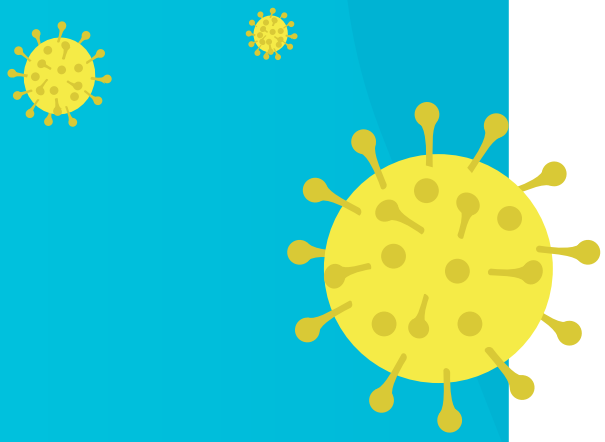
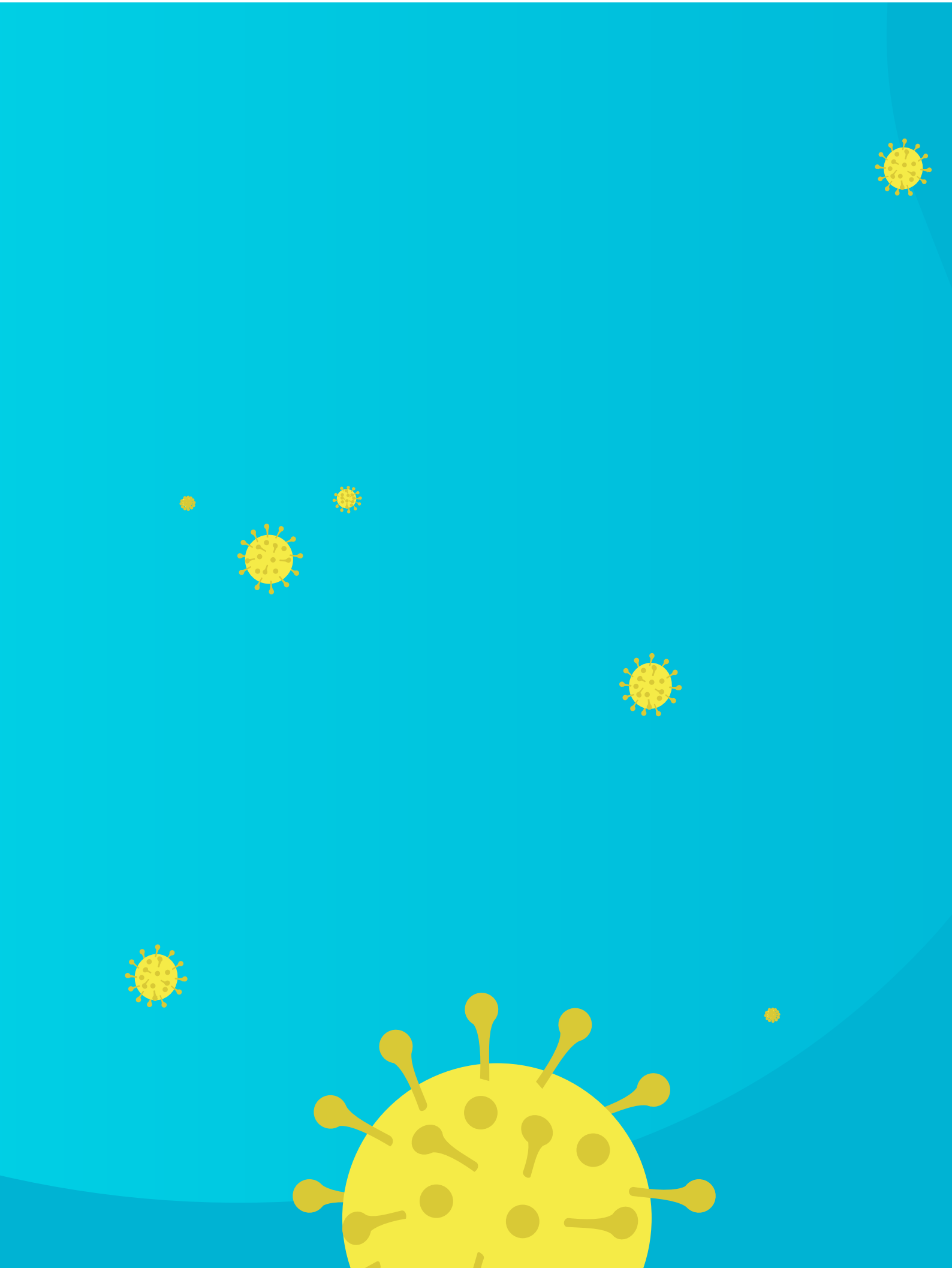


POST-COVID RECOMMENDATIONS FOR PRIMARY CARE PHYSICIANS

Switzerland

Hôpitaux Universitaires Genève

INSELGRUPPE



CONTENT

INTRODUCTION

During the COVID-19 pandemic, various efforts led to the creation of post-COVID consultation clinics, research cohorts, online information platforms, and associations of patients with post-COVID condition in Switzerland. This current work mandated by the Federal Office of Public Health and supported by the Swiss Medical Association (FMH), aimed to establish recommendations for primary care physicians on post-COVID condition. This work was based on an initial document created by the Geneva University Hospitals on post-COVID condition (https://www.hug.ch/covid/long-covid). The division of primary care medicine at the Geneva University Hospitals and the division of neurology at Inselspital (Bern University Hospitals), steered this work with the contribution of several experts and patients nationwide. A sounding board and working groups were created to establish these recommendations, which were validated by the national Swiss scientific and medical societies.

This document should be used by primary care physicians to guide them in the diagnosis and management of post-COVID condition. The pathway provides a general overview of a patient's care pathway and indicates when to refer the patient to specialized consultations or to rehabilitation. The summary provides a general overview of the clinical assessment, scales, investigations and treatment options. The summary can be used as a quick guide to care for post-COVID condition. A symptom-based approach is provided in the full document with recommendations on the assessment, investigations and management approaches for each symptom. While post-COVID condition is a systemic condition that manifests with several symptoms at once, the symptom-based approach helps physicians find the information quickly and efficiently. A complete overview of the full recommendations is highly recommended as it the most comprehensive way to understand and follow the recommendations.

This work was possible via a mandate from

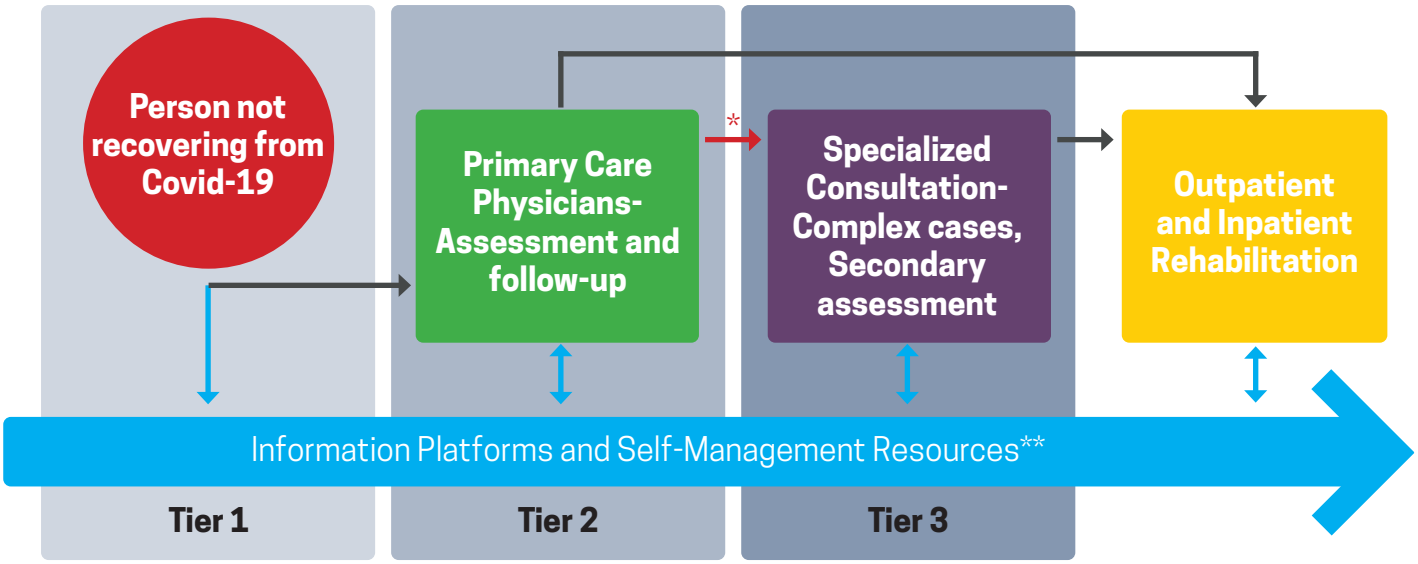
Federal Office of Public Health (Dr. Andri Tschudi, Dr. Hilde Schäffler)
Swiss Medical Association FMH (Dr. Barbara Weil, Dr. Carlos Quinto)

Under the direction of

Geneva University Hospitals (Dr. Mayssam Nehme, Prof. Idris Guessous)
Inselspital (Bern University Hospital) (Dr. Lara Diem, Prof. Claudio L.A Bassetti)

PATHWAY

Patient Pathway : Post-Covid condition



***Refer to specialized consultations if**

- Complex cases (psychosocial or other) requiring interdisciplinary approach
- Functional impairment persisting for more than 3 months
- No improvement 3-6 months after measures put in place by primary care physician

****Online platforms and self-management resources include**

– RAFAEL platform https://www.rafael-postcovid.ch/
– ALTEA platform https://altea-network.com/
– Patient platform and Long Covid association: https://long-covid-info.ch/fr/

KEY POINTS

Post COVID-19 condition (abbreviated in this document as 'post-COVID condition' or, in some cases, just 'post-COVID') is characterized by symptoms that persist three months or more after a SARS-CoV-2 infection and include fatigue, post-exertional malaise, orthostatic intolerance, cognitive impairment, sleep disorders, headaches, pain, dyspnea and other symptoms which generally have an impact on functional capacity and quality of life. Studies showed that the prevalence of fatigue, post-exertional malaise and criteria for chronic fatigue syndrome doubled in SARS-CoV-2 positive compared to SARS-CoV-2 negative individuals, with 1.1% of participants having criteria for chronic fatigue syndrome at 15 months after testing.

Post-COVID condition's underlying mechanisms have yet to be identified, but some studies suggest a potential immune dysregulation and persistent inflammatory state, endothelial dysfunction leading to microthrombosis or the persistence of viral particles. While these mechanisms have not been conclusively proven yet, they could affect all systems in the body, including the autonomic nervous system, potentially leading to the wide range of symptoms in post-COVID condition.

A symptom-based approach to assess-ment and management is suggested with follow-up by the primary care physician. This document includes suggested tools for the screening and evaluation of symptoms, to be used at the physician's discretion and for guidance purposes only. The social impact, functional capacity and quality of life should be assessed systematically. Scales can be used and help physicians evaluate the burden of disease in all areas of life.

SYMPTOM-BASED APPROACH: SUMMARY

Symptom	**Fatigue**
Approach	History and physical examination including neurological assessment
Screening[a]	Fatigue scale for motor and cognitive functions (FSMC scale)[1]
Investigations	Rule out other causes of fatigue (e.g., iron deficiency, sleep apnea), search for co-factors (e.g., medication) Laboratory workup[b] Additional workup on case-by-case basis (cf. fatigue) Rule out sleep apnea if suspected (Epworth scale)[2]
Management[d]	Diary of daily energy levels, worsening and improving factors Occupational or neuropsychological therapy with focus on energy management Work on education and therapy for an adapted return to activity where possible, while preventing post-exertional malaise

Symptom	**Post-exertional malaise (PEM)**
Approach	History and physical examination including neurological assessment
Screening[a]	DePaul questionnaire[3] Compass questionnaire[4]
Investigations	Rule out neurological disorders Schellong (10 minutes) to rule out orthostatic tachycardia (increase in 30 bpm), with a reproduction of symptoms Laboratory workup[b] Electrocardiogram Tilt test, if no improvement with first-line treatment or if diagnosis is not clear (gold standard)
Management[d]	Diary of daily energy levels, worsening and improving factors First-line treatment includes: ▪ Grade 2 medical compression stockings to the waist if tolerated ▪ Increased daily salt intake (6-10g/day) ▪ Hydration (2-3L/day) ▪ Regular small meals Occupational or specialized therapy with focus on energy management Education and therapy with specialized physical and occupational therapists to prevent episodes of PEM Second-line treatment includes pharmacological treatment such as beta blockers (propranolol) or ivabradine Referral to cardiology or neurology if functional impairment is debilitating or lasts >6 months, or if first-line measures are insufficient.

Symptom	Cognitive impairment
Approach	History and physical examination including neurobehavioral assessment
Screening[a]	Clinical judgment and consistent complaints about cognitive dysfunction Montreal cognitive assessment (MOCA)[5 c] Symbol digit modalities test (SDMT)[6 c] Functional impairment Consistent complaints about cognitive impairment
Investigations	Laboratory workup[b] Neuropsychological assessment if functional impairment or complaints about cognitive dysfunction > 3 months or cognitive impairment present as evaluated using MOCA[c] and/or SDMT[c] and/or clinical judgement, and/or consistent complaints about cognitive impairment (figure 1)
Management[d]	Neuropsychological and occupational therapy Work on education and therapy for an adapted return to activity where possible, while preventing post-exertional malaise

Symptom	Headache
Approach	History and physical examination including neurological assessment Look for red flags[7] Rule out secondary causes of headache
Screening[a]	No scale A headache diary is suggested for evaluation and follow-up
Investigations	Laboratory workup and imaging are indicated only when secondary causes of headache are suspected
Management[d]	Treatment of acute attacks (anti-inflammatories, paracetamol, or triptans if migraine) Disease-modifying or chronic treatment if patients need analgesics more than 12 days per month: If tension headache: - Serotonin-norepinephrine reuptake inhibitors (duloxetine), caveat aggravation of fatigue and post-exertional malaise due to adrenergic effect; low dose tricyclic anti-depressant (amitriptyline), recommended if concurrent sleep disorders If migraine: - Magnesium - Beta-blockers (propranolol) - Flunarizine - Selective serotonin reuptake inhibitors (SSRI) or serotonin-norepinephrine reuptake inhibitors (SNRI) such as venlafaxine Neurological consultation if symptoms >3 months or worsening

Symptom	**Sleep disorders**
Approach	History and physical examination including neurological assessment
Screening[a]	Insomnia Severity Index (ISI)[8]
Investigations	Rule out associated sleep apnea, neurological or psychiatric disorders
Management[d]	First-line treatment includes sleep hygiene measures (cf. sleep disorders) as first line, along with relaxation exercises Second-line treatment includes phytotherapy (valerian), melatonin, or pharmacological treatment (hydroxyzine, cetirizine, trazodone, mirtazapine for example).

