

Post-COVID-19: rationale for health professionals for the advice given to patients

COVID-19 is a new virus, and post-COVID-19 persistent symptoms are a new phenomenon. As COVID affects many systems in the body it is hard to disentangle whether persistent symptoms are related to direct COVID damage (e.g., to the lungs), or due persistence of the viral infection (shedding can be detected up to 5 weeks after onset [1]) or to the deconditioning from any acute illness, or a post viral illness. Once a clinical appraisal has taken place to exclude important treatable co-morbidities, patient self-help may be appropriate. Our intention is to provide a short document that provides sensible advice on how to approach the recovery.

There is no documentation of post-COVID-19 symptoms but there is clinical experience indicating that there is some similarity with symptoms reported in post-viral syndrome, fibromyalgia syndrome and chronic fatigue syndrome, namely fatigue as primary symptom along with variable reports of mental fog, pain, dizziness, and the many different symptoms that have been documented with functional disorders [2]. Because of this similarity, treatments developed for fibromyalgia may be helpful.

The symptoms of functional disorders such as fibromyalgia are classified as medically unexplained symptoms, but this label is misleading as many biological and psychological explanations have been proposed. A network theory [3] has been proposed that explains the pattern of symptoms observed in functional disorders, namely, some specificity but also considerable overlap between symptoms (hence spectrum disorders) and idiopathic variation of symptoms over time. Additional tests of the theory have been confirmed [4,5] (see appendix). It is this theory that underpins the body-reprogramming intervention for fibromyalgia [6] used in the South West of England, <https://www.plymouthhospitals.nhs.uk/body-reprogramming>.

The body-reprogramming intervention is multi-component comprising intervention providing a narrative and advice for lifestyle change. The advice sheet that we provide for post-COVID-19 patients consists of:

- A form of pacing based on time rather than perceived energy level, and which avoids the problem of energy based pacing where people engage in too much or too little.
- A psychological component involving relaxation and positivity with a focus on lifestyle change.
- A graded exercise component with an emphasis on enjoyment.
- An eating component providing advice about how to eat and the importance of a healthy diet.
- A symptom management component where patients are provided with an explanation for variation in symptoms and how to respond to that variation.

References

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Appendix

Network explanation of post-COVID-19 syndrome.

Medical theory is based on the assumption that diseases are caused by pathologies that are distinct from each other, an assumption forming the basis of treatment by disease specialisms. While it is known that causal connections between diseases exist and these causal connections are responsible for co-morbidities (e.g., involving systemic inflammation), these connections are often considered comparatively weak, and so treatment can be disease specific.

The network explanation starts from the assumption that the causal connection between some pathology creating mechanisms is sufficiently strong that inter-pathology causality plays a role in the level of pathology of individual mechanisms [3]. Networks have properties that explain the symptomatology of functional disorders, as well as the specific prediction that has been tested regarding increased similarity of symptoms with severity[4,5]. In addition, it has been found that increase in severity is also associated with increased connection strength between some but not all nodes in the network, where each node represents a different symptom causing mechanism [5].

We therefore believe it plausible that the post -COVID-19 syndrome is caused by an increase in connection strength between pathology causing mechanisms. That is,

the syndrome does not have a unique pathophysiology but instead reflects the tendency to pathology that existed prior to the disease and becomes magnified by COVID-19. Disturbed but well constructed network systems will self-correct given the right inputs, so it is also plausible that people will gradually recover from post-COVID-19 over time. However, recovery will be affected by the inputs to the system during the recovery period, these inputs including biological and psychological inputs. The recovery plan that guides the body-reprogramming intervention is based on lifestyle advice that enhances health and well-being in general. The document provided for patients is similar in principle to that developed for fibromyalgia (see <https://www.plymouthhospitals.nhs.uk/body-reprogramming>) but shorter and adapted for post-COVID-19 patients.