## Sports Assessment Station 1- Speed and Agility - Shuttle Run

## Objective:

Athlete will be evaluated on speed and agility.

## Materials:

Measuring tape, floor tape, stopwatch, cones (optional)

## Time:

3 minutes

## Volunteers:

- Required: 1
- The volunteer will explain the procedure, demonstrate the skill, and time the athlete.
- Ideal: 2
- Volunteer 1 will explain procedure, tell the athlete when to start, and time the athlete.
- Volunteer 2 will demonstrate the skill test and stand at the 10 meter mark so the athlete can see where they are running to.


## Setup:

Measure a distance of 10 meters and use the floor tape to mark the beginning and end. If cones are available set them at both ends as well so the athlete can visualize where they are running to.

## Procedure:

Volunteer 1 -

1. Explain to the athlete that they will run to the line 10 meters in front of them. (Either place a cone there or have a second volunteer stand by the line so they can see where it is located) They will run to the line, touch the line with their hand, and then run back to the starting line and touch that line. Then they will go back to the first line, touch it again and run back to the starting line. (Down, back, down, back)
2. Let the athlete know that they should run as fast as they can from the beginning till the end.
3. Tell the athlete when to start using a ready, set, go format.
4. If the athlete falls down while performing this assessment, ensure they are not injured let them try it again from the beginning.
5. Encourage the athlete before and after the skill test.

Volunteer 2 -

1. Demonstrate the skill test.
2. Stand at the 10 meter line.
3. Encourage the athlete.

## Evaluation:

1. Record the time to the nearest second.
2. Round up if the time is $X X .50$ or above.
3. Round down if the time is $X X .49$ or below.
4. Write the athlete's time on their assessment sheet.

## Sports Assessment Station 2 - Upper Body Power - Medicine Ball Throw

## Objective:

Athlete will be evaluated on upper body power.

## Materials:

Measuring tape, medicine ball ( $1 \mathrm{~kg}, 2 \mathrm{~kg}$ ), floor tape
Time:
3 minutes

## Volunteers:

- Required: 1
- The volunteer will explain the procedure, demonstrate the skill, and measure the distance the medicine ball is thrown.
- Ideal: 2
- Volunteer 1 will explain the procedure and measure the distance the ball is thrown.
- Volunteer 2 will demonstrate how to throw the ball and help measure the distance the ball is thrown.


## Setup:

This station should be near a wall.

## Procedure:

Volunteer 1 -

1. Have the athlete sit on the floor with their back against the wall.
2. Give the female athletes the 1 kg ball and the male athletes the 2 kg ball.
3. Tell them to the throw the ball straight out in front of them with no arch.
4. Tell the athlete to keep their shoulder blades against the wall when they throw the ball.
5. Tell the athlete that after they throw the ball their arms should freeze when they let go of the ball.
6. Have the athlete throw the ball 3 times and record the measurement with the longest length.
7. Encourage the athlete to throw the ball as far as possible.

Volunteer 2 -

1. Demonstrate how to throw the ball with keeping your shoulder blades against the wall and freezing your arms at the point of release.
2. Retrieve the ball after it is thrown, return the ball to the athlete, and help measure.
3. Encourage the athlete to throw the ball as far as possible.

## Evaluation:

1. If there is arch on the ball or if their shoulder blades come off the wall have the athlete try again after you demonstrate how to throw the ball correctly.
2. Measure the distance from their hands to where the ball lands in meters.
3. Write the distance in meters on the athlete's assessment sheet.

## Sports Assessment Station 3 - Lower Body Power - Vertical Jump

## Objective:

Athlete will be evaluated on lower body power.

## Materials:

Measuring tape or scaled measurement on the wall

## Time:

3 minutes

## Volunteers:

- Required: 1
- Volunteer will describe the procedure, demonstrate, and assess the sport skill.
- Ideal: 2
- Volunteer 1 will explain the procedure and assess the athlete.
- Volunteer 2 will demonstrate and help assess the athlete.


## Setup:

Position the scaled measurement on the wall.

## Procedure:

## Volunteer 1 -

1. Ask the athlete if they are right or left handed.
2. Have them stand with that side next to the wall.
3. Ask them to reach as high up as they can without going on their tip toes. Record the measurement at that spot (starting point).
4. Then tell them to use their entire body (arms and legs) to jump as high as they can and when they reach as high as they can to lift their arm up in the air and touch the wall.
5. Take a measurement at the point where they touched the wall.
6. Let the athlete attempt to jump as high as they can 3 times and then record the difference between the starting point and their highest jump.
7. Encourage the athlete to perform well.

Volunteer 2 -

1. Demonstrate how to jump using both arms and legs and reaching up at the peak of the jump.
2. Help take the measurement.
3. Encourage the athlete to perform well.

## Evaluation:

1. Record the starting measurement in centimeters.
2. Subtract the peak measurement from the starting measurement to get the jump height.
3. Write the number of centimeters jumped on the athlete's assessment sheet.

Objective: Athlete will learn which food groups belong in which section of the portion plate.

## Materials:

- 2 Balanced Plates
- 1 Set of four Food Group Signs
- 15 Food Labels
- 15 Artificial Food Items, or Food Cut Outs ( 30 food items is ideal - 2 of each food item)
- Food labels and items may need to be altered to fit the food in your region.

Time: 5 minutes

## Volunteers:

- Required: 2 volunteers
- Volunteer Station 1- goes over the balanced plate with the athlete
- Volunteer Station 2- takes the athlete through the activity
- Ideal: 4 + volunteers
- If multiple foods are available at each food label, add volunteers to each volunteer station, allowing multiple athletes to do the activity at one time. Balanced plates will also need to be added so that there are two at the Volunteer 1 station and two at the Volunteer 2 station.

Setup: Set up Jump Start Your Meal by placing the food labels on the floor as shown by the attached diagram. Place the food items by each corresponding food label sign.

## Steps:

Volunteer 1:

1. Introduce the athlete to the balanced plate by teaching the athlete what each section of the plate represents.
a. This is a balanced plate. (Hold up the balanced plate for the athlete to see.)
b. You can use it to make sure that you are eating different food groups at each meal.
c. The green section represents fruits and/or vegetables. This is the biggest section of our plate because fruits and vegetables have nutrients in them that keep you healthy. (Point to each section of the plate as you explain)
d. The red section represents meats and beans. Meats and beans help build strong muscles.
$e$. The orange section represents grains. Grains give you energy.
$f$. The blue circle in the middle is for dairy. Dairy makes your bones strong.
g. We are now going to practice using the balanced plate by making a healthy plate with the food items that we have here. (Send the athlete to volunteer 2).

## Volunteer 2:

2. Play the game.
a. Explain to the athlete that they will be making a healthy meal using the balanced plate. Have the athlete pick their favorite foods from each food group. If they do not like any of the choices of food items at the food group, ask them what foods they do like from that food group and pick the item that looks most similar.
b. Have the athlete jump, hop, or walk to each food group. At each food group tell the athlete how the food helps their body.

Meats and beans- Helps build strong muscles.

- Have the athlete pick one of the options and place it on the section of the plate where it belongs. If they have a hard time placing the food item remind them that the meats and beans portion of the plate is red and guide them to that section of the plate.
- Move onto Grains.


## Grains- Give you energy.

- Have the athlete pick one of the options and place it on the section of the plate where it belongs. If they have a hard time placing the food item remind them that the grains portion of the plate is orange and guide them to that section of the plate.
- Move onto Fruits and Vegetables.


## Fruits and Vegetables- Keep you healthy.

- Explain that because the section for fruits and vegetables is bigger on the plate that they will need more of these in their meal.
- Have the athlete pick two of the options and place them on the section of the plate where they belong. If they have a hard time placing the food items on the plate remind them that the fruits and vegetables portion of the plate is green and guide them to that section of the plate.
- The athlete's may pick any combination of fruits and vegetables: two fruits, two vegetables, or a fruit and a vegetable.
- Move onto Dairy.


## Dairy- Makes your bones and teeth strong.

- Remind them dairy is placed in the center of the plate because it can be added to any food group by putting cheese on a hamburger, adding yogurt to fruit, or added to the meal by drinking milk.
- Have the athlete pick one of the options and place it on the section of the plate where it belongs. If they have a hard time placing the food item remind them that the dairy portion of the plate is blue and guide them to that section of the plate.
c. Ask them if they have any questions, and then send them on to the next station.



## Sports Assessment Station 5 - Upper Body Strength - Push-ups

## Objective:

Athlete will be evaluated on upper body strength.

## Materials:

Stop watch

## Time:

3 minutes

## Volunteers:

- Required: 1
- The volunteer will explain the procedure, demonstrate the skill, time the athlete, and count the number of push-ups completed.
- Ideal: 2
- Volunteer 1 will explain the procedure, demonstrate the skill, time the athlete and count the number of push-ups completed.
- Volunteer 2 will do the same thing with another athlete.


## Setup:

1. Ask the athlete which kind of push-up they would like to do: regular or knee push-ups. Demonstrate the two kinds of push-ups, so the athlete can see the difference.
2. Use the appropriate instructions for the type of push-up the athlete performs.

## Regular Push-ups Procedure:

1. Demonstrate a push-up.
2. Have the athlete get in a pushup position. Legs should be fully extended and toes should hold up the legs. The arms will hold up the upper body.
3. The back and neck should form a straight line down the body. Make sure there is not a curve in their back and their bottom is not up in the air.
4. Tell them to complete a push-up by bending at their elbows. Making a 90 degree angle at the elbow their body should be six inches from the ground.
5. Tell them to complete as many push-ups as possible when you say go. Use a ready, sit, go format. Count the number of push-ups they can do in 30 seconds.
6. Encourage the athlete.

## Knee Push-up Procedure:

1. Demonstrate a knee push-up.
2. Have the athlete get in a pushup position. Legs should be bent at the knee and the knees should hold up the legs. Knees should form a 45 degree angle with the body. The arms will hold up the upper body.
3. The back and neck should form a straight line down the body. Make sure there is not a curve in their back.
4. Tell them to complete a push-up by bending at their elbows. Making a 90 degree angle at the elbow their body should be six inches from the ground.
5. Tell them to complete as many push-ups as possible when you say go. Use a ready, sit, go format. Count the number of push-ups they can do in 30 seconds.
6. Encourage the athlete.

## Evaluation:

1. Record how many push-ups they can do correctly in 30 seconds.
2. Write the number in the appropriate (regular or knee) row on the athlete's assessment sheet.

## Sports Assessment Station 6 - Lower Body Strength - Wall Sits

## Objective:

Athlete will be evaluated on lower body strength endurance.

## Materials:

Wall, 1-2 stop watches

## Time:

3 minutes
Volunteers:

- Required: 1
- The volunteer will explain the procedure, demonstrate the skill, and time the athlete.
- Ideal: 2
- Volunteer 1 will explain the procedure to one athlete, demonstrate the skill, and time the athlete.
- Volunteer 2 will do the same thing with another athlete.


## Setup:

This station should be at a wall.

## Procedure:

Volunteer 1 -

1. Demonstrate a wall sit.
2. Have the athlete stand about 25 cm from the wall.
3. Tell the athlete to lean against the wall and slide down.
4. As the athlete is sliding down on the wall, tell them to "freeze" when they have reached the correct position.
5. Make sure their thighs are parallel with the floor and tell the athlete how to adjust if the thighs are not parallel to the floor.
6. Tell the athlete to fold their arms across their chest.
7. Tell the athlete that they will try to hold the position for 60 seconds.
8. The knees should not come out further than the toes. This can lead to injury.
9. Start recording the time as soon as they are in the position. Stop recording once the athlete has moved significantly (such as no longer in a sitting position, using arms to help balance them self, or is widening their stance). They are allowed to move slightly, especially if their feet are sliding.
10. Encourage the athlete.

Volunteer 2 will repeat the same procedure with a second athlete.

