The Role, Importance of Timely Rehabilitation During the COVID-19 Pandemic

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The Food and Agriculture Organization of the UN[1] and World Health Organization (WHO)[2] recently published guidelines offering nutrition advice for adults during the COVID-19 outbreak.[3,4] We write to support and share these efforts promoting good health and strong immunity with the Rhode Island medical community as we collectively battle the fourth wave of the COVID-19 pandemic. These publications are nicely summarized in an article by Phillipou et al, highlighting the importance of healthy body weight, hydration, balanced diet, and limiting ultra-processed foods, fats, sugars, salt, and alcohol to boost immunity.[5]

Despite widespread public health and vaccination efforts, the COVID-19 pandemic persists with staggering effects on human suffering, healthcare, population dynamics, and economics in Rhode Island. With waning vaccine efficacy and emergence of variants including Delta and Omicron, we must consider all options to strengthen immunity as vaccination efforts continue. Due to medical compromise, limited mobility in communal settings, and reduced function, our patients are vulnerable to COVID-19 and resultant sequelae. As such, we humbly assert the importance and timeliness of promoting rehabilitation to further combat this disease.

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The immune system fights the novel coronavirus with two lines of defense: innate (general) and adaptive (specialized) immunity.[6] New vaccines against SARS-CoV-2 are novel in triggering innate immunity, complimenting evidence-based public health measures including physical distancing, facial masks, and handwashing.[7] Recognition of pathogens and immune strength trigger adaptive immunity.[8-13] There's a compelling link between physical activity and the body's defense system to strengthen immunity.

Physical activity is defined as movement involving muscle contraction. Most activities of daily living (ADLs), allowing patients to care for themselves, and some instrumental activities of daily living (IADLs), which are more complex tasks, require physical activity. Exercise is a focused form of physical activity intended to acquire and enhance fitness or other health benefits. Exercise enhances immunosurveillance by increasing leukocytes, granulocytes, circulating levels of interleukin (IL)-6, and natural killer (NK). Furthermore, exercise in water augments leukocyte, granulocyte, and monocyte responses with immune-stimulating effects.[14] As exercise is an important component of multidisciplinary and multimodal rehabilitation, improving survival, accelerating recovery, reducing re-injury, preventing chronic disease,[15-17] rehabilitation professionals are key to immune defense.

It has been shown that Long-Haul Syndrome, including mood disorders, fatigue, and perceived cognitive impairment, has severe negative impact on function.[18,19] The significant influence of persistent symptoms on ADLs and quality of life, notwithstanding severity of acute infection, validate the need for acute rehabilitation[18] after acute medical management. Although no direct link has been identified, lifestyle measures including restorative sleep, smoking cessation, stress management, psychological well-being, and healthy social connections play an important role in primary, secondary, and tertiary pre-vention of COVID-19.[19,20] As provider encouragement strongly predicts patient adherence to healthy lifestyle and exercise, we must educate our patients on these strategies to protect themselves. Any member of the interdisciplinary rehabilitation team has an opportunity to educate their patients as part of a comprehensive preventive treatment adjunct.

Fortunately, there are many rehabilitation options within Rhode Island and the surrounding medical community. These include inpatient acute rehabilitation as well as outpatient therapies, all of which use an interdisciplinary treatment paradigm to improve the lives of patients. Furthermore, there are specific programs that combine land therapy with water therapy to optimize positive effects on immune function. Although many models prevail, in our experience and focus on rehabilitation, conditioning, and training in both land and water environments, we resolutely acknowledge and support the work of the UN and WHO. We stand alongside our rehabilitation family to assert a pivotal role in maintaining immune health. Through rehabilitative science and technology in conjunction with our focus on lifestyle measures and exercise, we play an important role in strengthening immunity throughout the rehabilitation care continuum.[5] Together, we will forestall the scourge of COVID-19 to limit impairment, disability, and handicap during this unprecedented public health crisis.

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