Symptom	**Adjustment disorders, depression, anxiety or post-traumatic stress disorder**
Approach	History and physical examination including neurological assessment
Screening[a]	Hospital anxiety and depression scale (HADS)[9] Additional scales if diagnosis is not clear include the Patient Health Questionnaire (PHQ-9),[10] the Montgomery-Asberg Depression Rating Scale (MADRS)[11] or the State-Trait Anxiety Inventory (STAI)[12]
Investigations	Rule out associated fatigue or neurological disorders
Management[d]	First-line treatment includes psychotherapy Second-line treatment includes pharmacotherapy such as selective serotonin reuptake inhibitors (SSRI) or serotonin-norepinephrine reuptake inhibitors (SNRI) in the case of a unipolar depression. Mood regulators are indicated in bipolar depression. Eye movement desensitization and reprocessing (EMDR) is indicated in cases of post-traumatic stress disorders.

Symptom	**Pain and paresthesia**
Approach	History and physical examination, including joints, skin and neurological examination
Screening[a]	DN4 questionnaire[13] if neuropathic pain is suspected
Investigations	Workup on case-by-case basis (cf. pain and paresthesia)
Management[d]	First-line treatment includes analgesia, patient education and adapted physical therapy Second-line treatment: -neuropathic pain/paresthesia: serotonin-norepinephrine reuptake inhibitors (duloxetine, venlafaxine), low dose tricyclic anti-depressant (amitriptyline), and alpha-2 ligand anticonvulsive options (pregabalin, gabapentin) -muscle pain: Muscle relaxants (caveat: fatigue), serotonin-norepinephrine reuptake inhibitors (duloxetine, venlafaxine), low dose tricyclic anti-depressant (amitriptyline), Rheumatological or neurological consultation if symptoms > 3 months or objective evidence of inflammation. The pain clinic consultation can also be helpful in cases of unremitting pain or paresthesia, and no identified underlying rheumatological/neurological disorder.

Symptom	Dyspnea
Approach	History and physical examination
Screening[a]	Modified Medical Research Council Dyspnea scale (mMRC)[14] Nijmegen questionnaire[15]
Investigations	Spirometry Pulmonary function tests with body plethysmography and diffusion capacity should be considered if no improvement >3 months or if the patient suffered from ARDS[16,17] Consider hyperventilation test if no improvement >3 months and no other causes of dyspnea are identified Chest imaging is indicated only if direct lung damage is suspected[17]
Management[d]	Respiratory therapy Pulmonary specialist referral if lung damage is suspected or if no improvement > 3 months or lung damage is suspected Speech therapy and ear/nose and throat (ENT) consultation if dyspnea is associated with loss of voice or persistent cough, after exclusion of pulmonary causes (asthma, bronchial hyperreactivity)

Symptom	Gastrointestinal symptoms
Approach	History and physical examination
Screening[a]	No scale
Investigations	Rule out pathology related to gastrointestinal symptoms. Post-infectious functional gastrointestinal disorders (PI-FGID) should be considered (as a diagnosis of exclusion). The criteria for diagnosing PI-FGID are based on the same criteria as for general functional gastrointestinal disorders (FGID).
Management[d]	The goals of treatment are satisfactory control of symptoms and improvement of quality of life. Suggested treatments are: stool regulation with dietary fibers, nutritional counseling or change in diet. Depending on the symptoms, drug therapy can be evaluated.

[a]The scales suggested in this table and document are potential screening tools. At present, there are no validated scales for the assessment of these symptoms in post COVID condition specifically, and an extrapolation from other diseases and symptoms is therefore necessary at this stage. Appendix 1 at the end of the document evaluates the pros and cons of each scale. Other screening tools are available to screen or evaluate the symptoms. However the ones mentioned in this table and document are the most appropriate to date and to the best of our knowledge. The use of scales is beneficial to determine scores or an overall evaluation that could be helpful for evaluation (for clinical care and for insurance purposes), as well as follow-up. These tools can also be used to help physicians identify when a referral to a specialist is warranted.
[b]Laboratory workup includes complete blood count, ferritin, urea, creatinine, blood glucose, sodium, potassium, calcium, magnesium, phosphate, sedimentation rate, CRP, creatine kinase, liver function tests, TSH, vitamin B12, and folic acid
[c]Note that these tests are not validated for neurocognitive deficits in post-COVID condition, so a normal test does not rule out such deficits.
[d]For patients who are housebound because of their symptoms or due to functional impairment, nursing interventions for homecare are recommended
ARDS: Acute respiratory distress syndrome
CRP: C-reactive protein
ENT: ear, nose and throat physician
ESR: erythrocyte sedimentation rate
TSH: thyroid stimulating hormone

CONTEXT
Definition

A significant proportion of patients infected by SARS-CoV-2 present symptoms that persist for several weeks[19] or even years after the infection.[20] Patients can experience a range of symptoms, including persistent fatigue; post-exertional malaise; cognitive impairment; dyspnea; pain; and cardiac, digestive, or psychiatric disorders. Symptoms vary in terms of presentation and intensity and can also fluctuate over time. Persistent symptoms after SARS-CoV-2 infection are referred to as post-COVID condition,[21] Post- acute sequelae of SARS-CoV-2[22] (PASC) or Long COVID.[21]

On October 6, 2021, the World Health Organization published a definition of post-COVID condition.[23]

The diagnosis of post-COVID condition relies on the WHO definition. Tests confirming a SARS-CoV-2 infection are a reverse transcriptase polymerase chain reaction (RT-PCR) or antigenic test during the acute phase, or anti-N antibodies (serological test) documenting natural immunity. Cellular tests are not recommended at this stage due to the absence of standardization of these tests and risks of cross-reactivity.

A probable SARS-CoV-2 infection is based on clinical judgment and disease progression; however, it is also important to note that other diseases could be linked to similar symptoms.

Two main subtypes of post-acute sequelae of SARS-CoV-2 have been identified to date:

- Patients with post-viral symptoms including fatigue, post-exertional malaise, cognitive impairment among others. These patients are mostly treated as outpatients and do not require hospitalization; however, the symptoms have a significant impact on their functional capacity and quality of life.

- Patients who are hospitalized or treated in the intensive care unit, who might experience end-organ damage, and specific post-acute sequelae of SARS-CoV-2

Definition issued by the World Health Organization (WHO)[23]

Post COVID-19 condition occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis.

Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others which generally have an impact on everyday functioning. Symptoms may be new in onset, following initial recovery from an acute COVID-19 episode, or persist from the initial illness. Symptoms may also fluctuate or relapse over time. A separate definition may be applicable for children.

This document addresses the first subtype of patients and does not address post-hospitalization or post-intensive care sequelae. Specific guidelines for patients who might have pulmonary sequelae (post-hospitalization) have been addressed by the Swiss Society of Pulmonology.[16] Patients who have had a stay in the intensive care unit (ICU) should benefit from an interdisciplinary post-ICU follow-up.

Post-COVID condition's underlying mechanisms have yet to be identified, but some studies suggest a potential immune dysregulation and persistent inflammatory state[24,25], endothelial dysfunction leading to microthrombosis[26] or the persistence of viral particles.[27] While these mechanisms have not been proven yet, they could affect all systems in the body, including the autonomic nervous system[28,29], leading to the wide range of symptoms in post-COVID condition. In a proportion of patients with post-COVID condition, symptoms become chronic and have a significant impact on functional capacity and quality of life, drawing parallels with myalgic encephalomyelitis/chronic fatigue syndrome (ME/CFS). In these cases, suggested approaches for post-COVID condition could benefit patients with ME/CFS, and increasing knowledge on post-COVID condition could help better understand ME/CFS.

Initial medical assessment

The acute and post-acute phases of the disease as well as the various reasons behind the symptoms and their impact should be considered in cases of suspected post-COVID condition. The following general guidelines can be used:

▪ Assessment of the acute phase of the infection (first 10 days after symptom onset) with identification of the signs and symptoms at that time, the various tests already carried out (PCR, serology, imaging, electrocardiogram, laboratory testing) the different treatments used (paracetamol, ibuprofen, vitamins, corticosteroids, monoclonal antibody treatment, inhalation sprays and integrative medicine, etc.) as well as the various consultations or follow-ups. An interdisciplinary management approach is essential for patients presenting post-COVID condition who may present several persistent symptoms concomitantly.

▪ Assessment of the post-acute phase (fluctuation of symptoms) as well as the current phase, reviewing all symptoms potentially linked to post-COVID condition.

▪ Assessment of other reasons or multifactorial causes for the symptoms by reviewing all history (personal and family), treatments, lifestyle, and patients' perception of the disease.

▪ Assessment of determinants and risk factors: increased risk of post-COVID condition
- Female sex[30,31]
- Number of symptoms in the acute phase[32]
- Pre-existing comorbidities such as hypertension,[33] diabetes,[34] asthma,[35] obesity;[35,36] and lipid metabolism disorders.[36] It is not clear to date if these pre-existing comorbidities are associated with post-COVID condition only in patients who have had a severe acute phase of the disease, as studies have evaluated large cohorts without separating inpatients and out patients
- Depression is associated with an increased risk of developing chronic symptoms[20]

▪ Assessment of determinants and risk factors: decreased risk of post-COVID condition
- Vaccination[37]
- Omicron variants[38,39]

▪ Assessment of physical activity, functional capacity and quality of life compared to prior to the infection in the social, family, personal and professional areas of life.

Symptom-based assessment

Evaluation and management in this document are addressed using a symptom-based approach, however post-COVID condition could be the manifestation of a dysregulated autonomic system[29,40] and a global approach is recommended for patients with post-COVID condition.

FATIGUE AND POST-EXERTIONAL MALAISE

Medical history and diagnosis

Fatigue and post-exertional malaise are the most common symptoms reported by patients with post-COVID condition. Fatigue in the context of post-COVID condition is described as severe asthenia, a feeling that the body is «wiped of energy" and exhaustion following minimal effort. Patients often describe fatigue on waking and an exacerbation after exertion or effort. Patients can report a need to sleep during the day, even when not suffering from sleep disorders.

Fatigue can present mentally (cognitive fatigue) or physically (motor fatigue). Fatigue can fluctuate during the day with physical and cognitive exertion being a trigger factor. In some cases, hormonal factors, insomnia, stress, and anxiety also come into play.
The suggested scales to assess fatigue should evaluate motor and cognitive fatigue, as well as the level of severity (mild, moderate, or severe).

The suggested scale for the assessment of fatigue and its impact is:

Fatigue Scale for Motor and Cognitive Functions (FSMC)[1]	20-item scale (duration about 5 minutes), with analysis of cognitive or motor fatigue and severity level (mild, moderate, or severe)

The Fatigue Severity Scale (FSS) has also been suggested in some clinics or studies, but only assesses motor fatigue, and not cognitive fatigue.
Post-exertional malaise is the worsening of symptoms following physical or mental exertion. It can manifest as orthostatic or exercise intolerance. Post-exertional malaise needs to be assessed systematically in post-COVID condition as it could change the prognosis and management.

The suggested scales to screen for post-exertional malaise and orthostatic intolerance are:

DePaul Questionnaire[3]	15-item scale (frequency and severity of symptoms with time needed to recover)
Compass Questionnaire[4]	31-item scale assessing autonomic dysfunction

In post-COVID fatigue, physicians should look for orthostatic tachycardia as part of autonomic dysfunction. A test for orthostatic tachycardia is recommended in the clinic (Schellong test first lying down for 10 minutes, then measure blood pressure and heart rate every minute standing for 10 minutes). Postural orthostatic tachycardia syndrome (POTS)[41] is diagnosed if there is an increase in the heart rate by 30 beats per minute (bpm) between the lying and standing position associated with a reproduction of symptoms. Orthostatic hypotension is an exclusion criteria for POTS.[41]

When suffering from post-exertional malaise, many patients report symptoms such as dizziness, post-exertional malaise, palpitations (especially with exertion even if minimal), gastrointestinal symptoms (nausea, diarrhea, abdominal pain), urinary incontinence and visual disturbances, etc. These symptoms may be related to dysautonomia. Autonomic disorders include orthostatic hypotension or postural orthostatic tachycardia syndrome (POTS), or a spectrum of orthostatic intolerance manifested by tachycardia. Post-COVID symptoms are often correlated with postural tachycardia or orthostatic intolerance and less so with orthostatic hypotension.

It is important to rule out other causes of fatigue based on the history and physical examination. The main conditions that can cause fatigue are neurological disorders (e.g., multiple sclerosis), psychiatric disorders (e.g., major depressive episode), gastrointestinal disorders (e.g., hemochromatosis), cardiorespiratory diseases (sarcoidosis, heart failure, acute coronary syndrome), sleep disorders (hypersomnia, narcolepsy), sleep apnea syndrome, endocrine disorders, rheumatologic disorders, cancers, kidney disorders, metabolic disorders, and medications. A review of related symptoms should include cardiac (chest pain, palpitations, dysautonomia, post-exertional malaise), respiratory (dyspnea), psychiatric (depression, anxiety, irritability), neurological (cognitive impairment, headaches, insomnia), and pain assessment.

During the clinical assessment, it is important for physicians to differentiate between sleepiness and fatigue. A sleep assessment is recommended when looking for sleep disorders or sleep apnea (cf. sleep disorders). The Epworth scale[2] can be used to screen for sleep apnea, and referral to a sleep clinic assessment can be indicated if the Epworth scale is positive or sleep apnea is suspected.
The laboratory workup for fatigue or post-exertional malaise includes a complete blood count, ferritin, urea, creatinine, blood glucose, sodium, potassium, calcium, magnesium, phosphate, sedimentation rate, CRP, creatine kinase, liver function tests, TSH, vitamin B12, folic acid. Other tests such as vitamin D (since 2022 only reimbursed by insurance in very specific circumstances),* urine sediment, HbA1c, electrocardiogram, morning cortisol level etc. may be added depending on the individual's clinical history and related symptoms.

If the clinical examination and basic workup are within normal limits and if dysautonomia is still strongly suspected, other tests such as the Tilt table test can be carried out during a cardiology or neurology consultation. In some cases, a Holter recording can also provide information on the loss of nychthemeral rhythm or inappropriate daytime tachycardia sometimes encountered in dysautonomia, correlating bouts of palpitations with possible arrhythmia.

Palpitations in the context of post-COVID condition can initially be assessed by a 12-lead electrocardiogram as well as a Holter recording (24–48-hour outpatient heart rhythm monitoring). Depending on the suspected underlying condition, additional tests such as an echocardiography, a heart rate test in the lying and standing position or an exercise test (if tolerated) are

suggested (not recommended if post-COVID condition is the only indication).
Functional capacity and quality of life impact need to be assessed if patients have fatigue or post-exertional malaise (cf. functional capacity).

Management
The aim of the management strategy should be to reduce the impact of the symptoms and resume various activities when adapted.

Pacing along with a diary of daily energy levels (Appendix 2) to track symptom progression is recommended for patients, based on the 4 P rule: Plan, Pace, Prioritize and Position. A daily routine is recommended focusing on activities of daily living and respecting the daily energy reserve. Patients should be advised on how to assess their daily activity levels and prevent post-exertional malaise. Occupational therapy (ergotherapy) is recommended for the management of daily activities and the use of the energy reserve (maintenance of autonomy in the activities of daily life, as well as management of daily activities), and is reimbursed by the basic medical insurance. Neuropsychological support and follow-up are also recommended. Physical therapy if prescribed, should focus on pacing, with adapted exercises to improve fatigue and avoid deconditioning (cf. treatment).