## Evaluation:

1. Note the number of seconds the wall sit is held.
2. Write number of seconds on the athlete's assessment sheet.

## Station 7 Nutrition - Food Toss

Objective: Athletes will learn which colors correspond to each food group represented on the plate.

## Materials:

- 5 Frisbees- one for each food group. Each Frisbee has a picture of a food item from a specific food group taped on one side and corresponding tips about the food item taped on the other side.
- 1 Meats and Beans Frisbee
- 1 Grains Frisbee
- 1 Fruits Frisbee
- 1 Vegetables Frisbee
- 1 Dairy Frisbee
- The pictures and tips on the Frisbees may need to be altered to fit the foods in your region.
- 1 Set of four Food Group Signs
- 4 Boxes, Chairs, or Taped off Area
- 1 Balanced Plate

Time: 5 minutes

## Volunteers:

- Required: 2 volunteers
- Volunteer Station 1- goes over the colors on the portion plate
- Volunteer Station 2- takes the athlete through the activity
- Ideal: 4+ volunteers
- If additional Frisbees, boxes, chairs, taped areas, and balanced plates are available, add volunteers to each volunteer station, allowing multiple athletes to do the activity at one time.

Setup: See attached diagram.
Steps:
Volunteer 1:

1. Briefly review the information that the athletes learned at the Jump Start station.
a. At the Jump Start Your Meal station, you learned that it is important to eat different food groups at each meal.
b. Meats and beans help build strong muscles.
c. Grains give you energy.
d. Fruits and vegetables keep you healthy.
e. Dairy makes your bones and teeth strong.
2. Explain to the athletes that each color of the balanced plate represents a different food group.
a. If you look at your plate you will see that it is divided into sections with different colors. Each color represents a different food group that you want to eat at every meal.
i. Red-Meats and Beans
ii. Orange - Grains
iii. Green - Fruits/Vegetables

- When making your plate, put the meats and beans on the red section of your plate, fruits and vegetables on the green section of your plate, and grains on the orange section of your plate.
iv. Blue - Dairy
- Dairy is a circle in the middle of our plate because it can be added to any food group; you could add cheese to broccoli or add yogurt to your fruit. It is also a reminder that you can get a dairy source by drinking milk with your meal.


## Volunteer 2:

3. Play the "Food Toss" game.
a. There are lots of foods in each food group. Each poster represents a food group. (Read the posters to the athletes).
b. Explain to the athlete that they will be handed one Frisbee at a time and can either throw it or go place it by the poster of the food group the food item belongs to.
c. Look at the picture of the food item on the Frisbee. Then toss or place the Frisbee into the box that shows which food group the item belongs in. Apples are a fruit, so if I picked up a Frisbee with a picture of an apple on it I would throw it to the fruit and vegetable poster.
d. Hand the athlete one Frisbee at a time. If the athlete is having a hard time deciding which food group the food item goes in, read the tips to the athletes found on the back of each Frisbee.
e. After the athlete places all of the Frisbees at each poster go through where they placed each food item and remind them of the benefit of that specific food item:

- Meats and Beans - help build strong muscles
- Grains - give you energy,
- Fruits/Vegetables - have nutrients that keep you health
- Dairy - makes your bones strong.

If they put a Frisbee at the wrong poster correct them and give them more examples of food items they may find in this food group. Use the foods portrayed on the posters as the example.
f. Review what the colors on the portion plate represent one more time. Ask the athletes if they have any questions, and then send them to the next station.

## SETUP EXAMPLE

Boxes: Meats and Beans, Grains, Fruits and Vegetables, Dairy


Frisbees: Cottage Cheese, Peach, Broccoli, Oatmeal, Shrimp

## Sports Assessment Station 8- Hand-eye Coordination - Catching and Throwing

## Objective:

Athlete will be evaluated on hand-eye coordination.

## Materials:

Measuring tape, floor tape, $30 \times 30 \mathrm{~cm}$ target, 3 tennis balls

## Time:

3 minutes

## Volunteers:

- Required: 1
- The volunteer will explain the procedure, demonstrate the skill, and count the number of catches and throws performed correctly.
- Ideal: 2
- Volunteer 1 will explain the procedure, demonstrate the skill, and count the number of catches and throws performed correctly.
- Volunteer 2 will retrieve lost balls and count the number of catches and throws performed correctly.


## Setup:

Measure 3 meters from a wall and put a piece of tape on the floor. Put the 30 by 30 target on the wall 1.5 meters from the ground.

## Procedure:

1. Demonstrate the skill.
2. Tell the athlete that they will throw the ball at the target and then let the ball bounce one time then catch the ball.
3. Tell them to stand at the line on the floor and not to cross the line when they throw the ball.
4. Tell the athlete to use only their hands to catch the ball; do not use chest or arms.
5. The athlete should throw the ball over-handed.
6. This is not a test to analyze their form, only judge if they can hit the target and catch the ball.
7. The athlete should practice twice before you start counting.
8. The athlete should throw the ball at the target 10 times.

## Evaluation:

1. You should record how many times out of 10 the ball is thrown and hits the target.
2. You should count the number of balls (out of 10 ) that are caught with the athlete's hands.
3. Do not count balls that are caught using the chest or arms.
4. Do not count balls that do not hit the target.
5. Write the count (out of 20) on the athlete's assessment sheet.

## Sports Assessment Station 9-Foot Coordination - Dribbling the Soccer Ball

## Objective:

Athlete will be evaluated on hand foot coordination.

## Materials:

Measuring tape, cones, soccer ball

## Time:

3 minutes

## Volunteer:

- Required: 1
- The volunteer will explain the procedure, demonstrate the skill, and time the athlete.
- Ideal: 2
- Volunteer 1 will explain the procedure, demonstrate the skill, and time the athlete.
- Volunteer 2 will help retrieve and replace the balls if the athlete loses control.


## Setup:

Place one cone on the ground then at a 45 degree angle from that cone measure a distance of 3 meters and place a cone there. Measure 3 meters at a 45 degree angle from the other side of the starting cone and put a cone there. The second and third cone should be in a straight line and have a distance of 3 meters in between them.

## Procedure:

Volunteer 1

1. Explain to the athlete that they will dribble the soccer ball to each cone. Then go around the outside of the second and third cone and return to the starting position.
2. Time how long it takes the athletes to complete the test.
3. Encourage the athlete.

Volunteer 2

1. Demonstrate how to dribble the soccer ball and how to go around the outside of the cones.
2. Retrieve the soccer ball if the athlete loses control.
3. Encourage the athlete.

## Evaluation:

1. Time how long it takes the athlete to complete the test.
2. If the athlete loses control of the ball and it has to be retrieved by another volunteer add one second to the time.
3. Write their time on the athlete's assessment sheet.

## Sports Assessment Station 10 - Balance - Walk a Line

## Objective:

Athlete will be evaluated on balance.

## Materials:

Measuring tape, floor tape

## Time:

3 minutes

## Volunteer:

- Required: 1
- The volunteer will explain the procedure, demonstrate, and assess the athlete.
- Ideal: 2
- Volunteer 1 will explain the procedure and assess the athlete.
- Volunteer 2 will demonstrate the procedure and assess the athlete.


## Setup:

Measure a distance of 3 meters. Make a straight line using the floor tape for 3 meters. The width of the line should be 6 cm .

## Procedure:

Volunteer 1 -

1. Tell the athlete to walk heel to toe the entire way down the line without looking at their feet.
2. Stand at the end of the line and tell the athlete to look at you as they are walking down the line.
3. The athlete may place their hands on their hips or out to the side, whichever is more comfortable.
4. Have the athlete take 8 steps forward and then 8 steps backward.
5. Encourage the athlete.

Volunteer 2 -

1. Demonstrate how to walk the line without looking at your feet.
2. Count the number of times the athlete's foot steps completely off the line.
3. Encourage the athlete.

## Evaluation:

1. Count how many correct steps the athlete takes.
2. Write the number of steps on the athlete's assessment sheet.

## Station 11 Nutrition- Dining Detective

Objective: Athletes will collect food to make a balanced plate.

## Materials:

- 15 Clue Cards- 1 for each food item
- 15 Artificial Food Items of Food Cut Outs ( 30 items is ideal - 2 of each food item)
- 1 set of four Food Group Signs
- 15 Food Label Signs
- Food labels and items may need to be altered to fit the food in your region.
- 2 Balanced Plates- one at the beginning of the activity, one at the end.

Time: 5 minutes

## Volunteers:

- Required: 2 volunteers
- Volunteer Station 1- goes over the balanced plate with the athlete
- Volunteer Station 2- takes the athlete through the activity
- Ideal: 4 + volunteers
- If multiple foods are available at each food group station, add volunteers to each volunteer station, allowing multiple athletes to do the activity at one time.
- Additional balanced plates will also be required.

Setup: Ideally this station should be setup on a table but can also be setup on the ground. See attached diagram for setup of food labels. Place food item(s) by the label that it corresponds with. Place a balanced plate and the meal clue sets in front of the meats and beans food group station and then place a second balanced plate after the dairy food group station.

## Steps:

1. Briefly review the information that the athletes learned at the Jump Start Your Meal and Food Toss stations.
a. At the 'Jump Start Your Meal' and 'Food Toss' stations, you learned how to use a balanced plate to make sure you are eating different food groups. Review the sections and colors of the plate and the functions of each food group.
i. Meats and Beans- red, make your muscles and body strong
ii. Grains- orange, gives you energy
iii. Fruits and Vegetables- green, keeps you healthy
iv. Dairy- blue, makes your teeth and bones strong
2. Play Dining Detective.
a. We are going to play a game where you are the detective trying to figure out each part of a healthy meal. After I read the clue card your job is to guess which food I am talking about.
b. Before the activity begins, pick up a set of clues (meal 1,2 , or 3 ) and use the clues from the set you chose at each food group station.
i. Meal 1: Egg, Pancake, Strawberries, Banana, Milk
ii. Meal 2: Turkey Lunch Meat, Bread, Apples, Celery, Cheese
iii. Meal 3: Chicken, Roll, Peas, Carrots, Milk
c. At each food group station there will be food items. Read the clue card from your meal clue set that corresponds with the food group station you are at. There is one clue card for each food group station, except the fruits and vegetables station where there are two clues.

## i. Meats and Beans

1. Read the clue card allowing the athlete a chance to guess what meat and bean item it would be after each clue is read.
2. Once they have guessed correctly (if they guess wrong, ask them to guess again), take the food item and move on to the Grains station.

## ii. Grains

1. Read the clue card allowing the athlete a chance to guess what grain item it would be after each clue is read.
2. Once they have guessed correctly (if they guess wrong, ask them to guess again), take the food item and move on to the Fruits and Vegetables station.

## iii. Fruits and Vegetables

1. Read the clue card allowing the athlete a chance to guess what fruit or vegetable item it would be after each clue is read.
2. Once they have guessed correctly (if they guess wrong, ask them to guess again), take the food item.
3. Repeat steps 1 and 2 for the second clue card. Move on to the Dairy station.

## iv. Dairy

1. Read the clue card allowing the athlete a chance to guess what dairy item it would be after each clue is read.
2. Once they have guessed correctly (if they guess wrong, ask them to guess again), take the food item and move on to the balanced plate station.

## 3. Make a balanced plate.

a. Go over each section of the balanced plate one more time, reminding the athlete again of the color and function of each food group.
b. Have the athlete use the food items that they guessed during the Dining Detective game to make a balanced plate.

1. If they do not make the plate correctly the first time, explain the sections again and help them make it correctly.
c. Ask them if they have any questions, and then send them on to the next station.



Roll


Milk

Celery

## Carrots

Strawberry

## Sports Assessment Station 12- Flexibility - Sit and Reach

## Objective:

Athlete will be evaluated on lower back and thigh flexibility.

## Materials:

Sit and Reach box or floor tape, measuring tape

## Time:

3 minutes

## Volunteers:

- Required: 1
- The volunteer will explain the procedure, demonstrate, and measure the stretch.
- Ideal: 2
- Volunteer 1 will explain the procedure, demonstrate, and measure the stretch.
- Volunteer 2 will do the same as Volunteer 1, but with another athlete.


