

## Strength Training

Strength training for children and adolescents can be used to improve sports performance, prevent injuries, rehabilitate injuries and improve long-term health. It is not the same as weight lifting, bodybuilding or powerlifting, which are not recommended for kids and teens until physical and skeletal maturity are reached.

Appropriate strength training programs have no apparent adverse effect on growth, growth plates of the bones or of the heart and lungs. Since balance and control of posture mature by 7 to 8 years of age, it is recommended that a training program not start before then.

The American Academy of Pediatrics has made the following recommendations:

- Before beginning a formal training program, a medical evaluation should be done. Your child's annual well exam is an appropriate visit for this. Medical problems such as uncontrolled high-blood pressure, seizure disorders, history of cancer, heart problems and Marfan syndrome may require additional evaluation.
- Aerobic exercise should be done with strength training for the greatest health benefit.
- Programs should include a 10 to 15 minute warm-up and cool down.
- Adequate intake of fluids and good nutrition should be emphasized.
- Specific exercises should first be learned without using resistance (weights, electric bands) until the technique has been mastered.
- Each exercise should involve 2 to 3 sets of higher repetitions (8-15) 2 to 3 times a week.
- A strengthening program should address all major muscle groups.
- Any sign of injury from the program should be evaluated before resuming workouts.
- Proper technique and supervision by a qualified instructor are critical to safety in any strength training program.
- Instructors should have certification showing that they are qualified in pediatric strength training. A list of certification organizations is included.

**TABLE 2 Certification Organizations**

Certification	Requirements	Examination Content	Recertification	NCCA	Web Address
National Council on Strength and Fitness Certified Personal Trainer (NCSF-CPT)	18 y of age, high school diploma or equivalent	150 MC questions, 3-h proctored examination	Every 2 y, 10 CEUs	Yes	www.ncsf.org
National Academy of Sports Medicine Certified Personal Trainer (NASM-CPT)	18 y age, CPR certification	120 MC questions, 2-h proctored examination	2.0 NASM CEUs	Yes, 2003	www.nasm.org
National Strength and Conditioning Association Certified Personal Trainer (NSCS-CPT)	18 y of age, high school diploma or equivalent, CPR certification	140 questions, 3-h proctored examination	3 y, 6 CEUs, 2 different categories (conference, research publications, etc)	Yes, 1996	www.nasca-lift.org
National Strength and Conditioning Association Certified Strength and Conditioning Specialist (NSCS-CSCS)	BA/BS degree or chiropractor degree, CPR certification	Scientific 80-question, 1.5-hour proctored examination, practical 110 MC 2.5-hour proctored examination	3 y, 6 CEUs as above	Yes, 1996	www.nasca-lift.org
American Council on Exercise (ACE) Personal Trainer	18 y of age, adult CPR certification	150 MC questions, proctored examination, 2 written simulations	2 y, 2.0-hour ACE approved	Yes, 2003	www.acefitness.org
American Council on Exercise (ACE) Clinical Exercise Specialist	18 y of age, adult CPR certification, 300 h of work experience, current ACE-PT	150 MC questions, proctored examination	2 y, 2.0-hour ACE approved	Yes, 2003	www.acefitness.org
National Federation of Professional Trainers (NFPT)	18 y of age, high school diploma or equivalent, 2 y of experience	120 MC questions, 2-h proctored examination	2 CEC per year	Yes, 2005	www.nfpt.com
American College of Sports Medicine (ACSM) Certified Personal Trainer	High school diploma or equivalent, adult CPR certification	150 MC questions, proctored examination	3 y CEC 45 h	Yes	www.acsm.org
American College of Sports Medicine (ACSM) Health Fitness Instructor	Associate's or bachelor's degree in health-related field, adult CPR certification	Written examination, 140 MC questions, proctored examination	3 y CEC 60 h	Yes	www.acsm.org
International Fitness Professional Association (IFPA)	No requirements	105 questions at certification site	2 y 12 CEC	No	www.ifpa-fitness.com
American Fitness Professional Association (AFPA) Personal Trainer	18 y of age, high school diploma or equivalent, adult CPR certification	Home examination, 90 d to complete	2 y 16 CEC	No	www.afpafitness.com
International Sports Science Association (ISSA)	No requirements	Home examination			www.issaonline.com
National Strength Professional Association (NSPA) Personal Trainer	18 y of age, adult CPR certification	Two 10-h lectures, written/practical examination, 50 MC questions, 5 practicals	2 y, 24 NSPA CEC	No	www.nspainc.com

As of 2006, instructor certifications received by the following groups are certified by the National Committee for Certifying Agencies (NCCA): National Strength and Conditioning Association, American College of Sports Medicine, American Council on Exercise, National Council on Sports & Fitness, National Academy of Sports Medicine, and the National Federation of Professional Trainers. CPR indicates cardiopulmonary resuscitation, MC, multiple choice; CEC, continuing education credits, CEU, continuing education unit