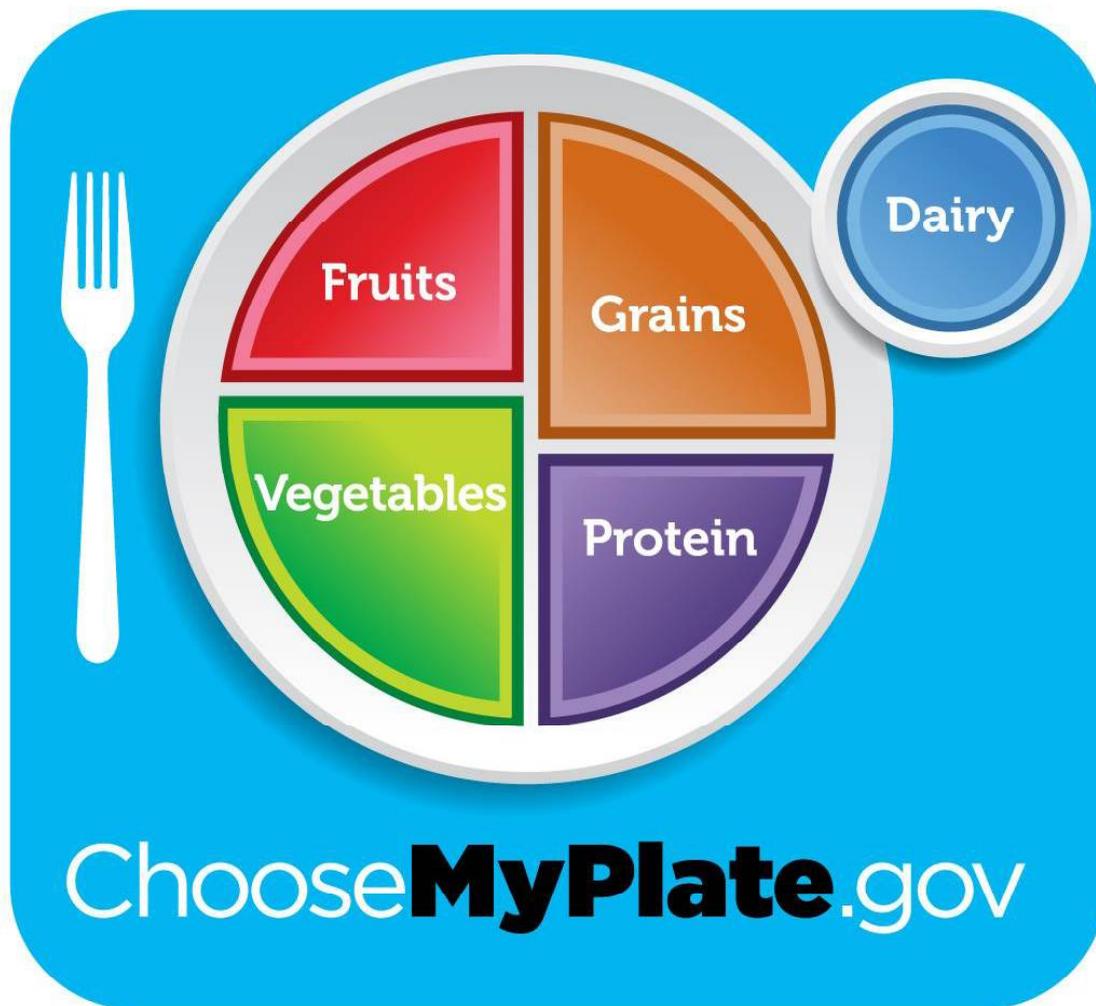


Figure 13.1

10 Tips to a Great Plate

1. **Balance Calories:** Find out how many calories YOU need for a day as a first step in managing your weight. Being physically active also helps you balance calories.
2. **Enjoy Your Food but Eat Less:** Take the time to fully enjoy your food as you eat it. Eating too fast or when your attention is elsewhere may lead to eating too many calories. Pay attention to hunger and fullness cues before, during, and after meals. Use them to recognize when to eat and when you've had enough.
3. **Avoid Oversized Portions:** Use a smaller plate, bowl, and glass. Portion out foods before you eat. When eating out, choose a smaller size option, share a dish, or take home part of your meal.
4. **Foods to Eat More Often:** Eat more vegetables, fruits, whole grains, and fat-free or 1% dairy products. These foods have the nutrients you need for health—including potassium, calcium, vitamin D, and fiber. Make them the basis for meals and snacks.
5. **Make Half Your Plate Fruits and Vegetables:** Choose red, orange, and dark green vegetables like tomatoes, sweet potatoes, and broccoli, along with other vegetables for your meals. Add fruit to meals as part of main or side dishes or as dessert.
6. **Switch to Fat-Free or Low-Fat (1%) Milk:** They have the same amount of calcium and other essential nutrients as whole milk, but fewer calories and less saturated fat.
7. **Make Half Your Grains Whole Grains:** To eat more whole grains, substitute a whole-grain product for a refined product such as eating whole-wheat bread instead of white bread or brown rice instead of white rice.
8. **Foods to Eat Less Often:** Cut back on foods high in solid fats, added sugars, and salt. They include cakes, cookies, ice cream, candies, sweetened drinks, pizza, and fatty meats like ribs, sausages, bacon, and hot dogs. Use these foods as occasional treats not everyday foods.
9. **Compare Sodium in Foods:** Use the nutrition facts label to choose lower sodium versions of foods like soup, bread, and frozen meals. Select canned foods labeled “low sodium,” “reduced sodium,” or “no salt added”.
10. **Drink Water Instead of Sugary Drinks:** Cut calories by drinking water or unsweetened beverages. Soda, energy drinks, and sports drinks are a major source of added sugar and calories in American diets.

Maintaining a Healthy Weight

Achieving and maintaining a healthy weight is an important part of managing MS. Excess body weight can increase an unnecessary added pressure on muscles and joints which may lead to regular flare-ups. Insufficient body weight can decrease the ability to fight infections. A good way to determine if one needs to gain or lose weight is to look at body composition. A male's body fat should be between 10% to 20% of his total body weight whereas a female's body fat should range between 15% and 25% of her total body weight.

Weight Loss

If weight loss is the goal, one should focus on establishing a plan that includes a variety of foods. Avoid using the word “diet” as a diet is something one goes on and then goes off. One should try to make healthy lifestyle changes he/she can maintain for the long term. A healthy rate of weight loss is 1-2 pounds per week. Rapid weight loss usually results in loss of fluid or muscle rather than body fat. Here are some weight loss tips:

- Do not skip meals.
- Include 3 food groups with each meal.
- Limit snacks to designated times, often midmorning and mid-afternoon.
- Limit sweetened beverages to no more than 12 ounces a day. This includes juice, soda, Kool-Aid

and lemonade to name a few.