## Sit and Reach box Setup:

The athlete should take off their shoes and the box should be placed so that the feet are flat against the inside of the box. Have the athlete extend their arms out with one hand on top of the other. Note the measurement that the athlete arms are at when extended.

## Sit and Reach box Procedure:

1. Have the athlete put one hand on top of the other.
2. Tell them to stretch as far as possible, without bending their knees.
3. Let them try 3 times, marking each time how far they go.
4. Record the best stretch.
5. Encourage the athlete to stretch as far as possible.

## Reaching Setup (without a Sit and Reach box):

Use the measuring tape to make a 50 cm straight line. Have the athlete extend their arms out straight in front of them with one hand on top of the other. Measure straight down from the middle finger and mark the position.

## Reaching Procedure:

1. Have the athlete put one hand on top of the other.
2. Tell them to stretch as far as possible without bending their knees.
3. Let them try 3 times, marking each time how far they go.
4. Record the best stretch.
5. Encourage the athlete to stretch as far as possible.

## Evaluation:

1. Subtract the starting position from the athlete's best stretch.
2. Write the difference on the athlete's assessment sheet.

## Sports Assessment Station 13 - Aerobic Endurance - 3 minute Step Test

## Objective:

Athlete will be evaluated on aerobic endurance.

## Materials:

19 cm step, 2 stopwatches, metronome, heart rate monitor

## Time:

3 minutes

## Volunteers:

- Required and Ideal: 2
- Volunteer 1 will explain the procedure to the athlete, demonstrate how to step up and down with the beat of the metronome and do it with them if they have trouble performing the skill.
- Volunteer 2 will time the athlete for three minutes and tell them when to stop then they will take their heart rate for 15 seconds or use heart rate monitor.


## Setup:

Have the athlete stand in front of the step. Start the metronome at 90 beats per minute (equivalent to 23 steps per minute). Tell the athlete that they should place their foot up with the beat of the metronome. (The SNAPPER computer program has a built-in metronome with can be used)

## Procedure:

Volunteer 1 -

1. Explain that they will be stepping up and down on the step for three minutes with the beat of the metronome.
2. Tell the athlete to start stepping.
3. Have the athlete adjust their speed if they are not matching the beat of the metronome. (Tell them faster, slower, or do it with them)
4. Encourage the athlete.

Volunteer 2 -

1. Time the athlete for 3 minutes, then say stop.
2. Take a heart rate using either a heart rate monitor or counting the heart rate at the wrist or neck for 15 seconds.
3. Record the heart rate.
4. Encourage the athlete.

## Evaluation:

1. Multiple the 15 second heart rate by 4 .
2. Write the heart rate score on the athlete's assessment sheet.

## Station 14: Sports Nutrition Aptitude Profile (SNAP)

## Objective:

Assess the athlete's skills and provide recommendations for further development.

## Materials:

- TRAIN@Home booklets (one for each athlete)
- Nutrition placemats (one for each athlete)
- Water Bottle (one for each athlete)
- A computer with a modern web browser (Internet Explorer 7+, Firefox 2+, Opera 9+, Safari $2+$ ), with the SNAPPER program (available at http://trainso.blogspot.com or on the program CD under the SNAPPER/folder). If a computer is not available, pen and paper may be used, but the accuracy of the results will be significantly reduced.


## Volunteers

Required: 2

- Volunteer 1 - will calculate the athlete's results by using the SNAPPER program on the computer, or the SNAPPER chart
- Volunteer 2 - will explain the athlete's results to them. They will also introduce the Nutrition and Exercise booklet that they can use at home along with give them the placemat and water bottle.
Ideal: 3
- A third volunteer will go over the placemat and water bottle and the second volunteer goes over the booklet.


## Time:

With computer: 1-3 minutes
Without computer: 4-5 minutes

## Setup:

If needed, extract snapper.zip to a directory. On the computer, open snapper.html.
Verify that the entry form appears (Internet Explorer may require a security confirmation).

If no computer is available, turn to the 'Calculating SNAP by hand' section of this guide.

## Basic Operation:

1. Fill in all the information on the form - sports currently played by the athlete, assessment scores, and the specific type of assessment performed (type of push-up, etc.)
2. Press Calculate.
3. The results will appear on the right side of the screen. Print or write down the results and present them to the athlete.

If there is a missing or otherwise obviously mistaken input, it will be marked with a red *. Alter the inputs as needed and press Calculate again. Press Reset to clear the form. Note that you can modify inputs as needed and recalculate as desired without resetting the form.

## Using the Results:

1. The 'results' section matches the SNAP handout - fill in the appropriate areas of that form and give it to the athlete, along with the TRAIN@Home sports and nutrition booklets. If a printer is available, use the 'print' button to print the results.
2. Give the athlete a TRAIN@Home booklet, a nutrition placemat, and water bottle.
3. Explain that sports the athlete currently plays are listed first for reference.
4. Explain that skills the athlete currently excels at are listed second.
5. Skills the athlete should practice the most to improve in their chosen sports are listed third. Explain to the athlete that they can find more information about practicing these skills in the TRAIN@Home booklet and show them the relevant sections. Note that SNAPPER may recommend improvement in areas that the athlete already excels in. This simply indicates that a very high level in this skill will continue to improve success in this sport.
6. If SNAPPER does not recommend any skills for improvement, the athlete meets all requirements to succeed in their chosen sports, but improvement is of course still possible. Feel free to recommend areas of improvement - see Advanced Operation to view more information on the athlete's performance.
7. Recommendations for sports are listed last. Explain to the athlete that these are sports they might wish to try based on their physical strengths and weaknesses. Ask the athlete if they might be interested in trying any of these sports, and provide information about the sports as required.

## Advanced Operation:

A 90bpm metronome is available by pressing 90bpm Beat. Press the button again to stop the beat. If no sound is produced, it may be due to a misconfigured or missing browser plugin. In this case, the mp3 files can be found in the data / directory and played directly.

Each time Calculate is pressed, SNAPPER will store the skill data. To view this stored data, press View Data. Copy the data to another application to preserve it.

If time permits, additional information about an athlete can be obtained:

- If more sports recommendation results are desired, press the ' + ', '-', 'all', or ' 3 ' buttons next to 'sports to try'.
- The converted scores (on a 0-10 scale) are displayed in blue next to the input fields. These can be used to sanity-check input, or to gain more insight into the athlete's strengths and weaknesses (See Theory and Implementation section).

A number of features are also available from the Settings menu:

- The sound used for the metronome can be selected: Voice or Click.
- If 'Display quality of sports matches' is selected, a number will appear next to each of the recommended sports. This number indicates how good a match the sport is to the athlete. Lower is better - i.e. a quality of 0 indicate the athlete's skills are identical to those recommended for the sport. This information should be used to recommend more sports for the athlete if some are undesirable - for instance, if a recommendation for an individual sport is desired, but several team sports were recommended.
- If 'Use chart values (0-10) instead of raw values’ is selected, the input fields will accept converted assessment scores instead of raw assessment scores. This can be used to simplify entry in cases where the converted scores are already available, or for easily testing new sports mappings.
- Any sport checked in 'Exclude these sports from consideration' will be ignored, both for selecting sports the athlete is involved in and for recommendation purposes. This feature is intended to be used when a specific sport is not available in the area or organization.


## Calculating SNAP by hand:

The following skill abbreviations are used throughout:
Table 1: Skill abbreviations:

| Abbreviation | Skill |
| :---: | :---: |
| SA | Speed/Agility |
| UP | Upper-Body Power |
| LP | Lower-Body Power |
| US | Upper-Body Strength |
| LS | Lower-Body Power |
| HC | Hand-Eye Coordination |
| FC | Foot-Eye Coordination |
| B | Balance |
| F | Flexibility |
| AE | Aerobic Endurance |

## Procedure:

1. Calculate 'H' or 'L' scores (high or low) using Table 2.
2. Look up the complete HL score in Table 3. Record the five sport codes given - these are the recommended sports.
3. To find the sport name for each sport code, use Table 4.
4. (Optional) To narrow the results down further, calculate 0-10 'chart scores' using Table 5 (and also see Theory and Implementation later in this guide) and compare the chart scores for the athlete directly with the ideal scores for the recommended sports given in Table 4.

Table 2: Raw score to HL Score

| Station: | $\mathbf{1}$ | $\mathbf{2}$ | $\mathbf{3}$ | $\mathbf{5}$ | $\mathbf{6}$ | $\mathbf{8}$ | $\mathbf{9}$ | $\mathbf{1 0}$ | $\mathbf{1 2}$ | $\mathbf{1 3}$ |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |
| Skill: | SA | UP | LP | US | LS | HC | FC | B | F | AE |
| ${ }^{\prime} \mathrm{H}^{\prime}$ if: | $<13$ | $>2.2$ | $>18$ | $>5($ Reg $)$ or $>9$ (Knee) | $>28$ | $>9$ | $<25$ | $>7$ | $>18$ | $<170$ |

