

FREQUENTLY ASKED QUESTIONS

Participation/Fit Testing Questions

What will I have to do if I participate?

1. Prior to your scheduled appointment, you will be asked to watch a 12-minute video about respirators. This video includes topics that would be covered in a respirator training session during fit testing (e.g., respirator selection, mask donning, and fit check procedures).
2. You will be asked to come to the Gage Building (223 College St., M5T 1R4, Toronto, Ontario) or a pre-selected testing site on your scheduled appointment date. You must be clean-shaven upon arrival and refrain from smoking at least 30 minutes before testing.

At the Gage Building or pre-selected testing site, you will be asked to:

1. Complete a daily COVID screening form (if required at time of testing) and sign a consent form. The consent form will be sent to you in advance to provide you time to read it and ask questions before participating.
2. Complete an online 15- to 30-minute questionnaire collecting information about you (e.g., age, smoking history), your job (e.g., experience, job title), and your experience with respirators and respirator training. The information will assist us in understanding your experience with respirators and be used to identify factors that may influence respirator fit.
3. Wear monitors to measure heart rate, blood pressure, and oxygen saturation either during or between fit tests. This will be used to measure exertion and to evaluate how fit testing/wearing a respirator affected your body.
4. Have measurements of your weight, height, body (e.g., wrist and waist circumference) and face dimensions taken before fit testing. Face measurements will be taken using a special ruler (width, length) and a 3D scanner (bare-faced and when wearing each respirator). These measurements will be used assist in respirator selection (bare-face), to identify leaks, and to observe how well the respirator fits your face before and after use.
5. Perform quantitative fit testing on **three** different respirators following **two** different protocols. This will take approximately 30 minutes per respirator.

The respirators are all air-filtering respirators and will include 1) a disposable N95, 2) a half-face elastomeric respirator, and 3) a full-face elastomeric respirator **OR** a powered air purifying respirator.

Protocol 1 = the Canadian Standards Association (CSA) Group fit testing protocol that is followed in Canadian workplaces.

Protocol 2 = a modified protocol where you will perform paramedic tasks (e.g., compressions, lifting “patient” from floor to stretcher) that are hypothesized to put paramedics at risk of breaking the seal of the respirator.

NOTE: If you are interested and time allows, you can complete fit testing on all four respirators.

Why do I have to watch the respirator training video before I come for fit testing?

Respirator training/review should be done before you are fit tested. This is part of the recommended practice in fit testing in Canada. Watching the video before you arrive will decrease the duration of time you need to be at the testing site.

What will happen if I forget to watch the respirator training video before I come for fit testing?

You will be able to watch the training video at the test site if you have not watched the training video before your appointment.

What do I have to bring with me when I come for fit testing?

Please bring long pants, a long or short sleeve shirt (i.e., not tank tops), and steel toe shoes for fit testing. If possible, please also bring any fit testing results (i.e., card) you have received from fit testing conducted by your service. These should indicate the respirator model and size.

What type of facial hair is acceptable?

Facial hair that lies along the seal of a respirator, such as beards, sideburns, or some mustaches, will interfere with respirators that rely on a tight face-piece seal to achieve maximum protection. Please see the [US CDC graphic](#) illustrating acceptable facial hair.

What will happen if I forget to shave before my fit test appointment?

Shaving supplies will be available at the fit testing site in case your facial hair is not acceptable following the [US CDC graphic](#).

What are anthropometric measurements and why are you taking them?

Anthropometric measurements are measurements of different body parts.

Body measurements like weight, height and wrist/waist circumference are standard measures taken to describe participants in research studies and are sometimes used as health measures. We will also investigate if these measurements influence if someone passes/fails a fit test.

Facial measurements such as facial width and face length are taken to help select the size of respirator for a worker. A 3D scan can provide more detailed dimensions of a worker's face and potentially identify different facial characteristics that affect respirator fit compared to the standard width and length measurements. The 3D scans with the respirator on will help identify leaks in the

mask that may be difficult to observe with the human eye or detected by the wearer. The results of 3D scans will be compared with fit testing results.

What physiological measurements will be taken during fit testing?

- Heart rate and heart rate variability will be measured using a chest strap sensor, like those used by people during exercise.
- Oxygen saturation will be measured by wearing a flexible silicone ring linked to a wrist strap.
- Blood pressure will be taken using a standard automatic blood pressure monitor and arm cuff before fit testing, and after wearing each type of respirator.