- Keep high fat or high sugar foods out of the house.
- Limit serving sizes. Refer to the package for information on serving size.
- Be aware that most of today's foods come in super-sized versions that are not helpful for weight control. Resist the temptation to super-size your order or to purchase super-sized food items. Share an entrée when dining out. Limit use of high calorie condiments such as mayonnaise or salad dressing. Use lower calorie versions instead.
- Increase activity to help strengthen your body and lose weight. Remember what you learned in exercise section of this book.
- Meet with a registered dietitian (RD) for additional advice on meal planning.

Weight Gain

The best way to gain weight is to eat more. However, it is recommended to eat healthy foods in smaller amounts more often. Here are some tips for weight gain:

- Eat five to six small meals a day and snack whenever you are hungry.
- Keep your favorite foods on hand for snacking and meals.
- Fat is a concentrated source of calories. Small amounts of vegetable oil, butter or margarine can increase the calorie content of any food.
- Use higher calorie versions of foods you eat (butter crackers or cheese crackers instead of soda crackers).
- Avoid "lite" products (skim milk, low fat yogurt and cottage cheese, reduced calorie mayonnaise, low-fat salad dressings, etc.).
- Don't fill up on fluids. Drink fluids between meals rather than with meals. Drinking during a meal can make you feel full quickly.
- Avoid filling up on low calorie foods like salad at meal times; instead eat the heartier foods first.
- Choose nutritious drinks, such as whole milk, milkshakes, and juices. Consider supplemental drinks such as Boost®, Ensure®, or Scandishake®
- Meet with a registered dietitian (RD) for additional advice on meal planning.

Suggested Calorie Boosters

- butter/margarine
- cream cheese
- dried fruit
- dry milk powder
- granola
- honey/sugar
- peanut butter/nuts
- vegetable oils

Meal Time Tips

For someone with MS, doing even simple tasks can take a lot of energy. If one uses all his/her energy preparing a healthy meal, it may be difficult to eat and/or enjoy what has been prepared. Here are a few practical suggestions on how to conserve energy and get the most from mealtime:

- Eat six smaller meals instead of three big meals. Frequent meals are recommended since many people with MS feel more fatigued when their stomach is full.
- Plan to eat before you are too hungry or tired.
- If you do not have an appetite, use the clock to remind you when it's time to eat. Think of food as medicine and do your best to eat "healthy" foods throughout the day. Try to eat something every 2-3 hours, and do not go longer than 4 hours without eating.
- Breathe evenly while you are chewing and eating. Relax at mealtime.
- When cooking or baking, double or triple your favorite recipes to keep your freezer full for times when you do not feel like cooking. Freeze foods in small portions at this time.
- Use prepared foods to save time and energy in the kitchen. Healthy frozen meals, prepared foods or take-out meals from a restaurant can make your life easier. Remember, the sugar, salt or fat content of these foods may be higher than homemade.
- Do the tasks that require the most effort when you have the most energy. For example, many people would agree that grocery shopping is a tiring task. This chore can be done when you feel freshest, in the morning or after a rest. Better yet, make a list and have a friend or family member pick up your groceries for you!
- Don't stand in the kitchen when you can sit. Bring your chopping, cutting and mixing projects over to the kitchen table and sit while you prepare the food or keep a barstool by the kitchen counter.

Nutrition Mindsets for MS

Nutritional education is a stepping-stone to success in overcoming the typical ups and downs combined with failure of sticking with the right program. For MSers, it is especially critical that diet be considered as it plays a major factor in beating the symptoms. Poor nutrition depletes the body of strength and energy. Optimal nutrition propels the body forward to meet the challenges of life and overcome obstacles. When it comes to healthy eating, the approach is no different than any other health conscience behavior. Helping your MS client to find their inspiration and motivation is a crucial piece in the puzzle of success. This begins with food-related mindsets. The fact of life is that most of our daily activities are governed by unconscious patterns and perceptions. Whether we're trying to eat healthier, get fit, or lose weight, we always attach a mindset to our behaviors. The mindset your client uses to approach diet determines if his/her journey is filled with success leading behavior or riddled with roadblocks. Developing a long-term healthy lifestyle is hard enough; therefore, talk through the roadblocks from the start. Encourage your client to remove these roadblocks and chip away at the negative mindset in order to make productive change and overcome the symptoms of his/her MS.

From the beginning, help your client to kick a few self-defeating thoughts to the curb. Mindsets like, "I don't have the time, money, or energy for healthy food," or "I don't like the taste of food that's good for me," or even "I've tried before and I couldn't stick with it." None of these mindsets will get them to the place of breaking through the challenges they face. Instead, suggest to your client, "why not replace these ways of thinking with positivity? If you haven't tried a mindset change, then it certainly can't hurt, let's give it a try!"

Mindsets that promote an attitude of possibility and capability are what is needed to tap into motivation

and inspiration. These mindsets sound like: “I will learn how to do this.” “My health is important enough to keep trying.” “I can do this. I need to do this.” Your client may not know exactly how he/she is going to find time to cook instead of eating out, but trust that he/she will find a way to accomplish it. When one combines a positive mindset with a sense of what is realistic in one’s own life, there is tremendous potential for a strategy that can actually be successful for the long run.

Here are some additional must-have mindsets that are crucial as one embarks on the journey to reach optimal nutrition.

Must-have Mindset #1: Ditch Perfection

Perfectionism is one of the greatest barriers to long-term behavior change. A perfectionist’s mindset tends to be all or nothing. On a diet or off a diet. Deprivation or excess. Perfection or failure. These extremes do not help, because life is a series of progressions and regressions; smooth times and chaotic times. One will go on vacation, celebrate holidays, eat treats, get sick, juggle family emergencies, and more. Remind your clients that they are not perfect and can’t be perfect, and ‘perfect’ is not a reasonable expectation that is even close to achievable. You, their trainer, are here to remind them that they should expect the unexpected while working through health and fitness goals. Maintaining a healthy diet is a life-long process, being prepared for the guaranteed ups and downs is crucial to success. Your role as a personal trainer, of an MS client or an otherwise healthy client, is to support the training of both the brain, for better mental health and clarity, as well as the body, for better fitness when performing daily activities – it is a delicate balance, but not one that will ever be perfect. Patiently keep pressing the reset button (for both you and your clients). Progress, not perfection, is the goal. Instruct your clients to repeat the mantra, “progress, not perfection.” Give them a pat on the back and tell them to give themselves a pat on the back when making even the smallest step towards balance.

