

POST-EXERTIONAL MALAISES AND FATIGUE

This information sheet, primarily created for physicians, pharmacists and front-line nursing staff, serves as 1) a management support tool and 2) a source of information. It is provided purely for information purposes and does not seek to replace the clinical judgement of clinicians and professionals who exercise activities reserved for them under specific laws or regulations. The tool's development included a systematic review of accepted clinical practice guidelines at the time it was drafted, and relied on the knowledge, experience and contribution of stakeholders across Québec. See inesss.qc.ca/COVID-19 for further details.

This information sheet complements the general management support tool [Post-COVID-19 conditions](#).

- Review the tool for a general overview of the management of children, adolescents and adults who present with persistent symptoms following a SARS-CoV-2 infection.

FATIGUE

→ The presence or intensity of fatigue are **not associated with the severity** of the acute phase of the infection

Three types of fatigue observed in post-COVID-19 conditions

Characteristics	Classical fatigue	Fatigue linked to deconditioning	Fatigue associated with post-exertional malaises
Clinical presentation	<ul style="list-style-type: none"> Feeling of heaviness, weariness or exhaustion. Intensity usually proportional to the effort expended. 	<ul style="list-style-type: none"> Intolerance to exertion. Reduced ability to carry out a physical activity at the normal frequency, intensity and duration based on age, size, gender, muscle mass and cardiovascular capacity. 	<ul style="list-style-type: none"> Extreme and debilitating fatigue. Feeling of being crushed or spent. Intensity not proportional to the effort involved. Appearance or exacerbation following activities that were not an issue prior to the infection.
Occurrence	<ul style="list-style-type: none"> During or after physical, cognitive or emotional exertion. 	<ul style="list-style-type: none"> During or shortly after physical exertion. 	<ul style="list-style-type: none"> Anywhere from a few to up to 72 hours after physical, cognitive or emotional exertion.
Recovery	<ul style="list-style-type: none"> Goes away with rest or sleep. Can last some hours or some days. 	<ul style="list-style-type: none"> Goes away with rest or sleep. Generally lasts less than a day. 	<ul style="list-style-type: none"> Does not diminish or diminishes very little with rest or sleep. Can last days, weeks and even months.

i The three types of fatigue can co-exist.

→ **Depression and the fatigue that can accompany it** may result from the pandemic or post-COVID-19 conditions, and can bring an additional degree of complexity to the clinical presentation.

POST-EXERTIONAL MALAISES

Post-exertional malaises:

- Correspond to **the appearance or aggravation of signs and symptoms** that present following physical, cognitive or emotional exertion, even if minimal. They generally manifest themselves **anywhere from a few to up to 72 hours after an activity**, and can last days, weeks or months.
- Are often associated with a **reduction in functional ability** compared to that prior to the infection.
- Are **related to the amount of energy** a person has:
 - Each person has an **amount of available energy** specific to them and which can vary over time.
 - Each activity** calls for a specific amount of energy from a given person and if this amount does not exceed the amount of available energy, the activity will trigger a classical fatigue that can be addressed with adequate rest.
 - The cumulation of activities** brings about an increase in the energy expended.
 - The **post-exertional malaises triggering threshold** corresponds to the moment when all available energy has been expended.
 - Once the threshold is reached**, extreme fatigue and other manifestations of post-exertional malaises appear (after a certain moment) and can last a certain amount of time. See the tables below for further details.

