

Training Variables (Part 2)

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In this issue, we will finalize our breakdown of the F.I.T.T. (Frequency, Intensity, Time, Type) Principle as it relates to cardiovascular conditioning, strength training, and flexibility. The final two variables of the principle, time and type will be explored more closely.

Time and Type for Cardiovascular Conditioning—Guidelines by the American College of Sports Medicine state that for most people, 20 to 60 minutes of continuous or intermittent aerobic exercise daily in their target heart rate is sufficient to obtain goals such as weight management, general health or increased fitness. The higher the intensity, the shorter the duration of the activity needed to acquire a training effect and vice-versa. These aerobic exercises should be rhythmic in nature and should include exercises such as walking, running, stair climbing, rowing, biking, swimming, or skipping rope. Officials must be in superior condition in order to be able to sustain the demands of their profession. A goal of gradually increasing cardiovascular workouts to mimic the demands of officiating a full game should be considered. Keep in mind that the chances of orthopedic injuries increase at higher intensities, so it is a good idea to try multiple forms of exercise. Choose different forms of exercises and break up your total training duration by performing various exercises. Combining high impact exercise like running with lower impact exercise like biking has been shown to increase the training effect, reduce overuse type injuries, add variety and increase compliance. Gradually progress your workouts over weeks to increase cardiovascular conditioning. Intermittent bouts of as little as 10 minutes throughout the day can progress until a goal of continuous exercise of 30 or more minutes is achieved. It is important to only increase duration if there are no signs of undue fatigue or pain and injury.

Time and Type for Musculoskeletal Flexibility—The importance of incorporating a flexibility program into an official's daily exercise regimen cannot be overstated. Flexibility is an often overlooked component of fitness. There are multiple types of stretches that can be effective if used properly. The safest and most widely used form of stretching is called static stretching. This is done by stretching a muscle slowly to the point of mild discomfort and holding it there anywhere from 10 to 30 seconds. This is the safest form of stretching; it is easy to do and is effective. Any stretching routine should be preceded by an active warm up to prepare the muscle for the oncoming stress and decrease the risk of injury. Add a flexibility protocol to all of your training sessions if possible. Remember, begin any training session with an active warmup, incorporate a cool down period after your workout and finish with a 5 to 15 minute stretching sequence. This sequence should include total body stretches including the arms, chest, back, hips, and legs. Look for future *Sportorials* articles with

specific stretches or ask your local fitness professional for proper stretches and techniques.

Time and Type for Muscular Fitness—A muscular strength and endurance workout should incorporate a minimum of 8 to 10 exercises that train the major muscle groups (arms, shoulders, chest, abdomen, legs, back, and hips). At least 1 set of 8 to 10 repetitions should be done for each of these exercises; however, to increase muscular endurance a lighter load can be used for up to 10 to 15 repetitions. Generally, for strength gains, rest periods between sets of exercises should be kept between 30 and 90 seconds. Other effective variations use shorter rest periods. Officials may also want to try circuit training which utilizes little or no rest at all between exercises. Workouts that last longer than 1 hour have higher dropout rates and are usually associated with overtraining. If a strength workout is taking longer than 1 hour, try decreasing rest periods, the number of exercises per body part or the number of sets per body part. Strength training exercises should be dynamic, rhythmic and performed at slow controlled speeds. All exercises should be performed through a full range of motion while maintaining normal breathing patterns. Many variables, including rest periods, exercise selection, weight selected, and repetitions performed can be manipulated to suit the goals of an official. Talk to a fitness professional or a certified personal trainer who can give you a program suited to your needs and show you proper form and technique on any prescribed exercises.

Combine the knowledge you have gained from the previous article on the F.I.T.T. principle with this one and you will be well on your way to understanding all the components of a fundamental, safe workout. In future issues, I will provide some specific workout templates using this F.I.T.T. principle. You can use these workouts to improve your health, increase your fitness level and make you a better, more durable basketball official.

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