Must-have Mindset #2: Learn to Fish

“Give a man a fish and you feed him for the day. Teach a man to fish and you feed him for a lifetime.” (Chinese proverb.) Many people think they want to be given a fish (a.k.a. someone to tell them exactly what and how much to eat every day). There are several flaws in that approach. Mainly because it’s just not sustainable long-term, and one won’t “learn to fish” in the process. Any nutrition approach that’s truly centered on your client’s best interest is designed to empower him/her to create a sense of capability and ownership. With this kind of self-knowledge and personal responsibility, he/she will be able to assess the current status and the direction needed when challenges arise. Statements of someone learning to fish sound like this, “Hey I found this great app for meal planning,” or “I looked up some recipes that support my nutrition goals,” and “I tossed out all the junk that’s not supporting my health,” or even “I figured out a realistic way to divide the grocery shopping, cooking and clean up in my family.” Statements like these are all great signs that your client is taking ownership of the way he/she feeds him/herself and is becoming a problem-solver along the way. Taking ownership can be overwhelming when one doesn’t know where to start or not feeling well physically or mentally. The good news is that learning to fish does not have to be a solo journey. That’s where you come in! As their trainer, you are encouraging good behaviors and promoting consistent step-taking towards the goal.

Must-have Mindset #3: Reach for Support

As your client begins his/her journey to fitness (or even along the way) tell them to never be afraid to ask for help and support.

Health Professionals: As a personal trainer, you make this list of professionals that will support both short-term and long-term goals. However, it is important that you prove you are worth the investment. Investing in wellness with an expert can be life changing. It is incumbent on you to purposefully train

your client in a safe and effective way that shows results (in a reasonable amount of time, of course, which must also be made clear to your client, i.e. when can they anticipate seeing results in relation to the amount of time they are spending with you). There are several types of holistic health practitioners to which you may refer your client depending on their individual need, budget, willingness, and/or ability. Acupuncturists, Chiropractors, Massage Therapists, Dietitians, and Naturopaths are examples. The investment in personal training services in conjunction with holistic health experts can be worth it when taking full advantage of the resources (ultimately, saving your client money in the long run). Consider connecting with local health experts to create a referral base for your clients when needed. You may already know individuals in these fields and can exchange referrals with these colleagues. Ensure that these experts are of the same empowerment mindset as you whereby they will support and not enable or hold back, your client.

Friends, Family, Community: Encourage your clients to enlist people they can lean on when encouragement for healthy eating is needed. These ‘accountability partners’ don’t need to share the same goals in order to be encouraging. They can simply cheer your clients on, ask for progress updates, or encourage them to talk about how they’re feeling today. They can also engage in online communities for extra support and accountability where they can find guidance from people who have been through a similar process. In these social/online communities, your clients can be helped to avoid common setbacks and they can be better prepared for challenging events with tips and encouragement from the community. Social media is a great way to find support, motivation and inspiration from like-minded people--and it’s free! Instagram, Pinterest, and Facebook all have great resources for recipes, people passionate about health, and attractive food photos that can inspire them to try something new. A comprehensive resource list is provided at the back of the manual that includes online communities and support groups.

Support Yourself: We can all be our own worst enemy. A lot of it has to do with our mindset. The goal is to avoid self-sabotage. Help your clients to support themselves and to avoid the trap of “failure” syndrome. This syndrome is typically caused by a harsh judgment of personal “mistakes” and the subsequent stream of negative feelings that are experienced after making them; anger, despair, hopelessness, numbness, etc. These negative feelings can lead to avoidance. “Tomorrow,” I’ll do something about it. This attitude prevents action for necessary problem-solving in the present. Encourage them to confront challenges as they arise, even if it is a very small step.

Must-have Mindset #4: Find Pleasure in the Foods that Lead You to Health

Most people can do anything for the short-term. They can “white knuckle it” through restrictive diets, desperately awaiting the day it’s “over.” The biggest challenge is not losing weight for a big event or going on a three-day detox. It’s consistently finding pleasure in the choices that lead us to nutritional balance. Only when we find pleasure in balancing our nutritional needs does it become likely that we will maintain these healthy habits for a lifetime. Many people have negative mindsets when the words “health” and “food” come together. Nutritious foods don’t have to taste like dirt. They don’t have to make you suffer. Your clients do not have to give up all foods that they enjoy. Remind them that some of the most delicious foods on the planet are good for them. Sometimes it’s a matter of training the palate, other times it’s a matter of training the mind.

A key reason for failure is that we embark on dietary changes making it about deprivation of all our “likes.” We see the process as all or nothing. Deprivation always leads to excess. This means that making adjustments over time, as opposed to eliminating everything overnight, is a better strategy. There is still room for treats and old favorites, all of which have healthier alternatives that your clients may even like better. For example, your clients many never even miss the white stuff after making the

switch from refined wheat pasta to brown rice pasta. Ask your clients to experiment with almond flour and see how they can use it to make the best muffins and cookies they'll ever taste. The possibilities are endless as long as your clients do not substitute the "bad" food for another food that may seem like a "healthy" choice yet is still inflammatory for them. Clients with MS are individuals and, although they have the same disease, certain foods are not always inflammatory or anti-inflammatory for every one of them individually. Therefore, when substituting, they need to test the waters and see how they feel; if they are feeling better or experiencing worsened MS symptoms by switching to that food. It certainly would make our lives as trainers easy if there was one absolute diet that worked 100% of the time for MS. But, unfortunately, we must take the time and have that trial and error phase of creating the nutritional program that fits each MS client. See the section on *Inflammation* for details on this subject.

