look good. feel good.
get into shape.

About ACSM's Current Comments

Current Comments are official statements by the American College of Sports Medicine concerning topics of interest to the public at large.

Physical Activity and Cerebral Palsy

Earlier and popular models of therapeutic intervention for CP viewed movement as controlled by higher functions of the central nervous system (CNS) with little or no recognition of other contributing systems. This model assumed that the effort involved with increased physical activity would increase both spasticity and abnormal patterns of movement. As a result of this assumption, treatment programs that included resistive exercise or aerobic work were contraindicated in rehabilitation. Contemporary theories of motor control are re-evaluating this assumption, and are providing a model that views the CNS as an important—but not the only—system contributing to motor control. These theories propose that the cardiovascular and muscular systems, among others, also play an important role in motor control. These new assumptions have guided the development of new therapeutic approaches and have stimulated research on fitness and on the benefits of exercise training for persons with CP. Research has shown that children with CP have a greater energy cost of locomotion, decreased muscle strength and endurance, decreased maximal aerobic power and earlier muscle fatigue than their nondisabled peers. Even though few in number and small in sample size, research studies examining the effects of strength and resistance training for persons with CP have shown that they can increase both their muscle strength and endurance with no adverse effects on spasticity or movement patterns.

ACSM… Advancing Health.

Through Science Education, and Medicine.

AMERICAN COLLEGE of SPORTS MEDICINE
www.acsm.org

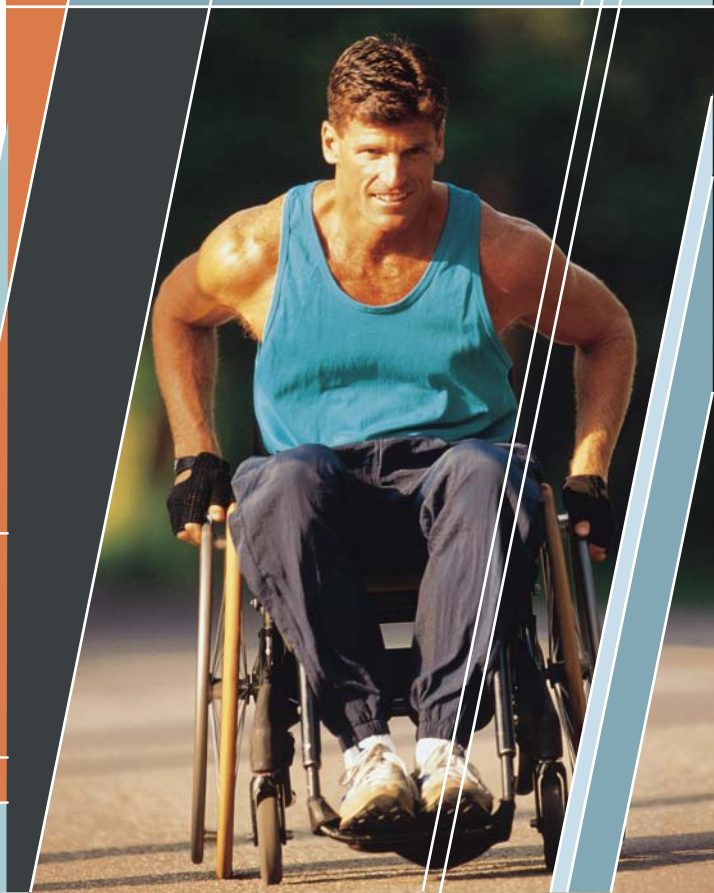
401 W. Michigan St., Indianapolis, IN 46202-3233 USA
317.637.9200 tel **317.634.7817** fax

www.acsm.org/current_comments

AMERICAN COLLEGE of SPORTS MEDICINE
www.acsm.org

Current Comments

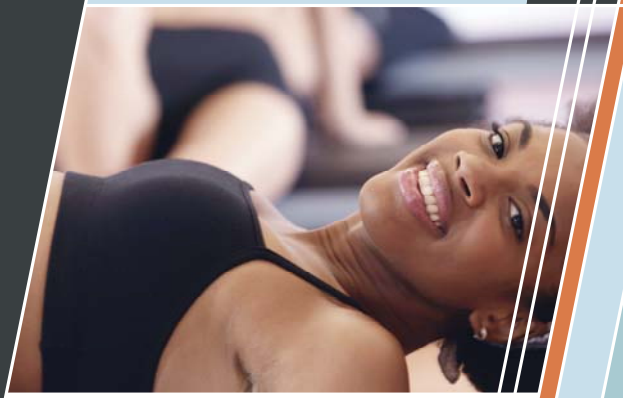
Report on Health-Related Fitness for Children and Adults with Cerebral Palsy



Patient Fitness
perspective

Fitness for persons with CP should be viewed from the perspective of the way fitness enhances health, function and mobility for persons with disabilities, and should include the following elements:

- cardiorespiratory endurance,
- muscular endurance,
- muscular strength,
- balance/agility
- body composition
- flexibility



