As the fitness industry continues to evolve, strength and conditioning professionals are constantly faced with new challenges that they need to learn about in order to adapt accordingly. As the population gradually becomes more health-conscious, there are a variety of different groups that participate in exercise—but for some, there is greater difficulty than others. People with disabilities make up one of the largest groups, or populations, in the United States with over 50 million people reporting some form of disability (3).

WHAT COACHES AND TRAINERS NEED TO KNOW—WHAT IS A DISABILITY?
Contrary to common belief, the term “disability” reaches far beyond the realm of just physical disability. A disability is defined by any physical or mental impairment that substantially limits one or more major life activities, such as speaking, walking, caring for oneself, hearing, learning, concentrating, as well as limitations in the function of the respiratory, endocrine, immune, or reproductive systems (1). Disabilities can occur in a number of different forms, including amputations, spinal cord lesions and injuries (e.g., spina bifida), traumatic brain injuries (e.g., stroke), neuromuscular limitations (e.g., Parkinson’s disease), cognitive (e.g., Down syndrome), musculoskeletal (e.g., arthritis), sensory (e.g., vision limitations), medical (e.g., cancer), cardiac (e.g., cardiovascular disease), and pulmonary (e.g., chronic obstructive pulmonary disease) disorders. Each of these categories has many different conditions that affect millions of Americans every day.

EXERCISE CONSIDERATIONS FOR PEOPLE WITH DISABILITIES
People with disabilities often do not have the resources available to participate in physical activity, let alone a structured exercise program; therefore, they are at an even greater risk than people without disabilities for developing secondary conditions (e.g., heart disease, obesity, hypertension, etc.) resulting in a decline in overall function (4,5,6). General considerations for many of these secondary complications include lower maximum heart rates, early fatigue, balance and coordination issues, muscular imbalances, temperature regulation issues, concentration and memory impairments, difficulty communicating, tight or lose muscles, loss of control of bowels or urinary excretion, increased risk of falling, and development of osteoporosis (7). Every disability comes with its own signs and symptoms, considerations, and proper exercise testing methods and prescriptions. People with disabilities often deal with some of these secondary conditions; therefore, it is of upmost importance for strength and conditioning professionals to find ways to increase physical activity for people with disabilities in a safe manner.

These secondary complications are only further exacerbated when age is taken into consideration. The world is going to keep getting older, and more people are beginning to engage in exercise programs. It is estimated that by the year 2030, the population in the United States will be the oldest it has ever been, with 20% of the people being over the age of 65, and an estimated 20% of them will have at least one chronic/secondary condition (3). This makes it imperative that strength and conditioning professionals...
are able to develop programs to aid this growing population as well as all individuals with any adaptive needs (2).

The common strength and conditioning professional is oftentimes not equipped to understand the needs of a person with a disability fully—they may not know the limitations of the individual, or be able to adapt an exercise program for their level of ability. For many people with disabilities, the most important goal will be providing them a program to either maintain or improve muscular strength, flexibility, and endurance in order to remain as independent as possible. The strength and conditioning professional should perform a number of assessments in order to gain information on the type of disability the individual suffers from, their limitations, any secondary conditions that may be occurring, and of course their level of strength, flexibility, and endurance. People with disabilities may feel afraid to exercise and may believe that the traditional fitness center is not a place where they feel welcomed. In addition, there are potential barriers such as a lack of information on adaptive programs or services that are offered, lack of accessible equipment, high costs, and transportation difficulties that could prevent them from going to a fitness center regularly. Presumably, if a fitness center were able to provide the necessary equipment and have knowledgeable coaches and trainers on hand, there could be a significant increase in the amount of people with disabilities that attend to engage in exercise (7).

While it might be uncommon to see a person with an amputation or someone who uses a wheelchair in a gym, it may be common for a person to be exercising who has a condition such as multiple sclerosis or a history of concussions, as there are not any visible signs of their disability. Those people still need specific programming for their conditions, even though they may not even be aware of it. If a person with a disability presents that information to a strength and conditioning professional, the strength and conditioning professional must be able to understand how to adapt the program to the individual’s specific needs.

EVERYONE IS DIFFERENT—SCALING AND ADAPTING FOR PEOPLE WITH DISABILITIES

Everyone is going to respond to exercise differently and there should never be a “one size fits all” approach to training. Strength and conditioning professionals should show every person that comes to them for training that they truly care about them. One of the markers of being a good coach or trainer is the ability to adapt to everyone. When a strength and conditioning professional takes the time to get to know who they are working with, and is able to adapt to their needs, that is when real trust can be built. Far too often, unfortunately, strength and conditioning professionals do not take the individual needs of their clients or athletes into consideration. Clients should never be given a workout that is far beyond their level of ability. The strength and conditioning professional needs to always have an alternative plan in mind that is different from what was originally programmed, just in case. They need to be able to adapt on the fly. No matter if it is a person with or without a disability, knowledge of progressions and regressions of exercises can be crucial to the development and overall success of a training program.

The strength and conditioning professional’s job is to help people become the greatest versions of themselves that they can be. Therefore, it is very important to create an environment in which people can thrive. People with disabilities have the desire to be fit and strong, and are capable of more than they tend to believe. There will be certain people who can be pushed more than others, as gains vary on a case by case basis. However, there still needs to be a level of challenge for the individual and any amount of progress, no matter how small, should be recognized by the strength and conditioning professional. When dealing with people with disabilities, the strength and conditioning professional should expect a lot of trial and error. Not everything is going to work out the way it is intended, or at all in some cases. There needs to be an open communication between the client and the strength and conditioning professional in order to establish what the client is comfortable with and what can be achieved.

