

Treatable Traits for Long COVID

Treatable Traits Approach

A model of care designed to address the complexity of long COVID



Involves a multidimensional assessment that deconstructs long COVID into "traits" and applies individualised management according to the identified traits



Treatable traits are phenotypic or endotypic characteristics which can be assessed and targeted with treatment



What is a Treatable Trait?

The 3 key elements of a treatable trait:



Long COVID Treatable Traits



Neurological: cognitive impairment, headache, smell/taste dysfunction, loss of balance



Chest: dyspnoea, lung function changes, cough, chest pain, palpitations, myocardial ischemia, myocarditis



Psychological: anxiety, depression, PTSD, somatisation, neuropsychiatric symptoms



Pain: musculoskeletal (general, joint, muscle), general/not specified



Fatigue



Sleep impairment: somniphathy/insomnia, sleep disturbance/problems/disorder/difficulty



Functional impairment: effort/exercise intolerance, reduced or impaired quality of life, weakness



Other

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Management of Long COVID Treatable Traits

Trait	Trait Identification Marker	Management
Cognitive impairment	MoCA, MMSE, NIH tool box	Education, cognitive restoration rehabilitation, which includes cognitive exercises and prompts ¹
Dyspnoea	mMRC \geq 2	Symptom guided exercise training ² , IMT
Pain	McGill Pain Questionnaire Brief Pain Inventory	MD pain management according to principles of biopsychosocial model ¹
Anxiety Depression	HADS	Psychological support and therapy ³
PTSD	PTSD checklist-5 Impact of Event Scale	
Fatigue	FSS Chalder Fatigue Scale	Occupational therapy, three Ps, and energy conservation ¹
Sleep Impairment	PSQI	Psychosocial support, sleep hygiene ¹
↓Exercise capacity	6MWD \leq LLN $\dot{V}O_{2peak}$ \leq LLN	Symptom guided exercise training ² and/or IMT, treat any other treatable trait limiting exercise
Impaired HRQoL	EQ-5D-5L SF-36	Symptom guided exercise training ² and/or IMT

6MWD, six-minute walk distance; FSS, Fatigue Severity Scale; HADS, Hospital Anxiety and Depression Scale; IMT, inspiratory muscle training; LLN, lower limit of normal; mMRC, modified Medical Research Council dyspnoea scale; MMSE, mini-mental state exam; MoCA, Montreal Cognitive Assessment; PSQI, Pittsburgh Sleep Quality Index; $\dot{V}O_{2peak}$, peak rate of oxygen consumption
¹WHO, Living guidance for clinical management of COVID-19; ²Spruit et al. Am J Respir Crit Care Med 2013;188(8):e13-64; ³National Clinical Evidence Taskforce COVID-19