

Physical Fitness Assessment Matrix

This Physical Fitness Assessment is designed to evaluate the conditioning and overall physical fitness of the individual Fire Crew Members at Balcones Canyonlands NWR. The information gained from this assessment can be used to evaluate the strengths and weaknesses of each Firefighter and thereby aid in the design of conditioning programs and the evaluation of individual progress in physical training. Information from the results is also used to establish basic fitness guidelines for the Balcones Fire Crew.

Assessment Instructions

Administrators of the Physical Fitness Assessment must follow the specific instructions for each assessed component. The results are only as accurate as the procedures followed. If not followed correctly, the results will not be valid and the integrity of the system will be jeopardized. To ensure accuracy, more than one Administrator per component is recommended. Each Firefighter must be instructed identically and perform the individual assessed components correctly, otherwise the score is not valid.

The assessment must be completed in one day to assure standardization of all assessments. Firefighters should wear apparel appropriate for the activities. Each Firefighter will be weighed the day of the assessment (before assessment begins) to determine scores in the components of the assessment that are based on the Firefighter's body weight. The order of assessed components is listed below. Each Firefighter must follow this order. Failure to perform the assessment in order will invalidate the assessment result for that Firefighter.

Assessment Procedures

Order of Components

- 1st. 1.5 Mile Run
- 2nd. Bench Press
- 3rd. Leg Press
- 4th. Pull-ups
- 5th. Bar Dips
- 6th. Sit-ups
- 7th. Push-ups

The **1.5 mile run** component will be completed on a quarter mile track or other relatively flat and smooth surface of a known distance. All Firefighters participating in the assessment will perform this component at the same time with one or more Administrators keeping track of the number of laps completed and the times of each Firefighter.

The **bench press** and **leg press** components of the assessment will be conducted in the following way. A starting amount of weight will be placed on the barbell/hip sled and each Firefighter will have the opportunity to attempt at least one repetition with that amount of weight. For the next round, the amount of weight will then be increased, and again, each Firefighter will have the opportunity to attempt a repetition. It will be left to the individual

Firefighter's discretion whether or not he/she will attempt to lift the weight for each round. The starting weight and amounts for each successive round will not be set and will be left to the discretion of the Administrators and the Firefighters participating in the assessment.

Firefighters will complete the remaining components in the order listed above. Each specific component must be completed by all Firefighters before any individual can begin the next component. The rotation of the Firefighters through each component will be left to the discretion of the Administrators.

Specific Component Instructions

These instructions should be thoroughly understood by all assessment administrators prior to the assessment and should be explained completely to all Firefighters before each specific assessed component.

1.5 Mile Run

This is a timed event of running six (6) times around a regulation quarter-mile (440 yard) track. The Administrator will begin the assessment component on the command, "READY, SET, GO." Firefighters will begin on "GO", and complete the 1.5 miles as quickly as possible.

The score for the 1.5 mile run will be recorded in minutes and seconds (mm:ss), rounding to the nearest second.

Note: To compensate for decreased aerobic performance at altitude, subtract 2% from the recorded times for each 1000 feet above 5000 feet in elevation. For example, to correct a time of 10:30 recorded at 7000 feet: $10:30 = 630$ seconds, $630 \times 0.02 = 12.6$ seconds, $12.6 \times 2 = 25.2$ seconds ($7000' - 5000' = 2000'$), $630 - 25.2 = 605$ seconds = 10:05.

Bench Press

Lie in a supine position on a flat bench with your legs positioned at the sides of the bench and your feet flat on the floor. Using a hand grip that is about six (6) inches wider than your shoulder width, bring the barbell to arms length above the chest but in line with the shoulders. Lower the barbell to a position on the chest that is about an inch below the nipples of the pectorals. Lower the bar with complete control. Do not drop the weight and bounce the bar off the chest. This will be considered a break in form. Keep the head and shoulders on the bench and do not arch the back too sharply as to raise your hips off the bench. The Firefighter must complete one (1) repetition of this exercise with the desired amount of weight on the bar. Any breaks in form will result in that repetition not being counted.