Characteristics of post-exertional malaises

Parameters	Characteristics
Types of activities that can contribute to reaching the post-exertional malaises triggering threshold.	<ul style="list-style-type: none"> • All types of activities can contribute. For example: <ul style="list-style-type: none"> - Physical – taking a shower, brushing one's teeth, climbing stairs, cooking, doing laundry, housework, walking, etc. - Cognitive – listening to music, reading, working at the computer, watching a movie or TV show, filling out a form, driving, etc. - Emotional – interacting with other people, suffering losses (e.g., difficulty resuming prior activities or returning to work or school), stressful events (e.g., insurance queries, arguments, loved one's illness), joyful events (e.g., parties), etc. <p>i The energy required to carry out an activity can vary according to the type of activity, its duration and intensity, the setting, the person's mental state at the time or the manner in which the activity is conducted.</p>
Exertion threshold that triggers post-exertional malaises.	<ul style="list-style-type: none"> • Variable : <ul style="list-style-type: none"> - from one person to the next; - from one day to the next, for a given person. • Dependent on elements such as the change in a person's health status, the taking of medication and the addition of new activities to an established routine. • Can be preceded by warning signs – e.g., headache, increased sensitivity to stimuli, trouble speaking, palpitations or irritability. <p>i Warning signs can be different depending on the person and can also vary according to type of exertion. They tend to correspond to the symptoms of post-exertional malaises, but generally exist in isolation. Resting as soon as a warning sign appears can often prevent the appearance of post-exertional malaises.</p>
Time between an activity and post-exertional malaises	<ul style="list-style-type: none"> • From a few hours to up to 72 hours, depending on the person.
Duration of post-exertional malaises	<ul style="list-style-type: none"> • Variable. Can last days, weeks and even months.

Manifestations that can appear or be exacerbated in the event of post-exertional malaises

Categories	Manifestations ¹ (partial list)
Cardiorespiratory	<ul style="list-style-type: none"> • Arrhythmia • Chest pain • Drop in pressure • Dyspnea • Orthostatic intolerance (see grey box below) • Palpitations
Cognitive	<ul style="list-style-type: none"> • Decreased attention • Difficulty finding words • Memory loss • Trouble thinking clearly
General	<ul style="list-style-type: none"> • Discomfort while standing up or sitting down • Extreme fatigue • Flu-like symptoms² • Unrefreshing sleep
Neurological	<ul style="list-style-type: none"> • Blurred vision • Difficulty pronouncing or articulating • Dizziness • Greater sensitivity to stimuli³ • Headaches • Internal tremors⁴ • Pain • Paresthesiae
Musculoskeletal	<ul style="list-style-type: none"> • Burning muscles • Muscle fatigue • Muscle or joint pain • Muscle weakness

1. Information is provided in alphabetical order.

2. Includes sore throat, painful adenopathies, fever and myalgias.

3. Includes noise, light, odours and touch.

4. Not usually visible from the exterior and often involves the lower limbs.




i **Orthostatic intolerance** consists of a group of symptoms that appear when a person who is lying or sitting gets up. These symptoms may or may not be accompanied by orthostatic tachycardia, orthostatic hypotension or syncope.

⚠ Orthostatic tachycardia would be observed in a sub-group of people who present persistent symptoms.

📄 See the management information sheet entitled [Cardiorespiratory manifestations](#) for further details.

i **Post-exertional malaises** are cardinal manifestation of myalgic encephalomyelitis. This condition has certain characteristics in common with some of the clinical aspects of post-COVID-19 conditions; the link, however, cannot be confirmed given the uncertainties regarding the pathophysiology of each of the conditions.

