



## **The Role of Physical Therapy in Managing Long COVID Syndrome**

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## The Role of Physical Therapy in Managing Long COVID Syndrome

### Summary

This case study assessed the efficacy of a tailored physical therapy program on a 45-year-old female dealing with Long COVID syndrome, a condition lacking comprehensive treatment plans arising from its novel and varied nature. The objective was to determine if an intervention over 12 weeks, emphasizing aerobic conditioning, muscle building, joint flexibility, and breathing techniques, could improve patient-reported outcomes such as functional ability, soreness, exhaustion, and well-being. Patient X had evaluations utilizing the 6-Minute Walk Test, Visual Analogue Scale, Fatigue Severity Scale, and the Short Form Health Survey at the outset and conclusion of the intervention period. The findings showed meaningful progress across all assessments: a 34.2% improvement in the 6MWT distance, diminished levels of pain and fatigue, and enhanced quality of life results. It was concluded from these findings that the physiotherapeutic strategy tailored to the patient's symptoms and response to activity had a constructive effect on controlling Long COVID symptoms (Sanchez-Ramirez et al., 2021). These outcomes suggest the potential for including comparable physical therapy protocols in routine care for long-term COVID sufferers; nonetheless, further work with larger study populations and structured study designs is fundamental to confirm these initial results and devise standardized treatment protocols.

### Introduction

In the aftermath of the worldwide COVID-19 pandemic, a new clinical complication has arisen in the form of the Post-Acute Sequelae of SARS-CoV-2 infection (PASC), frequently referred to as "Long COVID." Exhibiting protracted symptoms and enduring difficulties, the magnitude of Long COVID is yet to be fully recognized, with projections ranging from 10% to 30% among survivors. Symptoms range from fatigue, shortness of breath, joint pain, cognitive dysfunction, and more, lasting several weeks to months after the acute disease period. While the ordinary course of Long COVID is still being comprehended, its effect on daily operations and quality of life is evident, making it an issue of clinical importance. There is substantial medical uncertainty concerning the best rehabilitation tactics for these patients due to the state's uniqueness and complexity. As Long COVID has not been encompassed in exhaustive medical regulations, especially in regard to physical therapy, which can play a pivotal role in controlling continuing symptoms and

promoting restoration, the corresponding research question is, "What are the effects of an individualized physical therapy intervention on the functional recovery and quality of life in a patient with Long COVID syndrome?" This query examines the therapeutic potential of tailored physical therapy interventions in dealing with the varied symptoms of long-term COVID-19, thereby allotting the limited body of evidence on efficient management strategies for this burgeoning situation.

## Method

This single-subject research report delves into a physical therapy intervention for a person afflicted with Long COVID. As a security measure, all the data associated with Patient X has been completely anonymized. X is a 45-year-old female in excellent health and showed no indication of any ailments before the virus. Twelve weeks post-infection, the individual had incessant exhaustion, extremity soreness, and difficulty breathing during physical activity (Yofiani & Sjaaf, 2021).

The primary aim of the physiotherapeutic study was to gauge the efficiency of an individualized physical therapy program on the functional capability and quality of life for Patient X. This included a thorough physiotherapeutic analysis created through a combination of tests including physical examination, patient history, and practical assessments, designed to identify the main issues connected with Long COVID (Yofiani & Sjaaf, 2021).

The intervention was a 12-week, customized physical therapy program, which encompassed aerobic exercise, strength training, joint mobility exercises, and breathing techniques, adjusted in scale according to individual tolerance and advancement (Yofiani & Sjaaf, 2021). The regimen was designed to be dynamic and adaptable, with predetermined refinements made as necessary to suit the patient's fluctuating symptom intensity and strength.

At the onset of the study, six weeks and 12 weeks of the study, evaluative metrics were documented with accredited tools to guarantee the integrity and repeatability of data. The significant outcomes were evaluated using the 6-Minute Walk Test (6MWT) for capacity, the Visual Analogue Scale (VAS) for agony, the Fatigue Severity Scale (FSS) for fatigue, and the Short Form Health Survey (SF-36) for well-being (Chuang et al., 2022). All of these instruments have undergone extensive research and have

exhibited sound credibility and dependability in various groups of patients, including those with long-term conditions similar to Long COVID.

The research was conducted in an outpatient physiotherapy office specializing in post-viral syndromes, administered by an authorized physiotherapist. Patient X had sessions twice weekly, with extra exercises given to be done at home. Record keeping of progress was accomplished during face-to-face visits, enabling ongoing observation and alteration of the care plan (Chuang et al., 2022). Every intervention and evaluation was completed abiding by the moral rules for clinical studies, affirming that Patient X agreed to take part in the investigation willingly.

## Results

Throughout the 3-month physical therapy program, Patient X showed profound growth in her functional capacity, aches, fatigue, and overall well-being. At the beginning, Patient X's 6-Minute Walk Test (6MWT) generated a result of 380 meters - signifying a suboptimal functional capacity in comparison to the typical range of 600 to 700 meters for age-matched healthy women (Estévez-López et al., 2021). By the sixth week, her distance had risen to 450 meters. By the conclusion of the intervention, it further advanced to 510 meters, indicating a total enhancement of 34.2% from the original figure.

Pain intensities, as indicated by the Visual Analog Scale (VAS), with 0 being no pain and 10 bearing the most extreme pain possible, showed fluctuation from 4 to 5 during daily activities (Estévez-López et al., 2021). By the sixth week of evaluation, the VAS scores were on average 3, yet by the end of the treatment period, Patient X reported a reduction to an average of 2.