The maximum amount of weight which the Firefighter can complete one repetition without a break in form will be recorded the Firefighter's score.

Leg Press

Sit down on the hip sled with your back on the padded support. Adjust safety brace and back support to accommodate near full range of motion without forcing hips to bend at waist. Place your feet on the platform. Your feet should be in the center to top of the platform and about shoulder width apart. Extend hips and knees. Release safety levers and grasp handles to sides. Lower the weight by flexing the hips and bending the knees. Lower weight down until your calves are at a 90° angle to your quads. If the Firefighter fails to bring his/her legs to a 90° angle, it will be considered a break in form. Return by extending knees and hips to starting position without locking at the knees. Keep knees pointed in the same direction as feet. Do not allow heels to rise off of platform. This will also be considered a break in form. The Firefighter must complete one (1) repetition of this exercise with the desired amount of weight on the hip sled. Any breaks in form will result in that repetition not being counted.

The maximum amount of weight which the Firefighter can complete one repetition without a break in form will be recorded the Firefighter's score.

Pull-ups

Start with the hands positioned shoulder width apart. The knuckles of the hand must face the Firefighter. Thumbs may be wrapped around the bar or held parallel against the bar. The Firefighter must start in a hanging position with the arms fully extended. The Firefighter begins by pulling upward towards the bar until the chin reaches up and over the bar. This counts as one (1) pull-up. To start again, the Firefighter lowers his/her body back down until the arms are fully extended, then begins to pull his/her body upward towards the bar again. These movements are repeated in a continuous manner. The release to the starting position must be down in a controlled manner as well as the motion upward. Any abnormal or uncontrolled movements to attain a pull-up will not be counted. If these movements become continuous, then the assessment will be over.

The number of times the Firefighter's chin reaches up and over the bar while adhering to the above procedures is recorded as the Firefighter's score.

Bar Dips

Start with the hands on two parallel bars and the arms at full extension. To begin, the Firefighter lowers his/her body by flexing the arms at the elbows, allowing a smooth, controlled movement downward. Once the elbows are flexed at a 90° angle, the Firefighter then proceeds to extend his/her arms upwards until the arms are fully extended, almost to the point of locking elbows. Repeat this sequence of movements without pauses until form breaks. A pause is a two (2) second or greater lapse in movement. Hand position or orientation may not be adjusted once the assessment is started. A bar dip without full extension or a full 90° flexion is not considered a break in form, although they are not counted. If this type of inadequate movement becomes consistent, it will be considered a break in form. A break in form ends the assessment.

The number of times the Firefighter reaches full extension of the arms followed by a flexion of the arms without a break in form is recorded as the Firefighter's score.

Sit-ups

This is a timed event to determine the number of sit-ups that can be performed in sixty (60) seconds. Start with the Firefighter lying on his/her back, with the knees bent at the 9 o'clock position, and with the feet flat on the ground no more than twelve (12) inches apart. Arms are crossed over the chest (right hand on left shoulder, left hand on right shoulder), and held at right angles to the chest while thumbs touch the clavicles. The feet must be held flat on the ground. The Administrator kneels or sits straddling the Firefighter's feet, placing his or her hands on the calves of the Firefighter's legs just below the back of the knee to prevent the Firefighter from sliding and to maintain the starting position of the legs throughout the assessment. The Timer will begin the assessment with the command, "READY, SET, GO." The Firefighter will begin on "GO" and start to perform sit-ups as rapidly as possible while adhering to proper form. The movement, "sit up and return," is counted as one (1) execution. Proper form requires the Firefighter to raise his/her trunk from the floor until the elbows touch the knees, followed by a return of the shoulder blades to the ground. The upper arms should be held out away from the body at a 90° angle. The thumbs must remain on the clavicles during the assessment. The counting terminates after 60 seconds, on the command, "STOP."

The score is recorded as the total number of sit-ups completed by the Firefighter while adhering to the above procedures.