Table 3: HL Score to Recommendation

|  | UP |  |  |  |  |  | AE | Recommendation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \hline \mathrm{H} \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | H | $\begin{aligned} & \hline \mathrm{H} \\ & \hline \end{aligned}$ | $\begin{array}{ll} \mathrm{H} & \mathrm{H} \\ \mathrm{H} \end{array}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{aligned} & H \\ & \hline \end{aligned}$ | BB, RSH, TH, T, ALP |
| H | H | H | H | H H | H H | L | H | BB, F, RSS, RG, TH |
| H | H | H | H | H H | H H | L | L | RG, BB, J, AG, FS |
| H | H | H | H | H H | H L | H | H | BB, BD, V, RSH, RG |
| H | H |  | H | H H | H L | H | L | RG, BB, J, BD, V |
| H | H | H | H | H H | H | L | H | RG, BB, J, BD, V |
| H | H | H | H | H H | H | L | L | RG, J, BB, AG, FS |
| $\begin{array}{\|l} \hline \mathrm{H} \\ \mathrm{H} \end{array}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{array}{\|l\|l} \hline \mathrm{H} \\ \mathrm{H} \end{array}$ | $\begin{array}{l\|} \hline \mathrm{H} \\ \mathrm{H} \end{array}$ | $\begin{array}{ll} \mathrm{H} & \mathrm{H} \\ \mathrm{H} & \mathrm{H} \end{array}$ | $\begin{array}{lll} \mathrm{L} & \mathrm{H} \\ \mathrm{~L} & \mathrm{H} \end{array}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { RSH, BB, BD, F, N } \\ & \text { RSH. BB, FS. RSA. BD } \end{aligned}$ |
| H | H | H | H | H H | L H | L | H | F, RSH, BB, FS, RSA |
| H | H | H | H | H H | L H | L | L | FS, RSA, F, RSH, RG |
| H | H | H | H | H H | L L | H | H | BD, RSH, BB, V, CTT |
| H | H | H | H | H H | L L | H | L | BD, RSH, RG, BB, J |
| H | H | H | H | H H | L |  | H | BD, CTT, F, RSH, RG |
| H | H | H | H | H H | L L | L | L | RG, J, FS, RSA, BD |
| $\begin{array}{\|l\|} \hline \mathrm{H} \\ \mathrm{H} \end{array}$ | H | ${ }^{\text {H }}$ | $\begin{aligned} & \mathrm{H} \\ & \hline \end{aligned}$ | ${ }^{\text {H }}$ | H H | H | H | BB, $\mathrm{N}, \mathrm{RSH}, \mathrm{FH}, \mathrm{TH}$ |
| ${ }_{4}^{\mathrm{H}}$ | ${ }^{\text {H }}$ |  |  | ${ }_{\mathrm{H}}^{\mathrm{H}}$ |  |  |  | BB, N, RSH, FH, RG |
| H | H | H | H | H | H H | L | L | BB, F,N, RSH, |
|  | H | H | H | H | H | L | L | RG, BB, J, AG, FS |
| H | H | H | H | H | H L | H | H | BB, BD, V, C, N |
| H | H | H | H | H | H | H |  | RG, BL, BB, J, BD |
| H | H | H | H | H | H | L | H | RG, BB, J, BD, V |
| H | H | H | H | H | H | L | L | RG, J, S, BL, BB |
| H | H | H | H | H | L H | H | H | T, RSH, BB, BD, F |
| H | H | H | H | H L | H | H |  | N, RSH, BB, FS, RSA |
| H | H | H | H | H | L H | L | H | F, N, RSH, BB, FS |
| H | H | H | H | H | L H | L | L | FS, RSA, F, N, RSH |
| H | H | H | H | H | L L | H | H | BD, N, RSH, BB, V |
| H | H | H |  | H | L | H |  | BD, N, RSH, RG, BL |
| H | H | H | H | H | L L | L | H | BD, CTT, F, N, RSH |
| H | H | H | H | H | L L | L | L | RG, J, FS, RSA, BD |
| H | H | H | H | H | H | H | H | BB, F, RSH, AO, TH |
| H | H | H | H | H | H H | H |  | BB, AG, FS, RSA |
| H | H | H | H | L H | H H | L | H | F, BB, AG, FS, RSA |
| H | H | H | H | L H | H H | L | L | AG, FS, RSA, F, RG |
| H | H | H | H | H | H | H | H | BB, BD, V, CTT, CCS |
| H | H | H | H | L H | H L | H | L | CCS, RG, BB, J, AG |
|  | H | H | H | H | H | L |  | CTT, F, RG, BB, J |
| H | H | H | H | H | H | L | L | RG, J, AG, FS, RSA |
| H | H | ${ }^{\text {H }}$ | H | H | L H | H | H | RSH, BB, FS, RSA |
|  | H | H |  | H | H | H |  | , RSA, F, RSH, AJ |
| H | H | H | H | L H | L H | L | H | F, FS, RSA, CTT, RSS |
| H | H | H | H | L H | L H | L |  | FS, RSA, F, AFJ, AG |
| H | H | H | H | H | L | H | H | BD, CTT, F, RSH, BB |
| H | H | H | H | L H | L L | H | L | FS, RSA, BD, AD, CTT |
|  | H |  | H | H | L L | L |  | CTT, F, FS, RSA, BD |
| H | H | H | H | H | L | L | L | FS, RSA, AD, CTT, CRR |
| H | H | ${ }^{\text {H }}$ | H | L L | H | H | H | SB, F, N, RSH, AQ |
|  | H | H |  | L L | H H |  |  | BB, AG, FS, RSA, C |
| H | H | H | H | L L | H H | L | H | F, BB, AG, FS, RSA |
| H | H | H | H | L | H H | L | L | AG, FS, RSA, F, RG |
| H | H | H | H | L | H | H | H | BB, BD, V, C, CTT |
| H | H | H | H | L | H L | H | L | CCS, RG, BL, BB, J |
|  | H |  | H | L L | H | L |  | CTT, F, RG, BB, J |
| H | H | H | H | L L | H | L | L | RG, J, AG, FS, RSA |
| ${ }_{\mathrm{H}}$ | H | ${ }^{\text {H }}$ | H | L | ${ }^{1} \mathrm{H}$ | ${ }^{\text {H }}$ | H | N, RSA, BB, |
|  | H |  | H | L | H |  |  | S, RSA, F, N, RSH |
| H | H | H | H | L | L H | L | H | F, FS, RSA, CTT, RSS |
|  | H | H | H | L | L H |  |  | FS, RSA, F, AFJ, AG |
| H | H | H | H | L | L | H | H | BD, CTT, F, N, RSH |
| H | H | H | H | L | L L | H |  | FS, RSA, BD, AD, CTT |
|  | H | H | H | L L | L | L | H | CTT, F, FS, RSA, BD |
| H | H | H | H | L L | L L | L | L | FS, RSA, AD, CTT, CRR |
| H | H | H | L | H | H H | H | H | BB, TH, T, V, N |
|  | H |  |  | H H | H H | H |  | BB, TH, T, V, CCS |
| H | H | H | L | H H | H H | L | H | BB, TH, T, V, F |
| H | H | H |  | H H | H H | L | L | RG, BB, TH, T, J |
| H | H | H | L | H H | H | H | H | $\mathrm{V}, \mathrm{BB}, \mathrm{TH}, \mathrm{T}, \mathrm{BD}$ |
| H | H | H | L | H H | H L | H |  | $\mathrm{V}, \mathrm{CCS}, \mathrm{RG}, \mathrm{BL}, \mathrm{BB}$ |
|  | H | H | L | H H | H | L | H | V, RG, BB, TH, T |
| H | H | H | L | H | H | L | L | RG, J, V, CRR, CCS |
|  | H | H | L | H | H | H | H | N, RSH, BB, TH, T |
|  | H |  |  | H H | L H | H |  | N, RSH, BB, TH, T |
| H | H | H | L | H H | L H | L |  | F, N, RSH, BB, TH |
| H | H | H | L | H H | L H | L | L | FS, RSA, CRR, F, N |
| H | H | H | L | H H | L L | H |  | BD, V, N, RSH, BB |
| H | H | H | L | H H | L L | H |  | BD, V, CRR, CCS, N |
| H | H | H | L | H | L | L | H | BD, V, CTT, CRR, F |
| H | H | H | L | H | L L | L |  | CRR, RG, J, FS, RSA |
|  |  |  |  | H | H H |  | H |  |
|  | H | H | L | H | H H | H |  | $\mathrm{N}, \mathrm{FH}, \mathrm{BL}, \mathrm{AFT}, \mathrm{BB}$ |
| H | H | H | L | H L | H H | L | H | $\mathrm{N}, \mathrm{FH}, \mathrm{BB}$, TH, T |
| H | H | H | L | H | H H | L |  | N, FH, RG, BL, AFT |
| H | H | H | L | H | H L | H | H | $\mathrm{V}, \mathrm{C}, \mathrm{N}, \mathrm{FH}, \mathrm{BL}$ |
| H | H | H | L | H L | H L | H |  | BL, V, C, K, CCS |
| H | H | H | L | H | H | L | H | V, C, N, FH, RG |
| H | H | H | L | H | H L | L | L | RG, BL, J, V, C |
|  |  | ${ }^{\text {H }}$ |  | ${ }^{\text {H }}$ | H |  | H |  |
| H | H | H | L | H | H | H |  | N, G, RSH, FH, BL |
| H | H | H | L | H L | L H | L |  | $\mathrm{N}, \mathrm{F}, \mathrm{RSH}, \mathrm{FH}, \mathrm{BB}$ |
| H | H | H | L | H | L H | L | L | N, FS, RSA, CRR, G |
| H | H | H | L | H | L L | H |  | $\mathrm{N}, \mathrm{BD}, \mathrm{V}, \mathrm{C}, \mathrm{RSH}$ |
| H | H | H | L | H | L L | H |  | N, BL, BD, V, C |
| H | H | H | L | H | L | L |  | N, BD, V, C, CTT |
| H | H | H | L | H | L L | L | L | CRR, TT, N, RG, BL |
|  |  |  |  |  |  |  |  |  |
| H | H | H | L | L H | H H | H |  | CCS, AQ, P, BB, TH |
| H | H | H | L | L H | H H | L |  | F, AQ, BB, TH, T |
| H | H | H | L | L H | H H | L |  | AG, FS, RSA, CRR, CCS |
| H | H | H | L | L H | H L | H | H | $\mathrm{V}, \mathrm{CCS}, \mathrm{AQ}, \mathrm{BB}, \mathrm{TH}$ |
| H | H | H | L | L H | H L | H | L | CCS, V, CRR, AQ, RG |
| H | H | H |  | L H | H | L |  | V, CTT, CRR, CCS, F |
| H | H | H | L | L H | H L | L | L |  |
|  |  |  |  |  |  |  |  |  |
| H | H | H | L | L H | L H | H |  | FS, RSA, CRR, CCS, F |
| H | H | H | L | L H | L H | L |  | F, FS, RSA, CTT, CRR |
| H | H | H | L | L H | L H | L | L | FS, RSA, CRR, F, AFJ |
| H | H | H | L | L H | L | H | H | BD, V, CTT, CRR, CCS |
| H | H | H | L | L H | L | H |  | CRR, CCS, FS, RSA, BD |
| H | H | H | L | L H | , | L |  | CTT, CRR, F, FS, RSA |
| H | H | H | L | L H | L L | L | L | CRR, FS, RSA, AD, CTT |
|  |  |  |  |  |  |  |  | N, AQ, FH, BB, TH |
| H | H | H | L | L | H H | H |  | CCS, N, AQ, FH, BL |
| H | H | H | L | L | H | L |  | F, $\mathrm{N}, \mathrm{AQ}, \mathrm{FH}, \mathrm{BB}$ |
| H | H | H | L | L | H H | L | L | AG, FS, RSA, CRR, CCS |
| H | H | H | L | L | H | H |  | V, C, CCS, N, AQ |
| H | H | H | L | L L | H | H | L | CCS, BL, V, C, CRR |
| H <br> H |  |  |  |  |  |  |  | CRR, CCS, RG, ${ }^{\text {che }}$ |


