



# Physical Fitness and Exercise for Adults with Cerebral Palsy

Physical fitness is a general state of health that results in your ability to carry out daily tasks without getting too tired. The areas of physical fitness that this fact sheet addresses are:

- **Muscle Fitness**, which includes both strength and endurance, is the ability of your muscles to exert a force, such as lifting a heavy object, and sustaining an activity.
- **Cardiorespiratory Fitness**, which is the ability of your heart and lungs to take in oxygen and deliver it to all the parts of your body, allowing you to participate in physical activity over a long period of time.
- **Flexibility or Joint Range of Motion (ROM)**, which is the available motion at any single joint, or group of joints, and is an integral part of efficient movement and injury prevention.

Everyone needs physical fitness – including people with a physical disability such as cerebral palsy. Both muscular and cardiorespiratory fitness, as well as full joint ROM can be achieved through regular exercise.

## WHY EXERCISE?

Increasing levels of muscular fitness, cardiorespiratory fitness and joint ROM have been associated with

- Improved functional capacity and mobility
- Reduced risk of depression and improved quality of life
- Maintaining healthy weight
- Reduced risk of osteoporosis (weak bones that increase the risk of a fracture)
- Lower incidence of type 2 diabetes

- Reduced risk for falls and related injury
- Reduced back pain
- Lower risk of hypertension, cardiovascular disease, stroke, and heart attack

## WHAT IS RECOMMENDED?

The American College of Sports Medicine recommends that adults do at least 150 minutes per week of moderate intensity cardiorespiratory exercise (an activity where your heart works much harder than normal) AND muscle strengthening at least 2 days per week. There is no evidence to suggest that these requirements should be any different for people with cerebral palsy.

Many people with cerebral palsy are very physically inactive and these recommendations may be quite difficult to achieve. Some exercises may be not possible, depending on the severity of cerebral palsy. The good news is, many health benefits may be achieved by doing less than the recommendations. Being fit and exercising should not be considered all-or-nothing. Start small, become familiar with both aerobic and resistance exercise, and gradually progress exercise time, frequency and intensity. It is better to stick with a program than to do nothing, simply because you cannot reach the recommended levels.



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local fitness center or community college

## HOW DO I DO IT?

Muscles get stronger when they are challenged to work harder than during normal daily activity. Since your heart is a muscle too, improved cardiorespiratory fitness occurs when your heart has to work harder than normal during periods of time.

There is strong evidence that adults with cerebral palsy can improve muscle fitness, cardiorespiratory fitness, and joint ROM with exercise. Adults with cerebral palsy may have to start at a lower level and slowly increase the amount of time or intensity of the exercise. You may need to modify the activity to meet your individual needs and physical abilities.

Allow adequate time to warm up with gentle stretching. After exercising, continue moving at a slower pace to cool down your muscles and heart rate to resting levels.

## GETTING STARTED

1. Before starting an exercise program, consult with a physician or healthcare provider. Have the professional review your medications, as some of them may affect your body's response to exercise.
2. Find an environment you like. Exercise can be done alone at home, but some people enjoy the social benefits of a group class or exercising with a "buddy". Contact your

for accessible gyms, or refer to the resource list below for suggestions.

3. Set a reasonable goal and try and stick to it. We all have difficulty making time to exercise, but most people find that once they start exercising, it's easier to find the time.
4. Start slowly and gradually increase exercise intensity. The first few times you may not be able to do aerobic activity for more than 2-5 minutes. That's OK. Don't get discouraged. Remember, do something is far better than doing nothing!

## TIPS for MUSCLE STRENGTH and ENDURANCE

- Strengthening happens with higher resistances, not more repetitions. Try to do an exercise for a maximum of 10 repetitions. If you can do 15 repetitions or more, it is too easy. Make it harder by gradually adding more resistance or weight. For improved muscle strength and endurance, gradually increase the number of times you do each exercise. Start with 1 set, and over time increase to 2-4 sets per exercise.
- Muscles need a rest. Exercise programs can be designed to target different muscle groups (legs, shoulders) on separate days, or all muscle groups in a single session. Regardless of your preference, it is very important to take at least one day of rest in



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between strengthening a given muscle group.

## TIPS ON CARDIORESPIRATORY FITNESS

- The goal is to exercise at your target heart rate. Your target heart rate zone is 40 – 85% of your maximum heart rate.
- First calculate your maximum heart rate. This is 220 minus your age (for example a 48 year old person's maximum heart rate is  $220 - 48 = 172$ )
- Then calculate your target heart rate. Multiply your maximum heart rate by the desired percentage. With a maximum heart rate of 172, your target heart rate zone of 40 – 85% is 70 – 149 beats/minute. Start at 40%. Increase your target heart rate slowly.
- Check to see if you are exercising in your target zone. While exercising, take your pulse for 10 seconds and multiply the number by 6. Are you "in the zone"? If your heart rate is too low, try to work a little harder. If it is too high, then slow down a little.
- Duration is important. The recommended minimum duration for improving cardiorespiratory fitness is 10 minutes. However, aerobic exercise may also be designed to include shorter bouts of higher intensity exercise, simply by completing repeated intervals of equal rest and work. For example, you could complete 5-10 repetitions of 1 or 2 minutes of vigorous exercise, followed by 1-2 minutes of rest.