Push-ups

Start with body facing the ground, thumbs directly under each shoulder, with index fingers facing forward. Back and legs should be straight. Feet are close together and ankles are positioned at about a 90° bend between the lower leg and foot. Body weight rests on the toes and palms of hands. The Test Administrator will place a hand on top of a four-inch (4") block which is placed on the ground under the Firefighter's chest. The Firefighter will then lower

his/her body with arm flexion until the chest touches the Administrator's hand and then extend arms to the start position. Repeat this sequence, without pauses, until form breaks. A pause is a two (2) second or greater lapse in movement. No pausing is allowed at extension of arms. A form break is any deviation from a straight back, including: bowing, hunching, or a dolphin like action. Hand position or orientation may not be adjusted once the assessment begins. Push-ups in which the arms do not reach full extension are not considered a break in form, although they will not be counted. The assessment ends at the first break in form. This push-up will not be counted.

The number of times the Firefighter's chest touches the Administrator's hand while adhering to the above procedures is recorded as the Firefighter's score.

Evaluation

This assessment will be evaluated following the basic format of the Employee Performance Appraisal Plan (EPAP). A score will be given for each part of the assessment as well as a total score. Both the scores for the individual parts of the assessment and the total score will be used to determine the performance level achieved by the individual Firefighter. The five performance level used are: **Exceptional**, **Superior**, **Fully Successful**, **Minimally Successful**, and **Unsatisfactory**.

Performance Levels

see table below

Exceptional

To achieve a performance level of **Exceptional**, the individual must receive a total score of at least **21** points and 5 individual exercise scores greater than or equal to **3**.

Superior

To achieve a performance level of **Superior**, the individual must receive a total score of at least **14** points and 5 individual exercise scores greater than or equal to **2**.

Fully Successful

To achieve a performance level of **Fully Successful**, the individual must receive a total score of at least **7** points and 5 individual exercise scores greater than or equal to **1**.

Minimally Successful

To achieve a performance level of **Minimally Successful**, the individual must receive a total score of at least **5** points and 5 individual exercise scores greater than or equal to **1**.

Unsatisfactory

Any total score or individual exercise scores that are less than required for the performance level of Minimally Successful will be considered **Unsatisfactory**.

	Minimum Total Score	5 individual exercise scores = or >
Exceptional	21	3
Superior	14	2
Fully Successful	7	1
Minimally Successful	5	1
Unsatisfactory	-	-

Notes

This assessment is based on the Physical Fitness Assessment Matrix used by the Jackson IHC which, in turn, was derived from the US Ski Team's own physical fitness assessments. Other reference sources were *Fitness and Work Capacity 2nd ed.*, the *US Army Physical Fitness Manual FM 21-20*, and the *Marine Corps Physical Fitness Test and Body Composition Program Manual*. Various internet sources were also used to determine proper exercise form and technique.

Physical Fitness Assessment Matrix

Individual Score Sheet

		Exercise					
Score	1.5 mile run	Bench Press	Leg Press	Pull-ups	Bar Dips	Sit-ups /1 min	Push-ups
5	9:00	1.8 x body wt.	4.5 x body wt.	20	30	70	95
4	9:30	1.6 x body wt.	4.0 x body wt.	16	27	60	80
3	10:00	1.4 x body wt.	3.5 x body wt.	12	23	50	65
2	10:45	1.2 x body wt.	3.0 x body wt.	9	19	40	50
1	11:45	1.0 x body wt.	2.5 x body wt.	6	15	30	35
Result	 						
Score	 						
						Total	
						Performance Level	

Place your results in the appropriate column of this score sheet. Determine your score by rounding **DOWN A ROW** to the nearest number and reading from the score column to the left.

Physical Fitness Assessment Matrix

Individual Data Sheet

Name: _____

Test Date: _____

Weight: _____

Assessment Component Results

1.5 Mile Run: _____ minutes _____ seconds

Bench Press: _____ pounds, _____ % body weight

Leg Press: _____ pounds, _____ %body weight

Pull-ups: _____

Bar Dips: _____

Sit-ups: _____

Push-ups: _____