

Overview and Background of EMT-SAFE

Ambulance attendants, Emergency Medical Technicians (EMT) and Paramedics are exposed to a number of heavy job demands as a routine part of their daily work. Job demands for ambulance workers fall within the heavy to very heavy level of physical requirement, characterized by at least occasional lifting of up to 100 lbs. In reality, when critical job tasks, such as lifting and carrying a patient on a stretcher up or down a flight of stairs, are measured, the actual job demands exceed even this heavy level from time to time. A literature review of studies looking at work place factors that are linked to injury concluded that there is strong evidence of a correlation between back injury and heavy job demands overall, and heavy lifting in particular. Because of the nature of the work and the occasional heavy lifting demands, ambulance attendants are at increased risk for low back injuries as compared to the general population.

Given that the critical job demands of ambulance attendants occasionally require heavy lifting and carrying, it is reasonable to ensure that those hired for this work are well prepared and have the physical capacity to perform these critical demands safely.

In developing the EMT-SAFE, the job demands of ambulance workers were observed, measured and documented. From these observations a list of critical job demands was developed. These critical demands are aspects of the job that the employee must be able to complete, and are typically the most physically demanding. Based on the list of critical job demands, simulations were developed which would test candidates safely and objectively. Once the simulations were developed, working ambulance staff were assessed using the EMT-SAFE process to ensure the tests were a valid representation of the nature and intensity of ambulance work.

The following functional screen has been developed considering the documented job demands for ambulance attendant, EMTs and paramedics.

EMT-SAFE Components:

The EMT-SAFE consists of:

- 1) a basic musculoskeletal screen exam
- 2) a cardiovascular test and
- 3) functional testing of simulated job tasks.

1. The basic musculoskeletal screen is conducted by a licensed Physical Therapist, and is used to identify any biomechanical issues that may affect physical testing.
2. Cardiovascular screening, conducted by a C.E.P. qualified Exercise Therapist, requires candidates to meet a standard level identified for ambulance workers. This level is based on the cardiovascular requirements for carrying heavy loads during stair climbing. See chart below for details of the 10 minute treadmill testing.

Bruce Treadmill Test

Time (Minutes)	Speed (mph)	Grade (%)
1	1.7	10
2	1.7	10
3	1.7	10
4	2.5	12
5	2.5	12
6	2.5	12
7	3.4	14
8	3.4	14
9	3.4	14
10	4.2	16

Note that candidates are not permitted to support themselves by the handrails during treadmill testing, other than momentarily to maintain balance if required. If the candidate cannot continue without additional balance support, testing will be discontinued.

A maximum of five minutes break is allowed from completion of active assessment on the treadmill until starting functional testing. This is enforced for consistency of testing.

3. Functional testing of simulated job tasks, conducted by a Certified Occupational or Physical Therapist consisting of 4 tasks:
 - a. Screening of lifting ability - Job demands for ambulance attendants require lifting and transferring patients. This is simulated by lifting a progression of weights from floor to waist height (50, 75, 100, and 125 lbs).
 - b. Equipment carry simulation - Job demands for ambulance attendants require that they have the physical capacity to lift and carry work-related equipment. This is simulated by carrying equipment up and down 2 flights of 11 steps. Three bags (weighing 20, 25 and 30 lbs.) are carried in each hand and over the shoulder.
 - c. Stretcher stair climb simulation - Job demands of ambulance attendants occasionally require carrying a patient in a stretcher up and/or down stairs. This is simulated by carrying a weighted curl bar (125 lbs.) up and down 2 flights of 11 steps. Candidates must climb one flight of stairs forward and one backward to simulate carrying either end of a stretcher.
 - d. Ambulance loading – The applicant will be required to demonstrate safe loading and unloading of a stretcher into the back of an ambulance (or simulated deck at 32 inches) with a stretcher loaded with 200 lbs. (average male patient weight), with demonstration of ability to lift to the required level at both the head and foot end of the stretcher.

Pass/fail Criteria:

Demonstration of safe body mechanics throughout the functional testing components, as observed by Occupational or Physical therapists who are certified Functional Capacity Evaluators. Meeting the

predetermined cardiovascular standard of fitness during treadmill testing to match the aerobic demands of EMT's, paramedics, and ambulance attendants. Standard is determined from the cardiovascular requirements for carrying heavy loads on stairs. Note that if the candidate does not meet the standard during cardiovascular treadmill testing, he/she may continue with functional tasks for the experience of completing the full test, however, will not pass the testing.

If the candidate does not meet standards for either the cardiovascular or the functional tests, the candidate must complete all test components on a return date regardless of time lapse between EMT-SAFE testing.

