BORSTAR PHYSICAL ABILITIES AND WORK CAPACITY TEST
DATA COLLECTION FORM

United States Border Patrol
Search Trauma and Rescue (BORSTAR) Group

PHYSICAL ABILITY TEST (PAT) AND WORK CAPACITY TEST (WCT) HANDBOOK

September, 2014

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The purpose of this Handbook is to provide the necessary guidelines and details for conducting the BORSTAR Physical Ability Test (PAT) and Work Capacity Test (WCT) batteries. The Manual is organized as follows:

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TEST DAY PROCEDURES

A BORSTAR representative will brief the Agents being tested. A standardized score sheet and modified PAR-Q will be used at all BORSTAR testing locations. Agents will fill out the heading on the score sheet and complete the modified PAR-Q (pg. 22) to help determine whether it is safe for them to complete the fitness testing. If there are any questions about safe participation, consult with a HRM Benefits, Medical, and Worklife staff member (202-863-6382). Scripts will be used to standardize the testing methods. **All scripts are to be read out loud to the Agents being tested are located in the gray shaded boxes.**

At the start of the testing brief all Agents by reading the following script:

INITIAL BRIEFING

In order to remain an “active” BORSTAR Agent you must take and pass an annual BORSTAR Physical Ability Test. The test battery was developed and validated using active BORSTAR Agents for the purpose of establishing the minimum physical requirements necessary to safely and effectively perform the BORSTAR essential job tasks. This battery consists of the Illinois Agility Test, Pull-Ups, Sit-Ups, Push-Ups, 1.5 Mile Run, and 250 Meter Swim. This battery was a significant predictor of job performance and comprehensively covered the most relevant physical abilities identified in the job analysis. Additionally, one of the job simulation measures used in the study (Patient Evacuation Work Capacity Test) will be retained as a secondary test for incumbents who may fail any portion of the PAT and want to remain on “active” status.

Although the test battery has been validated, the pass/fail points of the PAT and WCT have not been finalized so it is very important that you give your best effort in order to capture an accurate depiction of BORSTAR’s physical abilities. Preliminary Pass/Fail scores have been developed through previous data collection and analysis and will serve as “unofficial” cut scores until the results of this testing are collected, analyzed, and vetted through BST Head Quarters. During Day 1 you will perform the following tests: Height, Weight, Illinois Agility, Push-Up, Sit-up, Pull-Up, 1.5 Mile Run and 250 Meter Swim. During Day 2 you will perform the Patient Evacuation Work Capacity Test consisting of a 1.5 Mile Ruck and ¼ Mile Litter Carry. The unofficial cut scores for each of the Day 1 and Day 2 test events are as follows: Illinois Agility in 18.0 seconds, 7 pull-ups with no time limit, 60 sit-ups in two-minutes, 48 push-ups in two-minutes, 1.5 miles in 11 minutes and 30 seconds, 250 meter swim in 6 minutes and 30 seconds, and 1.5 Mile Ruck and ¼ Mile Litter Carry in 26 minutes and 30 seconds. There will be adequate rest given between each event. The testing process requires a <u>best</u> effort for the data to have any meaning. If at any time you don’t feel well or experience an injury during testing let the test administrator know. (pause) Do you have any questions?

We will first need to get your age, height and weights. You can self-report or we can measure you. The information will not be used for employment decisions. (Line-up participants using their last name and record their Age, Height in inches and Weight in pounds).

(Once you are done with recording Age, Height and Weight explain and demonstrate the

Physical Ability Tests 1-5 using the Scripts below and then initiate the warm-up and stretching protocol.)

To prepare for testing we will start with a three (3) minute jog, four (4) light 20 yard sprints, and some stretching.
(***designate a TA to lead the warm-up & stretch***)

DATA COLLECTION

Data will be collected using the Group Data Collection Score Sheet on page 24. An Excel electronic version of this sheet will be sent to each sector. The data should be carefully entered into the electronic spreadsheet and sent to BORSTAR HQ via (Bradford.c.MacDonald@cbp.dhs.gov).

TESTING SEQUENCE

Agents will complete the fitness test battery in the same order. Test Administrators will brief and demonstrate all five land based tests (Illinois Agility, Pull-Up, Sit-up, Push-Up, and 1.5 Mile Run), then cycle the group through the entire battery as indicated in the sequence below. The 250 Meter Swim and Patient Evacuation WCT will both be briefed and demonstrated just prior to initiating those tests.

SEQUENCE FOR FITNESS TESTS

Day	Sequence	Time (minutes)	Event
1	1	5	Height and Weight (can be self-reported)
	2	30	Brief & Review or Testing Protocols
	3	10	Warm up & Light Sprints
	4		***1. ILLINOIS AGILITY TEST***
	5	5	Rest
	6		***2. PULL-UP***
	7	5	Rest
	8		***3. SIT-UP***
	9	5	Rest
	10		***4. PUSH-UP***
	11	10	Rest
	12		***5. 1.5 MILE RUN***
	13		Cool Down Stretches
	14	60	Rest, Hydration, Nutrition
	15	5	Warm-up (Swimming Specific)
	16		***6. 250 METER SWIM***
	17	5	Cool Down Stretching
2	1	10	Warm up & Stretches
	2		***7. PATIENT EVACUATION WORK CAPACITY TEST***
	3	5	Cool Down Stretching

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WARM-UP AND STRETCH ROUTINE

- Start with a three (3) minute light jog and six (6) 20 yard sprints at 75%.
- Perform the 13 Flexibility Exercises Below, hold each stretch 10-15 seconds.

