

Firefighter Medical-Fitness Assessment



POTENTRx is committed to optimizing the health and performance of all firefighters. In conjunction with the American Council on Exercise, developers of the CPAT test for firefighters, we have created a comprehensive medical fitness assessment that uncovers hidden health risks and measures the functional capacity of firefighters to perform their tasks. Our assessment meets standards established by NFPA 1582 for comprehensive occupational medical programs for fire departments. Information obtained from the assessment is confidential and presented only to the firefighter and designated personal medical providers.

The assessment includes six important components: (1) medical screening – a comprehensive physical exam and blood panel; (2) pulmonary – lung function tests and chest x-ray; (3) cardiovascular – 12-lead EKG exercise stress test; (4) physiological – tests for aerobic and anaerobic capacity, including lactate profile; (5) musculoskeletal – an evaluation of joint integrity and functional movement; and (6) consultation – same day report, in person, with our physician and other providers to discuss results and recommendations.



The assessment requires four hours and is delivered at POTENTRx. The medical test results are reviewed by Dr. Sarah Speck to confirm the immediate health of each firefighter and to identify any long-term cardiometabolic risk factors that may be present. Dr. Dan Tripps will review the fitness data comparing each firefighter's physiological performance with standards established by ACE and IAFF. Together, they prepare a formal report for each firefighter that includes medical and exercise recommendations.



Prior to your visit, you complete a health history which establishes health and fitness goals, confirms specific issues of concern, and provides baseline data for discussion during your initial consultation and physical exam. The physical exam is accompanied by a comprehensive **blood profile**, **lung function tests**, **chest x-ray**, and a complete **musculoskeletal evaluation**.

Firefighter Medical-Fitness Assessment Details

Health Component

Fitness Component

The fitness component includes tests for the performance attributes below.

- **Body Composition**
- **Resting Metabolic Rate**
- **Cellular Health**
- **Aerobic Capacity (VO_{2max})**
- **12-Lead EKG**
- **Lactate Profile**

(continued)

Service Descriptions

• BODY COMPOSITION

Body composition provides an accurate measure of fat and lean mass, both of which are vital aspects of health, sport performance and critical information for weight management. To ensure accuracy and reliability, the staff calculates body composition through three different methods – girth and proportionality, a four-site skin fold measurement with calipers, and bioimpedance.

• RESTING METABOLIC RATE

Resting metabolic rate (RMR) refers to the number of calories the body needs to support its basic physiological functions. RMR generally provides 60-75% of the total daily caloric expenditure and knowing RMR is important for both weight management and nutritional planning. The test is conducted by breathing through the facemask of a Cosmed FitMate Pro metabolic analyzer for 15 minutes while lying down or through a process known as bioimpedance.

• CELLULAR HEALTH

Staff connect standard EKG sensor pad electrodes to your wrist and ankle while lying down and measure resistance and reactance of the current as it passes through the body. The Biodynamics analyzer computes intercellular and intracellular water content of your body critical for maintaining cellular health and preventing over-training plus calculate resting metabolic rate and fat-free mass, critical variables for optimizing nutrition and body composition factors of successful performance.

• AEROBIC CAPACITY / 12-LEAD EKG

Firefighters are put through a stress test/EKG, which monitors their heart while they perform a VO_{2max} test. This is critical for determining a firefighters risk stratification, as well as their ability to perform strenuous activity.

• ANAEROBIC CAPACITY / LACTATE PRODUCTION

Lactate is measured using a Lactate Pro device to analyze blood taken from a finger prick similar to managing blood sugar in diabetic patients. Samples are drawn at the end of the aerobic capacity test to measure lactate clearance, a critical function for individuals who desire to perform repeated intense anaerobic activity in sport or work.

• MUSCULOSKELETAL EXAM

Using observation, palpitation, and selected functional tests, a physical therapist conducts a 65-point assessment of posture, balance, reflex mechanisms, muscular strength symmetry, range of motion (flexibility) in all three planes, dynamic capacity and kinetic chain stability that result in a clear understanding of your musculoskeletal integrity.