Being a strength and conditioning coach myself, as well as a person with cerebral palsy, I have experienced this struggle myself for many years. For example, due to balance and coordination issues, as well as tightness in my hips and hamstrings, I am not able to perform traditional barbell back squats. However, there are many ways to achieve the same movement with the same desired outcome. For instance, if I want to perform a back squat, I find something to lightly grasp in front of me for balance and squat with a weighted backpack or vest. Also, I can do front squats with a log or sandbag, kettlebell goblet squats, band resisted squats, and bodyweight squats. When I first began training, my coach and I learned together. He learned how to adapt to what I needed, and I learned about my body and what worked for me.

SAMPLE ASSESSMENT AND EXERCISE SELECTION FOR PEOPLE WITH SPINAL CORD INJURIES

As an example, someone comes into the gym with a spinal cord injury at their thoracic vertebrae (T3). The injury is incomplete, meaning that there is still some function below the injury site. The client requires the use of a wheelchair and has difficulty transferring out of the chair as well as a fear of falling. However, the person does have full use of their arms, hands, and trunk. When designing an exercise program for this client, some considerations would include:

1. Strengthening functional/intact muscles
2. Improving strength in weakened muscles
3. Improving range of motion in shortened muscles
4. Focusing on posterior development due to overuse of anterior muscles from pushing the wheelchair
5. Improving ability to transfer to and from the wheelchair
6. Improving ability to recover from a fall
7. Improving trunk strength
8. Focusing on stretching and mobility for the upper extremities and trunk
TRAINING CONSIDERATIONS FOR PEOPLE WITH DISABILITIES

All those considerations are areas a person with a spinal cord injury should focus on in their training. The strength of the posterior chain is often much weaker, if not totally neglected due to the constant pushing motion. The trunk is essential to maintain posture; the muscles surrounding the injury typically become tight, so stretching is important. The ability to transfer to and from the chair is paramount for when having to use certain exercise equipment as well as simply performing activities of daily living. Building the strength to transfer can also provide the client an increased level of confidence that if a fall does occur, they will be able to get themselves back up into a stable position. Increasing strength and flexibility of all intact muscle groups should also be a goal of their training. Some sample exercises that can be performed from the wheelchair include:

1. Overhead presses
2. Cable row exercises
3. Band rows
4. Band trunk flexion/extension and lateral flexion
5. Pulldowns
6. Kettlebell cleans
7. Dips from a bench or box
8. Medicine ball throws/passes
9. Sled pushes/pulls with rope

CHANGING THE PERCEPTION OF DISABILITY

When someone is physically different in some way from the human perception of “normal,” they are typically ostracized to the ends of the social spectrum. Most people do not know how to respond to seeing someone with one arm or one leg, and they stare or feel sorry for those people. Because most people do not know how to deal with being confronted by something different, a person with a disability may feel like they are not included in the community and cannot participate in the same capacity as everyone else. Someone may offer help to a person with a disability because they feel bad, even if help is not needed. For example, they may see someone with an amputation performing an everyday task and say something like “wow that is so inspirational,” when to that person it is just the way they live their life. Many people with disabilities do not wish to be given any special treatment, and often feel that when it is given, or when praise is given for minimal tasks or achievements, it is demeaning. People with disabilities have a desire to want to be treated as normal individuals, because they are. It is the job of strength and conditioning professionals to help others see that just because someone may have some form of disability, it does not mean they should be shunned away. The door needs to be open to people of all walks of life and the more people become exposed to the diverse population of people with disabilities, there will be less fear or uneasiness when the situation arises.

It is the job of the strength and conditioning professional to create a positive atmosphere for people with disabilities. For instance, if someone with a disability is in a group exercise class, they should not be neglected and left to do their own workout. They should be involved just like everyone else and should be allowed to perform the same exercises even if it has to be scaled down to their ability level. The goal for many people with disabilities is to become independent in life and included in the community. It is important that they are independent enough to be able to maneuver around a fitness center and learn the skills so that they can hopefully work up to being able to exercise on their own. Safe, fun, and effective programming that allows for maximal physical and mental engagement can have tremendous physical and psychological benefit for people with disabilities (7).

CONCLUSION

There are few people in this world who go through life without suffering some degree of injury, illness, or disease. Everyone will eventually need to learn how to adapt their life to whatever gets thrown at them. Right now, there is a need for more strength and conditioning professionals who are able to develop effective exercise programs for people with disabilities. As veterans come back from war and the population continues to age, there is a growing need for strength and conditioning professionals who can provide exercise that is specific to their unique needs. Everyone deserves to feel like they are welcome at gyms or fitness centers. Certifications such as the Certified Special Populations Specialist® (CSPS®) through the National Strength and Conditioning Association (NSCA) or Certified Inclusive Fitness Trainer (CIFT) through the American College of Sports Medicine (ACSM) are great options for those looking into this area as well as seminars such as Crossroads Adaptive Athletic Alliance.
REFERENCES


ABOUT THE AUTHOR
Nick Maruca is a graduate of Temple University with a degree in Kinesiology. He began his training journey at the age of 13, and has worked as a strength and conditioning coach and personal trainer since high school. He has extensive knowledge in bodyweight and alternative methods of training such as kettlebells, tires, ropes, stones, etc. He has worked for some of the best minds in the industry, including John McKenna and Zach Even-Esh. Maruca currently works for Special Olympics New Jersey and has spoken about the importance of strength training to families at the Dupont Hospital for Children in Delaware. He is an Underground Strength Coach, holds certifications in alternative training, kettlebells, adaptive training, and is certified as an American College of Sports Medicine Certified Inclusive Fitness Trainer (ACSM-CIFT).

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