Flexibility Exercise	Training Focus	Description
Neck Rotations	Neck & upper back	From a position of attention rotate the head in 5 complete circles to the left and then 5 complete circle to the right. Be sure to move slow and at a full range of movement.
Forward & Backward Arm Rotations	Shoulder, chest arms	From a position of attention rotate your arms in large circles forwards and then backwards making sure you move through the full ROM in each direction.
Straight Arms Behind Back	Shoulder, chest	From a position of attention place both hand hind the back, interlock the fingers with the palms facing each other, elbows fully extended, slowly raise the arms keeping the elbows straight and head upright and relaxed.
Cross Arm in front of Chest	Shoulder, back	From a position of attention place the right arm across the body, the arm should be level with the shoulder and the elbow slightly flexed. With the left arm grasp the right arm above the elbow and slowly pull the arm across the chest to the end ROM. Repeat for left side
Overhead Arm Pull with Trunk Lean	Arms, back, abdomen	From a position of attention widen the stance to approximately 16 inches, flex the right arm at the elbow and raise the elbow over head. Reach with the left hand and grasp the right elbow, slowly pull the right elbow behind the head and slightly towards the back. With the legs straight slowly lean from the waist to the left side achieving the end ROM. Repeat for left side
Rear Lunge & Arch	Hips, quadriceps, hamstring, low back	From a position of attention take an exaggerated step backward with the right leg, touching down with the ball of the foot. Maintain straightness of the back by keeping the abdominal muscles tight throughout the motion. After the foot touches down, allow the body to continue to lower. This promotes flexibility of the hip and trunk. To advance the stretch push your hips slowly forward and slightly arch your back. Repeat on left side.
Semi-straddle Hamstring (Figure Four)	Low back, hamstring, calf	From the supine position, sit up with your upper body nearly vertical and the legs straight, place the sole of the left foot in the inner side of the right knee with the outer side of the left knee touching or facing the floor. Lean forward using hip flexion and grasp the toes or lower leg of the right leg, pull or flex the toes toward the body and pull the chest toward the right leg. Repeat for left side.
Straddle (Spread Eagle)	Hamstring, calves, groin	From the supine position, sit up with your upper body nearly vertical and the legs straight. Abduct the hips, spreading the legs as wide as possible. With both hand reach for the right foot or lower leg, pull or flex the toes towards the body while pulling the chest towards the right leg. Repeat for left side. Then repeat for center grasping right toes with right hand and left toes with left hand.
Seated Groin (Butterfly)	Groin	From the supine position, sit up with your upper body nearly vertical and the legs straight. Flex both knees and bring the soles of the feet together. Once together pull them towards the body. Place the hand on the feet and the elbows on the legs, pull the torso slightly forward and press the elbows down causing hip abduction.
Spinal Twist (Pretzel)	Abdomen, low back, buttock	From the supine position, sit up with your upper body nearly vertical and the legs straight. Place the right foot to the left side of the left knee; place the back of the left elbow on the right side of the knee that is now bent. Place right palm on the floor 12-16 inches behind the hips. Push right knee to the left with the left elbow while turning the shoulders and head to the right as far as possible; try to look behind the back. Repeat for left side
Supine Knee Flex (Knee to Chest)	Low back, buttock, hamstring	From the supine position flex your right knee and hip bringing the thigh towards the chest, place both hands behind the knee and continue to pull towards the chest. Keep the left leg straight and the low back in contact with the floor. Repeat for left side.
Side Quadriceps Stretch (On your side, pull foot to butt)	Quadriceps, hips	From the supine position turn on your left side with both legs straight, place the left forearm flat on the floor (45° to the torso) with the upper arm perpendicular to the floor. Flex the right leg at the knee and move the right heel towards the buttock. Grasp the front of the ankle with the right hand and pull it toward the buttocks. Keep the back straight and right leg parallel to the floor. Repeat for left side.
Low Back & Abdominal Arch (Cobra)	Low back, abdominals, hips, hamstrings and calves	From a prone position, extend the arms while keeping the thighs and pelvis on the ground. Relax the back muscles while bearing the bodyweight through the straight arms. Toes point to the rear. Relax the shoulders and push to the rear with the hands, at the same time lift the pelvis up forming an A with the body. Try not to round the shoulders.

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PHYSICAL ABILITY TESTING AND WORK CAPACITY TEST SET-UP / ADMINISTRATION

ILLINOIS AGILITY TEST

Equipment

1. Eight (8) 18" cones
2. Marking Tape or Chalk
3. Measuring Tape (at least 35 feet)
4. Chalk line
5. Two (2) stopwatches

Facility / Testing Surface

1. Track (rubberized or synthetic)
2. Wood Floor (Gymnasium)
3. Area must be ~50 feet long and 20 feet wide for a safe testing set up

Set-Up Procedure (see Illinois Agility Test Track Set Up Diagram on pg. 7)

Using the steps below and the Illinois Agility Test Set Up Diagram as a reference, set up the agility course. Be sure to double check all of your measurements. Use existing straight lines as shown on the track. If a track is not available use a basketball court and use half court line as your centerline and the out of bounds line as your forward line.

1. Using running track find the point on the track where the 100 M event starts, there should be a line that crosses the lanes of the track. Using tape or chalk, mark the testing surface with an X on the back edge of the line that falls between lanes 2 and 3 as indicated in the set-up diagram. This X will identify the intersection of the "Center Line" and "Forward Line" and should be placed at the back edge of the white line.
2. Using at the measuring tape, hold the zero mark on the X and measure along the center line. Mark the following distances with caulk or tape.
    a. 6" (cone 6),
    b. 10' 2" (cone 5),
    c. 19' 10" (cone 4),
    d. 29' 6" (cone 3), and
    e. 30' (Start / Finish Line Mark).
3. Now we will be measuring the forward line. From your starting point X, measure 7' 6" to the <u>left</u> of the X and mark the spot (cone 2). Now return to your starting point X and measure 7' 6" to the <u>right</u> of the X and mark the spot (cone 8). Double check your measurements, the distance between cones 2 and 7 should be 15' with the X positioned in the middle at 7'6".
4. Now we will be measuring the Start / Finish line. Locate the "Start / Finish Line Mark" which is 30' from the X at the Centerline. From that mark measure 7' 6" to the <u>left</u> and mark the spot (cone 1). Now return to the "Start / Finish Line Mark" and measure 7' 6" to the <u>right</u> of the X and mark the spot (cone 8). Double check your measurements, the distance between cones 1 and 8 should be 15' with your "Start / Finish Line Mark" positioned in the middle at 7'6". The distance between cones 1 and 2 and cones 7 and 8 should be 30 feet. The distance between cones 1 and 7 and cones 2 and 8 should be 33 feet 6 ½ inches.
5. Once you have double checked your measurements and completed your markings, place a peace of visible tape along the Start / Finish Line.
6. Center the cones 1 through 8 on the marks as outlined in the diagram.