For details and pricing about the services listed in this flyer, please call (206) 432-9436

POTENTRx Founders

Sarah Speck, MD, is a cardiologist and Medical Director of the Swedish Heart & Vascular Institute Cardiac Wellness Program. With her help, the Institute has become a national leader in the early detection and prevention of heart disease, disease-reversal and disease management techniques. Dr. Speck serves as a clinical assistant professor at the University of Washington's School of Medicine.

Dan G. Tripps, PhD, directs the Center for the Study of Sport and Exercise at Seattle University and the Center's Human Performance Lab. His research and clinical practice focus on physical and mental aspects of high performance. Dr. Tripps has coached world-class swimmers and triathletes, served as Executive Director of the Olympic Scientific Congress associated with the 1984 Olympic Games, and has published 12 books on achievement and performance.

Fitness Report

FF Name:

Body Fat %

35.9%

Date: 4/8/2010

Age: 42

BP

112/60

VO₂ Max (Aerobic Capacity)

VO₂ MAX

50.06

ml/kg/min

HR MAX

187

bpm

LT₂

81%

% VO₂ MAX

METS

14.3029

LT₂

84%

% HR MAX

Males							Females						
Age	Very Poor	Poor	Fair	Good	Excellent	Superior	Age	Very Poor	Poor	Fair	Good	Excellent	Superior
13-19	0-34.9	35.0-38.3	38.4-45.1	45.2-50.9	51.0-55.9	56.0+	13-19	0-24.9	25.0-30.9	31.0-34.9	35.0-38.9	39.0-41.9	42.0+
20-29	0-32.9	33.0-36.4	36.5-42.4	42.5-46.4	46.5-52.4	52.5+	20-29	0-23.5	23.6-28.9	29.0-32.9	33.0-36.9	37.0-41.0	41.1+
30-39	0-31.4	31.5-35.4	35.5-40.9	41.0-44.9	45.0-49.4	49.5+	30-39	0-22.7	22.8-26.9	27.0-31.4	31.5-35.6	35.7-40.0	40.1+
40-49	0-30.2	30.2-33.5	33.6-38.9	39.0-43.7	43.8-48.0	48.1+	40-49	0-20.9	21.0-24.4	24.5-28.9	29.0-32.8	32.9-36.9	37.0+
50-59	0-26.0	26.1-30.9	31.0-35.7	35.8-40.9	41.0-45.3	45.4+	50-59	0-20.1	20.2-22.7	22.8-26.9	27.0-31.4	31.5-35.7	35.8+
60+	0-20.4	20.5-26.0	26.1-32.2	32.3-36.4	36.5-44.2	44.3+	60+	0-17.4	17.5-20.1	20.2-24.4	24.5-30.2	30.3-31.4	31.5+

Lactate Clearance

(min)

1

11.2

mMol/L

3

10.2

mMol/L

5

10.5

mMol/L

Spirometry

(Liters)

(% Predicted)

FVC

6.3

L

118%

FEV₁

4.49

L

104%

FEV₁/FVC

72.2%

91%

Norms:

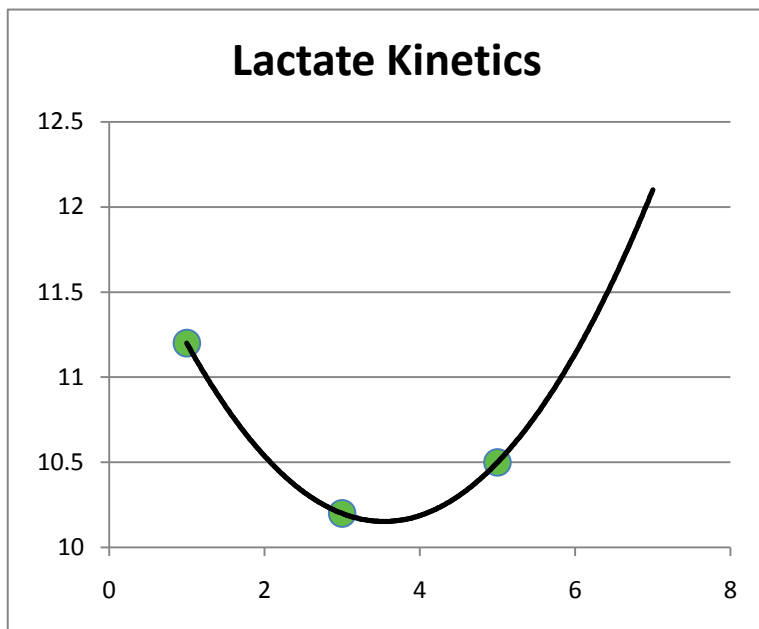
Normative Values in Liters			
FVC Range		FEV Range	
4.06	5.24	3.16	4.26

