APPENDIX B – TRAINING STANDARDS

Softball Canada Testing Protocols.docx
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Anthropometry

1) Height
2) Weight
3) Armspan

Movement Assessment

Shoulder Flexibility

Reach the R arm over the shoulder and the L arm behind the back. Measure the distance between the hands. A positive score would indicate the hands overlap; a negative score would indicate there is distance between the hands. Repeat for the L shoulder.

Hamstring Flexibility

Place feet and ankles together and bend at the waist. Reach down as far as you can to the floor. Measure the distance between the hands and the floor. The highest score for this test would be a +6 meaning the athlete could place their full palms on the ground. A negative score would indicate an athlete could not touch the ground.

Additional Items

The following movement assessments may be used depending on time and/or player need:

a. Cervical Spine
    i. Flexion/Extension/Rotation
b. Multi-segmental
    i. Flexion / Extension /Rotational
c. Single Leg Stance
d. In line lunge
e. Overhead Deep Squat
f. Supine Straight Leg Raise (Active/Passive)
g. Lumbar Lock Thoracic Spine (Active/Passive)
h. Thomas Test
i. Faber

Descriptions can be found in the Selective Functional Movement Assessment (SFMA) manual.

Field Based Testing

Vertical Jump

Description:

- Athletes will use a wearable vertical jump device or a force plate
- With feet stationary, athlete will jump as high as they can.
- The athlete will do this for three attempts and each attempt will be recorded.

Grip Strength

Description:

- Athletes will be given 2 chances to achieve maximal grip strength on each hand.
- Protocols used should be from the Canadian Society for Exercise Physiology (CSEP) manual.

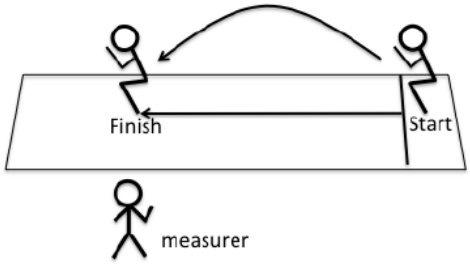
Rationale:

Assess and track grip strength of the athletes. Forearm strength is important for throwing, bat speed and bat control, injury prevention (assumptions).

Broad Jump

Description:

- A line should be taped (an existing line could be used) on the ground with a tape measure extending away from it in a perpendicular line
- Athlete should stand behind the line so that no part of their shoe is touching the line
- The instruction should be to try to just as far as possible, while being able to control the landing
- If the athlete cannot control their landing (they stumble, fall back, fall forward) the attempt should not count
- A maximum of 3 attempts should be given



Rationale:

Light load, horizontal power should be important for pitching, throwing, running and hitting

10-40-60yard sprint

Description:

- Athletes will be asked to run as fast as possible in a straight line for 60yrds
- Timing lights (Brower, or other) will be set up at the 0m (ankle height), 10yrd (hip height), 40yrd (hip height) mark and 60yrd.
- A start line should be set up 30cm behind the 0yrd line.
- 1-2 75-85% warm up efforts should be given.
- Athletes should be given 2 attempts to achieve their best time

Rationale:

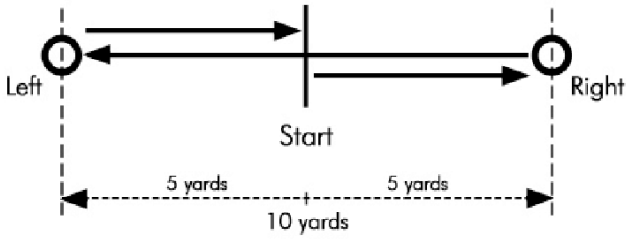
Speed and acceleration are important for many aspects of softball, including fielding and baserunning.

5-10-5 (Pro Agility) Agility

Description:

- A 10yrd course is set up with a start line in the middle, and two lines which are 5yrds to either side of the start line.
- A set of timing cells should be set up at mid-shin to ankle height at the start line
- The athlete begins on the start line, straddling the laser from the timing cells
- When they are ready, they move as quickly as they can to their right, touch the outside hand on or over the 5yrd line, turn and run the 10yrd back to the far line, use the other hand to touch on or over the line, and then return through the start line
- Only the final time should be recorded
- The next trial should be done to the other direction
- A total of 1-2 trials should be given in each direction
- Approximately 3-5 min rest should be given between trials.

Rationale:
The ability for whole body rapid change of direction is important in fielding and base running.



Hip Turn Plyo Sprint

Description:

- Athlete will stand on the start line with their back towards the finish line
- The finish line will be 10yards away from the start line
- Athlete will turn to their right hand side and sprint towards the finish line.
- Time will start on the first move of the athlete and stop when they cross the finish line
- The test will be repeated 4 times with the athlete turning 2 times to their right side and 2 times to their left side.

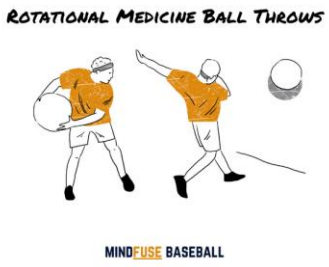
Rationale:

Assess the ability of athletes to turn hips and move backwards. This is important in softball on defense any time a ball is hit over your head.