Patient education and support to help understand the underlying causes of fatigue, promote support acceptance and manage the impact of fatigue on daily life are recommended. Therapeutic patient education on fatigue (cause, impact, domains) is essential and can be delivered by occupational therapists and (neuro)psychologists. This measure is possible on a one-on-one basis or in group settings. Interaction between patients can be helpful in dealing with the symptoms and their impact. A mind-body approach is beneficial in the treatment of fatigue with relaxation, mindfulness, meditation techniques, yoga, and hypnosis. Tai-Chi and Shiatsu can also teach people the concept of symptom control in some cases.

For patients who are professionally active, or for students, a phased return, if necessary, enables them to adapt and manage the impact of symptoms (cf. functional capacity). Significant fatigue will have a significant impact on work/studies and functional capacity, and the workload should be adapted accordingly. Interdisciplinary management is recommended in these cases. Occupational therapy (ergotherapy) or neuropsychological therapy can be very helpful in adapting and managing daily life and the impact on work, self-management education etc. Post-exertional malaise should be considered and prevented. It is important to first consolidate each step and make sure that there is no post-exertional malaise occurring before increasing the concentration time or effort needed for activities (social, professional and others).

Autonomic disorders are difficult to treat and can greatly impact patients' functional capacity and quality of life. Non-pharmacological treatment for prevention of post-exertional malaise and pacing are required in addition to regular monitoring. Measures to prevent or treat autonomic disorders include isometric contractions of the lower limbs for 2 minutes before getting up from the lying position, avoiding standing up quickly, sleeping in a semi-sitting position, wearing compression stockings (medical, grade 2, to the waist if possible), having a daily salt intake of 6-10 g (if no contraindication), keeping hydrated (2-3 L per day), drinking water before meals, dividing food intake (small regular meals) and lying down after a heavy meal.

Second-line pharmacological treatments are available in addition to non-pharmacological treatment options. These treatments are introduced only in documented cases of autonomic disorders and in coordination with cardiologists or neurologists. Treatments vary depending on symptoms (beta-blockers or ivabradine for tachycardia; fludrocortisone for orthostatism; acarbose or octreotide for postprandial hypotension, etc.). A cardiology or neurology consultation is advisable if dysautonomia persists for more than 6 months without improvement after first-line treatment measures are put in place.

* Limitations according to position no. 1006.00 of the "Analysenliste" AL (list not exhaustive): only in patients with disorders of bone metabolism, after an unclear fall event in patients ≥ 65 years of age, a history of increased fracture risk in patients ≥ 65 years of age, conditions or suspected conditions that affect vitamin D metabolism or absorption, and medications that affect vitamin D metabolism or its absorption.

COGNITIVE DISORDERS

Medical history and diagnosis

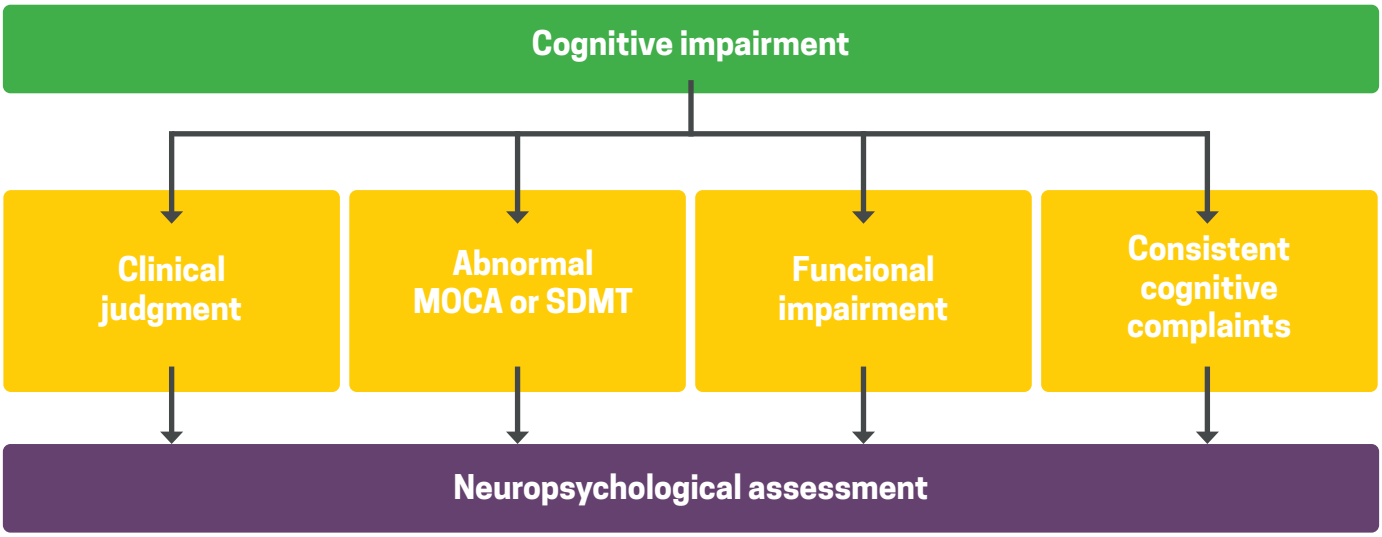
Patients often report difficulty concentrating, processing information, as well as attention problems and executive dysfunction. These symptoms are debilitating and can have an adverse impact on patients, especially those who are professionally active or still studying. A neuropsychological assessment is suggested in the event of prolonged work/study absence (> 3 months) to better characterize the difficulties.

The physician should ask patients and caregivers if the patients have or exhibit cognitive complaints and then ask them in which domains the symptoms are most apparent.

Clinical judgment and further neuropsychological assessment are recommended if functional impairment is present and persistent for more than 3 months. To date, the available cognitive impairment scales are not adapted to screening in primary care settings. With this caveat, the following scales can be used to assess cognitive disorders:

Montreal Cognitive Assessment (MOCA)[3] Screening for mild	cognitive disorders (30 questions)
Symbol digit modalities test (SDMT)[6]	Screening for cognitive impairment and changes over time

Figure 1. Decision tree for neuropsychological assessment



A related symptoms review should search for other neurological disorders, fatigue, as well as psychiatric disorders which can also significantly contribute to cognitive disorders (e.g., anxiety disorder, depression, post-traumatic stress disorder). A sleep assessment is suggested when assessing attentional disorders, which are often increased by fatigue (cf. sleep disorders).

Laboratory workup is indicated only if secondary causes of cognitive impairment are suspected. A basic workup can be done to rule out vitamin B12 or folate deficiency and thyroid dysfunction (complete blood count, vitamin B12, folate, TSH). Imaging (MRI) is indicated if the MOCA or SDMT scales are abnormal (MOCA <26/30, SDMT score according to age and years of education), or if a secondary cause of cognitive impairment is suspected. Functional MRIs have shown hypometabolism (reduced activity) in some areas of the brain in research studies but are not recommended in clinical practice.

In cases of functional impairment impacting work or daily life, an occupational therapy (ergotherapy) assessment is recommended and reimbursed by the basic medical insurance. Neuropsychological support and follow-up are also recommended.

Management

Even in the absence of a pathological test (MOCA/SDMT), cognitive impairment persisting for more than 3 months should alert the physician for further evaluation. Cognitive impairment could be related to post-exertional malaise, and strategies to prevent post-exertional malaise can help improve cognitive capacity. It is also important to manage related symptoms that may aggravate or prolong cognitive impairment, such as sleep disorders, pain, anxiety, or depression.

Neuropsychological therapy can be through therapeutic education about symptoms (individual or group therapy), helping patients adapt to their concentration and attention levels, and giving them advice on how to manage daily life despite the cognitive impairment they might be experiencing. Patients can try to progressively take on tasks requiring more concentration, while respecting their daily energy levels. This may involve paying bills, reading 2-3 pages of a book, holding a conversation for increasing periods of time, or playing games requiring coordination or concentration. Starting a completely new activity is not necessarily recommended, and patients should focus on recovering and carrying out their normal activities.

Occupational therapy (ergotherapy) is recommended for patients with cognitive impairment providing them with tips and advice on strategies such as organizing and carrying out single tasks, processing information, putting reminders.

Interdisciplinary care with psychological support is recommended. Occupational therapy (ergotherapy) and neuropsychology follow-up (when available) can be useful in adapting and managing daily life and the impact on work / studies, self-management education etc.

HEADACHES

Medical history and diagnosis

Post-COVID headaches are generally previously undiagnosed tension headaches, migraines, or a manifestation of post-exertional malaise. It is important to have a full medical history, clinical examination and workup to exclude other primary or secondary causes of headache. An assessment of sleep disorders and an ophthalmological examination are necessary when assessing headache. Imaging is required only if secondary headaches are suspected or based on clinical judgment. In of the event of abnormalities even if minor, or in the event of uncertainty during the neurological examination, the patient should be referred to a neurologist.

Management

If there is no red flag,[7] symptomatic treatment of the acute headache attacks is suggested as first-line therapy (anti-inflammatory drugs, paracetamol, or triptans in post-COVID headaches that meet migraine criteria). However, it is recommended that analgesia is not used more than 12 days per month to minimize the risk of an analgesic-induced headache or rebound headache. In the event of chronic debilitating headaches, which do not improve with standard analgesics, disease-modifying treatments specific to the headache type are recommended. This is not specific to post-COVID headaches and follows the standard approach to headaches in general practice.[7,42] A neurological consultation is recommended in the event of chronic debilitating headaches that are not improving, and patients should be encouraged to keep a headache diary to monitor changes and trigger factors, etc.

Hypnosis, acupuncture, progressive muscle relaxation according to the Jacobson relaxation technique,[43] or biofeedback (mind-body interaction focusing on the control of certain bodily functions to improve health) can be suggested for post-COVID headaches. These methods are also used in non-COVID tension headaches and migraine. Dietary supplements can help in the treatment or prevention of headaches, including butterbur (Petasites, phytotherapy), riboflavin (vitamin B2) and magnesium.

SLEEP DISORDERS

Medical history and diagnosis

Sleep disorders are frequently reported by post-COVID patients and may fluctuate over several months. They may consist of hypersomnia (increased sleep periods or need to sleep), excessive daytime sleepiness, difficulty falling asleep, waking up at night and difficulty going back to sleep. Sleep may also be disturbed by nightmares or strange dreams. Breathing-related sleep disorder should be considered as a differential diagnosis.

The Insomnia Severity Index (ISI)[8] is recommended to assess the level of severity of insomnia. A fatigue assessment is recommended in the event of sleep disorders, along with testing for neurological and psychiatric disorders that can manifest as sleep disorders.

Management

As a general rule, insomnia is managed by reviewing sleep hygiene measures:

- Avoid stimulants such as caffeine-based beverages (tea, coffee, soda) in the 4-6 hours before sleep, avoid smoking and alcohol with the evening meal
- Avoid extreme temperatures (cold, hot) in the bedroom
- Practice regular physical activity (while considering energy levels and preventing post-exertional malaise)
- Prevent clinophilia (tendency to maintain a reclining position) by lying in bed only when sleeping or having intercourse
- Eat a light dinner
- Encourage relaxing activities at least 1 hour before bedtime

▪ Avoid looking at screens just before bedtime and turn off phone messages at night
Use the bedroom only for sleeping (do not work or watch TV, etc. in the bedroom), keep the bedroom quiet and dark

As in non-COVID insomnia, cognitive behavioral therapy, relaxation exercises as well as mindfulness meditation or hypnosis can improve sleep. When insomnia is not associated with a psychiatric disorder, treatment such as phytotherapy (e.g., valerian, avena sativa, passiflora), melatonin or pharmacological treatment (e.g., hydroxyzine, trazodone) can be used in addition to sleep hygiene measures. Short half-life benzodiazepines (e.g.: alprazolam, oxazepam) can be prescribed in the treatment of sleep disorders for a short time, to avoid cognitive side effects and dependence. When insomnia is associated with a psychiatric disorder, the psychiatric disorder needs to be addressed and treatment conducted according to the recommendations provided by a psychiatrist (cf. psychiatric disorders).

If these measures prove insufficient, a sleep consultation (polysomnography, vigilance test) is indicated.

PSYCHIATRIC DISORDERS

The following psychiatric disorders may occur secondary to SARS-CoV-2 infection:
▪ Adjustment disorders
▪ Major depressive episode
▪ New onset anxiety
▪ Post-traumatic stress disorder (PTSD)
▪ Somatic symptom disorders
▪ Decompensation of a pre-existing anxiety disorder (e.g., obsessive compulsive disorder) or another pre-existing psychiatric disorder (e.g., schizophrenia, bipolar disorder)

Medical history and diagnosis

The exploration of psychiatric manifestations is recommended as part of a comprehensive patient approach, given the dynamic, two-way relationship between psychiatric and somatic symptoms. The psychiatric history, family and circle of friends and the perceived quality of support as well as the impact on social, professional, and family life should be reviewed.

Systematic screening for symptoms of anxiety and depression as well as post-traumatic stress disorder (PTSD) is indicated for patients with post-COVID condition. A personal and family psychiatric history should be documented together with a history of suicide attempts and addictive behaviors if patients have symptoms of a psychiatric disorder. The patient should be asked whether they are already being followed up by a psychiatrist or psychologist, and whether they have been taking psychotropic medication and, if so, for how long.

It is important to look for signs of severity likely to culminate in an emergency psychiatric consultation: suicidal ideation, behavioral disorders with potential self-harming and/or harming of others.

The suggested scale to screen for anxiety or depression in post-COVID condition is:

Hospital anxiety and depression scale (HADS)[9]	Screening for anxiety and depression (14 questions)	Probable anxiety disorder if HADS-A >8 Probable depressive disorder if HADS-D >8

The HADS is preferred over the more commonly used PHQ-9, as it allows the differentiated identification of anxiety as well as of depression. If the HADS is pathological or a diagnosis is not clear, scales like the PHQ-9[10], the Montgomery-Asberg Depression Rating Scale (MADRS)[11] or State-Trait Anxiety Inventory (STAI)[12] can be used.

Management

Throughout follow-up, it is important to gauge changes in the symptoms for which treatment has been introduced using psychometric scales suitable for the psychiatric disorder in question. Specialist follow-up by a psychiatrist or psychologist is indicated in situations of severe psychiatric disorders and/or in the absence of improvement despite therapeutic measures. The psychiatric and psychotherapeutic treatment by specialists that are familiar with post-COVID condition should be managed in an interdisciplinary setting.

Antidepressant treatment is ineffective in treating adjustment disorders and is not recommended. Relaxation techniques and self-management can be suggested for anxiety disorders.[44] Symptomatic pharmacological treatment may be indicated for anxiety and sleep disorders for a limited period with regular reassessment of the indication and effectiveness. Psychotherapy aimed at remobilizing the patient's resources and seeking coping strategies is, however, effective.[45]

The presence of suicidal ideation should always be ac-

tively investigated. The suicide risk assessment using the RUD (Risk Urgency Danger) approach can be used in these cases.

Somatic symptom disorder
Somatic symptom disorder (DSM-V) corresponds to somatic symptoms that are not (entirely) explained by objectively identified organic lesions and which generate significant psychological distress. Functional neurologic disorders, functional digestive disorders, hyperventilation syndrome, laryngeal dysfunction, functional anosmia or ageusia are examples of these disorders.