ASSESSMENT OF THE HEALTH CONDITION

Elements	Details
Characterize fatigue in order to identify the type (see the previous table on fatigue) and monitor its evolution.	<ul style="list-style-type: none"> • Fluctuations over a typical day. • Treatments or activities that bring relief or exacerbate the fatigue. • Impact on ability to work or go to school, as well as on the activities of daily living (e.g., having to postpone or cancel an activity), including the required degree of autonomy.
Seek out and characterize post-exertional malaises to adapt management and monitor their evolution.	<ul style="list-style-type: none"> • Impact of introducing an activity (physical, cognitive or emotional) or increasing an activity's intensity on a person's symptoms, energy level and mood. • Type of activity that triggers the appearance or exacerbation of symptoms, including their intensity. • Time until the appearance or exacerbation of symptoms. • Symptoms that appear or are exacerbated. • Duration of post-exertional malaises – recovery time. • Impact on ability to work or go to school, as well as on the activities of daily living (e.g., having to postpone or cancel an activity), including the required degree of autonomy. <p> Post-exertional malaises can be hard to describe by the persons impacted.</p> <p>The accumulation of post-exertional malaises without a full recovery can make it more complicated to evaluate the clinical presentation.</p>
Look for the presence of factors or conditions , preexisting or not, that could cause, contribute to or exacerbate the fatigue or post-exertional malaises.	<ul style="list-style-type: none"> • See the table below.
Adapt physical and mental exams on the basis of the clinical presentation.	<p> See the management support tool Post-COVID-19 conditions for further information regarding examinations, tests and investigations.</p>
Consider to carry out tests and investigations according to the clinical presentation.	<p> As regards post-COVID-19 conditions, results of exams are often normal.</p> <p>The results of the tests and investigations are mainly used to rule out other possible conditions.</p> <p>As regards post-COVID-19 conditions, results of common tests and investigations are often normal.</p>

Factors or conditions, preexisting or not, that could cause, contribute to or exacerbate the fatigue or post-exertional malaises (partial list)

Categories	Examples ¹
Conditions	<ul style="list-style-type: none"> • Another SARS-CoV-2 infection • Autoimmune/inflammatory diseases • Endocrine disorders • Heart conditions • Infections (chronic or not) • Malignant tumors • Metabolic disorders • Nutritional disorders • Psychological issues • Respiratory disorders • Sleep disorders
Physiological factors	<ul style="list-style-type: none"> • Menstruation • Positive or negative emotions, including stress • Postprandial period
Lifestyle	<ul style="list-style-type: none"> • Consumption of drugs, alcohol, caffeine, etc. • Difficult or inadequate diet possibly leading to deficiencies • Excessive screen time • Lack of sleep
Pharmacological treatments (or not)	<ul style="list-style-type: none"> • Use of medication • Use of natural products
Other factors	<ul style="list-style-type: none"> • Exposure to toxins • Psychosocial factors

1. Information is provided in alphabetical order.

MANAGEMENT

⚠ There is no specific pharmacological treatment for post-COVID-19 conditions.


There is limited data on the use of pharmacological treatments, supplements or natural products in the context of post-COVID-19 conditions. Interventions involving psychological symptoms should aim at supporting recovery rather than being the main objective of the therapeutic approach.

Situational case management

Situations	Management
Presence of factors or conditions that could cause or contribute to the fatigue.	<ul style="list-style-type: none"> Review the relevance of the pharmacological treatment underway and, if needed: <ul style="list-style-type: none"> adjust the dosage; consider turning to another treatment with a different profile, specifically in terms of adverse reactions. Manage conditions according to usual practices. Consider referring the person to a medical specialist as needed, according to the clinical presentation.
Normal fatigue WITH NO post-exertional malaises	<ul style="list-style-type: none"> Management according to the usual practices. Support the person in managing their fatigue (see the next section). Consider referring the person to a medical specialist as needed, according to the clinical presentation.
Fatigue linked to deconditioning WITH NO post-exertional malaises	<ul style="list-style-type: none"> See the management support tool Post-COVID-19 conditions for other general recommendations.
Post-exertional malaises, including the associated fatigue.	<ul style="list-style-type: none"> Speak to the person about strategies for preventing the occurrence of post-exertional malaises (see the following section). Support the person in managing their post-exertional malaises and energy. <div> <p>i Recovery can be long and the prognosis is uncertain.</p> </div> Treat the symptoms not associated with post-exertional malaises as per usual practices. <div> <p>⚠ If a pharmacological treatment is considered:</p> <ul style="list-style-type: none"> if possible, begin with small doses and adjust the dosage slowly so as to avoid triggering post-exertional malaises; follow up on the effectiveness of the treatment and stop if there are no visible benefits; notify the person that the treatment could impact the post-exertional malaises triggering threshold and the warning signs. </div> Evaluate a possible return to work or school on a case by case basis, once the person's condition is stable and they are able to carry out their activities of daily living and household tasks. <ul style="list-style-type: none"> Evaluate, on a case by case basis, the need for a progressive return to work or school with temporary and personalized accommodations. <div> <p>⚠ Resuming one's prior activities too quickly could extend the recovery period.</p> </div> Consider the possible need for home care services, technical aids or mobility aids (e.g., walker with a seat, handicapped parking tag, etc.). Refer the person to a rehabilitation professional or a post-COVID-19 clinic¹: <ul style="list-style-type: none"> if the problems managing their energy and post-exertional malaises are creating a significant functional disability; to support a planned resumption of activities. See the management information sheet Rehabilitation interventions for information regarding potential support from rehabilitation professionals. (Will be released at the end of summer 2022.)