Registration Process for EMT-SAFE

Registration Packages for EMT-SAFE are available:

- Down-loadable format on line Registration Package
- By fax 655-7878
- By mail, call and request at 655-8974

Candidates will be scheduled for a testing time coordinated with MD Ambulance hiring processes.

The Registration Package consists of four documents:

The Registration Form contains basic demographic and contact information needed to arrange EMT-SAFE testing. Please bring the completed form with you to Kinetik at the time of your pre-scheduled appointment time

- The Medical Consent Form must be completed by the applicant's family physician. This completed form will be required at the time of testing. Applicants must submit a copy of this form, completed within 6 month prior to participation in EMT-SAFE. Note: This form is also accepted as the Emergency Medical Services (EMS) Care Provider's Physician Certificate, required by Saskatchewan Health for registration as an EMT. Your family physician may require a separate fee to complete this form.
- The Health Screen Questionnaire information helps to ensure that applicants are safe to proceed with EMT-SAFE testing. All information provided to Kinetik remains confidential. This form will be reviewed with you at the time of testing.
- The Consent Form will be reviewed with you prior to commencing testing.

Fees and Payment Options

There is a \$200.00 Fee for assessment.

Please pay the \$200.00 fee on the day of assessment at the cashier's office (Main Floor – Saskatoon City Hospital) prior to coming to Kinetik for testing. Bring your registration form and your signed medical consent form with you to Kinetik (8th floor - Saskatoon City Hospital) on the day of your pre-booked testing appointment.

How to Prepare for EMT-SAFE

The EMT-SAFE is designed to assess an individual's muscular strength and endurance as well as their aerobic capacity. It is a physically demanding test, as it is testing parameters based on the occupational demands of an EMT/Paramedic. Below are some general guidelines that may be helpful as you prepare for the EMT-SAFE. If you are not accustomed to vigorous exercise, it is recommended that you consult with your family physician prior to initiating any training program.

Muscular Strength and Endurance

- Specific Muscle Groups to Target:
 - Quadriceps
 - Hamstrings
 - Gluteals
 - Pectorals
 - Upper Trapezius
 - Biceps
 - Abdominals & Back Extensors

- Intensity Guidelines:
 - Repetitions: 8-15 per exercise
 - Sets: 2-4 per muscle group

Aerobic Conditioning

Aerobic conditioning should take place within your Target Heart Rate:

e.g. $220 - \text{your age} \times 60\%$ = lower range

$220 - \text{your age} \times 80\%$ = upper range

During the aerobic component of your exercise program, your Target Heart Rate should be maintained within this upper and lower heart rate range.

Increases in muscular strength and aerobic fitness are achieved by gradually increasing the resistance, intensity and duration of exercise sessions. Improving physical performance takes time. The EMT-SAFE tests are physically demanding. Those candidates who participate in physical activity regularly and who prepare themselves with a realistic understanding of the demands required should be adequately prepared for the EMT-SAFE; however, prior training/exposure to cardiovascular training on a treadmill is strongly recommended.

Consultation for individual training programs developed specifically to meet the EMT-SAFE requirements is available at Kinetik, 655-8974

Instructions to Applicants for the Day of Testing

- EMT-SAFE testing takes place at Kinetik, 8th Floor, Saskatoon City Hospital, 701 Queen St., Saskatoon, SK.
- Ensure that you bring the completed Medical Consent Form and Health Screen Questionnaire with you on the day of testing. A consent form will be filled out prior to testing once you have been oriented to the testing procedure and have had the opportunity to clarify any questions you have.
- If you have completed an EMT-SAFE test with Kinetik within the last six months, notify us in advance to have your medical information retrieved from our files.
- Please ensure that you arrive at the scheduled time.
- Dress in appropriate clothing for activity (shorts or sweat pants, T-shirt, and supportive running shoes).
- Paperwork will be taken care of first, and then we will do resting measures for heart rate and blood pressure. Resting heart rate and blood pressure are required to be below 100 bpm and 150/100 mmHg respectively for EMT testing to proceed. Applicants will then proceed to the musculoskeletal screen followed by aerobic testing. After these are complete, applicants will proceed to the Functional Testing component.
- Ensure that you are well rested on the day of testing.
- Bring a light snack and a water bottle.
- Limit eating in the 2 hours prior to testing.
- Do not smoke for at least 2 hours prior to testing.
- Refrain from drinking caffeinated beverages for 2 hours and alcoholic drinks for six hours prior to testing.
- Avoid other strenuous physical exercise on the day of testing.