The presence of an organic disorder does not rule out this diagnosis. The difficulty in identifying such disorders in post-COVID condition is that there is currently a lack of information on the underlying pathophysiology of post-COVID condition. The question of where to draw the line and which tests to use in terms of an etiological exploration through para-clinical investigations determines our understanding of certain symptoms. Depending on the case and symptoms presentation, treatment should combine physical and psychological approaches, therapy (ergotherapy for self-management, manage impact of symptoms), respiratory therapy (hyperventilation syndrome), or speech therapy (laryngeal dysfunction).

PAIN AND PARESTHESIA

- Muscle or joint pain

Medical history and diagnosis
Post-COVID muscle or joint pain have not been fully elucidated but are only very rarely linked to local muscle or joint inflammation.

History should include the pain characteristics (location, duration, severity), associated symptoms (fatigue, sleep disturbances, psychiatric comorbidities) and evaluation of other conditions that could cause musculoskeletal pain (localized pain syndromes, osteoarthritis, inflammatory rheumatic disorders, thyroid disease).
Physical evaluation should include examination of the joints, skin, and a neurological examination, including strength testing in the presence of myalgia.

Laboratory testing should be guided by the findings from history and physical examination. Usually a complete blood count, ESR and CRP can be obtained, creatine kinase if there is important myalgia or muscle weakness (grip strength test), and TSH levels if thyroid disease is suspected. If a more extensive workup is considered, the patient should be referred to a specialist.

A rheumatologic/neurological consultation is recommended if symptoms persist beyond 3 months, if there is elevated creatine kinase, muscle weakness, or if the symptoms are debilitating. A rheumatologic consultation is recommended if there is objective evidence of inflammation (e.g., synovitis, elevated inflammatory markers). A neurological consultation is recommended in of the event of neurological abnormalities, even if minor, on physical examination.

Management
Symptoms may be very similar or overlap with fibromyalgia, and treatment is currently based on what is known to be useful in fibromyalgia, if no underlying rheumatological disease is identified. The initial management of fibromyalgia includes patient education (reassurance, explanations about pain sensitization), adapted physical therapy, sleep hygiene and management of psychiatric comorbidities, if any. If non-pharmacological treatment is not sufficiently effective, serotonin-norepinephrine reuptake inhibitors (duloxetine, venlafaxine), low dose tricyclic anti-depressants (e.g, amitriptyline), and alpha-2 ligand anticonvulsive treatments (pregabalin and gabapentin), have proven effective in treating fibromyalgia and can be tried in the presence of fibromyalgia-like symptoms. Starting at a low dose can help better tolerate treatment. Muscle relaxants can also be used for muscle pain, but attention must be paid to side effects (including fatigue). There is also some evidence that other non-pharmacological treatments such as shiatsu, hypnosis, mindfulness, or manual therapy can be useful for fibromyalgia.

- Chest pain

Chest pain described as tightness can be a manifestation of post-exertional malaise. It is important to initially rule out urgent cardiopulmonary causes such as acute coronary syndrome, pulmonary embolism, pericarditis, or myocarditis. The medical history, including duration of symptoms, related symptoms, and risk factors together with the clinical examination, help guide the diagnosis. Pain that is reproducible with palpation is mostly associated with chondro-costal inflammation or inspiratory muscle contractures. Diaphragmatic muscle contracture can also cause pain during breathing with abdominal muscles in the supine position. Chest pain can also be triggered by pulmonary causes (hyperventilation syndrome, pleural effusion) and gastro-intestinal factors (gastritis, irritable bowel syndrome).

An ECG should be carried out in the case of chest pain as this will help clarify the diagnosis of pericarditis and myocarditis in addition to clinical findings. Pericarditis is characterized by retrosternal pain that is relieved by sitting forward, pericardial rub on auscultation and PR segment depression and/or diffuse, concave ST segment elevation and/or T-wave abnormalities according to the ECG. Myocarditis generally manifests with prolonged retrosternal pain, regardless of exertion, with ECG repolarization disturbances, ventricular extra systoles or sometimes no anomalies whatsoever.

The clinical diagnosis of pericarditis can be made with 2 of the following criteria: (1) pleuritic chest pain relieved by sitting up and leaning forward; (2) pericardial friction rub on auscultation; (3) new widespread concave ST elevation or PR depression on the ECG; and (4) pericardial effusion.[46]

Management

Treatment depends on the underlying cause and includes non-steroidal anti-inflammatory drugs for parietal pain together with manual therapy and respiratory therapy for inspiratory or diaphragmatic muscle contractures. Preventing post-exertional malaise can help reduce chest pain manifestations if the symptom is due to post-exertional malaise. Pain of pulmonary origin is treated according to the cause as is pain of gastrointestinal origin (PPI, diet). In cases of pericarditis or myocarditis, a cardiology assessment is recommended.

- Paresthesia

Paresthesia, burning, tingling, pins and needles, numbness or electric shocks may be present in post-COVID condition.

The suggested scale to estimate neuropathic pain is:

DN4 neuropathy assessment scale[13]	Evaluating the neuropathic pain	Score >4 validated for neuropathic pain (in other diseases)

The results of electroneuromyography (ENMG), which measures the electrical activity of nerves and muscles, skin punch biopsy (for small fiber polyneuropathy) or doppler scans, which explore blood vessels, are generally normal. These tests are not indicated except if red flags for polyneuropathies are present (e.g., objective sensory disturbances, reduced sense of vibration, disturbed sense of position). In the event of abnormalities, even if minor, or if there is uncertainty during the neurological examination, the patient should be referred to a neurologist.

If symptoms are frequent and other underlying causes – such as vitamin deficiencies, diabetes mellitus, iron deficiency or thyroid dysfunction – have been ruled out, neuropathies are treated with pharmacological treatments (e.g., duloxetine, local capsaicin treatment, pregabalin, gabapentin). However, these do not address the underlying cause, which should remain under investigation. Acupuncture may relieve symptoms in some cases.

DIZZINESS

Dizziness may be a manifestation of post-exertional malaise in post-COVID condition. Individuals presenting post-COVID dizziness describe their symptoms as dizziness or lack of balance. Orthostatic hypotension (a fall in blood pressure while in the standing position) should always be investigated. Tests for vertigo may then be recommended, depending on the clinical assessment. In some cases, ear, nose, and throat (ENT) specialists will carry out vestibular system tests. In other cases, neurologists suspecting underlying causes may request brain scans. Once assessed, dizziness is treated according to the underlying cause. In the event of vestibular system imbalance, vestibular physiotherapy or exercises to be performed at home may help to relieve symptoms.

TINNITUS

Tinnitus may appear or worsen post-COVID. Tinnitus may be associated with headaches or dizziness. The underlying mechanism could be local inflammation or vascular or immune dysfunction. There is no specific test to assess tinnitus. Advice from an ENT specialist should be sought if symptoms are persistent or debilitating. Tinnitus is generally difficult to treat, irrespective of COVID-19. Treatment consists of vestibular physiotherapy or osteopathic treatment. Some pharmacological treatments can be used to suppress the sensation of tinnitus in severe or debilitating cases. Other approaches (sound therapy, rehabilitation therapy, and hypnosis) may be helpful.

LOSS OF TASTE OR SMELL

Medical history and diagnosis

Anosmia (loss of smell) or hyposmia (reduced sense of smell) are more common than loss of taste (sour, bitter, sweet, salty). The two symptoms are linked through retronasal olfaction responsible for many of the flavors, often referred to as «taste» by patients. Many patients (but also physicians) confuse these two senses. Patients may also report distorted taste

and/or smell. A distinction is made between parosmia (distortion, often bad, triggered by the presence of an odor) and phantosmia (permanent or occasional sensation of usually bad odors not triggered by an odor source), and dysgeusia (change in sweet, sour, salty, bitter taste). Most patients display both quantitative (anosmia, hyposmia) and qualitative (parosmia, phantosmia) features.

Management

Olfactory training may accelerate or improve recovery after loss of taste and smell. Olfactory training should focus on the re-education of the brain to recognize smells. This training can be carried out with products in the home or essential oils. Smelling between 4 and 6 odors twice a day for 15 seconds is recommended (e.g., clove, lemongrass, rose, eucalyptus, coffee, and peppermint). The prognosis is potentially similar to post-infectious neurosensorial loss or change in taste or smell. Parosmia lasts on average 14 to 18 months, with spontaneous improvement, and 50% of phantosmia symptoms improve within the first 2 years. A specialist ENT consultation and/or neurological consultation is recommended if symptoms persist beyond 3 months. Vasoconstrictor sprays or local steroid sprays are not indicated unless other symptoms warrant this type of therapy.

DYSPNEA

Medical history and diagnosis

Post-COVID dyspnea limits people in their activities of daily living and decreases their physical performance and abilities.

The following scales are recommended to assess dyspnea:

modified Medical Research Council (mMRC) Dyspnea Scale[14]	Simple one-question scale to assess the severity of dyspnea
Nijmegen Questionnaire[15]	Screening for hyperventilation syndrome or functional breathing disorders (16 questions). Answers are given a score 0 (Never), 1 (Rarely), 2 (Sometimes), 3 (Often), 4 (Very often). A total score of over 23 out of 64 suggest a positive diagnosis of hyperventilation syndrome.

A review of related symptoms should include cardiac, pulmonary, neurological, fatigue and psychiatric symptoms.

The post-COVID dyspnea assessment includes a physical examination and a 1-minute sit-to-stand test. Other causes of dyspnea should be ruled out such as anemia (complete blood count, ferritin), heart failure (clinical examination +/- natriuretic peptide assay (BNP or NT-proBNP) +/- echocardiography depending on symptoms) and pulmonary disease.

Pulmonary function tests with spirometry, (if restrictive lung disease is suspected: body plethysmography) and diffusion capacity measurements should be considered if symptoms persist beyond 3 months after their onset, or the patient suffered acute respiratory distress syndrome (ARDS), as lung damage with persistent sequelae might occur in these patients.16,17In the absence of end-organ damage, and if pulmonary function tests are normal, testing for hyperventilation syndrome is recommended. Hyperventilation syndrome is dysfunctional breathing and is a diagnosis of exclusion.

Chest CT imaging can reveal parenchymal pathologies but is not recommended routinely, unless persistent lung damage is suspected.17 Contrast enhanced chest CT scan should be used immediately to rule out pulmonary embolism if suspected.

A pulmonary specialist consultation is recommended if symptoms persist >3 months or in cases of signs of pulmonary impairment, or if hypoxemia is suspected.

Management

Treatment with bronchodilators and/or inhaled corticosteroids are recommended if an underlying obstructive lung disease is present. Respiratory therapy with diaphragmatic/cardiac coherence breathing exercises are useful in the treatment of hyperventilation syndrome after exclusion of other causes.

Hypoxemia

In the case of documented hypoxemia, further investigations should be performed to exclude pulmonary disease (e.g., pulmonary embolism, parenchymal lung disease etc.) and oxygen therapy should be evaluated by a pulmonologist.

COUGH AND LOSS/CHANGE IN VOICE

Coughing can be caused by lung problems, asthma, bronchial hyperreactivity, vocal cord problems, or gastric acidity. Cough is common after viral infections

and should be evaluated if persistent for more than 8 weeks. Empiric inhaled corticosteroid treatment can be useful to treat post viral cough, (post-viral bronchial hyperreactivity), if possible, bronchial provocation testing should be performed prior to treatment. Cough can also be a symptom of asthma, which can be triggered or exacerbated by viral infections. In patients with known or suspected asthma, spirometry should be performed, and treatment adapted. Voice change is another symptom, albeit less frequent, after SARS-CoV-2 infection. It is usually associated with a cough, runny nose, or shortness of breath.

Rehabilitation treatment with speech therapy or respiratory therapy is recommended in cases of persistent cough or uncontrollable coughing bouts. Speech therapy can also be indicated in the event of post-COVID voice changes.

DERMATOLOGICAL DISORDERS

Medical history and diagnosis

Persistent skin disorders after SARS-CoV-2 infection are not well understood.

Sequelae of distal necrosis of fingers and toes were initially seen in patients with severe COVID who presented with purpura of the extremities, associated with thrombotic phenomena in the acute phase of the disease. Skin care was part of the general treatment in these cases.

"COVID toes" were seen in post-COVID patients and may persist for months after a mild or even asymptomatic infection. The cause is related to a poorly regulated immune response to SARS-CoV-2. The differential diagnosis includes systemic lupus erythematosus, frostbite associated with humidity and cold and idiopathic frostbite. A laboratory workup to eliminate autoimmunity, in particular lupus, is recommended, as well as skin histology.

Chronic urticaria is seen but is not specific to SARS-CoV-2 infection as it may be triggered by various infections. A rare non-symptomatic, fluctuating rash with round lesions scattered all over the body has been observed for a period of several months and is similar to certain seasonal paraviral reactions. A specialized consultation is recommended for any rare eruptions. The differential diagnosis includes syphilis, lymphoma, or mastocytosis.

Diffuse hair loss occurring up to 6 months after infections and known as telogen effluvium is seen and is not specific to SARS-CoV-2 infection. The cause of hair loss is often identified through a clinical evaluation without any need for tests. In some cases, a blood test is performed to rule out other reasons for hair loss such as vitamin deficiencies. The differential diagnosis includes androgenetic alopecia, alopecia areata, tinea.

Management

In cases of COVID toes, patients should avoid cold situations, which increase the risk of frostbite, deterioration in the microcirculation and dryness of the epidermis, as well as excessively hot temperatures (e.g., sauna). It is advisable to avoid smoking and vasoconstrictor pharmacological products but there are no published data to corroborate this approach at present. Moisturizing creams are recommended to maintain good trophicity. Dermal corticosteroids have been used but these are less effective in the management of erythromelalgia versus the more clearly delineated plaques. Symptomatic treatment with a specialist dermatology consultation should be available to patients experiencing pain.

In cases of chronic urticaria, any potential drug allergy history should be assessed. Treatment can include antihistamines (antiH1 blockers). A specialized consultation in dermatology and/or allergology is recommended to adapt medical treatment and complete workup.

In cases of hair loss, use of mild shampoos is recommended. A dermatology consultation is recommended if the diagnosis or treatment are not clear, or in cases of severe and psychologically painful hair loss.

VISUAL DISORDERS

A review of the literature highlights COVID-related conjunctivitis in conjunction with inflammation of the retina and other parts of the eye. Post-COVID visual disturbances may be due to reduced visual acuity or to accommodation disorders in the muscles around the eyes. Treatment may vary, depending on the underlying cause, and should be based on the advice of an ophthalmologist. In some cases, accommodation exercises help to improve the symptoms. An ophthalmologist consultation is recommended in the case of visual disorders.

GASTROINTESTINAL DISORDERS

Medical history and diagnosis

A proportion of patients suffering from post-COVID condition may develop persistent symptoms. Post-COVID digestive symptoms include abdominal pain, constipation, diarrhea or nausea. These symptoms can

be similar to post- infectious functional gastrointestinal disorders/disorders of the gut-brain interaction (PI-FGIDs/DGBI). This is based on the association between low-grade intestinal inflammation, increased permeability and dysbiosis, along with environmental and psychological distress.[47]

Diagnostic criteria for FGIDs/DGBI in post-COVID condition are:[47]

▪ Fulfilling Rome IV criteria for any FGID/DGBI in the past 3 months (symptom onset at least 6 months before diagnosis) associated with:

- Previous SARS-CoV-2 infection

- Symptom development immediately after the resolution of the acute phase of the infection

- Should not meet criteria for FGIDs before onset of acute illness

The diagnostic approach of PI-FGID is similar to classic FGID, with a detailed history taking. The suspected diagnosis is confirmed by excluding other diseases that can cause similar symptoms.