These measurements will allow us to know how hard your body worked during fit testing and if wearing different respirators influenced these measures.

What will the questionnaire data be used for?

The questionnaire collects information about your background and health (e.g., ethnicity, age, gender), your work experience (e.g., your job title, experience level), experience with respirators and fit testing (e.g., use information, comfort and fit), and respirator training.

The questionnaire results will be used to investigate if these questions influence if someone passes/fails a fit test.

Why are you testing different types of respirators?

Currently there is no standard practice on the type of respiratory protection worn among paramedics in Canada when treating potentially infectious patients. The respirators we are testing provide a wide range of protection level. By testing the different respirator types, we can provide better advice on the level of protection that will safely protect paramedics during demanding tasks.

Can I bring my work respirator for fit testing?

You can bring your respirator with you, but for quality control purposes you cannot be fit tested on it. The fit testing must be done using respirators in good working condition, using only the study respirators ensure this condition is met. It is possible we have the same respirator model in our supply that you can wear.

How will the respirators I wear be determined?

The respirator you wear during the fit test can be a decision made between you and the research team. Things that will be considered in the selection include a selection based on i) the respirator that best fits your face based on your facial measurements, ii) selection of the respirator you

currently use (if available), iii) selection of a respirator you have fit test card results for so you can compare your results to your previous results, and iv) personal interest/preference.

How is a simulated work fit test different from a standard fit test?

A standard fit test follows a set of seven standard exercises that mimic movements that may be done during work tasks (e.g., nodding head slowly up/down, slowly bending at waist, talking loudly).

A simulated work fit test is a fit test that is performed a real work task (e.g., compressions on a mannequin, lifting “patient” from floor to stretcher) in a controlled environment (i.e., simulated). The movements in a simulated work fit test will be as close to the movements done during the task in the field, so are a better representation of how your body would move when wearing the respirator on the job than the standard fit test exercises.

What paramedic activities are you testing?

The paramedic activities that we are currently testing include:

- Carrying equipment bags (standard weight) to patient
- Compressions on the floor, and on stretcher
- Advanced airway management on the floor, and on stretcher
- “Patient” transfer from floor to stretcher
- Manual stretcher transfer and loading onto platform (i.e., simulating ambulance)
- Unloading manual stretcher from platform
- “Patient” stair transfer (pending)

Who will help me with two-man paramedic activities?

You will be assisted by a research team member trained in paramedic tasks by a paramedic. This may include trained paramedics or paramedic students.

Are there any risks to 3D scanning my face?

There are no dangers to 3D scanning your face.

The 3D scanner works by projecting a light source onto an object (i.e., your face) where a camera system measures the distance between the light source and object as the scanner moves. The software then pieces these scans together to create a 3D image of the surface scanned.

What happens if I do not pass a fit test?

You will repeat the standard CSA fit testing procedure if you receive a test “fail” for the overall fit factor score. If you fail a second time you will continue to the modified fit testing protocol. You will not repeat the simulated work fit testing if you fail.

Background on Respirators and Fit Testing

What are air-filtering respirators?

There are many types of respirators. Respirators are often separated by how they provide clean air and are classified as air-purifying or air-supplying respirators.

Air-purifying respirators use a filtering mechanism to clean “dirty” air before the worker breathes it in. For bioaerosols this involves using HEPA filters, called cartridges, or disposable respirators made of HEPA material (e.g., N95). These respirators can be non-powered (i.e., worker required to breathe through filters) or powered (i.e., a power source pushes air through the filters for the worker).

Air-supplying respirators provide a source of clean air that is delivered to the wearer. This is done by carrying an air tank where the worker moves (i.e., self-contained breathing apparatus) or by being connected to an airline that provides clean air from an area away from the hazard.

What are tight-fitting respirators?

Tight-fitting respirators are respirators that require a tight seal between the respirator and the wearer's face to work properly. Some examples include filtering face-piece respirators like N95s, elastomeric half and full face-piece respirators, tight-fitting powered-air purifying respirators, self-contained breathing apparatus.

What is respirator fit testing?

Respirator fit testing measures how well a respirator fits a wearer and verifies if the respirator provides the wearer with the expected level of protection. This includes the comfort and seal of the respirator. There are two kinds of fit tests:

- *A qualitative fit test* relies on the wearer's sense of smell and/or taste to detect a chemical when exposed when wearing a respirator. This may include a bitter or sweet chemical. This fit test only provides a yes/no answer to the fit, i.e., qualitative.