Degree of Restrictive or Obstructive Lung Disease (%)						
	Normal	orderlin	Mild	Moderate	Severe	Very Severe
VC	>80	70-79	65-80	50-64	35-49	<35
FEV ₁	>80	70-79	65-80	50-64	35-49	<35

EKG Report

Good test. No arrhythmia's. Patient held Max VO2 for about 2 minutes!

Additional Notes



METABOLIC PRESCRIPTION

POTENTRx

Name	Sample	Age	Test Date	1/19/2010
		Ht (in)	Test Time	10:34 PM
		Wt (lbs)	Protocol	Custom

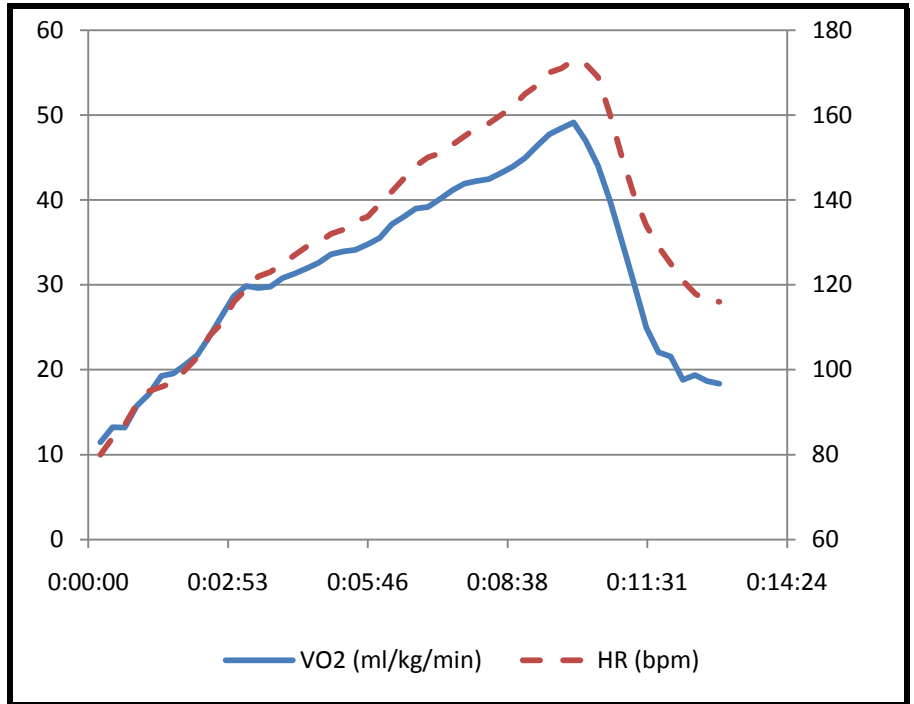
VO₂ MAX	49.12	Avg. Relative VO₂	31.60 ml/kg/min
	ml/kg/min	Absolute VO₂	3566 ml/min
		Avg. Absolute VO₂	2294 ml/min

Aerobic Threshold	60.8%	29.85 ml/kg/min	2 RPE
		119 bpm	4.25 mph

Anaerobic Threshold	75.6%	37.15 ml/kg/min	5 RPE
		142 bpm	5.75 mph

HR Zones

	HR	to	HR
REC	100	to	115
AEG1	116	to	121
AEG2	122	to	139
LAC	140	to	145
ANG1	146	to	160
ANG2	161	to	172
ATPCP	173		



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