Guidelines

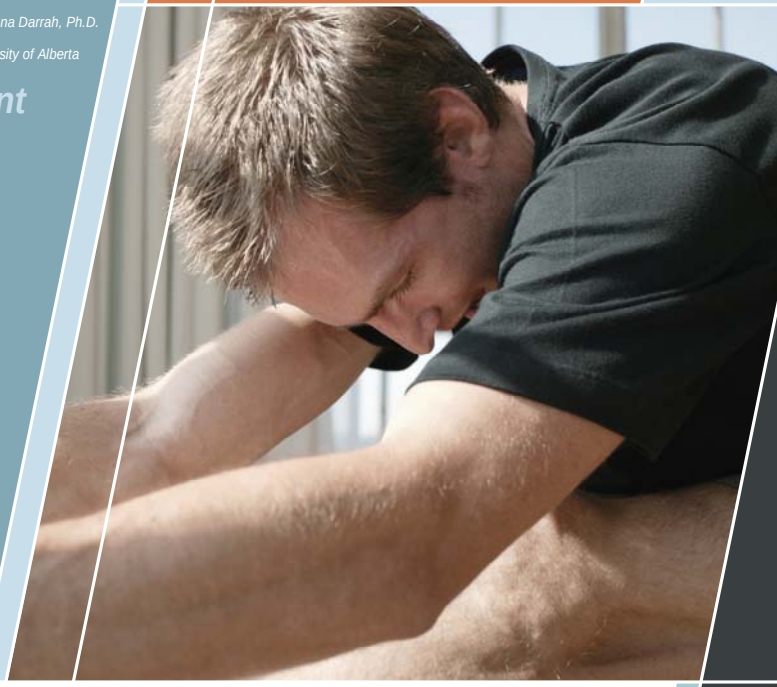
Guidelines for exercise training for persons with chronic diseases and disabilities such as CP have been suggested:

1. For the person with CP, aerobic capacity and endurance can be enhanced through exercise done at 40-85 percent peak VO2 or HR reserve for 20-40 minutes per session, three to five days a week.
2. If the person is ambulatory, a stationary bicycle may be used, while an arm ergometer is recommended if the person is in a wheelchair.
3. Endurance training is best done through six-to-fifteen minute walks or wheelchair pushes, twice weekly or more often if possible.
4. Strength can be enhanced through the use of free weights or weight machines doing one, two or three sets of 8-12 repetitions, two sessions per week.
5. Flexibility exercises should be done for all involved and uninvolved joints before and after all types of exercise.

Written for ACSM by Yvette Blanchard, ScD., P.T. Assistant Professor, Physical Therapy Program University of Hartford, and Johanna Darrah, Ph.D. Assistant Professor, Department of Physical Therapy University of Alberta

ACSM Current Comment

Exercises and physical activity should be started gradually, with close professional supervision. The professional trainer should be aware of medications the client is currently using, and should document the presence of seizures or associated disorders involving the visual, auditory, sensory, hearing, speech or cognitive systems. Special safety considerations include strapping of the hands or feet to the pedals when using the arm or leg cycle ergometer or strapping of the individual's pelvis in the wheelchair for proper positioning; of the thighs to prevent adduction of the hips; or of the feet on the footrest to prevent slipping. The use of gloves during wheelchair exercise is also recommended. For swimming programs, the use of flotation devices should be considered. For cycling, the use of a tricycle, tandem bike or pedal straps may be helpful. Even very severely involved individuals can enjoy physical activity and exercise, but they may need more supervision. In certain cases, cognition may be a limiting factor, as it may affect their ability to understand the use of equipment. Health-related physical fitness for persons with CP should be developed in the same model as fitness for all of us: start early, be easily available and continue throughout the life span.



Health-Related Fitness for Children and Adults with Cerebral Palsy

An ACSM Report

Children with cerebral palsy (CP) have challenges with movement, function and mobility that last a lifetime. Parents of these children, however, are often told that this disability is non-progressive, thus giving the impression that the physical challenges faced by this population stabilize once they reach adulthood.

While the neural lesions are not progressive, the levels of independent function and mobility do not stabilize once a child enters adolescence and adulthood. They most often deteriorate. These changes in function and mobility may be a consequence of personal choice for daily activities, or may be related to aging, to musculoskeletal changes related to the primary disability, or to secondary conditions that develop because of the primary disability.

Children and adults with CP also suffer from poor physical fitness with consequently high energy costs and fatigue during daily activity. Unfortunately, rehabilitation and therapy services for persons with CP often end or decrease dramatically at adulthood, and rarely include fitness-related goals.

To decrease, at least in part, these losses in function and mobility, the promotion of health-related physical fitness should be included early in the rehabilitation program of these individuals. Because of the dangers of inactivity, innovative forms of physical activity and exercise for persons with mobility impairment need to be developed and implemented. Ideally these programs would be offered in the community, with practitioners from the fields of rehabilitation, physical education and exercise physiology.