- A *quantitative fit* test provides a ratio of the number of particles outside and inside the respirator to measure how well the respirator filters particles. This does not rely on the users' senses and provides a fit factor number, i.e., quantitative.

How is a fit check different from a fit test?

A fit check, also known as a user seal check, is a test done to determine if the respirator is donned correctly by the wearer and the respirator has a good seal. This is conducted every time a respirator is put on (i.e., donned) and does not require chemicals or equipment. There are two checks to be performed:

- *Positive pressure fit check*—A positive pressure environment is created inside the respirator by exhaling gently while blocking the exhalation valve (i.e., where the air leaves the respirator). A successful check is when the respirator bulges slightly without air leaking out.
- *Negative pressure fit check*— A negative pressure environment is created inside the respirator by inhaling gently while blocking the inhalation valves (i.e., cartridges where air enters the respirator). A successful check is when the respirator collapses slightly without air leaking out.

How often should I conduct a fit check?

Once a fit test is passed successfully, you should complete a fit check/user seal check every time you put on a respirator to ensure an adequate seal is achieved.

How often should I be fit tested?

The CSA Z94 recommends fit testing being conducted at least every two years after initial testing. Fit testing should also be conducted when:

- You change the type of respirator you wear, including the make/model/size
- You experience a change in comfort in wearing the respirator
- You have a physical change in your appearance that may change the shape of your face
 - Weight change (loss/gain)
 - Facial scarring, disfiguration, or piercing
 - Significant dental work or dental changes (e.g., dentures)

Privacy, Consent, Rights and Withdrawals

How is my privacy protected?

There are strict rules researchers must follow to protect your privacy. To protect your privacy we will:

- Assign you a unique study number that does not contain personal information about you. We will use this number on all our forms and when handling your data to limit access to your personal data among research staff.
- All information that contains your identity will remain only with the study Principal Investigator and/or designate.
- A master list which contains your name and unique study number will be kept separate from all other research materials.
- All your information/data will be stored on a secure government network, and hard copies will be kept in locked cabinets in secured buildings with restricted access.
- All publications and reports from this study will also only present grouped results and will not identify individuals or results that could be used to identify a particular study participant.

Do I have to tell my service I am participating, or will they know what my results are?

NO. You do not have to tell your service of your participation and we will not release who participates in the study. The research team will not share your individual results with any services. All reports from this study will present grouped/aggregate results and will not identify individuals. You are free however, to share your participation/results with your service if you want to.

Why do I have to sign an informed consent form?

An informed consent form is used to provide participants with information about the study including the risks and benefits of participating in the study before they volunteer. You sign the consent form to ensure that you have received the information and understand your rights as a participant of this study and possible risks that the study may involve. If you decide to participate, the informed consent form will be given to you at least 24 hours before your appointment at the Gage Building or a pre-selected testing site so you can have time to review the form and ask questions.

Can I email the consent form before I come for testing?

No, you cannot email the signed consent form. All informed consent forms must be signed at the study site in front of a research staff member. This is a requirement from research ethics to ensure you are aware of your rights and it allows the research staff the opportunity to ask you if you have any questions/concerns before signing.

What happens if I want to quit the study?

Your participation is voluntary, and you can withdraw from the study at any time with no consequences. To withdraw, tell a research team member that you no longer wish to participate. If you decide to withdraw, you can request to have your data destroyed and the research team will do so where possible. However, it may not be possible to withdraw your data if it is no longer identifiable, if it has been merged with other data, or if de-identified data has been made publicly available (i.e., released in a presentation, report, or scientific article).

Can my results be destroyed if I quit the study?

You can request to have your data destroyed and the research team will do so where possible. However, it may not be possible to withdraw your data if it is no longer identifiable, if it has been merged with other data, or if de-identified data has been made publicly available (i.e., released in a presentation, report, or scientific article).

General Study Information

What is the purpose of this study?

Paramedics often rely on respirators to reduce their exposure to infectious bioaerosols while treating patients. To ensure a respirator is protective, paramedics are fit tested. However, the exercises conducted in the recommended standardized fit testing protocol may not adequately reflect the movements made during life-support and patient handling tasks that may breach the seal of a respirator. Our goal is to recruit at least 200 paramedics to measure respirator fit during simulated paramedic tasks and identify if someone who passed a standard fit test was also protected during paramedic tasks. We also want to identify what factors may influence who passes a fit test such as body type and paramedic experience.