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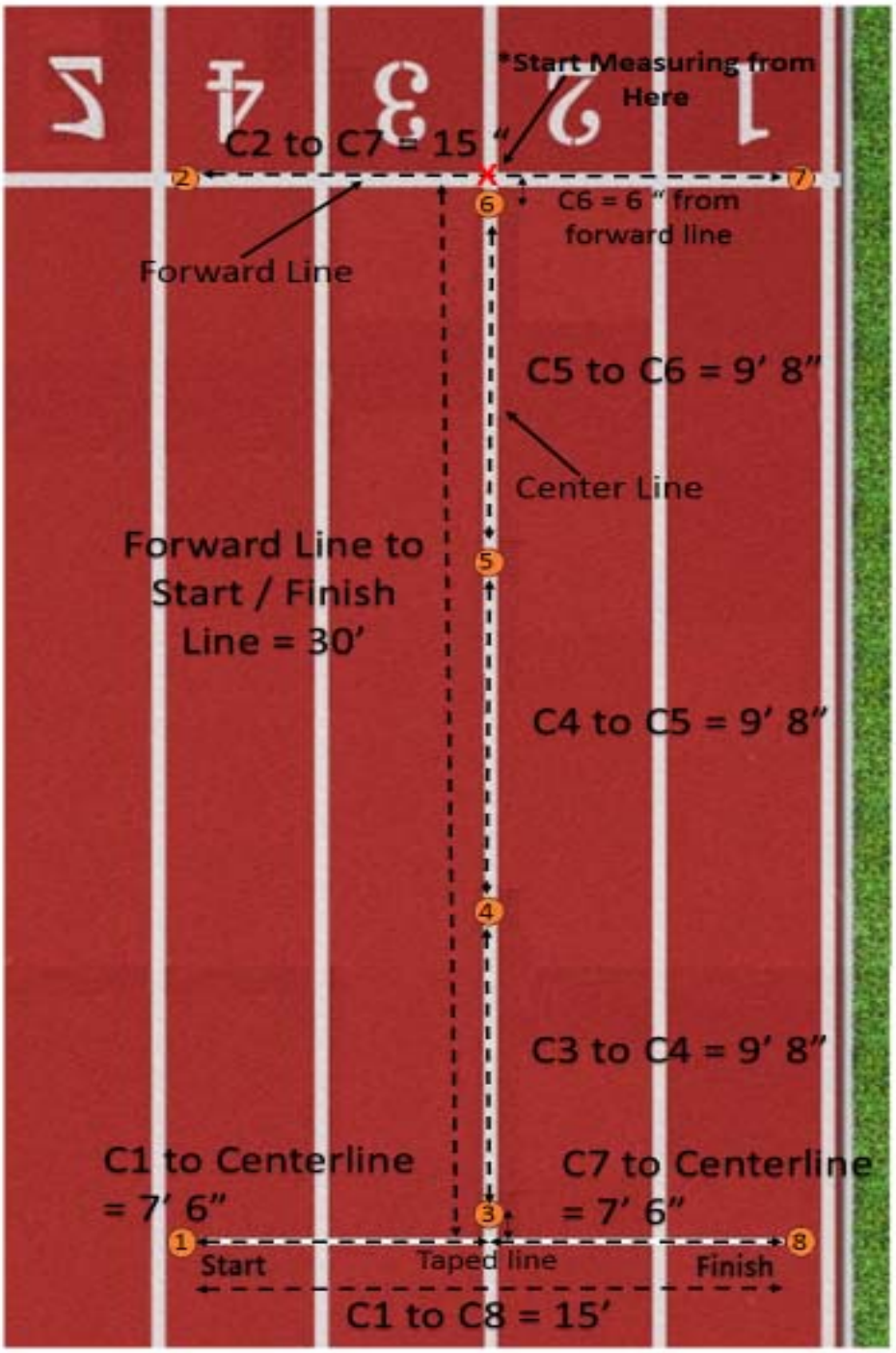
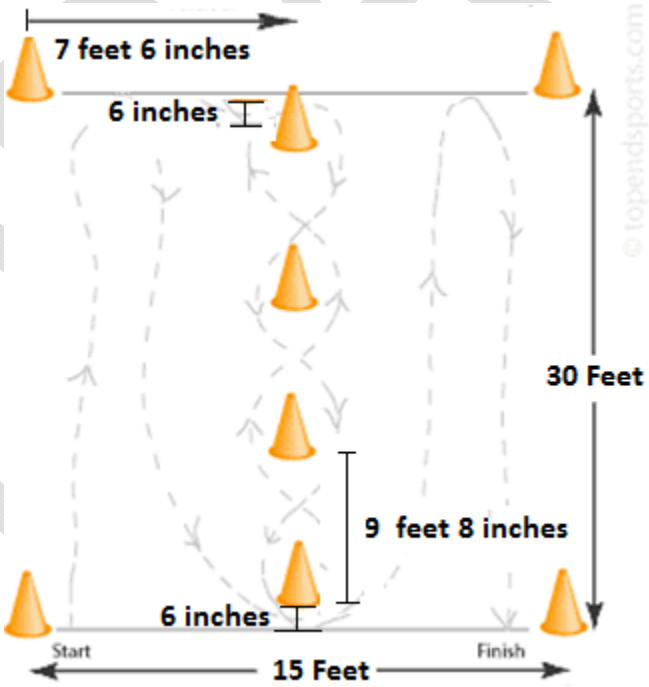
Illinois Agility Test Set Up Diagram



Script

The first event is the Illinois agility run, a measure of coordinated movement and speed. It is a test of running agility. It is an important area for performing tasks requiring quick movement around obstacles as seen in a typical suspect pursuit.

Watch this demonstration.
Start in a prone position at the line marked “Start” with the tips of your fingers behind the starting line. When the instructor says, “READY GO”, stand up and sprint to the forward line (*point to line 30 feet away*) making sure to place one foot on or over the line, and then sprint back to the starting line. Then, make a left turn around the first middle cone; weave in a figure eight fashion around the four cones and weave back to the starting line. Once you are around the last middle cone, sprint to the forward line making sure to place one foot on or over the line, and then sprint back to the finish line. The clock stops when any part of your body crosses the finish line. If you knock over a cone, miss a turn, or fail to touch the forward line when turning, the instructor will stop you for a restart. Your score is the time it takes to complete the run, and will be recorded to the tenth of a second. You will be allowed a practice run to learn the course and to assist in the warm up. You will have a practice run through and two timed trials for this event. (pause) Are there any questions?



Illinois Agility Test Movement Diagram

Instructor Tips

Have a demonstrator run through the course as it is explained verbally. Repeat the demo after finishing the instructions. During the second demo, point out common errors such as failing to place the foot over the lines, weave forward and weave back, and slowing down prior to the finish line. Explain that Agents should lower their center of gravity (hips) when changing directions and to accelerate through the finish line.

Procedural Tasks

1. Place 8 to 10 Agents in a line to be tested. After the Agent has gone he/she will go to the back of the line and wait for their test trial. This will allow them time to rest while the others are testing. Complete the test for the entire group before forming your next group of 8-10 Agents.
2. If you are testing less than 8 Agents, be sure each Agent gets at least 2 minutes rest between test trials.
3. The Agent starts in the prone (belly down) position with the fingers behind the start line just right of the cone.
4. On the “Ready Go” command the Agent to run to the forward line and then back, weave up, weave back, run to the forward line, and then to the finish line.
5. A foot must cross the forward lines and all cones must be navigated.
6. If there is a technical error immediately “STOP” the test, send the Agent to the end of the line or give 2-5 minutes rest and allow them a retest.
7. The score is the time in seconds and tenths of a second (i.e. 16.5).
8. Record both times on the written score sheet, the best score will be counted.
9. Allow 10 minutes rest prior to starting the pull-up test.
10. The following voice command will aid in the proper execution of the test
    a. “READY GO”…..Agent begins test
    b. “Straight Down”…..Agent sprint towards cone 2, foot over line
    c. “Straight Back”…..Agent sprints back toward cone 3
    d. “Around the Cone”……Agent goes around cone 3
    e. “Weave Up”…..Agent weaves forward between cones 3-4-5-6
    f. “Weave Back”….. Agent weaves back between cones 6-5-4-3
    g. “Straight Down”…..Agent sprint towards cone 7, foot over line
    h. “Straight Back”…..Agent sprints back toward cone 8 / finish line
    i. “Hard All the Way Through”…..Agent sprints through finish line

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PULL-UP (MAXIMUM, NO TIME LIMIT)

Equipment

1. Pull-up bars
2. Hand counter (for reps)

Facility / Testing Surface

1. In-side or out-side locations where pull-up bars are located

Set-Up Procedure

1. Divide the Agents being tested into as many groups as you have test administrators (TAs)
2. Use the cones to separate out the groups.
3. There should be one TA per Agent being tested and one timer / data recorder.

Script

The second test is the pull-up. This is a measure of the muscular strength and endurance of the upper body flexors. It is important for use of force encounters, and equipment lifting, and patient lifting and dragging. The score is the number of pull-ups completed.

