

## UW Medicine

SPORTS, SPINE &  
ORTHOPEDIC HEALTH

### Resistance Training in Runners

Aerobic endurance activities have multiple health benefits and represent the main component of many workout regimens, both recreational and competitive. We often feel that if we are performing an aerobic endurance form of exercise such as running on a regular basis, then we are meeting and/or exceeding our exercise needs. This is not the case.

A growing body of evidence within the scientific and medical literature continues to define the crucial role of resistance training (i.e. strength training of large muscle groups against resistance) in maintaining health and maximizing athletic performance. Many runners are familiar with the concept of cross training, but generally view cross-training as the incorporation of other non-running endurance activities such as cycling or swimming in place of running workouts. These alternative endurance activities are important in maintaining performance and preventing overuse injuries, but they do not lead to the very specific benefits obtained with resistance training.

Resistance training should be part of any runner's training program. The American College of Sports Medicine (ACSM) recommends that all adults, athlete and non-athlete alike, complete muscular strength training 2-3 times per week in addition to aerobic exercise. 8-12 repetitions of 8-10 exercises that involve all major muscle groups is recommended during each strength training session. Full joint range of motion should be utilized and athletes should maintain proper form and work within a comfortable range to prevent injury. Strength exercises should be progressed in terms of resistance level and repetitions to create strength gains. In general, high repetition, low resistance exercises build endurance and low repetition, high resistance exercises build strength. For more information on types of strength training and specific programs, contact your sports medicine provider or refer to the many available online resources.

There are many benefits unique to resistance training in addition to strength gains. Resistance training improves bone mineral density and bone strength, ligament and tendon strength, collagen content, and energy stores within muscle. Additionally, resistance training provides the foundation for improved power, balance, and agility. Many of these changes help to prevent injuries, but they also lead to enhanced athletic performance. Runners in particular have been found to improve running economy following strength-training programs when compared to runners using endurance training alone.

In summary, endurance training is an important component of physical fitness, but no fitness or training program is complete without resistance training. Adding resistance training into your fitness program will make you a better and healthier runner.

*Authored by UW Medicine Sports Medicine Physicians  
For more information on UW Medicine Sports Medicine Services visit us at [uwmedicine.org/sportsmedicine](http://uwmedicine.org/sportsmedicine)*