Baseball/Softball Athletic Testing Systems (BATS)

The National Fastpitch Coaches Association (NFCA) introduced the *Baseball/Softball Athletic Testing Systems (BATS)* in all 2011 administered camps as a way of helping softball athletes evaluate their strengths and weaknesses. The BATS program, developed by *Dr. Frank Spaniol, concentrates on measuring Body Composition, Muscular Strength, Power, Agility, Speed, Throwing Velocity, Bat Speed and Batted Ball Velocity as research-based indicators of success on the field. Below is a description of each test.

1. Body Composition measured by Omron Bioelectrical Impedance
The athlete's height, weight, and age will be entered into the Omron Body Composition Analyzer. The athlete will hold the device in both hands for 10-15 seconds until accurate body composition is calculated by sending a slight electrical current through body tissues. Skin fold measurements also may be used.

2. Muscular Strength measured by a Grip Strength Dynamometer
The athlete holds the grip dynamometer with elbow flexed at 90 degrees and squeezes for 2-3 seconds. Two attempts are measured for each hand while the best attempt is recorded.

3. **Power measured by a Standing Broad Jump**
Athlete starts with toes behind the line and feet approximately shoulder width apart. She will bend her knees and explosively jump forward as far as possible, landing on both feet. The measurement is taken from the back of the heel of the foot closest to the start line. The athlete records the best of two attempts.

4. **Rotational Power measured by the Spaniol Rotary Power Test**
This test utilizes a medicine ball toss with a 2lb (1-kg) medicine ball and is measured by a radar gun in miles per hour. The athlete takes a batting stance, holds the medicine ball in both hands, approximately chest high, and extended away from the body. The athlete rotates to their back leg then explosively tosses the ball towards the direction of the pitcher.

5. **Agility measured by the Shuttle Run**
The athlete starts with toes behind the line and in a base-stealing stance. At her first movement following the set position, the clock will begin timing. The athlete will sprint down to a ball placed ten meters away, pick it up, sprint back to the start, set it down, and immediately repeat the pattern to pick up a second ball. The clock stops once the athlete's chest has crossed the imaginary finish line.

6. **Speed measured by the 20-yard dash**
Start in a base-stealing stance. Shoulders should be perpendicular to the starting line. Athletes may not step on or touch the starting line. The clock will start with the first movement after the set position. Athletes should run through the finish

line. The clock stops when the athlete's chest crosses the finish line.

7. **Throwing Velocity measured by the use of a radar gun**
The athlete makes a maximum of five overhand throws with a regulation softball, on flat ground. No shuffle, crow hop, or running start is allowed. The distance the ball is thrown is irrelevant because the radar gun measures ball velocity within the first few feet of release. Maximum throwing velocity is recorded in miles per hour.

8. **Bat Speed measured by the Swing Speed Radar**
The test protocol requires the athlete to use their game bat to hit 5 line drives off a batting tee into a net. The bat speed is recorded in miles per hour.

9. **Batted Ball Velocity measured with a radar gun**
This test measures batted-ball velocity with a radar gun at the same time as bat speed is assessed. After each swing, the test administrator will record the athlete's bat speed and the batted-ball velocity in mph. The emphasis is to maximize bat speed and generate batted-ball velocity that is equal to or greater than their bat speed.

*Dr. Frank Spaniol, developer of the BATS program, is an internationally recognized softball and baseball researcher. He serves as a Professor of Kinesiology at Texas A&M University-Corpus Christi, where he teaches biomechanics and directs the Sport Science Research Laboratory. He can be reached by email at frank.spaniol@tamucc.edu.