Watch this demonstration.
Start by hanging from the bar with your hands slightly more than shoulder width apart, arms fully extended and palms facing away. On the command “GO”, using only your upper body, pull your body up until your chin is over the bar. Lower your body under control until your arms and elbows are fully extended, back to the starting position – this will constitute one repetition. If you skip, swing, or bicycle your legs while performing the pull-up test, the repetitions will not count and the technical violation will be verbally identified. You may rest momentarily in the ‘down’ position. Once you release the bar, the test is stopped; you may not remount the bar. There is no time limit. Do as many correct repetitions as possible. Your score is the number of proper form pull-ups performed. (pause) Are there any questions?

Instructor Tips

Where practical, assign the Agent to the bar that will allow them to easily reach the bar while not touching the ground when hanging with arms straight. During the demo, point out common errors as indicated in the script. Record the number of correct pull-ups.

Procedural Tasks

1. Agent stands under the bar and may jump, climb, or be lifted to the bar to facilitate a good grip.
2. TA stands in a position that will allow them to view the Agent’s chin ‘clearing’ the bar.
3. The score is the correct number of pull-ups.
4. Allow 5 minutes rest prior to initiating the 2-minute sit-up test.

SIT-UP TEST (TWO-MINUTE)

Equipment

1. Cones (set up test stations per the number of test administrators)
2. Mats (if needed)
3. Two (2) stopwatches
4. Hand counters (for reps)

Facility / Testing Surface

1. Soft Grass (flat)
2. Mats or matted Floor

Set-Up Procedure

1. Divide the Agents being tested into as many groups as you have test administrators (TAs)
2. Use the cones to separate out your groups.
3. There should be one TA per Agent being tested and one timer / data recorder.

Script

The third event is the two-minute sit up, which measures muscular endurance of the abdominal muscles and hip flexors, an important area for many physical tasks and injury prevention.

Watch this demonstration. Lie on your back, with your knees bent at approximately a 90 degree angle. Your feet may be together or apart, but the heels must stay in contact with the surface. Another Agent will hold your feet and ankles. The tips of your fingers must stay behind your ears. When the test administrator acting as the timer for the group says “READY GO,” lift your upper body (head and torso) by bending at the waist, move your elbows to or past your knees. Return to the starting position, with your shoulder blades touching the surface. That will constitute one repetition.

If you arch your back, lift your buttocks from the ground, move your finger tips forward of your ears, fail to touch the knees, stop to rest in the down position, or fail to touch your shoulders to the ground, the repetition will not be counted and the technical violation will be verbally identified.

You may rest momentarily in the ‘UP’ position only. You will have two minutes to do as many sit-ups as possible. The timer will announce 60, 30, and 15 seconds, and count down the last ten (10) seconds. Your score is the number of proper form sit-ups performed in 2 minutes. (pause) Are there any questions?

Instructor Tips

Have a demonstrator execute several correct sit-ups while you are reading the script. Repeat the demo after finishing the instructions. During the second demo, point out common errors. Divide the Agents into as many groups as there are test administrators. One person will act as the timer for the group. There will be one test administrator for each Agent being tested. The test administrator will

position themselves at a 45 degree angle to the left front of the Agent being tested. From that position you should be able to observe that the elbows touch or extend pass the knees, fingers remain behind the ears, the shoulders touch the mat, the heels remain in contact with the floor, and that the buttocks remain on the mat.

Procedural Tasks

1. The Agent starts by lying on his/her back, knees bent, and heels flat on the floor. Finger tips stay behind the ears.
2. A partner holds the feet and ankles down.
3. The Agent then performs as many correct sit-ups as possible in two minutes.
4. In the up position, the Agent must touch or extend pass the knees with the elbows, then return the shoulders to the ground prior to next sit up. The Agent may rest momentarily in the ‘up’ position.
5. The Agent cannot raise the buttocks from the ground and when returning to the down position the shoulder blades must touch the ground.
6. The score is the recorded number of sit-ups performed in 2 minutes.
7. Allow 5 minutes rest prior to starting the push-up test.

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PUSH-UP TEST (TWO-MINUTE)

Equipment

1. Cones (set up test stations per the number of test administrators)
2. Two (2) stopwatches
3. Hand counter (for reps)

Facility / Testing Surface

1. Grass (flat)
2. Track (rubberized or synthetic)
3. Wood Floor (Gymnasium)

Set-Up Procedure

1. Divide the Agents being tested into as many groups as you have test administrators (TAs)
2. Use the cones to separate out your groups.
3. There should be one TA per Agent being tested and one timer / data recorder.

Script

The fourth event is the 2-minute push-up, a measure of the muscular endurance of the upper body (chest, shoulders, and triceps). This is an important area for many tasks involving use of force, lifting, carrying, and pushing.

Watch this demonstration. Assume the front-leaning rest (UP) position by placing your hands on the surface, slightly wider than shoulder width apart, fingers facing forward. The back, buttocks, and legs must be in a straight line from the head to the heels. The feet may be together or up to twelve (12) inches apart. When the instructor says “READY, GO,” lower your body by bending the elbows until the center of your chest makes contact with the test administrator’s fist. Your back, buttocks, and legs must be in a straight line throughout the movement. Return to the starting position by fully extending your arms. This constitutes one repetition. You may rest in the up position and may arch or flex your back as long as your hands and feet do not move. You may slide your hands to adjust your position but not remove them from the ground (i.e. shaking them out). If you do not keep your body relatively straight, do not touch the fist, or fail to extend at your elbows (short stroking), the repetition will not be counted and the technical violation will be verbally identified. The test will be considered over when the participant returns to a standing position or if one or both knees make contact with the ground. I will announce 60, 30, and 15 seconds, and count out the last ten (10) seconds. Do as many correct repetitions as possible in two (2) minutes. Your score is the number of correct push-ups. Are there any questions?

Instructor Tips

Have a demonstrator execute several correct push-ups while you are reading the script. Repeat the demo after finishing the instructions. During the second demo, point out common errors. Observe the back of the elbow to ensure they are locking out. Test administrators should position themselves at a 45 degree angle to the left front of the Agent being tested with their fist directly under the Agent's chest. From that position they should be able to observe that the body remains in a straight line from the ankle, knee, hip, and shoulder, the shoulders are parallel to the ground in the down position, the chest makes contact with the fist, and the elbow locks out upon return the starting position.

Procedural Tasks

1. The Agent starts in the front leaning rest position. Hands are slightly more than shoulder width apart; feet are 12" apart or less.
2. The Agent lowers self until the chest touches the TAs fist.
3. The body alignment must be kept straight throughout the exercise.
4. There is a 2 minute time limit.
5. The score is the correct number of push-ups.
6. Allow 5 minutes rest prior to starting the sit-up test

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1.5 MILE RUN

Equipment

1. Two (2) stopwatches
2. Distance measuring device (walking wheel)

Facility / Testing Surface

1. 440 Y Track (rubberized or synthetic)
2. Marked level course ¾ of a mile or 1.5 miles in length

Set-Up Procedure

1. There should be no more than 3 Agents being tested per TA and one timer / data recorder.
2. If needed a video camera can be used and times can be called out to reduce the need for TAs

Script

The fifth event is the 1.5 mile run, a measure of cardiovascular endurance or aerobic capacity. This area is important for ruck marching, sign cutting, running pursuits, and litter carry situations lasting more than three minutes.