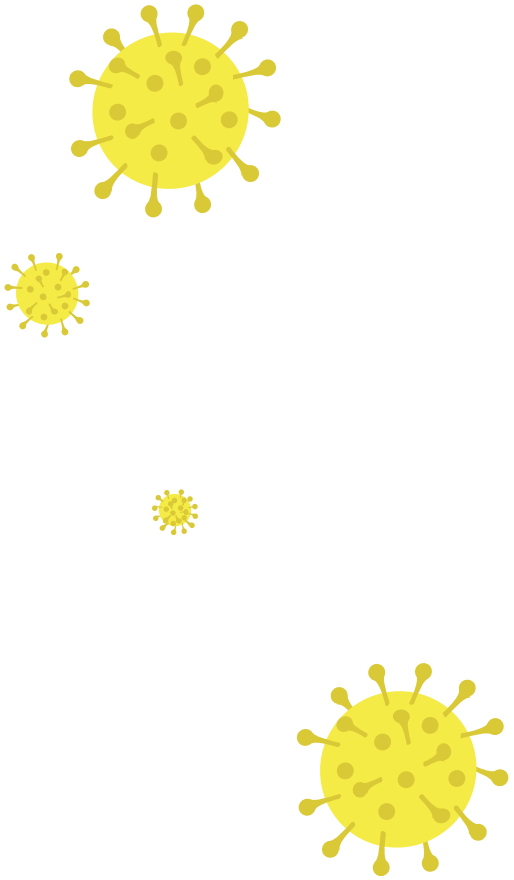
Further testing is recommended based on age, risk of other diseases (like cancer), or concomitant symptoms. If chronic diarrhea is present, a workup with a complete blood count, CRP, TSH, stool analysis, testing for lactose intolerance, serology for celiac disease, and fecal calprotectin is recommended.[48,49]

Management

The goals of treatment are satisfactory control of symptoms and improvement of quality of life. It is important to communicate the diagnosis as an independent and non-threatening disease and to identify exogenous factors such as stress, dietary habits, medications, etc., which have a favorable/unfavorable influence on the symptoms. Therapy includes stool regulation with bulking agents, dietary counseling or a diet change. Depending on the symptoms, drug therapy can be evaluated following a gastroenterologist consultation.

FEVER

This symptom should not persist beyond the first few weeks after the infection. Some individuals have reported a fluctuating sub-febrile state (temperature around 37.5 °C) while others have reported higher temperatures. However, the direct link to SARS-CoV-2 has not yet been established. In the event of a new fever, patients should be tested for a new infection (SARS-CoV-2 or other infection depending on the clinical symptoms). In the event of persistent fever, a consultation with an infectious diseases specialist is recommended in order to exclude any other underlying infectious etiology.



SARS-CoV-2 vaccination

The question of the role of SARS-CoV-2 vaccination on the risk of post-COVID and post-COVID symptoms is very common in clinical practice. The evidence is still limited.

There is no evidence for a worsening of post-COVID condition following vaccination and there are no contraindications to vaccination specific to patients with post-COVID condition. It is also very important to increase patient awareness of SARS-CoV-2 vaccination in view of the preventive effect and the decreased risk of post-COVID condition.

Post-COVID in children (adolescents)

Adolescents – and to a lesser extent younger children – are susceptible to post-COVID condition.[50] Even though this disorder is less common than in adults, raising awareness of pediatric post-COVID condition is crucial. The reported prevalence in children varies considerably between studies, ranging from 4% to 66%.[51]The variability is due to study design heterogeneities in patients' age, acute COVID-19 severity, outcome measurements, contexts (inpatient or outpatient), and data collection methods. In studies including SARS-CoV-2 negative controls, the reported prevalence of symptoms compatible with post-COVID disorder ranges from 2% to 9% in most studies, compared to 1%-10% in controls.[50,51] Risk factors for pediatric post-COVID are female sex, teenagers compared to younger children, chronic comorbidities,[52] and lower socio-economic status.[50]

As in adults, the most common symptoms of pediatric post-COVID are fatigue, headache, cognitive impairment, myalgia/arthralgia, dyspnea, and anosmia.[52] Abdominal symptoms such as abdominal pain – and to a lesser extent constipation, diarrhea, nausea and vomiting – are also common in children.[50]

The main concerns for children and adolescents with post-COVID condition are the educational impact and the risk of social withdrawal. The timely detection of red flags such as school withdrawal or failure, social isolation and anxiety is very important to minimize the impact on the child/adolescent's development. Therefore, a global and interdisciplinary management approach in close collaboration with the educational network is necessary.

The management of pediatric post-COVID condition can be extrapolated from that of adult post-COVID condition, while considering the following specificities:

- School attendance and performance are frequently impacted in pediatric post-COVID condition. Therefore, an interdisciplinary approach in partnership with the educational setting (school, workplace) is of paramount importance to progressively implement the most suitable and safe program for maintenance and/or reintegration in the educational environment. Establishing goals and milestones that consider the patient's functional and study capacity (adapted to their symptoms: fatigue, post-exertional malaise, cognitive impairment) is suggested for the reintegration in the educational setting and in the social network. The same approach applies to sports and physical activity. Considering physical activity, pacing and adapted rehabilitation programs are cornerstones in the management of pediatric post-COVID condition.

- As evidenced by controlled prevalence studies, and given the low specificity of commonly reported symptoms, not all symptoms can be attributed to SARS-CoV-2 infection. Other factors such as the psychological impact of the pandemic should be considered, especially in teenagers where physiological behavioral and hormonal changes can also contribute to some of the reported symptoms. Alternative diagnoses need to be ruled out, such as mood disorders, addictions (e.g., substance abuse, social media addiction). These conditions could be pre-existing or unmasked by SARS-CoV-2 infection. A major challenge is to distinguish mild or moderate post-COVID condition from the developmentally expected mood and energy variations of (early) adolescence. A detailed

history comparing with siblings' and friends' developmental milestones may assist physicians in making the decision, as well as close and repeated follow-up. Post-exertional malaise can be a discriminating factor and help assess post-COVID condition compared to other types of fatigue or symptomatology.

▪ Most of the above-mentioned scales for screening and evaluation in adults have not been validated in the pediatric setting. Their use should be at the physician's discretion. Additionally, the use of pediatric questionnaires such as the Adolescent Depression Rating Scale (ADRS)[53] and the Pediatric Quality of Life Inventory (PedsQL)[54] can provide more pediatric-specific insights.[55]

TREATMENT

There is no pharmacological treatment for persistent symptoms following SARS-CoV-2 infection to date. There are several ongoing trials, evaluating potential treatments for post-COVID condition, including monoclonal antibodies,[56] antiviral therapy,[57] antihistamines,[58] anticoagulation,[58] and other therapies including pharmacological and non-pharmacological approaches.[59,60]

A global approach of evaluation and management should be considered, the various symptoms should be assessed, and interdisciplinary management and follow-up is recommended. As a general rule, management of daily energy reserve could reduce the exacerbation of most symptoms, once other causes have been ruled out.

A diary of daily energy levels (Appendix 2) is recommended to monitor changes in symptoms according to the 4P rule: Plan, Pace, Prioritize and Position. The daily routine is then adjusted to give priority to the activities that the individual considers as essential or a priority, while respecting the daily energy reserve. The diary can be used for evaluation and management.

Occupational therapy (ergotherapy) is recommended for implementing the 4P into the management of social roles and correlated activities.

Pacing: daily activities must be adapted and comply with individual energy levels to prevent post-exertional malaise, which would subsequently need a longer recovery period. It is therefore a question of «pacing» or resuming activity in a measured way, striking a balance between periods of activity and rest.
Graded exercise therapy or cognitive behavioral therapies are not recommended in post-COVID condition.

An integrative medicine approach with methods such as hypnosis, meditation, acupuncture, or vitamins is recommended for certain symptoms (vitamin B2 for example for headaches). Psychological support is important for symptoms such as anxiety, post-traumatic stress, and depression.

Experimental drugs or therapies are not recommended and need further evaluation before being suggested by primary care physicians.

The primary care physician remains the first point of contact for all patients.

Self-management with online resources such as https://www.rafael-postcovid.ch, https://www.altea-network.com, and https://www.long-covid-info.ch/ are online tools available for physicians, patients and their friends and family.

Interdisciplinary follow-up or a specialist consultation is recommended if symptoms do not improve after 3-6 months of follow-up or if symptoms are severely debilitating with functional impairment and worsening quality of life.

REHABILITATION

Rehabilitation is defined as "*a set of complex interventions designed to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment.*"[61] Rehabilitation is highly person-centered, meaning that the interventions and approaches selected for each individual depend on their goals and preferences. Rehabilitation can be provided in many different settings, from inpatient or outpatient hospital settings to private clinics, or community settings such as an individual's home. Rehabilitation interventions include preventive, restorative, supportive (compensatory), and palliative elements.

Post-COVID rehabilitation does not entail physical high intensity training and is geared more toward adaptation, pacing and reintegration. In this sense, rehabilitation has an important role to play in the management of post-COVID condition, particularly since no pharmacological treatment is available at present.

OCCUPATIONAL THERAPY

Occupational therapy (ergotherapy) is a cornerstone of post-COVID rehabilitation. Occupational therapy (ergotherapy) is important when symptoms impact daily life. This therapy helps in dealing with the symptoms and their restrictions on daily life (fatigue, PEM, orthostatic intolerance, cognitive impairment, pain etc.) as well as with self-management for implementing (among others) pacing, break management, prioritizing, and structuring of activities in order to prevent post-exertional malaise and to maintain autonomy, and get most out of life/ quality of life despite the existing symptoms and limitations.

Assessment

The initial assessment of occupational therapy (ergotherapy) focuses on the limitations in performing daily routines, the impact of symptoms (e.g., fatigue, post-exertional malaise, cognitive impairment, pain) on daily activities and social roles, and the influence of the physical and social environment on the ability of performance. The Canadian Occupational Performance Measure (COPM)[62] or the Occupational Self-Assessment (OSA)[63] are validated assessment tools to list, prioritize and analyze the main limitations the patient is experiencing and support the goal-setting process.

Targeted outcomes

The intervention aims at managing symptoms and preventing post-exertional malaise. Occupational therapy increases self-efficacy in performing energy management strategies and self-management competencies in managing symptoms and their impact (e.g., preventing post-exertional malaise, loss of self-esteem, or social roles). Patients increase their understanding of fatigue, and the influencing factors and acquire skills to better explain their condition and express their needs to others (relatives, colleagues). They implement behavioral changes (e.g., break management, balancing weekly schedules) and apply strategies (e.g., ergonomic behavior, simplifying activities, assistive technologies) that permit them to perform selected activities of daily life while other activities are delegated or postponed through informed decision-making.

Interventions

The intervention is a self-management education in which the occupational issues are addressed with mainly compensatory and supportive elements. In the early disease stage, assessment sessions with initial brief information and tips are important. In a later stage when patients have more experience of the symptoms and a better understanding of their impact on daily activities, and they have started to accept that the prognosis regarding recovery and healing might be uncertain, a structured energy management education (individual or group) is needed.[64]

NEUROPSYCHOLOGY

Neuropsychological therapy can be through therapeutic education about symptoms (individual or group therapy), helping patients adapt to their concentration and attention levels, and giving them advice on how to manage daily life despite the cognitive impairment they might be experiencing. Patients can try to progressively take on tasks requiring more concentration, while respecting their daily energy levels. This may involve paying bills, reading 2-3 pages of a book, holding a conversation for increasing periods of time, or playing games requiring coordination or concentration. Starting a completely new activity is not necessarily recommended, and patients should focus on recovering and carrying out their normal activities.

PHYSICAL THERAPY

Physical therapy can help in understanding and applying pacing strategies, as well as managing physical activity. Red flags to physical activity as part of physical therapy are post-exertional malaise, post-exertional symptoms exacerbation, de-saturation or palpita-

tions without an identified cause other than potential dysautonomia or post-COVID condition.

Assessment
The initial assessment includes a journaling of symptoms and ruling out post-exertional symptoms' exacerbation. An assessment of potential post-exertional malaise should be carried out. This can be done using the DePaul[3] or Compass questionnaires.[4] Initial evaluation includes measuring heart rate, blood pressure, and saturation both at rest and on exertion (depending on physical capacity).

Complementary tests used could be the 1-minute-sit-to-stand test that would be helpful to document progress if patients are already capable of doing physical activity.[65] Other tests such as a 6-minute walk test or cardiopulmonary stress tests are only indicated if there is another clinical indication or suspicion and are not usually indicated in post-COVID condition. It is important to note that these tests could aggravate symptoms and cause decompensation with a significant time needed to recover.

Progress is assessed by patient feedback, especially when stability of symptoms is the goal and followup is not necessarily quantitative. Symptom journaling (especially in the days following physical activity) as well as the Borg rating of perceived exertion[66] are tools that can be used for monitoring.

Targeted outcomes
Treatment goals should be specific to the patient: in patients with autonomic disorders, the goals are to reduce orthostatic episodes, stabilize the heart rate, improve exercise tolerance, and reduce post-exertional malaise. Adapted strength training and cardio exercises can be used if there is no symptom exacerbation. It is also a question of building up muscle strength, doing isometric exercises, and recovering the range of movement in the joints.

Interventions
In cases of orthostatic intolerance without post-exertional symptoms, exercises can be started in the horizontal position to avoid autonomic dysfunction on standing up (syncope, lightheadedness and tachycardia).[67] Exercises should not be implemented if the patient has symptom exacerbation after exercise and if their daily activities are too difficult to do. Above all, it is a matter of readjusting to allow the individual to carry out activities of daily living whilst preserving their energy reserves and avoiding post-exertional malaise.

Respiratory therapy is indicated in cases of post-COVID pulmonary sequelae (following a moderate to severe acute phase of the infection with or without hospitalization) and in cases of dysfunctional breathing (hyperventilation syndrome). The aim is to work on breathing control and decrease minute ventilation (frequency and volume) under the supervision of specially trained physiotherapists. The breathing techniques should be implemented in daily activities to avoid dysfunctional breathing as much as possible. Applications are available online to help with breathing exercises. Progress is symptoms-based and additional tools like a capnometers can be used but are not necessary.

Further physiotherapeutic measures, such as manual therapy or active relaxation techniques, can be applied if indicated.

Settings
Rehabilitation can take place in outpatient, inpatient or group settings.

Outpatient therapy is the recommended initial setting. In this setting, group therapy can be helpful so that patients can share their experiences.

If there is no improvement in symptoms with outpatient measures or if progress stagnates after an initial improvement, inpatient rehabilitation can be considered. Inpatient rehabilitation offers several advantages. First and foremost, the patient can take the time to receive the therapy adapted to his or her personal limits. In addition, everyday stressors, such as childcare and household duties, are eliminated and the patient has more energy for the therapies. For inpatient rehabilitation, however, patients must be fit enough to attend several therapy sessions per day.

If the patient is too severely affected, home therapy can be considered, if available.