Who is funding the study?

This study is funded by the Ontario Workplace Safety and Insurance Board (WSIB). The grant funds are administered through the Occupational Cancer Research Centre (OCRC) at Ontario Health.

Who is conducting the study?

The research study is being led by Dr. Tracy Kirkham who is the Associate Director of the Occupational Cancer Research Centre (OCRC) at Ontario Health and an Assistant Professor at the University of Toronto. The research team also includes Mr. Paul Bozek (Associate Professor, University of Toronto), Dr. James Scott (Professor, University of Toronto), Mr. Chris MacDonald (PhD student, University of Toronto & OCRC), and Ms. Rachel Tyli (PhD student, University of Toronto & OCRC). Other research staff will be present to assist in fit testing.

Where is the fit testing site?

The study is being conducted at the Gage Building (223 College St, M5T 1R4, Toronto, ON, Canada) at the University of Toronto, St. George Campus or a pre-selected testing site. The study

coordinator (rachel.tyli@ontariohealth.ca) will send you details regarding the location of your fit testing sessions.

How do I get to the Gage Building fit testing site?

You can travel to the Gage Building (223 College Street) via transit, walking, biking, and driving.

1. Via Toronto transit (TTC)

The Gage building is accessible via subway and streetcar.

Subway – the closest stop is Queen’s Park Station. Exit the station at the exit located on the west side of University Avenue and the south side of College Street. Walk west on College Street for 5 blocks to Ross Street.

Streetcar – The College Streetcar stops one block east of the Gage Building at Beverly/St. George Street. The Spadina Streetcar stops two blocks west of the Gage Building at College Street.

2. Driving

If driving, we recommend that you locate your route to the Gage Building. A link to the building on Google Maps is located [here](#). Please reach out to the study staff if you would like to discuss access or your route before your arrival.

Note: Many of the parking options are located just off College street off one of the side streets. Please beware, some of the side streets around Gage are one-way streets.

- Ross Street – one way à north direction
- Huron Street – one way à south direction
- Henry Street – one way à south direction

For pre-selected fit testing sites other than the Gage Building, the study team will send you instructions upon request for directions.

How do I access the Gage Building for fit testing?

Please arrange your visit ahead of time. The Gage Building is a secured building that is locked 24hrs a day, located at 223 College Street on the corner of Ross Street. The main entrance to the building is through the doors on Ross Street. For entrance, ring the bell located to the right of the door. You will either be buzzed in, or someone will welcome you at the door.

Is there parking available at the Gage Building?

There are several paid parking options near the Gage Building.

1. Monday through Friday:

- Street parking on Ross Street (which is one-way north)
- Street parking lot located behind the building on the south-east corner of College and Huron Street
- Underground parking lots
 - Under the Bahen Centre (Lot C, 213 Huron Street). Take Huron Street north off College Street, the entrance to the underground lot is just north of the intersection. This lot is approximately a 4-minute walk to the Gage Building.
 - Under the Myhal Centre (Lot A, 55 St. George Street). The entrance to the lot is located at 20 Galbraith Road, a small street off St. George Street and north of College Street. This lot is approximately a 7-minute walk to the Gage Building.

1. Weekends:

- Street parking on Ross Street (which is one-way north)
- Street parking lot
 - Outside the Gage Building (223 College Street) off Ross Street
 - NOTE: this lot is not available Monday – Friday during the day to non-permit holders.
 - Behind the building on the south-east corner of College and Huron Street
 - 256 McCaul Street (south side of College Street)
- Under the Bahen Centre (Lot C, 213 Huron Street). Take Huron Street north off College Street, the entrance to the underground lot is just north of the intersection. This lot is approximately a 4-minute walk to the Gage Building.

Do I have to take an antigen test?

Currently participants will not be required to undergo antigen screening at the test site. However, this may change in response to the pandemic and the University of Toronto COVID-19 Policy. The study will follow the up-to-date procedures required in this policy. You will be notified of the current requirements when you book your fit testing appointment.

Please note: Any individual who is symptomatic or a contact of a confirmed case should go to their healthcare provider, to an assessment centre, or participating licensed community lab to obtain a diagnostic test. They should also notify the study coordinator (rachel.tyli@ontariohealth.ca) to reschedule their fit test appointment.