You will line up behind the starting line. At the command “READY GO” start running. (explain the course/track) Your goal is to complete the 1.5 miles as fast as you can. As you complete each lap your time and number of laps to go will be announced. If it is a straight away course your time will be announced at the ¾ mile mark. You may run alongside another runner for help with the pace, but you may not physically assist or be assisted by another runner. After the run walk slowly for an additional ¼ mile or at least 5 minutes to assist in your recovery. Are there any questions?

Instructor Tips

Have a monitor on the other side of the track or at a ½ way point. Divide the group evenly amongst the test administrators, who will record times for each Agent in their group. Have each Agent call out their last name as they complete each lap. IMPORTANT: If a 440 yard track is used, the 1.5 mile distance is exactly 6 laps. If a 400 meter track is used the distance is 6 laps + 46 feet. If this is the case, set up a cone 46 feet in front of your start line and this will serve as your finish line for the test.

Procedural Tasks

1. Have Agents warm up.
2. Agents should be instructed to cover the distance as fast as possible.
3. At the command "GO" time is started.
4. Use two stop watches simultaneously to prevent accidental timing errors.
5. The score is the time (min: sec) to run the course.
6. A ¼ mile or 5 minute walking cool down is required after running.

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250 METER SWIM

Equipment

1. Two (2) stopwatches
2. Hand counter (for laps)

Facility / Testing Surface

1. 25 Meter or 50 Meter Pool

Set-Up Procedure

1. There should be one TA per 3 Agents being tested and one timer / data recorder.
2. If needed a video camera can be used and times can be called out to reduce the need for TAs

Script

The sixth and final event for Day 1 is the 250 Meter Swim, a measure of cardiovascular endurance and general swimming ability. This area is important for performing rescue swimming and your own personal safety in the water.

You will line up at the pools edge in the water with at least one hand in contact with the wall. At the command “READY GO” you will push off the wall and begin to swim. You may use any swim stroke to complete the course. Your goal is to complete 250 meters as fast as you can. As you complete each 50 meter leg your time and number of laps to go will be announced. In a 50 meter pool, you will need to complete 5 lengths of the pool, your start and finish points will be on opposite ends of the pool. In a 25 meter pool, you will need to complete 10 lengths of the pool, your start and finish points will be on the same ends of the pool. You may not hold on to the sides of the pool at any time once the test has started. (pause) Are there any questions?

Instructor Tips

Have a monitor on the other side of the pool. Divide the group evenly amongst the test administrators, who will record times for each Agent in their group. Use a hand counter to count each lap.

Procedural Tasks

1. Have Agents warm up with some light swimming and stretching.
2. Agents should be instructed to cover the distance as fast as possible.
3. At the command "GO" time is started.
4. Use two stop watches simultaneously to prevent accidental timing errors.
5. The score is the time (min: sec) to swim the course.

PATIENT EVACUATION WORK CAPACITY TEST

Equipment

1. Ten (10) Cones (set up as shown in diagram)
2. Two (2) stopwatches
3. Six (6) Twenty (20) pound vests
4. Six (6) Thirty (30) pound medical packs (rucks)
5. Six Pairs of Forty Five (45) pound Kettlebells

Facility / Testing Surface

1. Road
2. Hard Pack Dirt (no soft sand)
3. Grass (flat)
4. Track (rubberized or synthetic)

Set-Up Procedure

1. Set up and carefully mark the course as diagramed on page 19. Use cones very ¼ mile to mark the course.
2. Be sure the course is flat and on a solid surface (no loose sand)
3. Divide the Agents being tested into as many groups as you have test administrators (TAs). You will need 6 TAs and 1 data entry person. Smaller groups (10 or less) will only need 3 TAs and 1 data entry person.
4. There should be one TA per Agent being tested. The TA will act as the timer and will assist with the med pack removal once the 1.5 mile ruck is completed.
5. TAs will use two stop watches simultaneously to prevent accidental timing errors.
6. Agents will be tested one at a time and will be started one every 5 minutes.
7. Once an agent has finished the test their time the TA will give the time to the data recorder and assist the Agent with transporting the ruck and weighted vest to the next person in line.

Agent Uniform

Standard Uniform	
1. Wicking T-shirt	10. CSB with holder
2. Underwear / Boxers	11. Duty Holster
3. Socks	12. Duty Belt
4. TRU Blouse	13. H&K .40 cal (empty, no mag)
5. TRU Pants	14. Two .40 cal mags (24 r, 180gr)
6. Soft Ball Cap	15. Double .40 cal mag carrier
7. Danner TFK Boots	16. Ballistic eye glasses
8. Riggers Belt	17. Gloves (optional)
9. Handcuffs	

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Script

This is the Patient Evacuation Work Capacity Test. The Work Capacity Test is based on scenarios that were developed in collaboration with incumbent BORSTAR agents. Evaluation of this tests performance is based on the assumption that faster performance of the tasks lowers the risk of potential harm or injury to others or to self, resulting in a higher probability of successfully completing one's duty. So, time is the measure, with the faster the better. Try your best on this exercise."

This work capacity test is made of three main work components, a 1.5 mile ruck, 220 yard two-man litter carry, and a 220 yard four-man litter carry. This test will be conducted while wearing your required field uniform and carrying equipment, and medical supplies common to the BORSTAR position.
Listen as I describe the situation.

You received a call-out of an injured agent in the field who is in a life threatening situation. You have driven as close as you could to the location of the injured agent and have exited the vehicle and have donned your required gear. You hike 1.5 miles to the location of the injured agent. As you near the location of the agent, two other BORSTAR agents have arrived and join you. The three of you stabilize and package the patient in a litter. Air evacuation has been called and a landing zone has been identified ¼ mile away. As a group, the three of you decide that you and one of the other agents will carry the litter and the third agent will assist by carrying the medical packs. You pick up one end of the litter, and you and the other agent begin to carry the patient to the LZ. Halfway to the LZ (1/8 mile), two other agents join you and assist with the litter carry. You take one corner of the litter. You and the other three agents carry the patient another 1/8 mile to the LZ.

You will be all be wearing a standard uniform (read off the item list for the standard uniform above), a 20-lb preloaded chest rig, and a 30-lb Medical Bag. You will start at the 1.5 mile starting gate. (point to gate) You will begin in a standing position behind two cones that serve as a starting gate. On the command 'GO', move as quickly as possible 1.5 miles. Follow the cones to the furthest cone. The distance is 3/4 miles to the turnaround cone. When making the turn, go around the cone. Then re-trace your path back to the start gate. Once you pass back through the start gate remove the 30 lb. pack with assistance from a test administrator. The time will <u>not</u> stop. After the pack is removed, you will immediately start the next phase of the exercise. The second gate is immediately perpendicular to the first gate. Squat and pick up two (2) 45 lb. kettlebells. Move as quickly as possible 220 yards (1/8 mile) which is 110 yards out around the cone and back. You may rest at any time as long as you squat and place the dumbbells on the ground. Once you return, go around the cone, squat and place one dumbbell on the ground. Move as quickly as possible 220 yards (1/8 mile) carrying one (1) 45 lb. kettlebell which is 110 yard out around the cone and back to the finish line. You may switch the dumbbell from hand to hand as long as you squat and place it on the ground. Time ends when you cross the finish gate.