|  | UP |  |  | FC B |  | E Recommendation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | ${ }^{\text {H }}$ | H L | L | L H | H ${ }^{\text {H }}$ | N, F, RSH, AQ, FH |
|  | H | H L | L | L H | H | N, FS, RSA, CRR, G |
| H | H | H L | L | L H | L H | F, N, FS, RSA, CTT |
| H | H | H L | L | L H | L L | FS, RSA, CRR, F, N |
| H | H | H L | L L | L L | H H | H $\mathrm{N}, \mathrm{BD}, \mathrm{V}, \mathrm{C}, \mathrm{CTT}$ |
| H | H | H L | L | L L | H L | CRR, CCS, N, BL, FS |
| H | H | H L | L L | L | L H | CTT, CRR, F, $\mathrm{N}, \mathrm{FS}$ |
| H | H | H L | L L | L | L L | CRR, FS, RSA, AD, CTT |
| H | H | L H | H H | H H | H H | BB, TH, T, RSH, AQ |
| H | H | L H | H H | H H | H L | BB, TH, T, RSH, AQ |
| H | H | L H | H H | H H | L H | H BB, TH, T, F, RSH |
| H | H | L H | H H | H H | L L | RG, BB, TH, T, J |
| H | H | L H | H H | H L | H H | BB, TH, T, BD, V |
| H | H | L H | H H | H L | H L | RG, BB, TH, T, J |
| H | H | L H | H H | H L | L H | RG, BB, TH, ${ }^{\text {, }}$, J |
| H | H | L H | H H | H | L L | RG, J, AD, BB, TH |
| H | H | L SH | H H | L H | H H | RSH, BB, TH, T, BD |
| H | H | L H |  | L H | H | RSH, BB, TH, T, FS |
| H | H | L H | H H | L H | L H | F, RSH, BB, TH, T |
| H | H | L H | H H | L H | L L | FS, RSA, AD, F, RSH |
| H | H | L H | H H | L L | H H | BD, RSH, BB, TH, T |
| H | H | L H | H H | L L | H L | BD, AD, RSH, RG, BB |
| H | H | H | H H | L L | L H | BD, AD, CTT, F, RSH |
| H | H | H | H H | L L | L L | AD, RG, J, FS, RSA |
| H | H | H | H | H H | H | FH, BB, TH, T, C |
| H | H | H | H | H H | H | H, AFT, BB, TH, T |
| H | H | L H | H L | H H | L H | FH, BB, TH, T, C |
| H | H | L H | H L | H H | L L | FH, RG, AFT, BB, TH |
| H | H | L H | H L | H L | H H | H C, FH, SB, BB, TH |
| H | H | L H | H L | H L | H L | $\mathrm{C}, \mathrm{K}, \mathrm{FH}, \mathrm{RG}, \mathrm{BL}$ |
| H | H | L H | H L | H | L H | C, FH, RG, SB, BB |
| H | H | L H | H L | H | L L | RG, J, C, AD, K |
| H | H | H | H | L H | H | N, $\mathrm{SSH}, \mathrm{FH}, \mathrm{BB}, \mathrm{TH}$ |
|  | H | H | H L | L H | H L | G, N, RSH, FH, AFT |
| H | H | L H | H L | L H | L H | F, N, RSH, FH, AS |
| H | H | L H | H L | L H | L L | FS, RSA, AD, G, TT |
| H | H | L H | H L | L | H H | BD, C, N, RSH, FH |
| H | H | L H | H L | L L | H L | BD, C, AD, G, K |
| H | H | L H | H L | L L | L H | BD, C, AD, CTT, TT |
| H | H | L H | H L | L L | L L | AD, TT, RG, J, FS |
| H |  |  |  | H H | H | AQ, BB, TH, T, F |
| H | H |  |  | H H | H L | AQ, P, BB, TH, T |
| H | H | L H | L H | H H | L H | F, AQ, BB, TH, T |
| H | H | L H | L H | H H | L L | AG, FS, RSA, AD, F |
| H | H | L H | L H | H L | H H | $A \mathrm{~A}, \mathrm{BB}, \mathrm{TH}, \mathrm{T}, \mathrm{BD}$ |
| H | H | L H | L H | H L | H L | AD, CCS, AQ, RG, P |
| H | H | L H | L H | H L | L H | AD, CTT, F, AQ, RG |
| H | H | L H | H | H L | L L | AD, RG, J, AG, FS |
| H | H | L H |  | L H |  | F, RSH, AO, BB, TH |
| H | H | L H | L H | L H | H L | FS, RSA, AD, F, RSH |
| H | H | L H | L H | L H | L H | F, FS, RSA, AD, CTT |
| H | H | L H | L H | L H |  | FS, RSA, AD, F, AFJ |
| H | H | L H | L H | L L | H H | BD, AD, CTT, F, RSH |
| H | H | L H | L H | L L | H L | AD, FS, RSA, BD, CTT |
| H | H | L H |  | , |  | AD, CTT, F, FS, RSA |
| H | H | L H | H | L L | L L | AD, FS, RSA, CTT, CRR |
|  | H | ${ }_{\text {L }} \mathrm{H}$ | L L | H H |  | AO, FH, BB, TH, T ${ }^{\text {a }}$ |
|  | H | L H |  | H H |  | AO, FH, P, AFT, BB |
| H | H | L H | L L | H H | L H | F, AQ, FH, AS, BB |
| H | H | L H | L L | H H | L L | AG, FS, RSA, AD, F |
| H | H | L H |  | H L |  | C C, AQ, FH, SB, BB |
| H | H | L H | L L | H L | H L | C, AD, K, CCS, AQ |
| H | H | L H | L L | H L | L H | C, AD, CTT, F, AQ |
| H | H | L H | L | H L | L L | AD, RG, J, AG, FS |
|  | H |  |  |  |  | F, N, RSH, AQ, FH |
|  | H | L H |  |  |  | FS, RSA, AD, G, F |
| H | H | L H | L L | L H | L H | F, AS, FS, RSA, AD |
| H | H | L H | L L | L H | L L | FS, RSA, AD, F, AFJ |
| H | H | L H |  | L L |  | BD, C, AD, CTT, F |
| H | H | L H | L L | L L | H L | AD, FS, RSA, BD, C |
| H | H | L H | L | L L | L H | AD, CTT, F, AS, FS |
| H | H | L H | L L | L L | L L | AD, FS, RSA, CTT, CRR |
|  | H |  |  | H H | H H | TH, T, AO, FH, BB |
|  | H | L L |  |  |  | TH, T, AQ, FH, P |
| H | H | L L | H H | H H | L H | HH, T, AQ, FH, BB |
| H | H | L L | H H | H H | L L | TH, T, AQ, FH, RG |
| H | H | L L |  | H L |  | H TH, T, V, C, AQ |
| H | H | L L | H H | H L | H L | TH, T, V, C, K |
| H | H | L L | H H | H L | L H | TH, T, V, C, AQ |
| H | H | L L | H H | H L | L L | RG, TH, T, J, V |
|  | H | L L |  |  |  | TH, T, N, , RSH, AQ |
|  |  |  |  |  |  |  |
| H | H |  |  |  |  | TH, T, F, N, RSH |
| H | H | L L | H H | L H | L L | TH, T, FS, RSA, AD |
| H | H | L L |  | L L | H H | H TH, T, BD, V, C |
| H | H | L L | H H | L L | H L | TH, T, BD, V, C |
| H | H | L L | H H | L L | L H | TH, T, BD, V, C |
| H | H | L L | H H | L L | L L | AD, CRR, TT, RG, TH |
|  |  |  | H | H H | ${ }^{\text {H }}$ | FH, TH, T, C, ${ }^{\text {N }}$ |
|  |  | L L |  | H H |  | FH, AFT, TH, T, C |
| H | H | L L | H L | H H | L H | FH, TH, T, C, N |
| H | H | L L | H L | H H | L L | FH, AFT, TH, T, C |
| H | H | L L | H L | H L | H H | C, FH, SB, TH, T |
| H | H | L | H | H L | H L | C, K, FH, BL, SB |
| H | H | L L | H L | H L | L H | C, FH, SB, TH, T |
| H | H | L L | H L | H | L L | C, K, TT, FH, RG |
|  | H | L L | H ${ }_{\text {H }}^{\text {H }}$ | L L H | ${ }_{\text {H }}^{\mathrm{H}} \mathrm{H}$ |  |
| H | H | L | H | L H | L | G, FH, TH, T, C |
| H | H | L L | H L | L H | L L | $\mathrm{G}, \mathrm{TT}, \mathrm{N}, \mathrm{FH}, \mathrm{AFT}$ |
| H | H | L L | H L | L L | H H | $\mathrm{C}, \mathrm{N}, \mathrm{FH}, \mathrm{SB}, \mathrm{TH}$ |
| H | H | L L | H | L L | H L | $\mathrm{C}, \mathrm{G}, \mathrm{K}, \mathrm{TT}, \mathrm{B}$ |
| H | H | L L | H L | L L | L H | C, TT, N, FH, SB |
| H | H | L L | H L | L L | L L | $\pi T, C, A D, C R R, G$ |
|  | H |  |  |  |  |  |
|  | H | L L | H | H H | H L | AQ, P, TH, T, CCS |
| H | H | L L | L H | H H | L H | AQ, TH, T, F, FH |
| H | H | L L | L H | H H | L L | AQ, P, TH, T, AG |
| H | H | L L | $L$ H | H | H H | AQ, TH, T, V, C |
| H | H | L L | L H | H L | H L | CCS, AQ, P, TH, T |
| H | H | L L | H | H | L H | AQ, TH, T, V, C |
| H | H | L L | H | H L | L L | AD, CRR, CCS, AQ, RG |
|  |  |  | L H |  |  | AO, TH, T, E, N |
| H | H | L L | L H | L H | H L | AQ, P, TH, T, FS |
| H | H | L L | H | L H | L H | F, AQ, TH, T, FS |
| H | H | L | H | L H | L L | FS, RSA, AD, CRR, F |
| H | H | L L | H | L L | H H | AQ, TH, T, BD, V |
| H | H | L L | H | L L | H L | AD, CRR, CCS, $A Q, P$ |
| H | H | L L | L H | L | L H | H AD, CTT, CRR, F, AQ |
| H | H | L | H | L L |  | AD, CRR, FS, RSA, CTT |