Rotational Medicine Ball Throw

Description:

- An 8 lbs med ball should be used
- A line should be taped (an existing line could be used) on the ground with a tape measure extending away from it in a perpendicular line
- Feet should be parallel with the 0m line
- The athlete should start with their front foot as close to the line as possible without any part of it touching the line
- The athlete should have the MB in both hands at hip height, load up rotationally on the back leg with the ball moving towards the back side of the body. The athlete should then try to heave the ball as far as possible
- The feet should not touch or go over the line before the ball is released. After the release the person can travel in the direction of the ball
- The next attempt should be the other direction (R vs L batting stance)
- A total of 2 attempts each way should be recorded
- 2-3 minutes rest should be given between attempts



Rationale:

Softball is a largely rotational sport with hitting, throwing, and pitching requiring the ability to coordinate full body, rotational power.

Overhand Throwing Velocity

Description:

- Athletes will be given 4 chances to throw into a net as hard as they can
- Using a pocket radar (or similar radar device) the speed of each throw will be measured

Rationale:

Assess and track the overhand throwing velocity of all players as throwing is an integral skill in softball.

Hitter Handicap

Description:

- A tee will be set up with a catch net approximately 7 feet from the tee.
- Players will hit 30 balls off the tee into the net in three sets of 10 balls.
- Using a pocket radar or similar device, the speed of each pitch hit will be recorded.
- If there is a mis-read OR the radar didn't register a speed, the rep will not count and need to be repeated.
- Two scores will be given:
    - The "hitter handicap": will be the difference between the highest and lowest exit velocity
    - The overall score will be the sum of all 30 exit velocities

Rationale:

- Have a baseline measure of swing consistency and power output. This will allow players to track over time using a standardized test.

Strength/Power Lab Testing

(This section would be done at a Sport Institute or other facility with necessary equipment and staff)

AUS 20m Shuttle Run (beep test)

Force Velocity (FV) Profile – Trap Bar Jump

Description:

- The test consists of a series of static (non-countermovement) jumps completed with incremental loads using a trap (hex) bar. **If low setting is available, it should be used.** (ie, handle parallel to bar)
- The first jump should be completed using only body weight, then each incremental load should be loaded using the trap bar.
    - For the body weight jump, the tether should be looped through the middle two fingers of the athlete's hand. This position will most closely resemble the loaded trap bar jumps.
    - Athletes should be instructed to pause at the bottom of the lift (weight in contact with ground) for 1-2 seconds, then jump as high as they can.
    - Athletes can shrug at the top of the lift, but they cannot bend their elbows.
- Weighted jumps should start at 20kg (empty bar) and then increase by 15kg until the average velocity from the best jump of the set is 1.00-1.05 m/s.
    - Athletes get a maximum of 2 attempts with each load.
- 3-5 minutes rest should be given between each set.

- The force velocity profile should be measured and recorded using a GymAware PowerTool and associated software. Analysis will be done after the testing using the gymaware values, with outcomes including:
    - Slope of force-velocity line
    - F0 – force at velocity of 0, as calculated using the slope of the F/V line
    - V0 – velocity at force of 0, as calculated using the slope of the F/V line
    - Pmax – Theoretical maximal muscular power based on Pmax = (F0 x V0)/4
    - FVimb – Difference between optimal FV slope and the FV slope of the athlete
        - See: Samozino, P. et al. Force-Velocity Profile: Imbalance Determination and Effect on Lower Limb Ballistic Performance. Int J Sports Med 2014; 35: 505–510
- Values needed include mean velocity and mean force for the best rep (best mean velocity) at each load, body weight of the individual, and the difference in height of the greater trochanter between start position (bottom of trap bar squat) and take off position.

- ALTERNATIVELY, if gymaware is not available jump height at each load can also be recorded using optojump software.

Rationale:

The FV profile will be used to assess whether a force or velocity deficit exists in each individual athlete. This will assist with individualization of programming and monitoring in the future. Lower body FV capabilities should be related to full body aspect of the sport, such as throwing, running, and swinging the bat.

Max Strength Trap Bar Deadlift

Description:

- Athletes will be asked to trap bar deadlift the maximal amount of weight with correct technique and posture. **If low setting is available, it should be used.** (ie, handle parallel to bar)
- Technique errors such as rounding of the back or major knee valgus should stop the test.
- Athletes can use the FV profile as a warm up for the maximal strength portion of the test.
- 2-3 more warm up sets (with no jump) can be given prior to attempting the 1RM

Rationale:

A certain level of lower body strength is necessary as a base for explosive movements.

Maximum Chin Ups

Description:

- Athletes will be asked to perform the maximal number of strict-form chin ups.
- Athletes will use a supinated grip, start from a dead hang (straight arm) position and must get their chin over the bar for each rep to count.
    - Any reps completed that do not start from straight arm position, or finish with the chin over the bar should not be counted.

Rationale:

Assess and track relative upper body strength of the athletes.