After the demonstration, call the first participant.

Instructor Tips

Have a monitor on the other side of the track or at a ¾ mile point. Divide the group evenly amongst the test administrators, who will record times for each Agent in their group. The TA will assist using verbal commands to direct the Agent where to go. The TA will have “eyes on” the Agent the entire test. Verbally instruct each Agent that if they need to release the kettlebells to rest or switch hands they must first squat and place the weights on the ground.

Procedural Tasks

1. Have Agents perform warm up and stretch.
2. Agents should be instructed to cover the distance as fast as possible.
3. At the command "GO" time is started.
4. Use two stop watches simultaneously to prevent accidental timing errors.
5. Assist Agents with the 30 lb. Medical Pack removal
6. Agent must squat and place kettlebells on the ground anytime they need to rest / release the weights or switch hands.
7. The score is the time (min:sec.) to run the course.
8. After the test has finished help the Agent remove the 20 pound chest rig and advise the Agent to walk 5 minute to cool down.
9. Help the next Agent in line by issue him or her the chest rig and making sure they have a 30 lb. ruck ready to carry.

Measurement

1. Time 1: When agent crosses back through the start gate after 1.5 miles.
2. Time 2: When agent crosses finish gate after ¼ mile litter carry.
1. Time is in minutes, seconds, and tenths (23:06.5).
2. Time will be recorded on two (2) stop watches.

Example Time and Task Set up for Testing 30 BST Agents

Time	Task	TA Responsibility	Time, Cont.	Task	TA Responsibility
800	Course Set-Up Check	All	1010	Start BST Agent 15	TA 5
845	Brief / Demo	All	1015	Start BST Agent 16	TA 1
900	Start BST Agent 1	TA 1	1020	Start BST Agent 17	TA 2
905	Start BST Agent 2	TA 2	1025	Start BST Agent 18	TA 3
910	Start BST Agent 3	TA 3	1030	Start BST Agent 19	TA 4
915	Start BST Agent 4	TA 4	1035	Start BST Agent 20	TA 5
920	Start BST Agent 5	TA 5	1040	Start BST Agent 21	TA 1
925	Start BST Agent 6	TA 1	1045	Start BST Agent 22	TA 2
930	Start BST Agent 7	TA 2	1050	Start BST Agent 23	TA 3
935	Start BST Agent 8	TA 3	1055	Start BST Agent 24	TA 4
940	Start BST Agent 9	TA 4	1100	Start BST Agent 25	TA 5
945	Start BST Agent 10	TA 5	1105	Start BST Agent 26	TA 1
950	Start BST Agent 11	TA 1	1110	Start BST Agent 27	TA 2
955	Start BST Agent 12	TA 2	1115	Start BST Agent 28	TA 3
1000	Start BST Agent 13	TA 3	1120	Start BST Agent 29	TA 4
1005	Start BST Agent 14	TA 4	1125	Start BST Agent 30	TA 5

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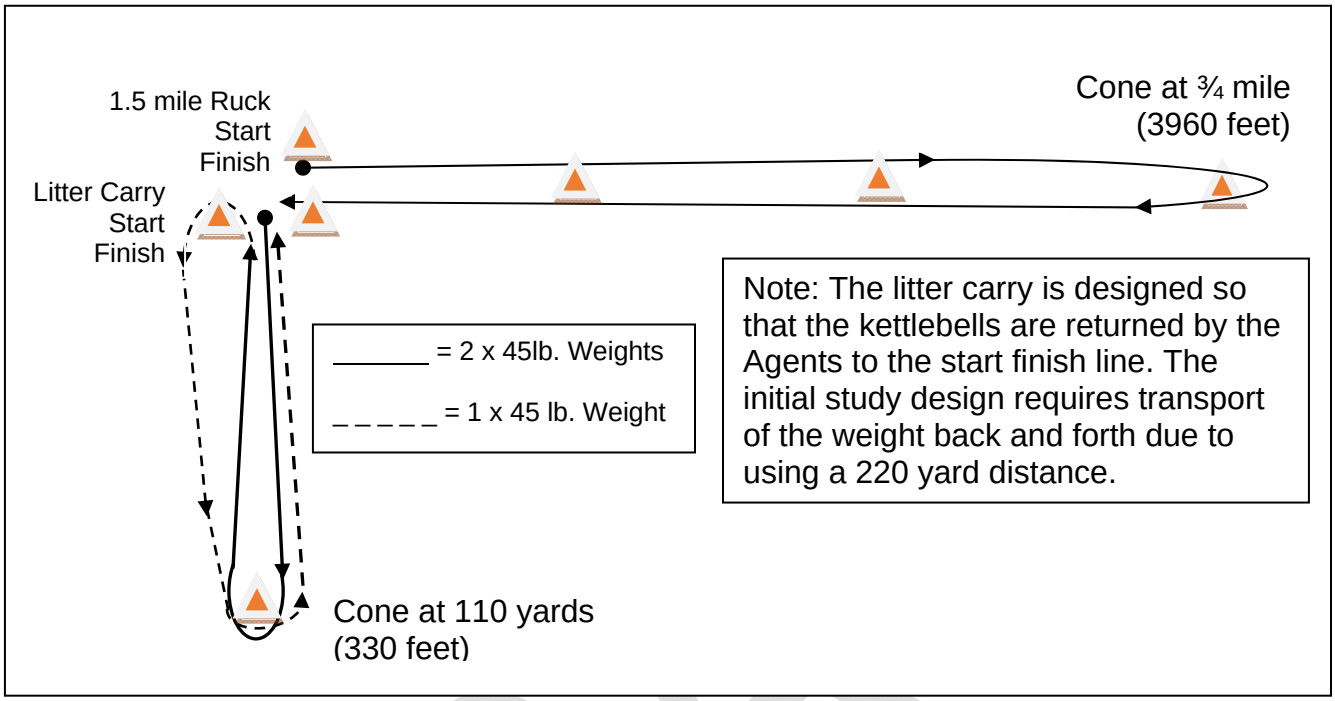
PATIENT EVACUATION WORK CAPACITY TEST