NURSING INTERVENTION FOR HOMECARE

In the case of complex, unstable conditions and for long-term care, a homecare setting with nursing staff can be helpful. A case management can be set up in cooperation with general practitioners (homecare management/homecare hospitality). Nurses can assist with the pacing strategies, physical therapy, as well as administrative tasks and housekeeping. In coordination with the primary care physician, nurses can be an essential resource for patients who are housebound because of their symptoms or functional impairment.

FUNCTIONAL CAPACITY

Post-COVID symptoms have a significant impact on functional capacity (social, personal, professional). A recent study in Geneva, Switzerland showed that SARS-CoV-2 infection doubled the risk of developing criteria for chronic fatigue syndrome and post-exertional malaise.[68] Overall, 1.1% of individuals developed criteria for chronic fatigue syndrome after SARS-CoV-2 infection,[68] and 8.2% had criteria for post-exertional malaise. Individuals with criteria for chronic fatigue syndrome or post-exertional malaise experienced long-term consequences, chronic functional impairment, and had a poorer quality of life.[20,68] Functional impairment was manifested by increased absenteeism, as well as reduced productivity.[20,68] A recent report estimated the losses attributed to post-COVID, with $170 billion attributed to lost wages alone[69] in the United States. Specific estimates are not available for Switzerland to date.

Physicians should ask patients to compare their functional capacity prior to the infection to their functional capacity after the infection, in all areas of life. Patients can be asked about the activities of a typical day prior to the infection, compared to their current state. The Sheehan disability scale[70] is a useful tool to assess functional capacity, and days lost or with reduced productivity. The Bell's Chronic Fatigue and Immune Dysfunction Syndrome scale (CFIDS) can also be used to assess functional capacity, with 11 statements describing the level of symptoms scored from 0 to 100.[71] Patients choose one of the statements best describing their symptoms. Comparison to functional capacity and quality of life prior to the infection can help assess current symptoms and their impact on functional capacity and quality of life.

RETURN TO WORK

How can individuals return to work in the event of post-COVID condition?

The symptoms of post-COVID condition may persist for weeks or years, affecting functional and work/study capacity. Before planning a return to work/activity, patients should discuss this with their primary care physician, and be medically fit to resume the activity (work or otherwise). Returning to work can be difficult and may lead to apprehension and anxiety following long-term leave or in patients who are still symptomatic. This should be carefully discussed with the primary care physician and the employer to raise awareness of the employee's condition in the workplace, and to collaborate on the most suitable return to work plan for both employer and employee.[72,73] Regular meetings with the employer and follow-up with the primary care physician to discuss the return to work are recommended when the employee is ready to return to work.

Individuals with post-COVID condition generally present severe fatigue defined as asthenia, post-exertional malaise (exacerbated by physical or intellectual effort or increased stress), orthostatic intolerance, cognitive impairment with a difficulty to multitask or concentrate for long periods, or shortness of breath/chest pain or palpitations that can limit work, intellectual, and physical activity. Patients may wake up tired and spend most of the day operating with minimal energy levels. Individuals use their energy reserve to carry out all of their daily activities and in all aspects of their lives, including personal, professional and social. If overworked, individuals may experience post-exertional malaise and will need several days to recover.

Patients with post-COVID condition can usually identify a time of day when they have higher energy levels. It is important for employees and employers to consider reducing working hours and workload to ensure recovery, taking advantage of the time of day when the employee feels most capable to work or concentrate. The symptoms of post-COVID condition can also fluctuate and, ideally, employers could reconsider the workload on days when employees suffer a relapse or present significant symptoms such as post-exertional malaise. Patients should ideally reduce or completely remove workload on days with decreased energy levels (adapted response) to prevent post-exertional malaise as much as possible. Symptoms tend to improve over time (albeit slowly) if the recovery setting offers appropriate conditions for better recovery. A dialogue of trust between the primary care physician and the patient is essential to best identify the patient's functional capacity. A diary of daily energy levels (Appendix 2) is a recommended tool for patients to track their energy levels, review any improvements and determine when they are feeling better, which activities require greater energy expenditure, and how to plan ahead.

WORKPLACE AND THE WORKING DAY

A phased return is recommended after setting realistic short-term objectives agreed between the employer and the employee. A phased return to work should initially be at a reduced percentage of the usual rate of activity, with a preference for partial days or a few hours per day, ideally aligned with the time of day when the person feels most energetic. Starting with single-task work while delegating other tasks to colleagues can help this phased return.[72,73] Restorative scheduled breaks can help maintain energy levels throughout the day and structure the working day. A blend of remote working and on-site work can help reduce the energy needed to commute, while helping the employee to re-integrate themselves within the team. Return to work arrangements (hours, rates) should allow patients to attend medical appointments. A return to work should not slow down the improvement of post-COVID condition. If a patient experiences post-exertional malaise or improvement stagnates, it is not advisable to increase the work hours. The work environment should be ergonomically adapted to help maintain energy levels (increased light or sound stimuli should be avoided, ergonomic workstation design: height adjustment, back support, etc.). Sometimes aids such as voice recognition tools/software can help to maintain energy levels (e.g., dictation).[72,73]

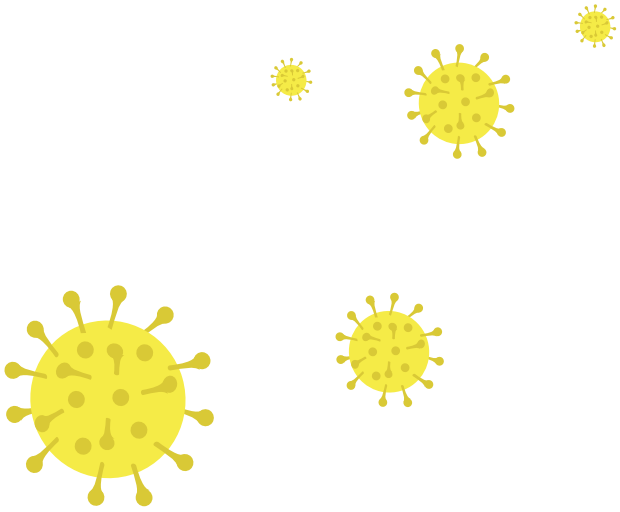
LONG TERM DISABILITY

Symptoms usually improve over time following a recovery process that is often slow. Unfortunately, a small percentage of patients with post-COVID condition may not recover sufficiently to return to work. A recent study in Geneva, Switzerland showed that 1.1% of individuals developed criteria for ME/CFS after SARS-CoV-2 infection,[68] and 8.2% had criteria for post-exertional malaise. SARS-CoV-2 infection doubled the risk of developing criteria for chronic fatigue syndrome and post-exertional malaise.[68]

Individuals who have functional impairment for more than 6 months should be referred to the social disability insurance, occupational health (ergotherapy) specialists, human resources and their primary care physician as well as post-COVID specialists to determine if recovering their functional capacity is possible or if long-term disability benefits are required.

The Swiss Insurance Medicine platform has established recommendations[74] and an online questionnaire[75] for physicians who are evaluating patients for insurance purposes.

Coordination is important between the primary care physician, the patient, the employer, and the disability insurance in such cases.



RESOURCES

www.rafael-postcovid.ch

- Information on post-COVID condition and management resources (patients and physicians)
- Webinars
- Chatbot

www.altea-network.com

- Information on post-COVID and management resources (patients and physicians)
- Community groups

www.long-covid-info.ch

www.longcovidkids.ch

- Information on post-COVID and management resources (patients, caregivers and physicians)
- Community groups

www.medix.ch

- Guidelines for physicians

https://www.bag.admin.ch/bag/de/home/strategie-und-politik/nationale-gesundheitsstrategien/post-covid-19-erkrankung/sprechstunden-rehaangebote.html

https://www.bag.admin.ch/bag/fr/home/strategie-und-politik/nationale-gesundheitsstrategien/post-covid-19-erkrankung/sprechstunden-rehaangebote.html

https://www.bag.admin.ch/bag/it/home/strategie-und-politik/nationale-gesundheitsstrategien/post-covid-19-erkrankung/sprechstunden-rehaangebote.html

- List of post-COVID consultations and rehabilitation offers in Switzerland

https://www.swiss-insurance-medicine.ch/de

- EPOCA: Recommendations and questionnaire for insurance medicine physicians

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- Swiss headache society
- Swiss society of dermatology
- Swiss society of general internal medicine
- Swiss society of neurology
- Swiss society of pediatrics
- Swiss society for child and adolescent psychiatry
- Swiss society of pneumology
- Swiss society of otolaryngology
- Swiss society of rheumatology
- Union of associations of Swiss physicians for complementary medicine

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- Altea network
- Ligue pulmonaire Suisse
- Long Covid Schweiz
- MyPhysio
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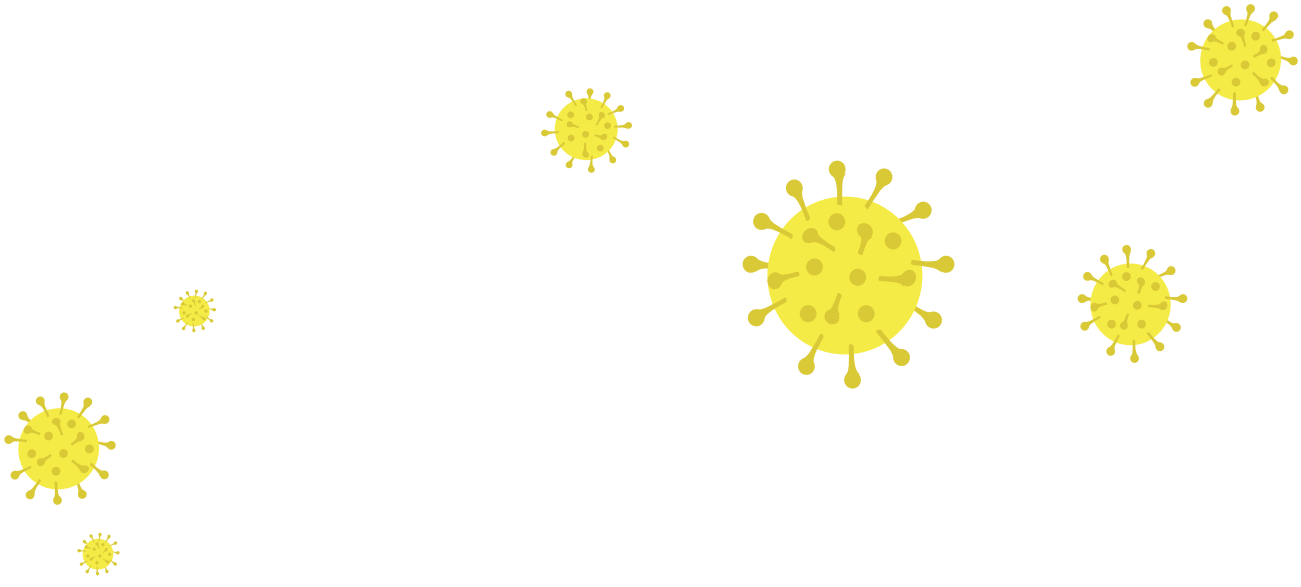


APPENDIX 1. SUGGESTED SCALES

Suggested scales for the evaluation and follow-up of post-COVID condition, with the pros and cons of each scale

Scale	Pros	Cons	Availability
Fatigue scale for motor and cognitive functions FSMC	Includes both mental and physical fatigue evaluation	Not validated in post-COVID condition Not open access	Validated in English, German and Italian – access only English version online
DePaul questionnaire	Questionnaire developed specifically to evaluate criteria for post-exertional malaise and chronic fatigue syndrome	Not validated in post-COVID condition Two versions (long and short), the short version (17 questions) used in this document is less widely used than the long version (54 questions)	Validated in French, German – Not available in Italian
Compass questionnaire	Questionnaire assessing autonomic disorders	Not validated in post-COVID condition Could be time consuming with 31 questions	Validated in English, German – Not available in French or Italian
Montreal cognitive assessment (MOCA)	One of the most widely used questionnaires assessing cognitive function	Not validated in post-COVID condition Scores are usually normal in post-COVID condition and fail to identify the cognitive impairment (e.g. attention, concentration)	Validated in English, French, German and Italian
Symbol digit modalities test (SDMT)	Assesses psychomotor, processing and motor speed	Not validated in post-COVID condition Could fail to show the cognitive impairment seen in post-COVID condition (e.g. attention, concentration) Not open access	Not available in open access
Insomnia severity index (ISI)	One of the most widely used scales for insomnia	Not validated in post-COVID condition Does not take into account sleep disorders other than insomnia (e.g. restless leg syndrome, nightmares)	Validated in English, French, German and Italian
Hospital anxiety and depression scale (HADS)	One of the most widely used scales for anxiety and depression in outpatient settings Combines the detection of both anxiety and depression which could coexist This scale is a good screening tool for anxiety that could be difficult to screen for primary care physicians	Not validated in post-COVID condition Other scales such as PHQ2 or PHQ9 are more widely used and recommended in primary care, for screening of depression, however does not account for other concomitant psychiatric disorders	Validated in English, French, German and Italian
Patient health questionnaire PHQ9	One of the most widely used scales for screening of depression in primary care. Easy, 9 item questionnaire with a shorter version (PHQ2: 2 questions)	Not validated in post-COVID condition Screening tool for depression only, does not account for other concomitant psychiatric disorders	Validated in English, French, German and Italian
Montgomery-Asberg Depression Rating Scale (MADRS)	Validated for depression even in settings of cognitive impairment	Not validated in post-COVID condition Does not account for other concomitant psychiatric disorders	Validated in English, French, German and Italian
State-Trait Anxiety Inventory (STAI)	Identifies both state and trait anxiety Short and long versions available	Not validated in post-COVID condition Does not account for other concomitant psychiatric disorders Long version is made up of 40 questions and can be time-consuming. A shorter validated 6-item questionnaire is available	Validated in English, French, German. Not available in Italian
DN4 questionnaire	Used to evaluate neuropathic pain Short questionnaire (3 items)	Not validated in post-COVID condition Does not take into account other types of pain (e.g. inflammatory, fibromyalgia)	Validated in English, French, German and Italian
Modified Medical Research Council Dyspnea scale (mMRC)	One of the most widely used scales for dyspnea 1-item questionnaire that evaluates the degree of dyspnea	Not validated in post-COVID condition Does not evaluate the reasons or functional impact of dyspnea	Validated in English, French, German and Italian
Nijmegen questionnaire	Questionnaire used to identify hyperventilation syndrome	Not validated in post-COVID condition	Validated in English, French, German and Italian
Sheehan disability scale (SDS)	Widely used questionnaire for functional capacity Short and easy to use, assessing social, family and professional domains of life	Not validated in post-COVID condition Potentially not detailed enough to provide enough information on functional capacity	Validated in English, French, German. Not available in Italian
Bell's chronic fatigue and immune dysfunction syndrome scale (CFIDS)	Short 1-item question with 11 statements to choose from Used in chronic fatigue syndrome	Not validated in post-COVID condition Not validated in large studies	Validated in English – Not available in French, German and Italian

APPENDIX 2. DIARY OF DAILY ENERGY LEVELS

COVID-19 : DIARY ENERGY	Start date	

Activity	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Energy level when waking up *1 Poor - 10 Excellent*							
Post-exertional malaise with duration (in hours) and intensity *1 low - 10 high*							
List symptoms of the day							
Activities depleting energy levels (*groceries, work, taking care of family, medical appointments etc.*)							
Activities restoring energy levels (*restorative rest, meditation, other*)							
Energy level at the end of the day *1 Poor - 10 Excellent*							
Overall daily energy level *1 Poor - 10 Excellent*							

APPENDIX 3. SCALES

Fatigue scale for motor and cognitive functions FSMC

Open access in English only
https://www.sralab.org/rehabilitation-measures/fatigue-scale-motor-and-cognitive-functions

Penner IK, Raselli C, Stocklin M, Opwis K, Kappos L, Calabrese P. The Fatigue Scale for Motor and Cognitive Functions (FSMC): validation of a new instrument to assess multiple sclerosis-related fatigue. Mult Scler. 2009 Dec;15(12):1509-17

DePaul questionnaire

	Frequency					Severity				
	0	1	2	3	4	0	1	2	3	4
Dead, heavy feeling after starting to exercise	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Next day soreness or fatigue after non-strenuous, everyday activities	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Mentally tired after the slightest effort	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Minimum exercise makes you physically tired	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Physically drained or sick after mild activity	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

If you were to become exhausted after actively participating in extracurricular activities, sports, or outings with friends, would you recover within an hour or two after the activity ended?	**Yes**	**No**
Do you experience a worsening of your fatigue/energy related illness after engaging in minimal physical effort?	**Yes**	**No**
Do you experience a worsening of your fatigue/energy related illness after engaging in mental effort?	**Yes**	**No**

If you feel worse after activities, how long does this last?	**≤1 hour**	**2-3 hr**	**4-10 hr**	**11-13 hr**	**14-23 hr**	**≥24 hr**

Do you reduce your activity level to avoid experiencing problems with fatigue/ energy?	**Yes**	**No**

Brown A, Molly B, Nicole P, et al. The Development of a Revised Canadian Myalgic Encephalomyelitis Chronic Fatigue Syndrome Case Definition. Am J Biochem Biotechnol 2010.