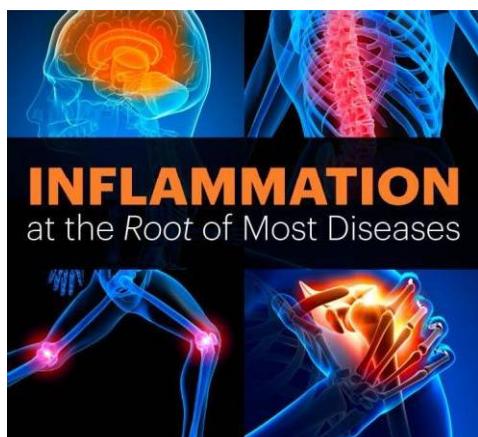
A general observation is that any time your clients feel like they can't stop eating a food, they should recognize it as probably being a "fake food." Those processed foods that are loaded with fat, salt, refined sugars and carbs, artificial sweeteners, and other chemicals are actually designed for addiction, engineered to trick our brain into wanting more and more. While there is some short-term pleasure that we receive from eating bags and cartons of these foods, they are the same substances that make us fat, sick, and unhappy, zapping our body of that necessary strength and energy needed to overcome our daily challenges. Remind your clients that the healthier their overall diet becomes, the stronger and wiser their taste buds become. It does take time to retrain the brain and the taste buds. When detoxing the junk out of their diet, the cravings subside, and their palate can heal. Our bodies are naturally inclined to find satisfaction in foods that sustain life and make us healthy. If your clients follow your nutritional advice, they can start to enjoy the foods that nourish them. They can find pleasure in those foods. If they haven't found them yet, tell them to keep looking... Those foods do exist.

Change can be difficult, and new foods don't always taste good overnight. However, encourage your clients to keep this question in mind through the process, "Do I consistently find pleasure in my healthy food choices?" If the answer is yes, the chances for long-term success are excellent. If the answer is no, there is still more work to do. Setbacks are a normal part of the process. When your clients feel their motivation to keep eating well weaken, they need to go back to the mindsets and press the reset button. With the proper mindsets, the approach to nutrition becomes clearer.

When changing diet behavior, it is always helpful if one applies his/her journaling skills. Recording food choices alongside records of energy level, performance, mood, etc. is very helpful in one's overall MS management and goal achievement.

Inflammation

Nutrition is crucial to the health and function of every single cell in the body. What one eats and drinks



either feeds disease or fights it. There are many types of eating plans from which to choose. One universal need for optimal health and disease prevention is to manage inflammation in the body. This is a basic starting point that allows the body to heal, repair and rebuild. In recent years, there's been much attention and research surrounding inflammation. Inflammation is a protective response by the immune system to any type of bodily injury and infection. Inflammation is a healthy and necessary part of a healthy immune response. However, there is concern regarding too much inflammation. Inflammation occurs when chemicals are released by your immune cells, producing swelling, redness, and pain. When the immune system is triggered to

release inflammatory chemicals in an on-going and uncontrolled manner, damage occurs, and health problems can manifest in any part of the body. Short-term inflammation is not a problem, it's a protection. The problem is an excessive inflammatory response, driven by foods and a lifestyle that promote inflammatory pathways. Certain conditions, such as asthma, allergies, arthritis, and autoimmune disorders, have an obvious inflammatory component. However, chronic, low-level inflammation—sometimes referred to as “silent” inflammation—has now been linked with diseases ranging from heart disease, diabetes, digestive disorders, cancer, depression, and Alzheimer's. Inflammation also appears to be a key factor in accelerating the aging process including skin aging and other outward signs of aging. It can also be a roadblock for weight loss. “Silent” inflammation often lurks below the threshold of perceptible pain. If one can't see it or sometimes feel it, how does one measure it? One of the most common chemical markers for inflammation is a protein called C-reactive protein (CRP). If you believe excessive inflammation to be present in your client, or if you would like to ‘prove’ this to the end of correcting nutritional habits, then CRP can be measured. Your client can consult their physician for a measurement of CRP, which can be done through a simple blood test.

Anti-inflammatory Lifestyle

Fortunately, there is much that can be done to take control of one's life. Research suggests that a total diet and lifestyle approach continues to be one the best prescriptions for reducing inflammation and other risk factors for disease.

Healthy lifestyle habits that help reduce inflammation are:

- Consuming an anti-inflammatory diet
- Exercising regularly
- Not smoking
- Reducing toxin load
- Maintain a healthy weight—Fat cells produce inflammatory chemicals at a rate far greater than other cells.
- Minimize stress—Hurt feelings can be inflammatory. A study showed social stresses such as feeling rejected were shown to increase inflammatory markers in humans.
- Get quality sleep—People who sleep poorly or do not get enough sleep have higher levels of inflammation.

Controlling Inflammation with Diet

One of the biggest factors in chronic, low-level inflammation may be the food that your client is eating every day. Certain foods promote inflammation while others stop inflammation. There is no one-size-fits-all anti-inflammatory diet per se. Many factors affect a food's inflammatory potential, including the amounts and proportion of various fatty acids, the number of antioxidants and other nutrients, and the food's glycemic impact, which is the effect on blood sugar levels.

The body creates both inflammatory and anti-inflammatory chemicals, called “prostaglandins” from nutrients in the food that we eat. Imbalances in the diet can lead to the creation of excessive amounts of inflammatory prostaglandins, which fuel the body's inflammatory response. Conversely, the consumption of certain nutrients, like Omega-3 fatty acids and antioxidants, allow the body to produce more anti-inflammatory prostaglandins, which it uses to reduce inflammation.

There are numerous resources that promote “anti-inflammatory” eating, and each one presents its own position. One noted expert is Dr. Andrew Weil. His *Anti-Inflammatory Food Pyramid* is an excellent dietary guide. His guide was used in the development of the anti-inflammatory foods listed in the chart

below. Other experts say that the anti-inflammatory diet is very close to the Mediterranean diet one rich in fruits, vegetables, beans, nuts, seeds, healthy whole grains, fish, and olive oil limiting meat, dairy, and red wine. This diet contains mostly plant-based foods, because phytochemicals – natural chemicals found in the plants – are believed to help reduce inflammation.

There are specific MS diets such as the Wahls Protocol, created by Dr. Terry Wahls, which she describes as a radical new way to treat all chronic autoimmune conditions using Paleo principles. When creating a nutrition plan for MS, use common sense and follow a diet that lays the best foundation for reducing inflammation since inflammation will not only increase MS symptoms but will make it difficult to get through an exercise program. Because individuals differ with unique allergies, sensitivities, tastes, and absorption of nutrients, trial and error on what works for your client is part of the search in finding the right anti-inflammatory nutrition plan. There are foods that may cause inflammation in one person but doesn't have the same effect in another person. Trial-and-error is the key to finding a satisfactory nutrition plan that works for your client. This means that keeping a food log is essential to keeping track of sensitivities, likes and dislikes, and reactions of certain foods. Based on the data from journaling, you can suggest the removal or incorporation of new foods into the diet.