Benefits of the study

You will be provided with respirator training outside of that provided by your service and you will be provided with a take home brochure with important respirator facts, resources, and an inspection list.

This will improve, or reinforce, your knowledge on respirator use and care, and fit testing. You will also be fit tested on several different types of respirators and provided with a written copy of your fit testing results before you leave the testing site.

Participating in the study will also contribute to the overall knowledge and awareness of the study. The study will provide stakeholders and end-users with valuable information regarding respiratory fit factors during paramedic tasks. The data generated from this study may lead to policy changes relating to the respiratory protection requirements for paramedic tasks and to the protocol in fit testing paramedics to ensure they are protected on the job.

Risks of the study

There is a risk of physical injury when performing paramedic tasks included in the study (e.g., lifting a patient, performing compressions) such as muscle strains and skin pinches. Paramedics are only eligible to participate if they conduct these tasks as part of their regular job. Their familiarity with the tasks should reduce the risk of injury. The study is also using standard training equipment used by paramedics such as: stretchers, standardized security latches, Little Anne QCPRs etc. When performing two-manned tasks participants will be assisted by research staff trained in performing the task.

Some people may also be uncomfortable answering some questions. All questions in the questionnaire do have a prefer not to answer option. Furthermore, the questionnaire will be done online and grouped with all other responses to protect an individual's answers during testing.

Results

Will I get my fit test results?

Yes, you will be provided with a written copy of your results from all your fit tests immediately after completing the fit testing protocols.

How do I learn about the study findings after everyone has been fit tested?

At the end of the study, lay language results will be posted for participants on the study website. Reports prepared for the different stakeholders will be made available on the study website for broad access. All results will be in aggregate form and not identify individual workers under any circumstances.

Can I use my results in place of my employer's fit testing requirements if I was fit on the same respirator?

No, you cannot use these results in place of your employer's fit testing requirements. However, you are free to share your fit testing data with your employer if you choose to do so.

Can I use any brand of respirator after I pass on that size?

No. You should only wear the specific brand, model, and size respirator that you wore during a successful fit test.

Costs

Will I be paid for my time or travel costs?

Unfortunately, we are unable to provide travel reimbursement or remuneration for your participation. This is because the study funders (WSIB) do not allow for incidental expenses including gifts/incentives/reimbursements for participants.

Does the fit testing cost me money?

There is no cost to you for any research-related activities (respirator fit tests and questionnaires).

Enrollment

How do I enroll?

Please review the eligibility criteria on the website. If you are eligible, or you have questions about your eligibility, contact the study coordinator, Rachel Tyli (rachel.tyli@ontariohealth.ca) to set up an appointment for testing at the University of Toronto.

You will be asked questions to confirm your eligibility for the study before you are provided with an appointment date/time.

Will you take walk-ins for fit testing?

We do not recommend walk-ins for fit testing. This is because the research staff are scheduled to be at the study site for specific appointment dates and may not be available at the study site if you show up without an appointment.

Contacts

Who do I contact about general questions about the study?

Please contact the study coordinator, Rachel Tyli (rachel.tyli@ontariohealth.ca).

Who do I contact about my rights as a participant?

If you have concerns about your rights as a participant or want to make a complaint about the study regarding your rights or concerns, you may contact the research ethics manager at the University of Toronto's Office of Research Ethics by email (ethics.review@utoronto.ca). Please reference the study number 00041933 for better assistance.

If your fit test was conducted at Centennial College, you may contact the research ethics office by email (ethics@centennialcollege.ca). Please reference the REB application #2022/23-08 for better assistance.

Who do I contact if I cannot make my appointment?

Please contact the study coordinator, Rachel Tyli (rachel.tyli@ontariohealth.ca) as soon as possible.

Who do I contact if I want to withdraw from the study?

Your participation is voluntary, and you can withdraw from the study at any time with no consequences. To withdraw, tell a research team member that you no longer wish to participate or email the study coordinator Rachel Tyli (rachel.tyli@ontariohealth.ca).

How often will I be contacted if I participate in the study?

After your appointment is set, you will be sent a reminder email a few days before your scheduled appointment to confirm your appointment. You may also be contacted in the event of cancellation. In the event you are exposed to someone with COVID-19 at the testing site during your visit, you will be notified following University policies. Feel free to check our [website](#) for study updates.