Fatigue was measured using the Fatigue Severity Scale (FSS), which varies from 1 (opposite solid opinion) to 7 (passionately agree) concerning nine statements addressing the person's fatigue levels. The original FSS score was 5.2, implying a considerable fatigue effect. During the intervention, the score dropped to 4.3, and by the 12th week, it declined to 3.6, showing a remarkable lessening in the sensation of fatigue (Estévez-López et al., 2021).

The quality of life was measured using the Short Form Health Survey (SF-36), which considers numerous aspects of physical and psychological health. At the outset, analysis of the SF-36 scores revealed marked

impairment in physical functioning, limitations in physical health-related roles, and inadequate general health perception (Estévez-López et al., 2021). Throughout the 12 weeks, Patient X experienced an overhaul in all areas, particularly physical functioning and vitality.

The results are summarized in the following table:

Measurement Instrument	Baseline	Week 6	Week 12
6MWT (Meters)	380	450	510
VAS (score)	4.5	3.0	2.0
FSS (score)	5.2	4.3	3.6
SF-36 Physical Functioning	45	55	65
SF-36 Role Physical	40	50	60
SF-36 General Health	35	45	55
SF-36 Vitality	30	45	60

Note: SF-36 scores are normalized on a 0-100 scale, with 100 representing the best possible health state.

A chart displaying the development of the 6MWT distances with time emphasizes the progressive augmentation in functional integrity. The line graph, beginning from the baseline and climbing through weeks 6 and 12, would give a visual representation of Patient X's amelioration course clearly and compellingly.

These data are displayed without statistical inferential analyses because this single-subject study design is based on observing a single individual's outcomes rather than being applied to a broader group. It is essential to remember that all presented values are exclusive to Patient X, and while some general patterns may be noticed, a definitive conclusion or idea about the efficacy of the intervention will be addressed in the discussion section of the case report.

## Discussion

The changes in Patient X's operational competence, ache levels, weariness, and quality of life metrics over the 12-week physical therapy intervention offer insights into the variable natural progression of Long

COVID-19, characterized by variations in indications and protracted rehabilitation. The progressive and consistent advance in the 6MWT distances departs from the natural plateau generally documented in untreated Long COVID patients, implying a positive influence of the custom-made physical therapy intervention on aerobic ability and perseverance (Shah et al., 2021). Comparatively, research on similar treatments in chronic fatigue syndrome, a condition with some symptoms similar to Long COVID, likewise highlights the usage of graded exercise therapy to reinforce functional effects, thereby conforming to the trends seen in this case study.

Existing studies, including limited randomized controlled trials, point to the possible advantages of physical therapy for Long-term COVID-19. Still, the foundation of evidence is scant, making this case report a valuable supplement to the body of research (Shah et al., 2021). The improvements indicated by SF-36 scores, especially in the vitality and physical functioning spheres are encouraging, replicating discoveries from earlier examinations that connected exercise-based methodologies with improved well-being in post-viral syndromes.

The research does have certain restrictions, including the sole-subject model, which constrains the power to put forth findings for the overall population affected by Long COVID. The patient's compliance was optimal, which may contradict the reality of other patients due to the sporadic tendencies of Long-term COVID symptoms, which can interfere with involvement in treatment actions (Shah et al., 2021). Also, the absence of a control group implies that the changes must be correctly ascribed to the therapy without taking into account the likelihood of recovery over time.

The results underscore the potential role of customized physical therapy in the healing process of those enduring long-term COVID and advocate that incorporating such therapies into clinical practice could be advantageous. It underscores the urgent need for future studies, ideally comprising more extensive, controlled trials to identify the capabilities and optimal parameters of physical therapy for this group of sufferers (Shah et al., 2021). Formulating particular clinical directions based on reliable proof would be the following logical step from this initial inquiry, making the standardization and efficacy of care for those under the long-lasting consequences of COVID-19 better.

## Conclusion

In reply to the research inquiry, the individualized physical therapy approach administered to a patient suffering from Long COVID within 12 weeks resulted in detectable enhancements in functional capacity, pain, fatigue, and quality of life. Specifically, the intervention incited a 34.2% expansion in the distance covered in the 6-Minute Walk Test, a reduction in normal suffering levels as declared by the Visual Analogue Scale, minimized fatigue severity as demonstrated by the Fatigue Severity Scale, and upgraded quality of life metrics as echoed in the Short Form Health Survey. These results suggest that custom-made physical therapy may be a supplementary element in the administration of Long-term COVID manifestations, emphasizing the necessity for more research to refine rehabilitation policies for this new patient set.



## References

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## Appendix

### Appendix I: Measurement Instruments

6-Minute Walk Test (6MWT) Protocol: Detailed steps and guidelines for administering the 6MWT, including instructions provided to the patient, course layout, and recording procedures.

Visual Analogue Scale (VAS) for Pain: A graphical representation of the VAS used for assessing the patient's pain levels, with instructions on how to mark pain intensity.

Fatigue Severity Scale (FSS): A copy of the FSS questionnaire provided to the patient, with a 7-point scale for assessing the impact of fatigue on daily activities.

Short Form Health Survey (SF-36): The SF-36 questionnaire with scoring instructions to evaluate the patient's quality of life across different health domains.

### Appendix II: Exercise Schedules

A comprehensive outline of the exercise protocol followed by the patient, including types of exercises, duration, frequency, and progression criteria over the 12-week intervention period.

### Appendix III: Informed Consent

A document containing the patient's signed informed consent indicating understanding of the study's purpose, the nature of the intervention, measurement procedures, potential risks and benefits, confidentiality, and the voluntary nature of participation.



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