Compass questionnaire

1. In the past year, have you ever felt faint, dizzy, "goofy", or had difficulty thinking soon after standing up from a sitting or lying position?
- ☐ Yes
- ☐ No *(if you marked No, please skip to question 5)*

2. When standing up, how frequently do you get these feelings or symptoms?
- ☐ Rarely
- ☐ Occasionally
- ☐ Frequently
- ☐ Almost Always

3. How would you rate the severity of these feelings or symptoms?
- ☐ Mild
- ☐ Moderate
- ☐ Severe

4. In the past year, have these feelings or symptoms that you have experienced:
- ☐ Gotten much worse
- ☐ Gotten somewhat worse
- ☐ Stayed about the same
- ☐ Gotten somewhat better
- ☐ Gotten much better
- ☐ Completely gone

5. In the past year, have you ever noticed color changes in your skin, such as red, white, or purple?
- ☐ Yes
- ☐ No *(if you marked No, please skip to question 8)*

6. What parts of your body are affected by these color changes? (Check all that apply)
- ☐ Hands
- ☐ Feet

7. Are these changes in your skin color:
- ☐ Getting much worse
- ☐ Getting somewhat worse
- ☐ Staying about the same
- ☐ Getting somewhat better
- ☐ Getting much better
- ☐ Completely gone

8. In the past 5 years, what changes, if any, have occurred in your general body sweating?
- ☐ I sweat much more than I used to
- ☐ I sweat somewhat more than I used to
- ☐ I haven't noticed any changes in my sweating
- ☐ I sweat somewhat less than I used to
- ☐ I sweat much less than I used to

9. Do your eyes feel excessively dry?
- ☐ Yes
- ☐ No

10. Does you mouth feel excessively dry?
- ☐ Yes
- ☐ No

11. For the symptom of dry eyes or dry mouth that you have had for the longest period of time, is this symptom:
- ☐ I have not had any of these symptoms
- ☐ Getting much worse
- ☐ Getting somewhat worse
- ☐ Staying about the same
- ☐ Getting somewhat better
- ☐ Getting much better
- ☐ Completely gone

12. In the past year, have you noticed any changes in how quickly you get full when eating a meal?
- ☐ I get full a lot more quickly now than I used to
- ☐ I get full more quickly now than I used to
- ☐ I haven't noticed any change
- ☐ I get full less quickly now than I used to
- ☐ I get full a lot less quickly now than I used to

13. In the past year, have you felt excessively full or persistently full (bloated feeling) after a meal?
- ☐ Never
- ☐ Sometimes
- ☐ A lot of the time

14. In the past year, have you vomited after a meal?
- ☐ Never
- ☐ Sometimes
- ☐ A lot of the time

15. In the past year, have you had a cramping or colicky abdominal pain?
- ☐ Never
- ☐ Sometimes
- ☐ A lot of the time

16. In the past year, have you had any bouts of diarrhea?
- ☐ Yes
- ☐ No *(if you marked No, please skip to question 20)*

17. How frequently does this occur?
- ☐ Rarely
- ☐ Occasionally
- ☐ Frequently
- ☐ Constantly

18. How severe are these bouts of diarrhea?

- ☐ Mild
- ☐ Moderate
- ☐ Severe

19. Are your bouts of diarrhea getting:

- ☐ Much worse
- ☐ Somewhat worse
- ☐ Staying the same
- ☐ Somewhat better
- ☐ Much better
- ☐ Completely gone

20. In the past year, have you been constipated?

- ☐ Yes
- ☐ No *(if you marked No, please skip to question 24)*

21. How frequently are you constipated?

- ☐ Rarely
- ☐ Occasionally
- ☐ Frequently
- ☐ Constantly

22. How severe are these episodes of constipation?

- ☐ Mild
- ☐ Moderate
- ☐ Severe

Times per month:

23. Is your constipation getting:

- ☐ Much worse
- ☐ Somewhat worse
- ☐ Staying the same
- ☐ Somewhat better
- ☐ Much better
- ☐ Completely gone

24. In the past year, have you ever lost control of your bladder function?

- ☐ Never
- ☐ Occasionally
- ☐ Frequently
- ☐ Constantly

25. In the past year, have you had diffic1Jlty passing urine?

- ☐ Never
- ☐ Occasionally
- ☐ Frequently
- ☐ Constantly

26. In the past year, have you had trouble completely emptying your bladder?

- ☐ Never
- ☐ Occasionally
- ☐ Frequently
- ☐ Constantly

27. In the past year, without sunglasses or tinted glasses, has bright light bothered your eyes?

- ☐ Never *(if you marked Never, please skip to question 29)*
- ☐ Occasionally
- ☐ Frequently
- ☐ Constantly

28. How severe is this sensitivity to bright light?

- ☐ Mild
- ☐ Moderate
- ☐ Severe

29. In the past year, have you had trouble focusing your eyes?

- ☐ Never *(if you marked Never, please skip to question 31)*
- ☐ Occasionally
- ☐ Frequently
- ☐ Constantly

30. How severe is this focusing problem?

- ☐ Mild
- ☐ Moderate
- ☐ Severe

Times per month:

31. Is the most troublesome symptom with your eyes (i.e. sensitivity to bright light or trouble focusing) getting:

- ☐ I have not had any of these symptoms
- ☐ Much worse
- ☐ Somewhat worse
- ☐ Staying about the same
- ☐ Somewhat better
- ☐ Much better
- ☐ Completely gone

A COMPASS-31 score of ≥20 suggests moderate-to-severe autonomic dysfunction

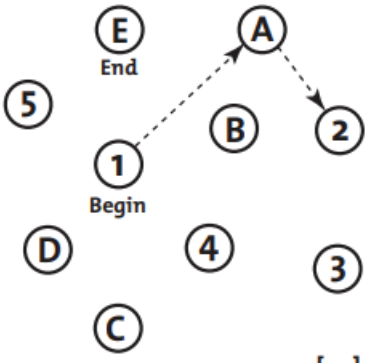
Sletten DM, Suarez GA, Low PA, Mandrekar J, Singer W. COMPASS 31: a refined and abbreviated Composite Autonomic Symptom Score. Mayo Clin Proc. 2012 Dec;87(12):1196-201. doi: 10.1016/j.mayocp.2012.10.013. PMID: 23218087; PMCID: PMC3541923.

MOCA

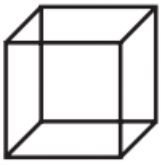
MONTREAL COGNITIVE ASSESSMENT (MOCA)

NAME :
Education : Date of birth :
Sex : DATE :

VISUOSPATIAL / EXECUTIVE — POINTS



Copy cube



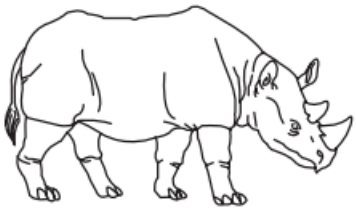
[ ] [ ]

Draw CLOCK (Ten past eleven) (3 points)

[ ] Contour [ ] Numbers [ ] Hands — /5

NAMING

[ ]



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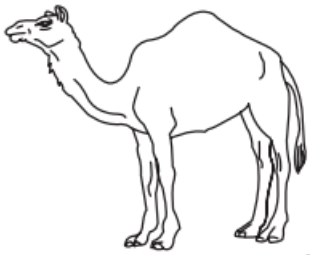

[ ] — /3

MEMORY — Read list of words, subject must repeat them. Do 2 trials. Do a recall after 5 minutes.

	FACE	VELVET	CHURCH	DAISY	RED
1st trial					
2nd trial					

No points

ATTENTION — Read list of digits (1 digit/ sec.).
Subject has to repeat them in the forward order [ ] 2 1 8 5 4
Subject has to repeat them in the backward order [ ] 7 4 2 — /2

Read list of letters. The subject must tap with his hand at each letter A. No points if ≥ 2 errors
[ ] F B A C M N A A J K L B A F A K D E A A A J A M O F A A B — /1

Serial 7 subtraction starting at 100 [ ] 93 [ ] 86 [ ] 79 [ ] 72 [ ] 65
4 or 5 correct subtractions: **3 pts**, 2 or 3 correct: **2 pts**, 1 correct: **1 pt**, 0 correct: **0 pt** — /3

LANGUAGE — Repeat : I only know that John is the one to help today. [ ]
The cat always hid under the couch when dogs were in the room. [ ] — /2

Fluency / Name maximum number of words in one minute that begin with the letter F [ ] ____ (N ≥ 11 words) — /1

ABSTRACTION — Similarity between e.g. banana - orange = fruit [ ] train – bicycle [ ] watch - ruler — /2

DELAYED RECALL

	Has to recall words WITH NO CUE	FACE	VELVET	CHURCH	DAISY	RED	Points for UNCUED recall only
		[ ]	[ ]	[ ]	[ ]	[ ]	
Optional	Category cue						
	Multiple choice cue						

— /5

ORIENTATION [ ] Date [ ] Month [ ] Year [ ] Day [ ] Place [ ] City — /6

© Z.Nasreddine MD Version November 7, 2004
www.mocatest.org

Normal ≥ 26 / 30

TOTAL — /30
Add 1 point if ≤ 12 yr edu

Scoring MOCA <26/30 pathological for potential neurocognitive disorder

Nasreddine ZS, Phillips NA, Bédirian V, Charbonneau S, Whitehead V, Collin I, Cummings JL, Chertkow H. The Montreal Cognitive Assessment, MoCA: a brief screening tool for mild cognitive impairment. J Am Geriatr Soc. 2005 Apr;53(4):695-9. doi: 10.1111/j.1532-5415.2005.53221.x. Erratum in: J Am Geriatr Soc. 2019 Sep;67(9):1991. PMID: 15817019.

SDMT

This scale is not available in open access. To access the scale:

https://www.hogrefe.com/uk/shop/symbol-digit-modalities-test.html

Smith, A. (1982). Symbol Digit Modalities Test. Los Angeles: Western Psychological Services

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Insomnia severity index (ISI)

For each question, please CIRCLE the number that best describes your answer.

Please rate the CURRENT (i.e. LAST 2 WEEKS) SEVERITY of your insomnia problem(s).

Insomnia Problem	None	Mild	Moderate	Severe	Very Severe
1. Difficulty falling asleep:	0	1	2	3	4
2. Difficulty staying asleep:	0	1	2	3	4
3. Problems waking up too early:	0	1	2	3	4

	Very Satisfied	Satisfied	Moderately Satisfied	Dissatisfied	Very Dissatisfied
4. How SATISFIED/DISSATISFIED are you with your CURRENT sleep pattern?	0	1	2	3	4

	Not at all Noticeable	A Little	Somewhat	Much	Very Much Noticeable
5. How NOTICEABLE to others do you think your sleep problem is in terms of impairing the quality of your life?	0	1	2	3	4

	Not at all Worried	A Little	Somewhat	Much	Very Much Worried
6. How WORRIED/DISTRESSED are you about your current sleep problem?	0	1	2	3	4

	Not at all Interfering	A Little	Somewhat	Much	Very Much Interfering
7. To what extent do you consider your sleep problem to INTERFERE with your daily functioning (e.g. daytime fatigue, mood, ability to function at work/daily chores, concentration, memory, mood, etc.) CURRENTLY?	0	1	2	3	4

Score
0-7 = No insomnia
8-14 = Mild insomnia
15-21 =Moderate insomnia
22-28 =Severe insomnia

Morin CM. Insomnia: Psychological assessment and management. New York: Guilford Press; 1993.

Hospital anxiety and depression scale

I feel tense or 'wound up' 3 Most of the time 2 A lot of the time 1 From time to time 0 Not at all	**I still enjoy the things I used to enjoy** 0 Definitely not as much 1 Not quite as much 2 Only a little 3 Hardly at all
I get a sort of frightened feeling as if something awful is about to happen 3 Very definitely and quite badly 2 Yes, but not too badly 1 A little, but it doesn't worry me 0 Not at all	**I can laugh and see the funny side of things** 0 As much as I always could 1 Not quite as much now 2 Definitely not so much now 3 Not at all
Worrying thoughts go through my mind 3 A great deal of the time 2 A lot of the time 1 From time to time, but not too often 0 Only occasionally	**I feel cheerful** 3 Not at all 2 Not often 1 Sometimes 0 Most of the time
I can sit at ease and feel relaxed 0 Definitely 1 Usually 2 Not often 3 Not at all	**I feel as if I am slowed down** 3 Nearly all the time 2 Very often 1 Sometimes 0 Not at all
I get a sort of frightened feeling like "butterflies" in the stomach 0 Not at all 1 Occasionally 2 Quite often 3 Very often	**I have lost interest in my appearance** 3 Definitely 2 I don't take as much care as I should 1 I may not take quite as much care 0 I take just as much care as ever
I feel restless as I have to be on the move 3 Very much indeed 2 Quite a lot 1 Not very much 0 Not at all	**I look forward with enjoyment to things** 0 As much as I ever did 1 Rather less than I used to 2 Definitely less than I used to 3 Hardly at all
I get sudden feelings of panic 3 Very often indeed 2 Quite often 1 Not very often 0 Not at all	**I can enjoy a good book or radio or TV program** 0 Often 1 Sometimes 2 Not often 3 Very seldom

Scoring: add score in first column for HADS-A, add score in second column for HADS-D
Probable anxiety disorder if HADS-A >8
Probable depressive disorder if HADS-D >8

Zigmond, A.S., & Snaith, R.P.(1983). The hospital anxiety and depression scale. Acta Psychiatrica Scandinavia ,67, 361-70.