## TIPS ON FLEXIBILITY/JOINT RANGE OF MOTION

- Stretching and flexibility can occur during muscle strengthening exercise. It is a common misconception that the only way to improve flexibility is through stretching or doing yoga. In fact, joint ROM can be greatly improved by simply using a full range during the normal resistance exercises.
- Stretch before and after exercise. Simple stretches may be completed as an element of warm-up prior to your aerobic and strength training. However, once you're finished with your exercise, your muscles and joints will be warm and primed to do some effective stretching.
- Use dynamic stretches. It is important to remember that joint range of motion is not only determined by muscle length, but also muscle strength. Try to contract your muscles through the full range of motion during exercises. Doing so will strengthen muscles throughout the end ranges of motion, where they are weakest and prone to injury. This will not only improve the function of the muscle, but will also help to protect the joint and muscle from injury.



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## HEALTH & SAFETY

- Expect some mild muscle soreness for up to 48 hours after beginning a strengthening program, especially after exercises where your muscle is lengthening, such as lowering a weight, walking down stairs or squatting down.
- Dress appropriately. Wear comfortable clothing that does not restrict activity. If you choose to ride a bicycle outdoors, wear a helmet.
- Listen to your body. Lightheadedness, chest pain, difficulty breathing, excessive fatigue or sudden weakness, nausea, and moderate to severe muscle or joint pain are all important danger signals. Stop exercising. Seek a physician or healthcare provider's advice before resuming exercise.

## SUGGESTED EXERCISES AND ACTIVITIES

- Ride a stationary bicycle for cardiorespiratory fitness. If you have trouble keeping your foot on the pedals, try using an Ace wrap or rubber strap to keep them on. Or refer to the "Resources" section below for foot pedal modifications. If you are able, ride a bicycle or adapted tricycle. There are many models of adapted tricycles available for every size and need. And don't forget your helmet!
- If you have problems using your legs, use an arm exerciser. These devices, called upper extremity ergometers, are like bicycles for

your upper body with handles and are placed on a table.

- Use exercise bands. These are commercially available in different elastic capacities, or resistances. They can be used to strengthen muscles while standing, lying down and sitting in a chair.
- Climb the stairs. This can be both a strengthening and cardiorespiratory activity. Use the hand rail if needed for safety.
- Swim or do other water exercise. Water provides great resistance in every direction, and the buoyancy makes many activities easier than on land.
- Contact your local community college. Many community colleges offer exercise classes and adaptive exercise programs.
- Join an adapted sports, yoga, and dance or fitness class. Many activities and organizations offer adapted versions of their programs. And most instructors are more than happy to include people with physical disabilities in their classes.
- Be your own advocate. No one knows your abilities better than you do. If you are having trouble doing a specific exercise or piece of equipment, ask if there is a modification that can help you achieve similar results. Use common sense in selecting activities or equipment. Exercise should be fun and challenging, not dangerous.



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## RESOURCES

Here are a few organizations that promote fitness, exercise, and recreation for people with disabilities.

### USA:

The Northeast Disabled Athletic Association (NDAA) is a non-profit charitable organization that provides recreational and competitive athletic opportunities for people with physical disabilities, and supports disabled athletes in their pursuit of excellence.

<http://www.disabledathletics.org/index.htm>

The National Sports Center for the Disabled (NSCD) is a therapeutic recreation organization providing leadership and expertise in adaptive sports. <http://www.nscd.org/index.php>

Disabled Sports USA's provides opportunities for individuals with disabilities to develop independence, confidence, and fitness through participation in community sports, recreation and educational programs.

<http://www.disabledsportsusa.org/>

The National Center on Health, Physical Activity and Disability (NCHPAD) is a public health practice and resource center that offers directories of programs, organizations and equipment, by state, for people with disabilities. <http://www.nchpad.org/>

BlazeSports America's mission is to change the lives of children and adults with physical

disabilities through sport.

<http://www.blazesports.org/>

The Inclusive Fitness Coalition is an expanded group of organizations and individuals representing a cross-section of the disability rights, sports, health/fitness and civil rights communities. <http://incfit.org/>

The United States Adaptive Recreation Center (USARC) works with schools, hospitals, rehabilitation centers and park and recreation departments to serve children and adults with all types of cognitive or physical disabilities.

<http://usarc.org/>

### Norway:

Beitostølen Healthsports Center, 2953 Beitostølen, Norway. A pioneer institution within rehabilitation with focus on the potential by means of adapted physical activities.

<http://www.bhss.no>

### Netherlands:

The Netherlands Institute for Sport and Physical Activity (NISB) is a knowledge institute that strives for a vital society, where everybody, young and old, is active in his or her own way.

<http://www.nisb.nl/>

Gehandicaptensport Nederland stimulates and advises activity and sport in persons with a disability.

<http://www.gehandicaptensport.nl/>