Short List of 'Enjoy and Avoid' Foods to Reduce Inflammation

Top 10 Best Foods	Top 10 Worst Foods
Foods Rich in Vitamin D	Saturated Fats
Lean Meats	Alcohol
Whole Grains	Sugar
Fresh Fruit	Aspartame
Vegetables	Refined Grains
Fatty Fish	MSG
Plant Based Oils	Full Fat Dairy
Turmeric	Salt
Avocado	Caffeine
Ginger	Gluten

Foods to Enjoy

The following list provides an excellent starting point for anti-inflammatory foods & beverages. You can use this practical guide to suggest meal plans in accordance with your client's tastes, tolerances and preferences. There are additional foods, beverages and supplements that are anti-inflammatory as well. The list provided will equip you with a great foundation from which to recommend and educate.

The anti-inflammatory diet is not meant to be a short-term eating plan. Rather, it is an ideal every day nutritional foundation for every member of the family. The more anti-inflammatory choices that your clients make, the more they help themselves to maintain optimum health. In addition to influencing inflammation, this style of eating will provide steady energy, vitamins, minerals, Omega-3s, dietary fiber, and protective phytonutrients.

In the pages to follow, use this chart as a reference for suggested foods and guidelines as they pertain to MS client symptoms and needs.

Food Group	Guidance	Some Suggested Foods
Vegetables	<ul style="list-style-type: none"> ● Choose a wide range of colors. ● Try to include raw servings daily. ● Green vegetables should be steamed or boiled in a little water and should not be overcooked to avoid losing much of the vitamin content. ● Eat cruciferous (cabbage-family) vegetables regularly. ● Eat plenty of green leafy vegetables. ● Choose organic when possible. <p>View the “Dirty Dozen” at www.ewg.org</p>	Broccoli Cabbage Cauliflower Celery Cucumber Dark green leafy lettuce Brussels sprouts Collard Greens Bok Choy Green beans Jicama Mushrooms Sugar snap peas Pumpkin Carrots Squash Sweet potatoes Bell peppers Asparagus Artichoke Beets Bell peppers Tomato Zucchini Onions/garlic Shiitake Mushrooms Sea vegetables (ex. Seaweed salad) Micro greens Great for Green Smoothies Swiss chard Spinach Kale
Fruits	<ul style="list-style-type: none"> ● Go for a wide range of colors. ● Choose fruits that are fresh, in season, or frozen. ● Choose organic when possible. View the “Dirty Dozen” at www.ewg.org to determine which are best to buy organic. ● All fruits listed are lower in glycemic load than other fruits 	Blueberries Raspberries Strawberries Blackberries Boysenberries Cranberries Cherries Red Grapes Pomegranate Oranges Tangerines Pink Grapefruit Lemon

		Lime Apples Pears
Whole Grains	<ul style="list-style-type: none"> • Trying a gluten-free diet may also be helpful. • Focus on grains that are less refined, less-processed, high fiber, slowly digested and with a low glycemic load. • Reduce your consumption of foods made with wheat flour and sugar, especially bread and most packaged snack foods (including chips, crackers and pretzels). • Eat more whole grains such as brown rice, in which the grain is intact. These are preferable to whole wheat flour products, which have roughly the same glycemic index as white flour products. • Cook pasta al dente 	Amaranth Barley Buckwheat Basmati rice Brown rice moderation. Wild rice Groats Steel-cut Oats Quinoa Millet Spelt
Protein-Rich Foods	<ul style="list-style-type: none"> • Eat lean protein sources such as chicken; cut back on red meat. • Decrease your consumption of animal protein and balance with vegetable protein. • Choose grass-fed lean meats, free of preservatives, antibiotics, growth hormones, nitrates or coloring. • Choose organic when possible. 	Skinless turkey breast Skinless chicken breast Wild Salmon (canned/fresh/frozen) Alaskan halibut Albacore tuna Bison Egg whites Sardines (packed in water or olive oil) Trout Mackerel Omega-3 enriched eggs
Beans & Legumes	<ul style="list-style-type: none"> • These are a great way to eat more vegetable protein on a daily basis. • Eat them whole or pureed into spreads like hummus. • Choose organic whole soy foods. 	Pinto Kidney Mung Cannelloni Adzuki Black Garbanzo or chickpeas

	<ul style="list-style-type: none"> • Avoid heavily processed soy. 	Black-eyed peas Navy Lima Fava Organic Soy Tofu Tempeh Edamame (boiled soybeans) Soy nuts
Healthy Fats	<ul style="list-style-type: none"> • Nuts/seeds ideally raw & unsalted. • Watch portion sizes to prevent weight gain. • Consume daily. 	Avocados Extra Virgin Olive oil Organic Expeller-pressed Coconut oil Grape seed oil Cold-pressed sesame oil Nuts Walnuts Almonds Pecans Cashews Nut butters from these nuts (no added sugar) Seeds Sesame Sunflower Pumpkin/Pepita Flaxseed meal Chia Hemp
Dairy/Non-Dairy Alternatives	<ul style="list-style-type: none"> • High quality natural cheeses in moderation (1-2 ounces/week) • Cut back on full-fat dairy foods. • Choose versions of yogurt and non-dairy milks with no added sugar. 	Organic plain Greek yogurt Goats milk yogurt Almond milk Organic coconut milk Goat or sheep's milk feta Romano Parmesan Manchego Swiss Jarlsberg
Herbs & Spices	<ul style="list-style-type: none"> • Use a variety of herbs & spices to season food. • Replaces salt, sugar, and added fat by boosting flavor. 	Turmeric Curry Powder Ginger Cinnamon Chili Peppers Basil Rosemary Thyme Parsley Oregano Basil Chives

		Cilantro Dill Mint Citrus zest
Beverages	<ul style="list-style-type: none"> ● Drink tea instead of coffee, especially good quality white, green or oolong tea. 2-4 cups/day is recommended. ● If you drink alcohol, use organic red wine preferentially & in moderation. No more than 1-2 drinks/day. If you don't drink you don't need to start. ● Drink pure water, free of toxic chemicals throughout the day. ● Choose glass/stainless steel bottles over plastic. 	
Sweet Treats	<ul style="list-style-type: none"> ● Enjoy plain dark chocolate in moderation (with a minimum cocoa content of 70percent). 1 ounce a few times per week. ● Experiment with natural sweeteners that are lower glycemic. ● For zero calorie sweetness, ditch artificial sweeteners and use Stevia & Xylitol (derived from a non GMO source). ● Fruit sorbet is a better option than most frozen desserts. 	
Supplements	<ul style="list-style-type: none"> ● Majority of nutritional needs are best met through fresh and wholesome food. ● Nutritional gaps can be filled through high quality supplements. ● It's important to remember that supplements are not an alternative to a healthy diet and you should still maintain a variety and balance. <p>Common daily needs are:</p> <ul style="list-style-type: none"> ● Multivitamin/multimineral ● Fish oil for Omega-3s (both EPA & DHA) ● Vitamin D3 ● Co-enzyme Q10 ● Key antioxidants ● Probiotics ● Anti-inflammatory substances like turmeric can also be taken in supplement form if you don't include them in your diet. 	