1. The service offer is expanding.

MANAGEMENT OF FATIGUE AND POST-EXERTIONAL MALAISES

Situations	Advices
Classical fatigue WITH NO post-exertional malaises	<ul style="list-style-type: none"> • Provide the usual advices.  See the management support tool Post-COVID-19 conditions for other general advices.
Fatigue linked to deconditioning WITH NO post-exertional malaises	
Post-exertional malaises, including the associated fatigue.	<ul style="list-style-type: none"> • Inform the person of the importance of proper energy management, to notably: <ul style="list-style-type: none"> - avoid cycles of activities and post-exertional malaises ("crashes"); - promote long-term recovery. <div data-bbox="505 485 1534 724" style="background-color: #e6f2ff; padding: 10px; margin: 10px 0;"> <p>⚠ Do not implement the normal strategies for the gradual resumption of activities based on a continual increase in duration and intensity.</p> <p>The person's energy envelope must absolutely be respected:</p> <ul style="list-style-type: none"> • wait until the person has been stable for a few weeks before encouraging them to carefully modify the level of activities; • do not encourage the person to carry out activities for the purpose of increasing their endurance. </div> • Speak to the person about the proper strategies to manage their energy (see the following table). <div data-bbox="505 787 1534 898" style="background-color: #f2f2f2; padding: 10px; margin: 10px 0;"> <p>i The optimal management of energy can involve a certain learning curve. Moreover, adjustments will be needed based on the changes in health condition and the introduction of new activities to the person's routine.</p> </div> • Remind the person of the benefits of good health practices – e.g., spending time outdoors, diet, sleep, screen time, consumption of caffeine, alcohol and drugs. • Talk to the person about the importance of having realistic expectations, as the recovery period could be lengthy. <div data-bbox="505 1045 1534 1157" style="background-color: #f2f2f2; padding: 10px; margin: 10px 0;"> <p>i A progressive improvement could be felt up to 12 weeks post-infection for numerous people, but subsequent improvement would tend to be much slower when clinical manifestations are still present.</p> </div> • Encourage the person to: <ul style="list-style-type: none"> - cut back on their commitments and sources of stress; - be kind to themselves; - accept their emotions regarding post-exertional malaises without feeling guilty; - see post-exertional malaises as an opportunity to learn more about their limits; - normalize their thoughts and emotions regarding the variance between their condition prior to the infection and at the present moment; - create a new lifestyle based on their current physical, cognitive and emotional limitations; - give themselves permission to ask for help; - obtain psychological support as necessary. • Exchange with the person regarding the importance of telling people in their personal and professional life about their post-exertional malaises and their repercussions, and this to promote a greater understanding and support.

