

Module 12

Specific Adaptations for Clients with MS

Learning Objectives

1. Learn how to progressions and regressions and how to apply them when training an MSe
2. Learn how to adapt a specific exercise routine for an MSe
3. Learn how to adapt an exercise program for an MSe in a wheelchair

Chapter Twelve

Specific Adaptations for Clients with MS

There are many exercises to choose from to create a workout program for your MS clients, literally thousands of them. As a trainer you have taught many standard movements that can easily be adapted to your MS client's limitations, symptoms and abilities. As they progress those limitations should decrease and their ability to have more range of motion, balance, mobility, strength and endurance will increase. Training MS clients is synonymous with ADAPTATION.

It is your job as your client's guide to an effective ongoing fitness regimen, to carefully evaluate each person and start them on a routine that ensures effectiveness and safety. The initial routine should be a full body workout that stimulates all the muscles and engages the mind/body connection to help activate and "fire" the nerves.

It is more important with MS clients to incorporate all aspects of a full exercise program which includes stretching, cardio and resistance movements and to focus on the client's weak areas then it is to try and get your client in top shape as you might for non-MS clients.

Progression and Regression

People with MS face many kinds of limitations, and it is impossible to address them all. However, this section provides important information and guidelines on how to adapt the program to your client's specific needs. Many trainers design a workout routine to take clients to a high level of fitness and intensity, which may not be the case for someone with MS who just desires to be fit and battle the disease. It is important to provide a higher level of training for people who are capable or wish to achieve an advanced level of fitness. However, your client may not have the desire for a high level of intensity, or they may have a limitation that will not currently allow them to train in this manner. It is important to understand that each phase of the program you develop is a progression of the previous phase and should only be attempted if, and when, that client is able to advance their training. In other words, some people—such as those simply looking to be more active—may never move on from your first phase. That's okay!

The basic strength-building effects of even a simple workout routine are sometimes all that are needed to live a more active and productive life. If that's the case for your client, we also provide several ways to progress the beginning phase of the program, so while your client continues to train in this phase they can improve and escalate results at their own pace.

The following are some options for adapting this program to your clients' specific needs and limitations:

Option 1: Increase Reps for Muscular Endurance

To take a beginning routine to the next step, have your client restart it and change the rep range to twenty to thirty reps to increase muscular endurance. Following this model, the repetitions could later be modified to an even higher range—fifty to one hundred—depending on ability and desired intensity level. At this high level of intensity, you cut your client's number of sets of each exercise to one or two to avoid overtraining.

Option 2: Decrease Reps for Strength Building

Start the client's first phase again with fewer reps, such as five to eight, to shift the focus toward building strength. The program could also be modified on a weekly basis, completing one week with all exercises performed in a low-rep range (five to ten repetitions), followed by a week where the exercises are performed in a high-rep range (twenty to thirty repetitions). Or you might choose a 3-week cycle for your client during which the rep range changes from low to medium to high, spending one week in each range (e.g., Week 1: perform all exercises with a rep range of five to ten; Week 2: perform all exercise with a rep range of twelve to fifteen; Week 3: perform all exercise with a rep range of twenty to thirty, and then start the cycle again with a week of low repetitions). Keep in mind that one should lift with heavy resistance at low rep volume and light resistance at high rep volume.

Option 3: Perform a Circuit to Elevate Heart Rate

The first phase can also be modified to be performed in a circuit format to add variety. Have your client perform one set of each exercise in the initial program you designed and move to the next with little or no rest in between. This helps keep the heart rate elevated.

Option 4: Use Supersets to Train Primary and Secondary Muscles Together

Your client can repeat your phase one program using supersets, pairing an exercise working a large muscle group, such as chest or back, with an exercise working a smaller muscle group, such as triceps or biceps, moving immediately from one to the other with no rest in between. Or they can pair exercises for opposing muscle groups, such as quadriceps and hamstrings. So, for the legs, you may choose to have your client do superset leg extensions with seated leg curls, or leg presses with stiff leg dead lifts.