Foods to Avoid

Previously listed was recommended foods that can help strengthen and heal the body. For best results, your clients should also be familiar with foods to avoid, as these foods will only create barriers on the road to fitness. These barriers include inflammation, pain, fatigue, disease, dysfunction, mood swings, depression & anxiety, weight gain, and feelings of failure. Remember, perfection is not necessary (see Must-have Mindset #1). Balance, not deprivation, is the higher goal. Must-have Mindset #4 demonstrates that there are healthy foods that can be even more pleasurable than quick fix pleasures. Consistency is what counts the most.

The following foods should be consistently avoided in favor of more energizing and healing foods that will help your clients to reach their goals.

- Minimize processed foods and refined grains: Bread, white rice, pasta, pizza, potato chips, pretzels, French fries, corn chips and products made with white flour, such crackers, pretzels, and bagels.
- Minimize saturated and trans fats because they damage the cells lining blood vessels: Full fat

dairy, butter, cream, whole milk, ice cream, high fat cheeses and fried foods. Avoid margarine, vegetable shortening, and all products listing them as ingredients.

- Limit processed & high fat meats: Lunch meats, hot dogs, sausages, beef, lamb, pork, fast food.
- Avoid sugary foods and beverages: Sodas, pastries, presweetened cereals, corn syrup, and candy. These are loaded with calories but have little nutritional value and may trigger mood swings because of their sugar content.
- Remember a simple rule of thumb: If it contains refined flour, sugar or high fat meats, it will be pro-inflammatory.

Sugar

Sugar is one of the biggest barriers to health. There is a growing body of science that supports sugars' contribution to obesity, diabetes, heart disease, stroke, high blood pressure, high cholesterol & triglycerides, cancer, candida, inflammation throughout the body, mood swings and an assault to the immune system. A 2014 study published in the Journal of the American Medical Association (JAMA) showed that too much added sugar in the diet could significantly increase risk of dying from cardiovascular disease!

Another recent study found that eating high-glycemic foods (foods that raise blood sugar quickly) can create a sharp crash in blood sugar levels that lead to overeating at the next meal. And here's the mind-blower: researchers noticed that the rapid drop in blood sugar lit up the region of the brain connected to addictive behaviors. This gives credibility to the idea that we can develop an actual addiction to sugar-laden foods. Because of sugars' huge impact on heart health, the American Heart Association (AHA) has set some guidelines for intake.

- American Heart Association (AHA) Recommendations for Added Sugars:
No more than 6 teaspoons (24 grams, or 100 calories) a day for women
No more than 9 teaspoons (36 grams, or 150 calories) a day for men
- The Definition of Added sugar: Added sugars are sugars and syrups that are added to foods or beverages when they're processed or prepared. For example: table sugar, high fructose corn syrup, maltose, sugar cane syrup, molasses, fruit juice concentrate and other sweeteners. Added sugars contribute additional calories and zero nutrients to food. Naturally occurring sugars are found naturally in foods such as fruit (fructose) and milk (lactose). Most American adults consume about 22 teaspoons of added sugars a day. Sugar-sweetened beverages are the largest source of added sugars in the American diet. A can of regular soda packs about 35 grams of added sugars. Other major sources of added sugars are candy, cookies, ice cream, sweetened yogurt and cereals. Therefore, it is critical to health goals and a healthy lifestyle that you instruct your client to keep tabs on how much sugar they are ingesting each day. Many people consume much more sugar than they realize. On the Nutrition Facts panel, the line for sugars contains both the natural and added types as total grams of sugar. The twenty-year old label may be changing soon though and will make added sugars easier to detect. To tell if a processed food contains added sugars, you need to look at the list of ingredients. Sugar has many other names. Besides those ending in "-ose," such as maltose, dextrose or sucrose, other names for sugar include high fructose corn syrup, molasses, cane sugar, beet sugar, cane juice, corn sweetener, barley malt, raw sugar, corn syrup, and fruit juice concentrates. As consumers look for sugar alternatives, they tend to seek out synthetic artificial sweeteners like aspartame and Splenda®. These are horrible alternatives to sugar and will only harm health. Splenda® is disguised as sucralose in labeling and is being used in almost every fitness/bodybuilding supplement as a "natural" replacement for sugar. Do not be fooled by this claim and stay away from sucralose!

- **Natural Sugar Alternatives:** There are natural sugar alternatives that are not synthetically produced. These lower-glycemic sweeteners aren't all lower in calories, so moderation is still needed. Here is a list of some of the most beneficial natural sugars you can find.
 - **Stevia:** As an herb native to South America, stevia is 300 times sweeter than sugar. It has zero calories and no glycemic impact. You can purchase both organic liquid and powder stevia from most stores now. You can use it to sweeten your coffee, tea, and smoothies. If baking with stevia, it's best to use a recipe that is intended for the stevia substitute rather than regular sugar.
 - **Coconut Palm Sugar:** Produced from the sap of the coconut palm, coconut sugar is nutritious and has a low score on the glycemic index. It tastes similar to brown sugar but is slightly richer. You can substitute coconut sugar for traditional sugar.
 - **Raw Honey:** Make sure you always opt for raw honey to ensure all of the valuable nutrients and enzymes are retained. Raw and local honey is also good for seasonal allergies. There is nothing beneficial about processed honey.
 - **Lucuma Powder:** Touted as a super food, with a uniquely sweet and maple-like taste.
 - **Dates:** Can be used in smoothies, cooking and baking. They also pack a lot of fiber, nutrients, vitamins and minerals.