|  |  |  |  |  |  |  |  | E Recommendation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }_{\text {H }}$ | H | L | L | L L | ${ }^{\text {H }}$ | ${ }^{\text {H }}$ | H | , AQ, FH, TH, T, C ${ }^{\text {c }}$ |
| H | H | L | L | L | H H | H |  | AQ, FH, P, AFT, TH |
| H | H | L | L | L | H H | L | - | AQ, FH, TH, T |
| H | H | L | L | L L | H H |  | L | AQ, FH, P, AFT, TH |
| H | H | L | L | L L | H | H | H H | H C, AQ, FH, SB, TH |
| H | H | L | L | L | H | H | H L | C, K, CCS, AQ, FH |
| H | H | L | L | L | H | L | L H | H C, AQ, FH, SB, TH |
| H | H | L | L | L | H L | L | L L | C, AD, CRR, K, TT |
| H | H | L |  | L | L H | H | ${ }^{H}$ | H $\mathrm{N}, \mathrm{AQ}, \mathrm{FH}, \mathrm{TH}, \mathrm{T}$ |
| H | H | L | L | L L | L H | H | H L | G, N, AQ, FH, P |
| H | H | L | L | L | L H | L | L H | F, N, AQ, FH, AS |
| H | H | L | L | L | L H | , | L | FS, RSA, AD, CRR, G |
| H | H | L | L | L | L | H | H H | C, $\mathrm{N}, \mathrm{AQ}, \mathrm{FH}, \mathrm{SB}$ |
| H | H | L |  | L | L | H | H | C, AD, CRR, G, K |
| H | H | L | L | L | L | L | L | C, AD, CTT, CRR, TT |
| H | H | L | L | L | L L |  |  | AD, CRR, TT, FS, RSA |
| $\begin{array}{\|l\|} \hline \mathrm{H} \\ \mathrm{H} \end{array}$ | $\begin{aligned} & \mathrm{L} \\ & \mathrm{~L} \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{array}{ll} \mathrm{H} & \mathrm{H} \\ \mathrm{H} & \mathrm{H} \end{array}$ | $\begin{array}{ll} \mathrm{H} & \mathrm{H} \\ \mathrm{H} & \mathrm{H} \end{array}$ | $\begin{aligned} & \hline \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{array}{cc} H & H \\ H & L \end{array}$ | BB, ALP, RSH, TH, T <br> BB, ALP, CCS, RSH, RG |
| H | L | H | H | H H | H H | L | L | A BB, ALP, SBD, F, RS' |
| H | L | H | H | H H | H H | L | L | RG, BB, J, ALP, AG |
| H | L | H | H | H H | H L | H | H H | BB, ALP, BD, V, CCS |
| H | L | H | H | H H | H | H | H | CCS, RG, BB, J, ALP |
| H | L | H | H | H H | H |  | L H | R RG, BB, J, ALP, BD |
| H | L | H | H | H H | H L |  |  | RG, J, S, CCS, E |
| H | L | H | H | H H | L H | H | H | RSH, BB, ALP, BD, |
| H | L | H | H | H H | L H |  |  | RSH, BB, ALP, FS, RSA |
| H | L | H | H | H H | L H | L | L | F, RSH, BB, ALP, FS |
| H | L | H | H | H H | L H | L | , | FS, RSA, F, RSH, RG |
| H | L | H | H | H H | L L | H | H H | H BD, RSH, BB, ALP, V |
| H | L | H | H | H H | L L | H | H | BD, CCS, RSH, RG, BB |
| H |  | H | H | H H |  |  |  | BD, CTT, F, RS'H, RG |
| H | L | H | H | H H | L L |  | L L | RG, J, FS, RSA, BD |
| H | L | H | H | ${ }_{\text {H }}^{\mathrm{H}}$ | $\begin{array}{ll} \mathrm{H} \\ \mathrm{H} & \mathrm{H} \\ \mathrm{H} \end{array}$ | ${ }_{\text {H }}$ | H | BB, ALP, N, RSH, FH |
| H | L | H | H | ${ }_{\mathrm{H}}$ | H H | L | H |  |
| H | L | H | H | H L | H H | L | L | S, RG, BB, J, ALP |
| H | L | H | H | H | H | H | H | $B B, A L P, B D, V, C$ |
| H | L | H | H | H L | H L | H | H L | K, S, CCS, RG, BL |
|  | L | H | H | H | H L | L | L | S, RG, BB, J, ALP |
| H | L | H | H | H | H L | L | L L | S, RG, J, K, CCS |
| H | L | H | H | H | L H | , |  | N, RSSH, BB, ALP, BD |
|  | L |  |  | H | L H |  |  |  |
| H | L | H | H | H L | L H | L | - | H F, N, RSH, AS, BB |
| H | L | H | H | H | L H |  |  | FS, RSA, S, F, |
| H | L | H | H | H L | L L | H | H H | BD, N, RSH, BB, ALP |
| H | L | H | H | H L | L L | H | H L | BD, K, S, B, CCS |
| H | L | H | H | H | L L |  |  | BD, CTT, S, F, N |
| H | L | H | H | H | L L | L | L L | S, RG, J, FS, RSA |
| H |  | H | H | L H | $\begin{array}{ll} \hline \mathrm{H} \\ \mathrm{H} & \mathrm{H} \\ \mathrm{H} \end{array}$ | ${ }_{\mathrm{H}}^{\mathrm{H}}$ | ${ }^{\text {H }}$ | ( ${ }^{\text {BB, ALP, SBD, }}$ CCSS, F |
|  | L |  | H |  |  | ${ }_{4}$ |  | CCS, $\mathrm{BB}, \mathrm{ALP}$, AG, AS |
| H | L | ${ }_{\mathrm{H}}^{\mathrm{H}}$ | H | L L H | H H H H | L | L ${ }_{\text {L }}$ |  |
| H | L | H | H | L H | H L | H | H H | CCS, BB, ALP, BD, V |
| H | L | H | H | L H | H L | H | H L | CCS, RG, E, BB, J |
| H |  | H | H | L H | H L |  |  | H SBD, CTT, CCS, F, RG |
| H | L | H | H | L H | H L |  |  | CCS, RG, E, J, AG |
| H | L | H | H | ${ }^{\text {L }} \mathrm{H}$ |  | H |  | E, RSH, BB, ALP, FS |
| H |  | H | H | L H |  |  |  | FS, RSA, CCS, F, RSH |
| H | L | H | H | L H | L H | L | L H | F, FS, RSA, SBD, CTT |
| H | L | H | H | L H | L H | L | L | FS, RSA, F, AFJ, AG |
| H | L | H | H | L H |  |  |  | H BD, CTT, CCS, F, RSH |
| H | L | H | H | L H | L L | H | H L | CCS, FS, RSA, BD, AD |
| H | , |  | H | L H | L L | L | L | CTT, F, FS, RSA, BD |
| H | L | H | H | L H | L L |  |  | FS, RSA, AD, CTT, CRR |
| ${ }^{\text {H }}$ | L | H | H | L L | H ${ }^{\text {H }}$ |  | ${ }^{\text {H }}$ | H BB, ALP, SBD, CCS, F |
| H | L | H | H | L L |  |  |  | CCS, BB, ALP, AG, FS |
| H | L | H | H | L L | H H |  |  | SBD, F, AS, BB, ALP |
| H | 1 | H | H | L L | H H | L | L | AG, FS, RSA, SBD, S |
| H |  | H | H | L | H L |  |  | CCS, BB, ALP, BD, V |
| H | L | H | H | L | H L | H | H L | CCS, K, S, RG, BL |
| H |  | H | H | L | H L | L | L H | SBD, CTT, S, CCS, F |
| H | L | H | H | L L | H L |  |  | S, CCS, RG, E, J |
| $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $1$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ |  | $\begin{array}{ll} \mathrm{L} & \mathrm{H} \\ \mathrm{H} \end{array}$ |  |  | F, N, RSH, AS, BB |
| H | L | H | H | L L |  |  | L | F, AS, FS, RSA, ${ }^{\text {a }}$ S ${ }^{\text {a }}$ |
| H | L | H | H | L L | L H | L | L L | FS, RSA, F, AFJ, AS |
| H | L | H | H | L L | L L |  |  | BD, CTT, CCS, F, N |
| H | L | H | H | L L |  |  | H L | CCS, FS, RSA, BD, AD |
| H | L | H | H | L L | L L | L | L H | CTT, F, AS, FS, RSA |
| H | L | H | H | L L | L L |  | L L | FS, RSA, AD, CTT, CRR |
|  | L | H |  |  |  | H |  | S ${ }^{\text {BB, TH, T, } \text {, ALP, V }}$ |
|  |  |  | L |  |  |  | H |  |
| H | L | H |  | H H | H H | L | L L | CSS, RG, E, , PB, TH |
| H | L | H | L | H H | H L | H | H H | H V, CCS, BB, TH, T |
| H | L | H |  | H H | H L |  | H L | CCS, V, K, RG, BL |
| H | L | H | L | H H | H L | L | L | H V, CCS, RG, E, bB |
| H | L | H | L | H H | H L |  | L L | CCS, RG, E, J, V |
|  |  |  |  |  |  |  |  | N, RSH, BB, TH, T |
| H | L | H | L | H H | L H | H | H L | CCS, $\mathrm{N}, \mathrm{RSH}, \mathrm{BB}, \mathrm{TH}$ |
| H | L | H | L | H H | L H |  | - ${ }^{\text {H }}$ | F F, N, RSSH, BB, TH |
| H | L | H |  | H H | L H | L | L L | FS, RSA, CRR, CCS, F |
| H | L | H |  | H H | L L |  | H H | BD, V, CCS, N, RSH |
| H | L | H | L | H H | L L |  |  | CCS, BD, V, CRR, K |
| H | L | H | L | H H | L L | L | L H | H BD, V, CTT, CRR, CCS |
| H | L | H |  | H H | L L |  | L L | CRR, CCS, RG, E, J |
| H | L | H | 1 | H ${ }_{\text {H }} \mathrm{L}$ | H ${ }_{\text {H }}^{\text {H }}$ |  | H ${ }^{\text {H }}$ | ( $\begin{aligned} & \mathrm{N}, \mathrm{FH}, \mathrm{BB}, \mathrm{TH}, \mathrm{T} \\ & \mathrm{K}, \mathrm{CCS}, \mathrm{N}, \mathrm{FH}, \mathrm{BL}\end{aligned}$ |
| H | L | H | L | H | H H | L | H | H $\mathrm{N}, \mathrm{FH}$, BB , TH, T |
| H | L | H | L | H L | H H |  | L L | $\mathrm{K}, \mathrm{S}, \mathrm{CCS}, \mathrm{N}, \mathrm{FH}$ |
| H | L | H | L | H | H L | H | H H | V, C, K, CCS, N |
| H | L | H | L | H L | H L | H | H L | K, cCs, bl, v, c |
| H |  | H | L | H | H L |  | L H | H V, C, K, S, CCS |
| H | , | H | L | H | H L |  |  | K, S, CCS, RG, BL |
| H H | L | H | L | ${ }_{\text {H }} \mathrm{H}$ | L |  |  | N, RSH, FH, BB, TH N, G, K, B, CCS |
| H | L | H | L | H | L H | L | L | H, $\mathrm{N}, \mathrm{F}, \mathrm{SSH}, \mathrm{FH}, \mathrm{AS}$ |
| H | L | H | L | H L | L H |  | L | N, FS, RSA, CRR, G |
| H |  | H | L | H | L |  | H H | H N, BD, V, C, K |
| H | L | H | L | H | L L |  | H L | K, B, CCS, N, BL |
| H | L | H | L | H | L L |  |  | H $\mathrm{N}, \mathrm{BD}, \mathrm{V}, \mathrm{C}, \mathrm{CTT}$ |
| H | L | H | L | H L | L L |  | L L | CRR, K, TT, S, B |
|  |  |  |  |  |  |  |  | $\begin{array}{l\|l} \hline \text { CCS, AQ, BB, TH, T } \\ \text { CCS, AQ, P, E, BB } \end{array}$ |
| H | L | H | L | L H | H H | L | $\mathrm{L}$ | H SBD, CCS,, , AQ, E |
| H |  | H | L | L H | H H | L | L L | CCS, E, AG, FS, RSA |
| H | L | H | L | L H | H L | H | H H | H CCS, V, $\mathrm{AQ}, \mathrm{E}, \mathrm{BB}$ |
| H | L | H | L | - | H | H | H L | CCS, E, V, CRR, K |
| H <br> H |  |  |  |  |  |  |  |  |


