

Abdominal exercises are always performed at the start of our overall workouts for two reasons. The first reason is that it serves as a nice warmup for the higher-intensity weightlifting movements that follow.

The other reason is that abs are the most common part of training that my athletes try to skip. When I put them at the end of a workout, the athletes would try to leave and claim, "I'll do them at home." If this were true, I would be training a lot less liars who, coincidentally, would have strong abs.

Another important point is to differentiate between muscle strength and muscle endurance. It's common to hear people bragging about doing 1,000 crunches a day. This has little relevance to abdominal strength.

As mentioned earlier, my athletes rarely exceed 30 repetitions per set. Most of the exercises are demanding enough that the 20 to 30 repetition range is adequately fatiguing.

If needed, there are always methods of increasing an exercise's intensity. Sometimes we change an athlete's position to put them at more of a disadvantage, or add external resistance such as a medicine ball or regular old-fashioned weights.

Let's focus on just the category of torso rotation. If you think in terms of the forehand, backhand and serve, there is quite a bit of twisting involved in these movements.

Here are just a few exercises that you can incorporate into your training program:

When performing the v-twist (see photos on page 6), you can use a medicine ball or a weight for resistance. Move the weight from one side of your legs to the other in an arcing motion using your shoulders.

Concentrate on moving your legs in the opposite direction of your arms. It is important to move both your upper and lower body at the same time. Your feet should not touch the ground during the exercise. The weight you hold in your hands should also remain in the air throughout the exercise. The intensity of the v-twist can be varied by using heavier weight and/or changing the speed of movement.

Tubing rotation (see photos on page 6) may feel more natural or sport specific to tennis because it is performed in a standing, upright

position like when playing tennis. Line up the side of your body to face the length of the cord. As both hands are holding the cord, the tension of the cord should pull your torso in a twisting motion out of its ordinary standing reference position of feet, hips, and shoulders square to each other.

With straight arms, turn at the waist so that your feet, hips and shoulders are all in line and your arms are at shoulder height directly in front of you. You may pivot your outside foot as your torso returns to the starting position. The difficulty can be increased by using heavier tubing or having a greater degree of stretch on the tubing at the start. Be sure to work both sides.

The side throw (see photos on page 6) is a great exercise for power development. Not only are you in an upright position, but this exercise also involves weight transfer. Swing the ball back in the opposite direction of where you are going to throw.

Your weight should be on your back foot as you go through this cocking (turning) phase. Then, as you

throw the ball forward, let the swinging momentum of your release turn your body about 90 degrees and transfer your weight to your front foot. Work the forehand and backhand sides equally.

Tennis players who realize and understand the importance of torso rotation may enjoy more success than those who don't.



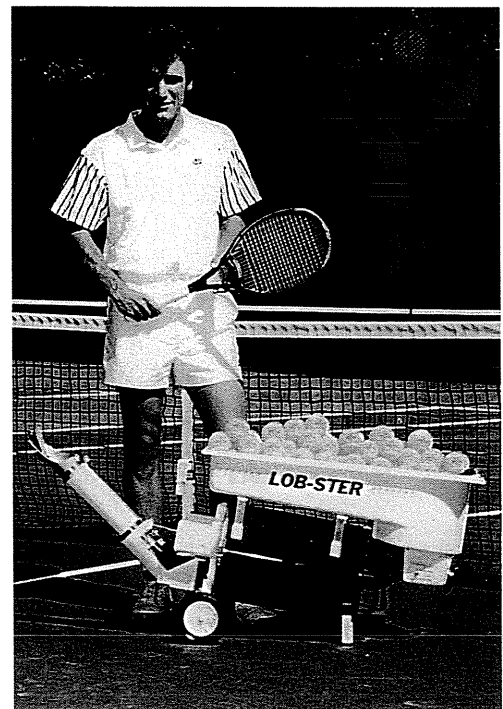
**Norman Meltzer** is a certified strength and conditioning specialist who has teaching experience with professional, Olympic, college and high school athletes. He is president of MW Strength and Conditioning, which provides services that encompass numerous areas of sports performance. He currently holds two IAWA weightlifting world records.

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