Progression and Regression Tips:

- Within a training program, every exercise can be modified. Besides just adding more weight to the movements, there are progressions of the movement (making it harder) when an exercise becomes easy, and there are also regressions (making it easier) for when it is too difficult.
- Adding weight during progression is an individual adaptation that depends on your client's strength. The key is to use a slightly higher weight without jumping up too drastically in each progression.
- The point is to find a version of each exercise your client is comfortable to start with and gradually progress from there.
- Going from a supported movement where they hold onto something for balance to an unsupported variation, where they are able to let go, is a progression.
- Progress their movements at a rate comfortable and safe for them, especially if they are working without your help or the help of a training partner when you are not training them. If they do work with a partner, be sure they fully understand their limitations.
- Also, reinforce that they need to be patient with their progress. Encourage them not to be afraid to challenge themselves, but always do so in a controlled and safe way to avoid injury. Many injuries occur when we get impatient and try to accomplish too much too quickly. Small progress is still progress!
- Regress the movement if the basic form is too difficult until the client achieves a level that can be performed safely.
- If the client struggles with balance, coordination, or leg strength regress the movement.
- Identify if your client has asymmetric strength and ability. Asymmetric deficits are more common than symmetric deficits and should be addressed. For example, one may have a weaker left arm than the right arm. Be sure to adapt and train for symmetry.

Lower Body Example: Progression/Regression

Stationary Lunge Exercise

1. The client stands with his/her feet in a lunge position, one foot stepped forward in front of the other while maintaining a shoulder-width distance between the feet for balance. The feet should not be in line with one foot directly in front of the other. The front foot will be flat on the floor, while the back foot will be up on the ball of the foot.
2. While holding onto something for support, bend both knees and lower the hips straight down. The back knee should come down to where it lightly touches the floor while simultaneously bending at the front knee to a 90-degree angle, with the knee directly over the ankle.
3. To complete the repetition, extend both knees and raise the hips straight up, back to the starting position.

Progressions	Regressions
Add weight, such as holding dumbbells, a fixed-weight barbell, or bar, balanced across the upper back and shoulders.	Perform the stationary lunge in place where they can hold onto a wall, bar, or partner for balance.
Make it a walking lunge by stepping forward or backward with each repetition.	Perform a step-up or step-down onto a step or box with one foot, keeping the other foot planted, or step up or down alternating between both feet. Hold onto a wall, bar, or partner for balance, if needed. The step-up or -down works the same muscles as the lunge but provides more stability and lower intensity.
Perform the movement with either the front or back foot elevated to isolate the muscles further and challenge their balance and core strength.	

Upper Body Example: Progression/Regression

Any Chest Exercise

Progressions	Regressions
Add weight to challenge the muscle further.	Perform a push-up using only your body weight.
Shorten the range of motion to perform partial repetitions (press the weight only half way up off the chest and don't lock the arms out before lowering the weight back to the chest) to eliminate the help from the triceps in locking out the arms at full extension, thereby keeping the tension strictly on the chest muscles instead.	Perform a modified push-up with knees bent, touching the floor, rather than a regular push-up with knees straight and toes on the floor.
	Perform a hand-release push-up by lowering your body all the way down until you are lying flat on the floor. Raise your hands off the floor by your shoulders (in push-up position) and then, with a thrusting motion put your hands back on the floor and "push through" as if you were pushing the floor away from your body. The hand-release push-up does not require you to balance your body weight off the floor.
	Reduce the angle of your body in a regular push-up to reduce resistance.
	Perform a push-up with your hands on a bench, countertop, or against the adjustable height of the bar in a Smith Machine. You can even place your hands against a wall and push away instead of pushing up.

Adapting a Specific Routine for MS

When adapting a fitness program, the personal trainer needs to consider fitness level, overall health, limitations, and goals—but MS adds another complication. Just remember that working out is not an option but a necessity in overcoming the challenges that your MS clients face. When battling MS there are physical symptoms and limitations one must take into consideration before you begin developing a workout program for a client.