- **Information for application:** Below is an easy-to-follow list regarding information on how to properly apply dietary suggestions. Use this information with your clients. Recommend these suggestions to apply daily, maybe consider a printout for your clients to post to their refrigerator that reminds them of these ways to cut out added sugars.
 - Experiment with natural sweeteners
 - Reduce or cut out soda, sports and energy drinks as well as enhanced waters, sweetened teas and sugary coffee drinks
 - Cut back on the amount of sugar added to things you eat or drink regularly like cereal, coffee or tea
 - Avoid adding sugar to cereal or oatmeal, try fresh fruit (bananas, cherries or strawberries)
 - Avoid adding sugar in recipes, use extracts like almond, vanilla, orange or lemon
 - Enhance foods with spices instead of sugar. Try ginger, allspice, cinnamon, or nutmeg
 - Buy fresh fruits or fruits canned in water or natural juice and avoid fruit canned in syrup

In summary, the goal is to make this approach to nutrition a style of eating that is realistic and sustainable. It is important that your clients express and understand the difference between what is reasonable and what they are willing to do. Remind them that it is common to have a day where there's a combination of pro and anti-inflammatory foods. It's impossible to avoid all inflammatory foods all the time. If this process of making nutritional adjustments starts with the idea that they are required or expected to find perfect and optimal balance out of the gate, then they are setting up for failure. Help to bring them back to reality in reminding them that they are not perfect and cannot be perfect. Ensure to do this with balance whereby you are not enabling or ignoring consistently poor eating habits. Remind them that the primary goal is to bring their diet into balance, and this takes time. Therefore, encourage the decreasing of foods that contribute to disease and the increasing of healing foods so that the overall effect of their diet is anti-inflammatory. To accomplish this, meal planning and food forethought are needed. It takes time and energy to plan, shop, and prepare the foods that the body needs. Your clients will know the foods that make them feel tired, sick, and mentally low. To start, recommend that your clients avoid these foods. This may seem obvious, but if you ask them to avoid these foods for a week, and then two weeks, and so on, while keeping them accountable (not to perfection but to their goals) then you will ultimately make an impact in the way that your clients feel early on in your trainer-client relationship. You can empower your clients to take control and to trust in your recommendations while

supporting them in their journey to better health and establishing increased control of their MS symptoms through your fitness programming.

Meal Planning

Once one knows what variety of foods positively fuel MS clients, the trainer can begin to assist in building their meal plans. This correlates to *Must-Have Mindset #2: Learn to Fish*. Although there are thousands of meal plans from which to choose, the plan must be customized to an individual's needs. Meal plans are not necessarily *one size fits all*.

Many people think they just want to be told what to eat at every meal. But this short-cut won't empower your clients to gain the skills of learning how to feed themselves. Also, if you are not a registered dietitian, then you should remain within your personal trainer scope of practice by only offering recommendations and information to your clients. They then can use this information to structure their own specific meal plans. People that are the most successful with healthy eating long-term go through the personal process of meal planning that allows them also to find pleasure in the foods that lead them to health (Must-Have Mindset #4). The journey is exciting and rewarding. A client should take it one meal at a time.

It is imperative that clients document what works for them and what doesn't. There are many options for nutritional logging apps that can be used for this purpose. Documenting allows the clients to see if they're hitting personal nutritional targets. There are meal planning websites to help organize weekly plans and countless resources for recipes as well. Do this research for your clients and advise them on what apps and sites to use to their best advantage. Remind your client how important it is to eat regular meals (especially breakfast) and snacks throughout the day to maintain blood sugar levels and stimulate metabolism. Proper nutrition is a must on this road to better fitness and optimal health. You may have heard 'you can't out-work a poor diet', and sometimes you need to remind your clients of this also. Taking this long journey by using the right fuel is how they will get to the destination.

Client's Meal Plan EXAMPLE:

Sample Meal Plan for Anti-inflammatory Diet		
Day 1	Day 2	Day 3
<p>Breakfast Super Green Smoothie (Blend frozen berries, organic kale, water, vegetarian protein powder).</p> <p>Lunch Asian bowl: Brown rice, vegetables, chicken</p> <p>Dinner Turkey Chili Muffin made with almond flour</p> <p>Snack Organic Greek style yogurt with sunflower seeds</p> <p>Beverage Roasted dandelion root tea *In addition to pure water</p>	<p>Breakfast Spinach & mushroom frittata</p> <p>Lunch Tuna salad on whole grain bread with apple slices</p> <p>Dinner Wild Salmon Quinoa Sautéed zucchini & garlic</p> <p>Snack Carrots & hummus Dark chocolate 70% cocoa</p> <p>Beverage Ginger lemonade (made with freshly grated ginger & lemon juice. Sweetened with Stevia) *In addition to pure water</p>	<p>Breakfast Oatmeal: (Gluten Free old fashioned oats, cinnamon, walnuts, almond milk)</p> <p>Lunch Lentil soup Mixed greens salad Flax crackers</p> <p>Dinner Stuffed bell peppers (quinoa & grass-fed ground beef)</p> <p>Snack Organic celery & apple slices with almond butter</p> <p>Beverage Green tea *In addition to pure water</p>

Nutrient Timing

Nutrition plays a very important role in exercise performance. Without adequate carbohydrates and fluid, the body tires very quickly. Protein is also needed to rebuild muscles. Without all three of these (carbohydrates, water and protein), plus adequate vitamins and minerals, potential can't be tapped into to its fullest. A poor diet returns poor performance as a result. Poor nutrition can also lead to injury and poor recovery, both of which can hinder ability to continue down the road to fitness. Your clients should think of their bodies like a machine in the way that it functions and in what it needs to function optimally. Quality fuel in the engine will prime it for optimal performance. Conversely, put lesser-quality fuel into the engine and performance can suffer. That's why it is important that, as their trainer, you are aware of when and what they're eating before, during, and after a workout. Encourage your clients to pay close attention to when and what they are eating because, without a good nutrition program, every aspect of their physical and mental abilities will decline and your work with them on fitness programming will be lessened tremendously.

Several variables to consider when determining nutrition in meal planning:

- Gender
- Body Weight
- Intensity
- Type
- Length of Workout

For example, choosing a meal or snack before and after a workout would largely depend on the time of day. It doesn't have to be complicated or difficult to fit into one's routine. Your clients should be reminded, maybe on a regular basis, that only a little preparation and planning will make big impact on their results. Suggest the following guidelines to your clients as a foundation for working through properly fueling their body, and at the best times of day for the most positive results.

Pre-Workout Nutrient Guidelines

Your Client Should:

- Choose easily digested carbohydrates and low-fat foods for quicker digestion.
- Avoid starting the workout when starved or stuffed.
- Pay attention to whole foods that are an important energy source vs. regularly choosing processed foods.
- Eat 30-60 minutes before cardio workout.
- Eat 1-2 hours prior to strength training workout.
- Eat carbs 30-60 min prior to workouts that contain both strength and cardio and protein within 2 hours prior.
- Drink plenty of water for proper hydration.