|  | UP | LP US | LS HC | FC B | F AE | Recommendation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ${ }_{H}^{+}$ | L | H ${ }^{\text {L }}$ | ${ }^{\text {H }}$ | L H | ${ }_{\text {H }}$ | CCCS, F, ${ }^{\text {, }}$, RSSH, AQ |
| H | L | H L | H | L H | H L | CCS, FS, RSA, CRR, F |
| H | L | H L | H | H | H | F, FS, RSA, SBD, CTT |
| H | L | H L | H | L H | L | FS, RSA, CRR, CCS, F |
| H | L | H L | H | L L | H H | CCS, BD, V, CTT, CRR |
| H | L | H L | H | L L | H L | CCS, CRR, E, FS, RSA |
| H | L | H L | H | L L | L H | CTT, CRR, CCS, F, E |
| H | L | H | H | L L | L L | CRR, CCS, E, FS, RSA |
| ${ }^{\text {H }}$ | L | ${ }^{\text {H }}$ |  | H ${ }^{\text {H }}$ | H ${ }^{\text {H }}$ | CCS, $\mathrm{N}, \mathrm{AQ}, \mathrm{FH}, \mathrm{BB}$ |
| $\mathrm{H}$ | L | H | L | H H | H | CCS, K, N, AQ, FH |
| H | L | H L | L L | H H | L H | SBD, CCS, F, N, AQ |
| H | L | H L | L | H H | L L | CCS, E, AG, FS, RSA |
| H | L | H L | L | H L | H H | CCS, , V, C, K, N |
| H | L | H | L | H | H L | CCS, K, BL, E, V |
| H | L | H | L | H L | L H | CCS, E, V, SBD, C |
| H | L | H | L L | H | L L | CCS, E, CRR, K, S |
| $\begin{array}{\|l\|} \hline \mathrm{H} \\ \mathrm{H} \end{array}$ | $\begin{aligned} & \mathrm{L} \end{aligned}$ | $\begin{array}{ll} \hline \mathrm{H} & \mathrm{~L} \\ \mathrm{H} \end{array}$ | L | $\begin{array}{lll} \mathrm{L} & \mathrm{H} \\ \mathrm{~L} & \mathrm{H} \end{array}$ | $\begin{array}{ll} \hline \mathrm{H} \\ \mathrm{H} & \mathrm{H} \end{array}$ | $\mathrm{N}, \mathrm{CCS}, \mathrm{~F}, \mathrm{RSH}, \mathrm{AQ}$ |
| H | L | H | L | L H | L H | F, N, AS, FS, RSA |
| H | L | H L | L L | L H | L L | SS, RSA, CRR, CCS, F |
| H | L | H L | L | L L | H H | CCS, N, BD, V, C |
| H | L | H L | L L | L | H L | CCS, CRR, K, B, N |
| H | L | H | L L | L L | L H | CTT, CRR, CCS |
| H | L | H L | L L | L L | L L | CRR, CCS, E, FS, RSA |
| $\begin{array}{\|l\|} \hline \mathrm{H} \\ \hline \end{array}$ | L | L | H H | H ${ }^{\text {H }}$ | H ${ }^{\text {H }}$ | BB, TH, T, ALP, RSH |
| H | L | L H | H H | H H | L H | BB, TH, T, ALP, SBD |
| H | L | L H | H H | H H | L L | RG, BB, TH, T, J |
| H | L | H | H H | H | H H | BB, TH, T, ALP, BD |
| H | L | L H | H H | H | H L | K, CCS, RG, BB, TH |
| H | L | H | H | H | L H | RG, BB, TH, T, J |
| H | L | H | H | H L | L | RG, J, AD, K, S |
| H | L | L H | H | L H | H | RSH, BB, LH |
|  |  |  |  |  |  | RSH, BB, TH, T, A |
| H | L | L H | H H | L H | L | SE, F, RSH, AS, BB |
| H | L | L H | H |  |  | FS, RSA, AD, SE, F |
| H | L | H | H H | L L | H | BD, RSH, BB, TH, T |
| H | L | L H | H H | L L | H L | BD, AD, K, B, CCS |
| H |  | L | H H | L L | L H | BD, AD, CTT, SE, F |
| H | L | H | H H | L L | L | AD, RG, J, FS, RSA |
| ${ }^{\text {H }}$ | L | H | ${ }^{\text {H L }}$ | H | H ${ }^{\text {H }}$ | EH, BB, TH, T, ALP |
| H |  |  |  |  |  | FH, AFT, BB, TH |
| H | L | H | H L | H H | H | H, AS, BB, TH, T |
| H | L | L H | H L | H H | L L | K, S, FH, RG, AFT |
| H | L | H | H | H | H | C, K, FH, SB, BB |
| H | L | H | H | H | H | K, C, S, B, CCS |
| H | L | L H | H L | H | L H | $\mathrm{C}, \mathrm{K}, \mathrm{S}, \mathrm{FH}, \mathrm{RG}$ |
| H | L | L H | H | H | L L | K, S, RG, J, C |
| H | L | H | H | L ${ }^{\text {L }}$ | ${ }^{\text {H }}$ | N, RSH, FH, AS, BB |
| H |  |  | H |  |  | G, K, B, N, RSH |
|  | L | H | H | H | L H | AS, SE, F, N, RSH |
| H | L | L H | H L | L H | L L | AS, FS, RSA, AD, G |
| H |  | H | H L | L L | H | BD, C, K, B, N |
|  | L | H | H | L L | H L | K, B, BD, C, AD |
| H | L | L H | H L | L L | L H | AS, BD, C, AD, CTT |
| H | L | L H | H |  |  | AD, K, TT, S, B |
| H | L |  | L H | ${ }^{\mathrm{H}} \mathrm{H}$ | ${ }^{\text {H }}$ | AO, BB, TH, T, ALP |
|  | L | L H | L H | H H |  | CCS, AQ, P, BB, TH |
| H |  | H | H | H H | L H | SbD, SE, F, AQ, AS |
| H | L | H | H | H H | L L | AG, FS, RSA, SBD, AD |
| H | , | L H | L H | H L | H H | CCS, $A Q, B B, T H, T$ |
|  | L | H | H | H | H L | CCS, AD, K, AQ, RG |
| H | L | H | H | H | H | SBD, AD, CTT, SE, CCS |
| H | L | H | H | H |  | AD, CCS, RG, E, J |
| H | L | ${ }_{\text {H }}$ | ${ }_{\mathrm{H}}^{\mathrm{H}}$ | H | H | SE, F, RSH, AO, AS |
|  |  |  |  |  |  | FS, RSA, AD, SE, CC |
| H | L | H | H | L | L H | E, F, AS, FS, RSA |
| H | L | H | H | L | L | FS, RSA, AD, SE, F |
| H | L | L H | L H | L L | H H | BD, AD, CTT, SE, CCS |
| H | L | L H | H | L L |  | AD, CCS, FS, RSA, BD |
|  | L | H | H | L | H | AD, CTT, SE, F, AS |
| H | L | H | H | L L | L | AD, FS, RSA, CTT, CRR |
| H | L | H | L L | H | H | $\mathrm{O}, \mathrm{FH}, \mathrm{AS}, \mathrm{BB}, \mathrm{TH}$ |
|  | L | H | L L | H |  | CCS, AQ, FH |
| H | L | L H | L L | H H | L H | AS, SBD, SE, F, AQ |
| H | L | L H | L L | H H | L L | AS, AG, FS, RSA, SBD |
|  | L | H | L | H L | H | C, K, CCS, AQ, FH |
| H | L | L H | L | H L |  | K, CCS, C, AD, S |
| H | L | L H | L L | H | L H | AS, SBD, C, AD, CTT |
|  | L | H | L L | H | L | AD, K, S, CCS, RG |
|  |  |  |  |  |  |  |
|  | L | L H | L | L H | H L | AS, FS, RSA, AD, G |
| H | L | L H | L L | L H | L H | AS, SE, F, FS, RSA |
| H | L | L H | L L | L H | L L | AS, FS, RSA, AD, SE |
|  | L | H | L | L L | H H | AS, BD, C, AD, CTT |
| H | L | L H | L | L L | H L | AD, K, B, CCS, AS |
| H | L |  | L L |  |  | AS, AD, CTT, SE, F |
| H | L | L H | L L | L L | L L | AD, AS, FS, RSA, CTT |
|  |  |  |  |  |  | TH, T, AQ, FH, BB |
| H | L | L L | H H | H H | H L | TH, T, K, CCS, AQ |
| H | L | L L | H H | H H | L H | TH, T, AQ, FH, BB |
| H | L | L L | H H | H H | L L | TH, T, K, CCS, AQ |
| H | L | L L | H H | H L | H H | TH, T, V, C, K |
| H | L | L L | H H | H | H | K, CCS, TH, T, V |
| H | L | L L | H H | H L | L H | TH, T, V, C, K |
| H | L | L L | H H | H L | L L | K, CCS, RG, E, TH |
|  | L |  |  |  | H | TH, T, N, RSH, AQ |
|  |  |  |  |  |  | TH, T, G, K, B |
| H | L | L L | H H | L H | L H | TH, T, SE, F, N |
| H | L | L L | H H | L H | L L | TH, T, FS, RSA, AD |
| H | L | L L | H H | L L |  | TH, T, BD, V, C |
| H | L | L L | H H |  | H L | K, B, CCS, TH, T |
| H | L | L L | H | L L | H | TH, T, BD, V, C |
| H | L | L L | H H | L L | L L | AD, CRR, $K$, TT, B |
|  | L | L L |  |  | H H | ${ }^{\text {FH, TH, T, }}$, C, K |
|  |  |  |  |  |  |  |
| H | L | L L | ${ }_{\text {H }} \mathrm{H}$ | H ${ }^{\mathrm{H}} \mathrm{H}$ | L | FH, TH, T, C, K ${ }^{\text {K, }}$ |
| H | L | L L |  | H | H | $\mathrm{C}, \mathrm{K}, \mathrm{FH}, \mathrm{SB}$, TH |
| H | L | L L | H | H | H L | K, C, B, CCS, FH |
| H | L | L L | H L | H L | H | C, K, FH, SB, TH |
| H | L | L L | H L | H L | L | K, C, TT, S, B |
|  | L | L | , | H | H H | $\mathrm{N}, \mathrm{FH}, \mathrm{TH}, \mathrm{T}, \mathrm{C}$ |
|  | L | L | H L | H | H L |  |
| H | L | L L | H | L H | L H | $\mathrm{N}, \mathrm{FH}, \mathrm{AS}$, TH, T |
| H | L | L | H | L H | L L | G, K, TT, B, N |
|  | L | L | H L | L L | H | C, K, B, N, FH |
| H | L | L L | H L | L L | H | K, B, C, G, TT |
|  | L | L | H | L | L H | C, K, TT, B, N |
| H | L |  | H L |  |  | K, TT, B, C, AD |





| SA | UP | LP | US | LS | HC | FC | B | F | AE | Recommendation |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| L | L | T | L | H | H | H | H | H | H | T, ALP, AQ, FH, SB |
| L | L | L | L | H | H | H | H | H | L | P, AFT, T, ALP, G |
| L | L | L | L | H | H | H | H | L | H | T, ALP, SBD, SE, AQ |
| L | L | L | L | H | H | H | H | L | L | P, AFT, E, T, ALP |
| L | L | L | L | H | H | H | L | H | H | SB, T, ALP, V, C |
| L | L | L | L | H | H | H | L | H | L | K, B, BL, SB, P |
| L | L | L | L | H | H | H | L | L | H | SB, E, T, ALP, V |
| L | L | L | L | H | H | H | L | L | L | E, K, TT, S, B |
| L | L | L | L | H | H | L | H | H | H | T, ALP, G, SE, B |
| L | L | L | L | H | H | L | H | H | L | G, B, P, AFT, T |
| L | L | L | L | H | H | L | H | L | H | SE, AS, T, ALP, SBD |
| L | L | L | L | H | H | L | H | L | L | G, SE, TT, B, P |
| L | L | L | L | H | H | L | L | H | H | B, SB, T, ALP, BD |
| L | L | L | L | H | H | L | L | H | L | B, G, K, TT, BL |
| L | L | L | L | H | H | L | L | L | H | SE, TT, B, SB, AS |
| L | L | L | L | H | H | L | L | L | L | TT, B, E, AD, CRR |
| L | L | L | L | H | L | H | H | H | H | FH, SB, AFT, T, ALP |
| L | L | L | L | H | L | H | H | H | L | AFT, G, K, B, FH |
| L | L | L | L | H | L | H | H | L | H | FH, SB, AFT, AS, T |
| L | L | L | L | H | L | H | H | L | L | AFT, G, K, TT, S |
| L | L | L | L | H | L | H | L | H | H | SB, C, K, B, FH |
| L | L | L | L | H | L | H | L | H | L | K, B, BL, SB, AFT |
| L | L | L | L | H | L | H | L | L | H | SB, C, K, TT, S |
| L | L | L | L | H | L | H | L | L | L | K, TT, S, B, BL |
| L | L | L | L | H | L | L | H | H | H | G, B, N, FH, SB |
| L | L | L | L | H | L | L | H | H | L | G, B, AFT, K, TT |
| L | L | L | L | H | L | L | H | L | H | AS, G, SE, TT, B |
| L | L | L | L | H | L | L | H | L | L | G, TT, B, AFT, AS |
| L | L | L | L | H | L | L | L | H | H | B, SB, C, G, K |
| L | L | L | L | H | L | L | L | H | L | B, G, K, TT, BL |
| L | L | , | L | H | L | L | L | L | H | TT, B, SB, AS, C |
| L | L | L | L | H | L | L | L | L | L | TT, B, G, K, S |
| L | L | L | L | L | H | H | H | H | H | AQ, P, T, ALP, SBD |
| L | L | L | L | L | H | H | H | H | L | P, AQ, AFT, E, T |
| L | L | L | L | L | H | H | H | L | H | SBD, SE, AQ, P, AS |
| L | L | L | L | L | H | H | H | L | L | P, E, AG, SBD, SE |
| L | L | L | L | L | H | H | L | H | H | AQ, SB, P, E, T |
| L | L | L | L | L | H | H | L | H | L | P, E, K, B, AQ |
| , | L | L | L | L | H | H | L | L | H | E, SBD, SE, AQ, SB |
| L | L | L | L | L | H | H | L | L | L | E, P, AG, SBD, AD |
| L | L | L | L | L | H |  | H | H | H | SE, AQ, P, AS, T |
| L | L | L | L | L | H | L | H | H |  | P, G, SE, B, AQ |
| L | L | L | L | L | H | L | H | L | H | SE, AS, SBD, RSS, SS |
| L | L | L | L | L | H | L | H | L | L | SE, P, AFJ, AS, E |
| L | L | L | L | L | H | L | L | H | H | SE, B, AQ, SB, P |
| L | L | L | L | L | H | L | L | H | L | B, P, E, AD, CRR |
| L | L | L | L | L | H | L | L | L | H | SE, AS, E, SBD, AD |
| L | L | L | L | L | H | L | L | L | L | E, AD, CRR, SE, TT |
| L | L | L | L | L | L | H | H | H | H | AQ, FH, SB, P, AFT |
| L | L | L | L | L | L | H | H | H | L | P, AFT, G, K, B |
| L | L | L | L | L | L | H | H | L | H | AS, SBD, SE, AQ, FH |
| L | L | L | L | L | L | H | H | L | L | P, AFT, AS, E, AG |
| L | L | L | L | L | L | H | L | H | H | SB, C, K, B, AQ |
| L | L | L | L | L | L | H | L | H | L | K, B, BL, SB, P |
| I | L | L | L | L | L | H | L | L | H | SB, AS, E, SBD, C |
| L | L | L | L | L | L | H | L | L | L | E, K, TT, S, B |
| L | L | L | L | L | L | L | H | H | H | AS, G, SE, B, N |
| L | L | L | L | L | , | L | H | H | L | G, B, P, AFT, AS |
| L | L | L | L | L | L | L | H | L | H | AS, SE, SBD, RSS, SS |
| L | L | L | L | L | L | L | H | L | L | AS, G, SE, TT, B |
| L | L | L | L | L | L | L | L | H | H | B, SB, AS, C, G |
| L | L | L | L | L | L | L | L | H | L | B, G, K, TT, BL |
| L | L | L | L | L | L | L | L | L | H | AS, SE, TT, B, SB |
| L | L | L | L | L | L | L | L | L | L | TT, B, AS, E, AD |