- **How Much Weight Should My MS Clients Lift?**

When beginning any exercise program, the amount of weight used in each set is important. The goal is to perform every set to a failure point at the final rep instructed for each movement. In other words, if possible, one should increase the weight load as the reps decrease set by set. The more demand of the muscles without overtraining, the better the results. It is the same for people with MS as it is for clients who do not have any limiting conditions.

Safety, proper form, and focus always comes first while exercising. You, as a personal trainer, will be instrumental in determining the amount of weight your clients need to use. Be patient and know it will take some trial and error to discover the correct weights for your clients (your patience will help them have some as well). This is a lifestyle, not a quick fix for their health. Many have been battling

MS for years and they have a lifetime ahead of them to overcome their obstacles, through fitness. Good form on all exercises is imperative. One should never sacrifice form to use a heavier weight. If so, the only thing that will be accomplished is increasing the risk of injury, and the risk of losing that client. The quality of the movement is more important than how much weight is lifted. Any quality movement for a client with MS is a step in the right direction.

- **Grip and Numbness**

MS can affect people in different ways. For example, some may be left with nerve damage from the attack which affects either or both sides. As a result, the left hand does not close easily, the grip is impaired, and the hand goes numb. With these concerns, some exercises are problematic and may even cause an injury if the symptoms are not addressed and there is no adaptation to the movement. To compensate for these issues, one should not perform any HEAVY dumbbell movements that place the dumbbells above the head or face, or in any position that would injure the client if the dumbbells were to fall. Instead, one can adapt the exercises to use weight-stacked machines, weighted cable movements, or non-weighted resistance bands. It is recommended the same for clients with MS who have trouble holding free weights in either hand due to weakness, incoordination, or similar problems. Resistance bands (preferably with handles) can help clients perform the similar movements to free weights, dumbbells, fixed-weight barbells, bars (with or without weight plates), or machines. The challenge is creating enough resistance; a shorter band or one with more tension offers stronger resistance. Weightlifting straps are another way to help clients overcome the challenges with grip or feeling in the hands and fingers. The straps allow weight to be lifted by transferring the load to the wrists and avoiding limitations in fingers, the hand, or grip strength. Clients cannot get injured by a dumbbell they cannot drop.

Adapting in a Wheelchair

Even though it is challenging to train with MS, it is even more of an effort when clients with MS are in a wheelchair. It is extremely rewarding to train someone in a wheelchair and watch him/her progress to being able to stand out of that chair independently. Clients can do it, and you can be the reason they do! There are many upper body exercises that can be done from a wheelchair with weights and exercise bands. It is important, especially with MS from a wheelchair, to keep the body moving and staying active. Trainers must keep their clients motivated and never let them quit!

Resistance bands can be purchased with different levels of resistance and typically come in a package, allowing for increasing resistance as strength increases. Follow the same guidelines for sets and repetitions that you would establish for non-wheelchair movements, but use the bands while clients are sitting in their wheelchair.

Make sure they exhale on exertion and

inhale at release. Always have them sit tall in their chair and keep their abdominals tight.



When training MS clients in a wheelchair you must be creative as to how you position the resistance bands. With some chairs you can situate the band securely under the wheels while, with others, you must be creative as to where you secure the handles to keep the band from slipping out of position. Also, keep in mind that, although you want to have your clients do the movement as strictly to form as possible, some people with MS have more limited mobility and, until you can increase their range of motion, their form may be a bit off. For example, during the overhead triceps extensions, the elbows may point more outwards than forwards as the exercise form requires. This is due to the lack of ability to bring the elbows in because of chest size and tightness from bodybuilding or a specific daily activity. Each client will have a different range of motion and flexibility specific to them personally, especially when seated in a wheelchair.

See Appendix H for exercises using resistance bands. These exercises correspond to a beginner routine. More exercises can be added once your clients are comfortable. The key is to start somewhere.