Pre-Workout Fuel Ideas:

- Whole-grain cereal and almond milk
- Carrots n' Hummus
- Whole-grain Waffle with berries
- Oatmeal with apples
- Organic unsweetened applesauce with cinnamon
- Banana and milk (non-dairy such as coconut or almond milk)
- Super green smoothie with fruit, greens and protein powder
- Roasted sweet potatoes
- Greek yogurt (if you can tolerate the dairy) and fruit
- Hard-boiled egg and slice of whole grain toast
- Dried fruit with no added sugar or preservatives

During Workout Nutrient Guidelines

- It is important for your client to drink plenty water, at least four ounces every 20 minutes of exercise. Perspiration and exertion deplete the body of fluids necessary for an optimal performance and lead to dehydration.
- Usually there is no need to worry about replacing carbohydrates during a workout unless the exercise lasts over 90 minutes and is hard and continuous. When this happens, drinking a sports drink or fruit juice diluted in water will provide fuel and water to the muscles being exercised.

Post-Workout Meal Guidelines

Your Client Should:

- Eat quality protein (10-20 grams) within 15-30 minutes after working out. Whole foods are best, but healthy bars and shakes are a quick fix.
- Remember:
 - Strength: Protein and carbs repair muscles and replenish glycogen stores
 - Cardio: Replace glycogen (stored carbohydrate) and electrolytes lost during workout
- Note that the longer a client waits to eat something, the longer it takes to recover. The enzymes that help the body resynthesize muscle glycogen and build muscle are most active in that first 15 minutes after the workout. Realistically the goal is to eat within a 1-hour post-workout window.
- Rehydrate with fluids. The average workout does not demand the extra calories and electrolytes in sports drinks, not to mention artificial coloring and junky sweeteners. Coconut water is a great alternative to sports drinks, for electrolyte balance.

Post-Workout Nutrient Guidelines:

- Purpose: Recovery, Restore Energy, and Rebuild Muscle
- Protein pancakes: Lots of recipes out there for all diets
- Super green smoothie with protein powder
- Protein bar: Look for 10-20 grams of protein, less than 5 grams of sugar
- Spinach and Egg Scramble
- Protein Shake: One scoop protein powder, a banana with 8 ounces water
- Sandwich: chicken, turkey, almond butter and jelly (sugar free), egg, salmon or tuna on whole grain bread with veggies of choice
- Bean burrito: organic corn tortilla filled with black beans, Greek yogurt and salsa
- Hummus and whole grain crackers
- Stir-fried chicken and vegetables over brown rice or quinoa
- Organic edamame
- Veggie omelet & slice of whole grain toast

Clients need to realize that these nutrient-timing snacks (pre and post workout snacks) should be included in the daily meal plan and not additional snacks. It is not recommended that one with MS exercise on an empty stomach, especially in the morning. It's a common practice for people to wake up early, skip breakfast, and jump right on the treadmill. There is a risk, however, that one will lose muscle when training in a fasted state. The benefits of eating before exercise, particularly carbs and protein, far outweigh any perceived benefits from fasting. Having these substances available as fuel will limit protein loss and thus maintain muscle mass, increase performance, and cause greater usage of fat post-workout.

Healthy Eating on a Budget

Motivation, energy, and strength aren't the only potential barriers on the road to fitness. Financial barriers are a common reality, especially for those with medical issues (and thus, medical bills). A healthy diet can be more expensive - fish, fruit and vegetables, specifically. However, eating healthy on a budget is attainable with the right approach. It would be unwise to skimp on the very investment that guarantees a great return. As the wise saying says, "You can pay at the grocery store or you can pay at the doctor's office."

Your Clients Should:

- Cook several portions of a dish and freeze some of them. This also saves you the effort of preparing meals every day.
- Use frozen fruit and vegetables as they are often cheaper than fresh produce and are good nutritionally.
- Buy fresh fruit and vegetables that are in season.
- Plan for some vegetarian meals. Beans and lentils are cheaper than meat.
- Choose canned wild salmon as it is an affordable protein and omega-3 source.
- Cut down on sugary drinks, junk food, and alcohol to make room for more quality food purchases.
- Plan meals as it is the best way to reduce waste. Food in the trash equals money in the trash. Before buying more food, look at what is already on hand, and plan meals around what's already in the pantry and refrigerator. Planning ahead helps with eating out less, which is a big money and health saver.

Meal planning, dieting, and healthy eating is a philosophy combined with a program. Your clients can have all the willpower in the world but, if they have no plan, then they are bound to fail. This is where you, as the trainer, come in. As their personal trainer, you are part of the action plan. You support the initiation of this plan, because you help them to build it. You, as the trainer, provide encouragement but also accountability to stick to the plan. Your clients will find their goals exceedingly difficult if they do not understand why they are doing it or how their fitness and nutrition program will impact their lives in an exponential way. The more that they stick with the program, and the more discipline that they have (made easier with their support ‘team’ by their side), the more and more successful they will become. Then, over time, that success will prove itself a worthwhile venture when their MS symptoms lessen and become more manageable because they are living a lifestyle that makes fitness and nutrition a priority. Knowledge is power in this case. Educate your clients on why your recommendations are important, even crucial, to their overall health and wellbeing.

Having a disability complicates the client’s life and is burdensome to his/her daily living. It is important to be sensitive to how a disability adds another dimension to the plan of action. But the success of the plan is not impossible. Remind your client of the possibility and show them examples of a healthy lifestyle with a disability. Encourage them to join a support group that demonstrates the results of lifestyle change and hard work. One support group is the MS Fitness Challenge Group on Facebook. Once they make that decision to change the course of their disability and to take control of it by taking control of their fitness, their improved lifestyle will be as normal as brushing their teeth each day.

In summary, inflammation and anti-inflammation are unique to each individual with MS that you train. The nutrition guidelines used in this manual are the foundation to meal planning for those with MS. Apply the nutritional foundations as you work with each MS client as an individual with his/her own specific needs in creating a nutrition program.

Conclusion

Managing Multiple Sclerosis requires an active partnership. Taking medicine, staying active, eating healthy and working with one's doctor and the health and fitness professional are important. One is more successful in his health and fitness program if he/she has support. Support can come in a variety of forms. Family is often a support group. Spouse, adult children, siblings or other relatives can help meet the demands of one's management program on a daily basis. Other support groups include friends, people with MS, people with whom a hobby is shared, church groups and clergy, neighbors, volunteer organizations and even a pet. One should not be embarrassed or afraid to ask people for help when needed.

Fitness professionals can effectively work with those who have MS providing them with a better quality of life through movement. You as their health and fitness coach can provide a positive experience to facilitate an effective path to better health and wellness.