Patient health questionnaire PHQ-9

Question	Not at all (0)	Several days (1)	More than half the days (2)	Nearly every day (3)
How often have you been bothered by the following over the past 2 weeks?				
Little interest or pleasure in doing things?				
Feeling down, depressed, or hopeless?				
Trouble falling or staying asleep, or sleeping too much?				
Feeling tired or having little energy?				
Poor appetite or overeating?				
Feeling bad about yourself — or that you are a failure or have let yourself or your family down?				
Trouble concentrating on things, such as reading the newspaper or watching television?				
Moving or speaking so slowly that other people could have noticed? Or so fidgety or restless that you have been moving a lot more than usual?				
Thoughts that you would be better off dead, or thoughts of hurting yourself in some way?				

Scoring	*Depression severity*	*Comments*
0-4	Minimal or none	Monitor; may not require treatment
5-9	Mild	Use clinical judgment (symptom duration, functional impairment) to determine necessity of treatment
10-14	Moderate	
15-19	Moderately severe	Warrants active treatment with psychotherapy, medications, or combination
20-27	Severe	

Kroenke K, Spitzer RL, Williams JB. The PHQ-9: validity of a brief depression severity measure. J Gen Intern Med. 2001 Sep;16(9):606-13. doi: 10.1046/j.1525-1497.2001.016009606.x. PMID: 11556941; PMCID: PMC1495268.

Montgomery and Asberg Depression Rating Scale (MADRS) English

The rating should be based on a clinical interview moving from broadly phrased questions about symptoms to more detailed ones which allow a precise rating of severity. The rater must decide whether the rating lies on the defined scale steps (0, 2, 4, 6) or between them (1,3,5).

It is important to remember that it is only on rare occasions that a depressed patient is encountered who cannot be rated on the items in the scale. If definite answers cannot be elicited from the patient, all relevant clues as well as information from other sources should be used as a basis for the rating in line with customary clinical practice.

The scale may be used for any time interval between ratings, be it weekly or otherwise but this must be recorded.

1- Apparent Sadness
Representing despondency, gloom and despair, (more than just ordinary transient low spirits)reflected in speech, facial expression, and posture. Rate by depth and inability to brighten up.

- ☐ 0 No sadness.
- ☐ 1
- ☐ 2 Looks dispirited but does brighten up without difficulty.
- ☐ 3
- ☐ 4 Appears sad and unhappy most of the time.
- ☐ 5
- ☐ 6 Looks miserable all the time. Extremely despondent.

2- Reported sadness
Representing reports of depressed mood, regardless of whether it is reflected in appearance or not. Includes low spirits, despondency or the feeling of being beyond help and without hope. Rate according to intensity, duration and the extent to which the mood is reported to be influenced by events.

- ☐ 0 Occasional sadness in keeping with the circumstances.
- ☐ 1
- ☐ 2 Sad or low but brightens up without difficulty.
- ☐ 3
- ☐ 4 Pervasive feelings of sadness or gloominess. The mood is still influenced by external circumstances.
- ☐ 5
- ☐ 6 Continuous or unvarying sadness, misery or despondency.

3- Inner tension
Representing feelings of ill-defined discomfort, edginess, inner turmoil, mental tension mounting to either panic, dread or anguish. Rate according to intensity, frequency, duration and the extent of reassurance called for.

- ☐ 0 Placid. Only fleeting inner tension.
- ☐ 1
- ☐ 2 Occasional feelings of edginess and ill-defined discomfort.
- ☐ 3
- ☐ 4 Continuous feelings of inner tension or intermittent panic which the patient can only master with some difficulty.
- ☐ 5
- ☐ 6 Unrelenting dread or anguish. Overwhelming panic

4- Reduced sleep
Representing the experience of reduced duration or depth of sleep compared to the subject's own normal pattern when well.

- ☐ 0 Sleeps as usual.
- ☐ 1
- ☐ 2 Slight difficulty dropping off to sleep or slightly reduced, light or fitful sleep.
- ☐ 3
- ☐ 4 Sleep reduced or broken by at least two hours.
- ☐ 5
- ☐ 6 Less than two or three hours' sleep

5- Reduced appetite
Representing the feeling of a loss of appetite compared with when well. Rate by loss of desire for food or the need to force oneself to eat.

- ☐ 0 Normal or increased appetite.
- ☐ 1
- ☐ 2 Slightly reduced appetite.
- ☐ 3
- ☐ 4 No appetite. Food is tasteless.
- ☐ 5
- ☐ 6 Needs persuasion to eat at all.

6 - Concentration Difficulties
Representing difficulties in collecting one's thoughts mounting to incapacitating lack of concentration. Rate according to intensity, frequency, and degree of incapacity produced.

- ☐ 0 No difficulties in concentrating.
- ☐ 1
- ☐ 2 Occasional difficulties in collecting one's thoughts.
- ☐ 3
- ☐ 4 Difficulties in concentrating and sustaining thought which reduces ability to read or hold a conversation.
- ☐ 5
- ☐ 6 Unable to read or converse without great difficulty.

7- Lassitude
Representing a difficulty getting started or slowness initiating and performing everyday activities.

- ☐ 0 Hardly any difficulty in getting started. No sluggishness.
- ☐ 1
- ☐ 2 Difficulties in starting activities.
- ☐ 3
- ☐ 4 Difficulties in starting simple routine activities which are carried out with effort.
- ☐ 5
- ☐ 6 Complete lassitude. Unable to do anything without help.

8- Inability to feel
Representing the subjective experience of reduced interest in the surroundings, or activities that normally give pleasure. The ability to react with adequate emotion to circumstances or people is reduced.

- ☐ 0 Normal interest in the surroundings and in other people.
- ☐ 1
- ☐ 2 Reduced ability to enjoy usual interests.
- ☐ 3
- ☐ 4 Loss of interest in the surroundings. Loss of feelings or friends and acquaintances.
- ☐ 5
- ☐ 6 The experience of being emotionally paralysed, inability to feel anger, grief or pleasure and a complete or even painful failure to feel for close relatives and friends.

9- Pessimistic thoughts
Representing thoughts of guilt, inferiority, self-reproach, sinfulness, remorse and ruin.

- ☐ 0 No pessimistic thoughts.
- ☐ 1
- ☐ 2 Fluctuating ideas of failure, self-reproach or self depreciation.
- ☐ 3
- ☐ 4 Persistent self-accusations, or definite but still rational ideas of guilt or sin. Increasingly pessimistic about the future.
- ☐ 5
- ☐ 6 Delusions of ruin, remorse or unredeemable sin. Self-accusations which are absurd and unshakable.

10 - Suicidal thoughts
Representing the feeling that life is not worth living, that a natural death would be welcome, suicidal thoughts, and preparations for suicide. Suicidal attempts should not in themselves influence the rating.

- ☐ 0 Enjoys life or takes it as it comes.
- ☐ 1
- ☐ 2 Weary of life. Only fleeting suicidal thoughts.
- ☐ 3
- ☐ 4 Probably better off dead. Suicidal thoughts are common, and suicide is considered as a possible solution, but without specific plans or intention.
- ☐ 5
- ☐ 6 Explicit plans for suicide when there is an opportunity. Active preparation for suicide.

Scoring:

0-8 Depressive symptoms absent
9-17 Mild
18-34 Moderate
35-60 Severe

Stuart A. Montgomery, B.Sc., M.D.. M.R.C.Psych., Senior Lecturer, Academic Department of Psychiatry, Guy's Hospital Medical School, London, S.E. 1, Marie Asberg, M.D.,Karolinska Institute, Stockholm, Sweden (Received 24 April; revised 30 August 1978)

STAI

A number of statements which people have used to desoribe themselves are given below.
Read each statement and then circle the appropriate numbe to the right of the statement to indicate how you g.eneralfy feel. There are no right or wrong answers. Do not spend too much lime on any one statement but give the answer whioh seems to describe how you generally feel.

	Not at all (1)	A little (2)	Somewhat (3)	Very Much So (4)
1. I feel calm				
2. I feel secure				
3. I feel tense				
4. I feel strained				
5. I feel at ease				
6. I feel upset				
7. I am presently worrying over possible misfortunes				
8. I feel satisfied				
9. I feel frightened				
10. I feel uncomfortable				
11. I feel self confident				
12. I feel nervous				
13. I feel jittery				
14. I feel indecisive				
15. I am relaxed				
16. I feel content				
17. I am worried				
18. I feel confused				
19. I feel steady				
20. I feel pleasant				
21. I feel pleasant				
22. I feel nervous and restless				
23. I feel satisfied with myself .				
24. I wish I could be as happy as others seem to be				
25. I feel like a failure				
26. I feel rested				
27. I am «calm, cool, and collected»				
28. I feel that difficulties are piling up so that I cannot overcome them				
29. I worry too much over something that really doesn't matter				
30. I am happy				
31. I have disturbing thoughts				
32. I lack self-confidence				
33. I feel secure				
34. I make decisions easily				
35. I feel inadequate				
36. I am content				
37. Some unimportant thought runs through my mind and bothers me				
38. I take disappointments so keenly that I can't put them out of my mind				
39. I am a steady person				
40. I get in a state of tension or turmoil as I think over my recent concerns and interests				

Spielberger, C. D., Gorsuch, R. L., Lushene, R., Vagg, P. R., & Jacobs, G. A. (1983). Manual for the State-Trait Anxiety Inventory. Palo Alto, CA: Consulting Psychologists Press

DN4

To estimate the probability of neuropathic pain, please answer yes or no for each item of the following four questions.

Self-report	Yes	No
1. Does the pain have one or more of the following characteristics?		
Burning		
Painful cold		
Electric shocks		
2. Is the pain associated with one or more of the following symptoms in the same area?		
Tingling		
Pins and needles		
Numbness		
Itching		
On physical examination (by healthcare professional)		
1. Is the pain located in an area where the physical examination may reveal one or more of the following characteristics?		
Hypoesthesia to touch		
Hypoesthesia to pinprick		
1. In the painful area, can the pain be caused or increased by:		
Brushing		

Scoring:
Yes = 1 points No = 0 points Score = ……/10

Bouhassira D, el al. Comparison of pain syndromes associated with nervous or somatic lesions and development of a new neuropathic pain diagnostic questionnaire (DN4). Pain. 2005, 11

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mMRC scale

Symptom severity

Walking should be assessed on level ground

0. Dyspnea only with strenuous exercise
1. Dyspnea when hurrying or walking up a slight hill
2. Walks slower than people of the same age because of dyspnea or has to stop for breath when walking at own pace
3. Stops for breath after walking 100 yards (91 m) or after a few minutes
4. Too dyspneic to leave house or breathless when dressing

Mahler DA, Wells CK. Evaluation of clinical methods for rating dyspnea. Chest. 1988 Mar;93(3):580-6. doi: 10.1378/chest.93.3.580. PMID: 3342669.

Nijmegen scale

	Never (0)	**Rarely** (1)	**Sometimes** (2)	**Often** (3)	**Very often** (4)
Chest pain	☐	☐	☐	☐	☐
Feeling tense	☐	☐	☐	☐	☐
Blurred vision	☐	☐	☐	☐	☐
Dizzy spells	☐	☐	☐	☐	☐
Feeling confused	☐	☐	☐	☐	☐
Faster or deeper breathing	☐	☐	☐	☐	☐
Short of breath	☐	☐	☐	☐	☐
Tight feelings in chest	☐	☐	☐	☐	☐
Bloated feeling in stomach	☐	☐	☐	☐	☐
Tingling fingers	☐	☐	☐	☐	☐
Unable to breathe deeply	☐	☐	☐	☐	☐
Stiff fingers or arms	☐	☐	☐	☐	☐
Tight feelings round mouth	☐	☐	☐	☐	☐
Cold hands or feet	☐	☐	☐	☐	☐
Palpitations	☐	☐	☐	☐	☐
Feeling of anxiety	☐	☐	☐	☐	☐

A score of over 23 out of 64 suggests a positive diagnosis of hyperventilation syndrome.

van Dixhoorn J, Duivenvoorden HJ. Efficacy of Nijmegen Questionnaire in recognition of the hyperventilation syndrome. J Psychosom Res. 1985;29(2):199-206. doi: 10.1016/0022-3999(85)90042-x. PMID: 4009520.

Sheehan disability scale

The symptoms have disrupted your work/school work

The symptoms have disrupted your social life/leisure activities

The symptoms have disrupted your family life/home responsibilities

On how many days in the last week did your symptoms cause you to miss school or work or leave you unable to carry out your normal daily responsibilities?

On how many days in the last week did you feel so impaired by your symptoms, that even though you went to school or work, your productivity was reduced?

Sheehan DV, Harnett-Sheehan K, Raj BA (1996). The measurement of disability. Int Clin Psychopharm

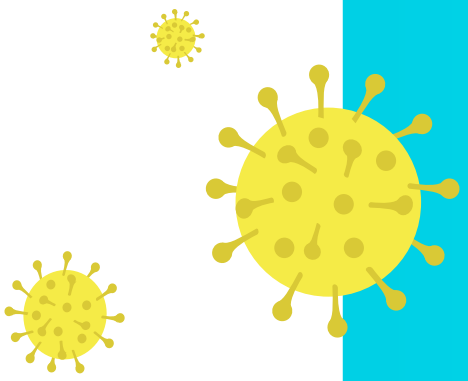
Bell's chronic fatigue

100	Fully recovered. Normal activity level with no symptoms
90	Normal activity with mild symptoms at times
80	Near normal activity with some symptoms
70	Able to work full time but with difficulty. Mostly mild symptoms
60	Able to do about 6-7 hours of work a day. Mostly mild to moderate symptoms
50	Able to do about 4-5 hours of work or similar activity at home. Symptoms mostly moderate. Daily rests required
40	Able to leave house every day. Moderate symptoms on average. Able to do about 3-4 hours a day of work or activity like housework, shopping, using computer
30	Able to leave house several times a week. Moderate to severe symptoms much of the time. Able to do about 2 horus a day of work at home or activity like housework, shopping, using computer
20	Able to leave house once or twice a week. Moderate to severe symptoms. Able to concentrate for one hour or less per day
10	Mostly bedridden. Severe symptoms
0	Bedridden constantly. Unable to care for self

Bell DS. The Doctor's Guide to Chronic Fatigue Syndrome: Understanding, Treating and Living with CFIDS. Boston: Da Capo Lifelong Books; 1995.

POST-COVID RECOMMENDATIONS FOR PRIMARY CARE PHYSICIANS

Switzerland



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Schweizerische Kopfwehgesellschaft
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Società Svizzera di Cefalea
Swiss Headache Society

union of associations of Swiss physicians for complementary medicine

pädiatrie schweiz
Die Fachorganisation der Kinder- und Jugendmedizin

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physio swiss

evs ase
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Association Suisse des Ergothérapeutes
Associazione Svizzera degli Ergoterapisti

SVNP ASNP
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SCHWEIZERISCHE VEREINIGUNG DER NEUROPSYCHOLOGINNEN UND NEUROPSYCHOLOGEN
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LONG COVID SCHWEIZ SUISSE SVIZZERA SWITZERLAND

altea Long COVID Network