Table 4: Ideal Sports Scores

| Sport Name | Abbreviation | SA | UP | LP | US | LS | HC | FC | B | F | AE |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Athletics - Distance | AD | 2 | 0 | 3 | 0 | 8 | 0 | 7 | 3 | 3 | 10 |
| Athletics - Field (Jumping) | AFJ | 1 | 1 | 10 | 1 | 5 | 0 | 5 | 5 | 5 | 0 |
| Athletics - Field (Throwing) | AFT | 0 | 10 | 4 | 7 | 1 | 4 | 1 | 2 | 4 | 0 |
| Artistic Gymnastics | AG | 4 | 2 | 4 | 8 | 4 | 3 | 5 | 8 | 8 | 0 |
| Aquatics | AQ | 9 | 7 | 7 | 6 | 6 | 2 | 2 | 0 | 5 | 4 |
| Alpine Skiing | ALP | 9 | 7 | 5 | 4 | 5 | 4 | 5 | 8 | 1 | 0 |
| Athletics - Sprints | AS | 10 | 0 | 6 | 0 | 2 | 0 | 5 | 3 | 2 | 0 |
| Bocce | B | 0 | 5 | 0 | 1 | 0 | 8 | 0 | 1 | 0 | 0 |
| Basketball | BB | 10 | 5 | 7 | 4 | 3 | 9 | 5 | 4 | 3 | 8 |
| Badminton | BD | 6 | 5 | 3 | 2 | 3 | 9 | 6 | 4 | 4 | 2 |
| Bowling | BL | 0 | 9 | 2 | 5 | 1 | 8 | 4 | 4 | 5 | 0 |
| Cricket | C | 6 | 7 | 2 | 4 | 1 | 9 | 2 | 1 | 3 | 3 |
| Cross Country Skiing | CCS | 4 | 6 | 3 | 9 | 6 | 3 | 4 | 8 | 2 | 10 |
| Cycling - Road Racing | CRR | 3 | 0 | 3 | 0 | 5 | 0 | 4 | 6 | 3 | 10 |
| Cycling - Time Trials | CTT | 9 | 0 | 3 | 0 | 5 | 2 | 5 | 7 | 3 | 1 |
| Equestrian | E | 0 | 0 | 0 | 4 | 7 | 3 | 2 | 9 | 2 | 0 |
| Football | F | 10 | 1 | 8 | 1 | 5 | 1 | 10 | 4 | 4 | 9 |
| Floor Hockey | FH | 9 | 7 | 4 | 4 | 2 | 9 | 2 | 2 | 4 | 3 |
| Figure Skating | FS | 5 | 0 | 4 | 1 | 6 | 1 | 8 | 10 | 8 | 2 |
| Golf | G | 0 | 7 | 4 | 2 | 2 | 8 | 1 | 3 | 5 | 0 |
| Judo | J | 2 | 3 | 3 | 9 | 8 | 4 | 7 | 9 | 6 | 0 |
| Kayaking | K | 1 | 8 | 0 | 9 | 0 | 5 | 0 | 1 | 2 | 2 |
| Netball | N | 9 | 6 | 5 | 2 | 2 | 9 | 3 | 4 | 3 | 7 |
| Powerlifting | P | 0 | 10 | 10 | 4 | 4 | 1 | 2 | 2 | 3 | 0 |
| Rhythmic Gymnastics | RG | 5 | 0 | 1 | 3 | 4 | 6 | 7 | 7 | 10 | 2 |
| Roller Skating Artistic | RSA | 5 | 0 | 4 | 1 | 6 | 1 | 8 | 10 | 8 | 2 |
| Roller Skating Hockey | RSH | 9 | 7 | 4 | 2 | 3 | 7 | 6 | 5 | 4 | 3 |
| Roller Skating - Sprints | RSS | 10 | 0 | 6 | 0 | 3 | 0 | 6 | 6 | 3 | 0 |
| Sailing | S | 0 | 1 | 1 | 5 | 1 | 5 | 5 | 8 | 0 | 0 |
| Softball | SB | 6 | 8 | 3 | 4 | 1 | 9 | 2 | 1 | 3 | 0 |
| Snowboarding | SBD | 9 | 3 | 5 | 4 | 5 | 0 | 5 | 9 | 1 | 0 |
| Snowshoeing | SE | 8 | 0 | 6 | 0 | 5 | 0 | 7 | 3 | 2 | 0 |
| Speed Skating | SS | 10 | 0 | 6 | 0 | 3 | 0 | 6 | 6 | 3 | 0 |
| Tennis | T | 8 | 7 | 5 | 5 | 3 | 9 | 4 | 3 | 4 | 4 |
| Team Handball | TH | 9 | 6 | 5 | 5 | 4 | 8 | 4 | 2 | 4 | 8 |
| Table Tennis | TT | 3 | 3 | 1 | 2 | 1 | 10 | 2 | 2 | 3 | 0 |
| Volleyball | V | 6 | 7 | 3 | 3 | 3 | 9 | 3 | 4 | 4 | 1 |
|  |  |  |  |  |  |  |  |  |  | 0 |  |

Table 5: Raw Scores to Chart Scores

| Station 1- SA- Shuttle Run |  | Station 2 - UP Medicine Ball Throw |  | Station 3 - LP - Vertical Jump |  | Station 5 - US - Pushups (Regular) |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Seconds | Chart Score | Meters | Chart Score | Centimeters | Chart Score | Completed | Chart Score |
| 6 or below | 10 | $4.5+$ | 10 | 41 + | 10 | 15 + | 10 |
| 8-7 | 9 | 4.0-4.4 | 9 | 36-40 | 9 | 14 | 9 |
| 10-9 | 8 | 3.5-3.9 | 8 | 31-35 | 8 | 12-13 | 8 |
| 12-11 | 7 | 3.0-3.4 | 7 | 26-30 | 7 | 10-11 | 7 |
| 14-13 | 6 | 2.5-2.9 | 6 | 21-25 | 6 | 9 | 6 |
| 15 | 5 | 2.0-2.4 | 5 | 20 | 5 | 8 | 5 |
| 16-19 | 4 | 1.5-1.9 | 4 | 19-16 | 4 | 6-7 | 4 |
| 20-23 | 3 | 1.0-1.4 | 3 | 15-12 | 3 | 4-5 | 3 |
| 24-27 | 2 | 0.5-0.9 | 2 | 11-8 | 2 | 2-3 | 2 |
| 28-31 | 1 | 0.1-0.4 | 1 | 7-4 | 1 | 1 | 1 |
| $32+$ | 0 | 0 | 0 | 1-3 | 0 | 0 | 0 |
| Station 5 <br> ups | LS - Push- <br> nee) | Station | - LS - Wall its | Station 8and Th | - Catching owing | Station 9-F the So | - Dribbling cer Ball |
| Completed | Chart Score | Time in Seconds | Chart <br> Score | Balls Hit + Caught | Chart <br> Score | Time | Chart <br> Score |
| $30+$ | 10 | 56-60 | 10 | 20 | 10 | 15 or less | 10 |
| 26-29 | 9 | 51-55 | 9 | 18-19 | 9 | 16-17 | 9 |
| 22-25 | 8 | 46-50 | 8 | 16-17 | 8 | 18-19 | 8 |
| 18-21 | 7 | 41-45 | 7 | 14-15 | 7 | 20-21 | 7 |
| 14-17 | 6 | 36-40 | 6 | 12-13 | 6 | 22-23 | 6 |
| 13 | 5 | 31-35 | 5 | 10-11 | 5 | 24-26 | 5 |
| 11-12 | 4 | 26-30 | 4 | 8-9 | 4 | 27-28 | 4 |
| 8-10 | 3 | 21-25 | 3 | 6-7 | 3 | 29-30 | 3 |
| 5-7 | 2 | 16-20 | 2 | 4-5 | 2 | 31-32 | 2 |
| 3-4 | 1 | 11-15 | 1 | 2-3 | 1 | 33-34 | 1 |
| 0-2 | 0 | 10 or less | 0 | 0-1 | 0 | $35+$ | 0 |


| Station 10-Balance - <br> Walk a Line |  | Station 12- Flexibility - <br> Sit and Reach |  | Station 13-Aerobic <br> Endurance - 3 minute <br> Step Test |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| Steps on <br> the line | Chart <br> Score | Centimeters | Chart <br> Score | Pulse (beats <br> per minute) | Chart <br> Score |
| 16 | 10 | $46+$ | 10 | 90 or less | 10 |
| $14-15$ | 9 | $41-45$ | 9 | $91-100$ | 9 |
| $12-13$ | 8 | $36-40$ | 8 | $101-110$ | 8 |
| $10-11$ | 7 | $31-35$ | 7 | $111-120$ | 7 |
| 9 | 6 | $26-30$ | 6 | $121-130$ | 6 |
| 8 | 5 | $23-25$ | 5 | $131-140$ | 5 |
| 7 | 4 | $20-22$ | 4 | $141-150$ | 4 |
| 6 | 3 | $17-19$ | 3 | $151-160$ | 3 |
| $4-5$ | 2 | $14-16$ | 2 | $161-170$ | 2 |
| $2-3$ | 1 | $11-13$ | 1 | $171-180$ | 1 |
| $0-1$ | 0 | 10 or less | 0 | $181+$ | 0 |

## Theory and Implementation

For maximum compatibly over all computer platforms, SNAPPER is implemented as a local javascript application. All code is found in snapper.html. Several data files are also required for SNAPPER to operate: jquery-1.4.2.min.js, assessmentmap.xml, sportsmap.xml and button.png.

SNAPPER first maps the raw assessment scores to a 0-10 scale using the data found in assessmentmap.xml. If two assessments measure the same skill, they are averaged. SNAPPER then calculates the Euclidian distance to the ideal scores for each sport found in sportsmap.xml and recommends those sports having the least distance. A score that is lower than the ideal is worth double the distance.

Skills to improve are calculated by taking the maximum score for each skill in all sports the athlete plays, and taking those two with the most difference from the athlete's actual abilities.

## Distribution, Translation, and Modification

To distribute, copy snapper. html and the data folder to a new location.
Translating SNAPPER requires five steps:

1. Translate snapper.html, both the body section and the javascript string constants (at the top of the scripting section.
2. Translate the following items in assessmentmap.xml:
a. AssessmentMap/SkillLabel
b. AssessmentMap/Assessment/Name
c. AssessmentMap/Assessment/Unit
3. Translate the following items in sportsmap.xml (possibly via sportsmap.xls):
a. SportsMap/Sport/Name
b. SportsMap/Sport/ShortName

Modification: To add, delete, or modify a sport, edit sportsmap.xml. To add, delete, or modify an assessment, edit assessmentmap.xml. If validation is desired, corresponding schemas can be found in the data directory (sportsmap.xsd and assessmentmap.xsd)
sportsmap.xml can be generated by exporting it from the SNAP sheet of sportsmap.xslm (Developer->XML/Export). In addition, the SNAP-by-hand table can be generated from the ManualTable sheet of sportsmap.xslm - Press the 'Recalculate' button on the sheet.