Energy management strategies (pacing)

Elements	Examples
Energy conservation/maximization/regularization	
<ul style="list-style-type: none"> • Balance out activities with rest periods (see the following section). • Prioritize <ul style="list-style-type: none"> - Rank activities according to priority. - Conserve energy for important activities. - Recognize and limit energy-depleting activities. • Adapt <ul style="list-style-type: none"> - Modify activities so that they are easier to carry out. - Split up large tasks into more manageable activities. • Plan <ul style="list-style-type: none"> - Space out activities over several days or even weeks. - Perform high-energy activities during the times of day or week where energy is at its highest point. - Set aside time for activities that restore energy (while respecting energy envelope). 	<ul style="list-style-type: none"> • Groceries and errands <ul style="list-style-type: none"> - Have food and other sundries delivered; go during less busy periods. • Modification of activities (when possible) <ul style="list-style-type: none"> - Adopt a sitting or half-sitting position (e.g., to brush one's teeth, shower, cook, get dressed, etc.). - Adopt a half-sitting or lying down position (e.g., cognitive activities). - Limit stimuli (e.g., wear ear plugs and a sleep mask, install a screen, dim the lights, lower the brightness on electronic devices). • Technical aids <ul style="list-style-type: none"> - Handicapped parking tag, walker with a seat, adapted transportation, wheelchair. • Home aids <ul style="list-style-type: none"> - Housecleaning, meal preparation, snow removal, maintenance – e.g., lawn, landscaping, small household tasks. • Activities that restore energy (while respecting energy envelope). <ul style="list-style-type: none"> - Hobbies, sitting outdoors. - Activities that are pleasurable or satisfying.
Balance between activities and rest periods	
<ul style="list-style-type: none"> • Balance <ul style="list-style-type: none"> - Find thresholds of physical, cognitive and emotional exertion that trigger post-exertional malaises. - Adjust the intensity of activities and plan for alternating activities with rest periods so as not to exceed the identified thresholds. - Wait until the health status has been stable for a few weeks before even slightly increasing the activities, even if the person is feeling well. <div> <p>⚠ Increasing the intensity of activities too quickly could result in a relapse.</p> <p>Cycles of activities and post-exertional malaises ("crashes") should be avoided as much as possible.</p> </div> • Facilitators <ul style="list-style-type: none"> - Plan rest periods prior to and after activities that burn energy. - Keep a buffer for unexpected situations. - Alternate between tasks (e.g., easy vs. hard, physical vs. cognitive). - Stop an activity before being too tired (this decreases the required rest time). - Plan rest times first, then add in activities. - Plan breaks and rest times each day. - Select activities so as to not exceed the available energy for a given day, nor to use up energy from subsequent days. 	<ul style="list-style-type: none"> • Identify the exertion thresholds <ul style="list-style-type: none"> - Seek out the warning signs; stop an activity before or once they appear. - Use heart rate as a reference point - e.g., 50 to 60% of the maximum rate. • Rest <ul style="list-style-type: none"> - Take many small breaks, choosing the time, frequency and duration based on experience - e.g., 2-5 minutes. - Take sensory breaks of 5 to 20 minutes – e.g., ear plugs, sleep mask, dimmed lights, no screens. - Lie down for one hour before an outside event. - Keep one or more days free of commitments prior to an appointment. - Allow yourself to fully rest (do nothing). <div> <p>⚠ The objective is not to sleep, as long naps have a negative effect on nighttime sleep.</p> </div> • Activities to recover <ul style="list-style-type: none"> - Relaxation, meditation, focus on breathing, breathing exercises.

FOLLOW-UP

→ **While follow-up is important**, there are no specific instructions as regards fatigue or post-exertional malaises.

⚠ Keeping a daily journal of activities can provoke anxiety in some people, and could be more difficult for those persons with a low triggering threshold of post-exertional malaises.

Some persons whose fatigue is related to post-exertional malaises may tend to prioritize their work and end up collapsing when they return to their home.

A personal appointment can constitute a major effort for some people, and could trigger a post-exertional malaise.

i Having a loved one present can assist with the retention of information and the education of loved ones on the impacts of post-exertional malaises.

📄 See the general management support tool [Post-COVID-19 conditions](#) for general recommendations.