Open Ground Option



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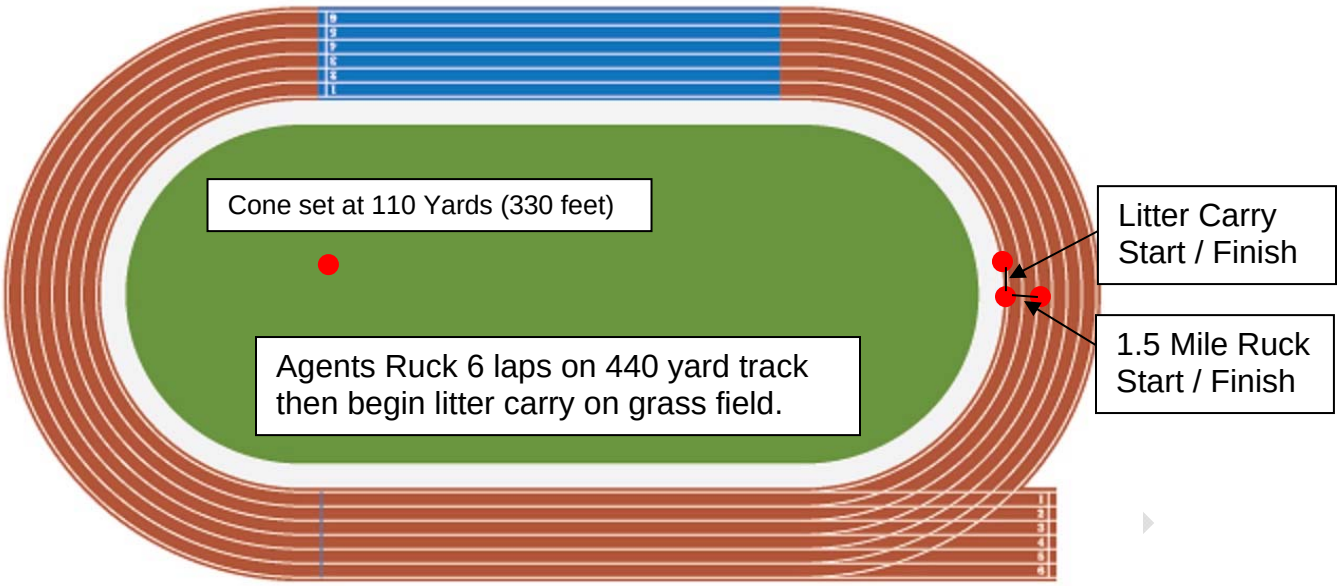
Track Option Set-up



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BORSTAR PHYSICAL ABILITIES AND WORK CAPACITY TEST
DATA COLLECTION FORM

Test Administrator:_____ Station / Sector:_____ Test Date:_____

#	LAST	FIRST	AGE	HT. (in.)	WT. (lbs.)	ILLIN. AGILITY (18.0 s) Trial 1 / Trial 2		PULL UP (7 reps, no time)	SIT UP (60 reps 2 min.)	PUSH UP (48 reps 2 min)	1.5 MI. RUN (11:30)	250 M SWIM (6:30)	PATIENT EVAC. (26:30)	TESTING RESULT (P or F)
1														
2														
3														
4														
5														
6														
7														
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BORSTAR PHYSICAL ABILITIES AND WORK CAPACITY TEST
DATA COLLECTION FORM

MODIFIED PAR-Q

YES NO

___ ___ 1. Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?

_____

___ ___ 2. Do you feel pain in your chest when you do physical activity?

_____

___ ___ 3. In the past month, have you had chest pain when you were not doing physical activity?

_____

___ ___ 4. Do you lose your balance because of dizziness or do you ever lose consciousness?

_____

___ ___ 5. Do you have a bone or joint problem (for example, back, knee, or hip) that could be made worse by a change in your physical activity?

_____

___ ___ 6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?

_____

___ ___ 7. Do you know of any other reason why you should not do physical activity?

_____

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

Name: _____ Date: _____

Signature:

Notes:

(to be used during technical brief)

DRAFT

INDIVIDUAL TEST SCRIPTS

INITIAL BRIEFING

In order to remain an "active" BORSTAR Agent you must take and pass an annual BORSTAR Physical Ability Test. The test battery was developed and validated using active BORSTAR Agents for the purpose of establishing the minimum physical requirements necessary to safely and effectively perform the BORSTAR essential job tasks. This battery consists of the Illinois Agility Test, Pull-Ups, Sit-Ups, Push-Ups, 1.5 Mile Run, and 250 Meter Swim. This battery was a significant predictor of job performance and comprehensively covered the most relevant physical abilities identified in the job analysis. Additionally, one of the job simulation measures used in the study (Patient Evacuation Work Capacity Test) will be retained as a secondary test for incumbents who may fail any portion of the PAT and want to remain on "active" status.

Although the test battery has been validated, the pass/fail points of the PAT and WCT have not been finalized so it is very important that you give your best effort in order to capture an accurate depiction of BORSTAR's physical abilities. Preliminary Pass/Fail scores have been developed through previous data collection and analysis and will serve as "unofficial" cut scores until the results of this testing are collected, analyzed, and vetted through BST Head Quarters. During Day 1 you will perform the following tests: Height, Weight, Illinois Agility, Push-Up, Sit-up, Pull-Up, 1.5 Mile Run and 250 Meter Swim. During Day 2 you will perform the Patient Evacuation Work Capacity Test consisting of a 1.5 Mile Ruck and ¼ Mile Litter Carry. The unofficial cut scores for each of the Day 1 and Day 2 test events are as follows: Illinois Agility in 18.0 seconds, 7 pull-ups with no time limit, 60 sit-ups in two-minutes, 48 push-ups in two-minutes, 1.5 miles in 11 minutes and 30 seconds, 250 meter swim in 6 minutes and 30 seconds, and 1.5 Mile Ruck and ¼ Mile Litter Carry in 26 minutes and 30 seconds. There will be adequate rest given between each event. The testing process requires a <u>best</u> effort for the data to have any meaning. If at any time you don't feel well or experience an injury during testing let the test administrator know. (pause) Do you have any questions?

We will first need to get your age, height and weights. You can self-report or we can measure you. The information will not be used for employment decisions. (Line-up participants using their last name and record their Age, Height in inches and Weight in pounds).

(Once you are done with recording Age, Height and Weight explain and demonstrate the Physical Ability Tests 1-5 using the Scripts below and then initiate the warm-up and stretching protocol.)

To prepare for testing we will start with a three (3) minute jog, four (4) light 20 yard sprints, and some stretching.
(***designate a TA to lead the warm-up & stretch***)

Illinois Agility Test Script

The first event is the Illinois agility run, a measure of coordinated movement and speed. It is a test of running agility. It is an important area for performing tasks requiring quick movement around obstacles as seen in a typical suspect pursuit.

Watch this demonstration.
Start in a prone position at the line marked “Start” with the tips of your fingers behind the starting line. When the instructor says, “READY GO”, stand up and sprint to the forward line (*point to line 30 feet away*) making sure to place one foot on or over the line, and then sprint back to the starting line. Then, make a left turn around the first middle cone; weave in a figure eight fashion around the four cones and weave back to the starting line. Once you are around the last middle cone, sprint to the forward line making sure to place one foot on or over the line, and then sprint back to the finish line. The clock stops when any part of your body crosses the finish line. If you knock over a cone, miss a turn, or fail to touch the forward line when turning, the instructor will stop you for a restart. Your score is the time it takes to complete the run, and will be recorded to the tenth of a second. You will be allowed a practice run to learn the course and to assist in the warm up. You will have a practice run through and two timed trials for this event.

(pause) Are there any questions?

DRAFT

Pull-up Test Script

The second test is the pull-up. This is a measure of the muscular strength and endurance of the upper body flexors. It is important for use of force encounters, and equipment lifting, and patient lifting and dragging. The score is the number of pull-ups completed.

Watch this demonstration.
Start by hanging from the bar with your hands slightly more than shoulder width apart, arms fully extended and palms facing away. On the command “GO”, using only your upper body, pull your body up until your chin is over the bar. Lower your body under control until your arms and elbows are fully extended, back to the starting position – this will constitute one repetition. If you skip, swing, or bicycle your legs while performing the pull-up test, the repetitions will not count and the technical violation will be verbally identified. You may rest momentarily in the ‘down’ position. Once you release the bar, the test is stopped; you may not remount the bar. There is no time limit. Do as many correct repetitions as possible. Your score is the number of proper form pull-ups performed.

(pause) Are there any questions?

DRAFT

Sit-up Test Script

The third event is the two-minute sit up, which measures muscular endurance of the abdominal muscles and hip flexors, an important area for many physical tasks and injury prevention.

Watch this demonstration. Lie on your back, with your knees bent at approximately a 90 degree angle. Your feet may be together or apart, but the heels must stay in contact with the surface. Another Agent will hold your feet and ankles. The tips of your fingers must stay behind your ears. When the test administrator acting as the timer for the group says “READY GO,” lift your upper body (head and torso) by bending at the waist, move your elbows to or past your knees. Return to the starting position, with your shoulder blades touching the surface. That will constitute one repetition.

If you arch your back, lift your buttocks from the ground, move your finger tips forward of your ears, fail to touch the knees, stop to rest in the down position, or fail to touch your shoulders to the ground, the repetition will not be counted and the technical violation will be verbally identified. You may rest momentarily in the ‘UP’ position only. You will have two minutes to do as many sit-ups as possible. The timer will announce 60, 30, and 15 seconds, and count down the last ten (10) seconds. Your score is the number of proper form sit-ups performed in 2 minutes.

(pause) Are there any questions?

DRAFT

Push-up Test Script

The fourth event is the 2-minute push-up, a measure of the muscular endurance of the upper body (chest, shoulders, and triceps). This is an important area for many tasks involving use of force, lifting, carrying, and pushing.

Watch this demonstration. Assume the front-leaning rest (UP) position by placing your hands on the surface, slightly wider than shoulder width apart, fingers facing forward. The back, buttocks, and legs must be in a straight line from the head to the heels. The feet may be together or up to twelve (12) inches apart. When the instructor says “READY, GO,” lower your body by bending the elbows until the center of your chest makes contact with the test administrator’s fist. Your back, buttocks, and legs must be in a straight line throughout the movement. Return to the starting position by fully extending your arms. This constitutes one repetition. You may rest in the up position and may arch or flex your back as long as your hands and feet do not move. You may slide your hands to adjust your position but not remove them from the ground (i.e. shaking them out)**.** If you do not keep your body relatively straight, do not touch the fist, or fail to extend at your elbows (short stroking), the repetition will not be counted and the technical violation will be verbally identified. The test will be considered over when the participant returns to a standing position or if one or both knees make contact with the ground. I will announce 60, 30, and 15 seconds, and count out the last ten (10) seconds. Do as many correct repetitions as possible in two (2) minutes. Your score is the number of correct push-ups.

(pause) Are there any questions?

DRAFT

1.5 Mile Run Test Script

The fifth event is the 1.5 mile run, a measure of cardiovascular endurance or aerobic capacity. This area is important for ruck marching, sign cutting, running pursuits, and litter carry situations lasting more than three minutes.

You will line up behind the starting line. At the command “READY GO” start running. (explain the course/track) Your goal is to complete the 1.5 miles as fast as you can. As you complete each lap your time and number of laps to go will be announced. If it is a straight away course your time will be announced at the ¾ mile mark. You may run alongside another runner for help with the pace, but you may not physically assist or be assisted by another runner. After the run walk slowly for an additional ¼ mile or at least 5 minutes to assist in your recovery.

(pause) Are there any questions?

DRAFT

250 Meter Swim Script

The sixth and final event for Day 1 is the 250 Meter Swim, a measure of cardiovascular endurance and general swimming ability. This area is important for performing rescue swimming and your own personal safety in the water.

You will line up at the pools edge in the water with at least one hand in contact with the wall. At the command “READY GO” you will push off the wall and begin to swim. You may use any swim stroke to complete the course. Your goal is to complete 250 meters as fast as you can. As you complete each 50 meter leg your time and number of laps to go will be announced. In a 50 meter pool, you will need to complete 5 lengths of the pool, your start and finish points will be on opposite ends of the pool. In a 25 meter pool, you will need to complete 10 lengths of the pool, your start and finish points will be on the same ends of the pool. You may not hold on to the sides of the pool at any time once the test has started.

(pause) Are there any questions?”

DRAF

Patient Evacuation Work Capacity Test Script

This is the Patient Evacuation Work Capacity Test. The Work Capacity Test is based on scenarios that were developed in collaboration with incumbent BORSTAR agents. Evaluation of this tests performance is based on the assumption that faster performance of the tasks lowers the risk of potential harm or injury to others or to self, resulting in a higher probability of successfully completing one's duty. So, time is the measure, with the faster the better. Try your best on this exercise."

This work capacity test is made of three main work components, a 1.5 mile ruck, 220 yard two-man litter carry, and a 220 yard four-man litter carry. This test will be conducted while wearing your required field uniform and carrying equipment, and medical supplies common to the BORSTAR position.
Listen as I describe the situation.

You received a call-out of an injured agent in the field who is in a life threatening situation. You have driven as close as you could to the location of the injured agent and have exited the vehicle and have donned your required gear. You hike 1.5 miles to the location of the injured agent. As you near the location of the agent, two other BORSTAR agents have arrived and join you. The three of you stabilize and package the patient in a litter. Air evacuation has been called and a landing zone has been identified ¼ mile away. As a group, the three of you decide that you and one of the other agents will carry the litter and the third agent will assist by carrying the medical packs. You pick up one end of the litter, and you and the other agent begin to carry the patient to the LZ. Halfway to the LZ (1/8 mile), two other agents join you and assist with the litter carry. You take one corner of the litter. You and the other three agents carry the patient another 1/8 mile to the LZ.

You will be all be wearing a standard uniform (read off the item list for the standard uniform above), a 20-lb preloaded chest rig, and a 30-lb Medical Bag. You will start at the 1.5 mile starting gate. (point to gate) You will begin in a standing position behind two cones that serve as a starting gate. On the command 'GO', move as quickly as possible 1.5 miles. Follow the cones to the furthest cone. The distance is 3/4 miles to the turnaround cone. When making the turn, go around the cone. Then re-trace your path back to the start gate. Once you pass back through the start gate remove the 30 lb. pack with assistance from a test administrator. The time will <u>not</u> stop. After the pack is removed, you will immediately start the next phase of the exercise. The second gate is immediately perpendicular to the first gate. Squat and pick up two (2) 45 lb. kettlebells. Move as quickly as possible 220 yards (1/8 mile) which is 110 yards out around the cone and back. You may rest at any time as long as you squat and place the dumbbells on the ground. Once you return, go around the cone, squat and place one dumbbell on the ground. Move as quickly as possible 220 yards (1/8 mile) carrying one (1) 45 lb. kettlebell which is 110 yard out around the cone and back to the finish line. You may switch the dumbbell from hand to hand as long as you squat and place it on the ground. Time ends when you cross the finish gate.

(pause) Are there any questions?"