

## The Covid-19 Pandemic and the Muscle-Skeleton System Problems

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### Abstract

Covid-19 disease affects many systems in our body, as well as negatively affecting the musculoskeletal system. Steroid-containing drugs used in the treatment of Covid-19 cause an increase in the destruction of the structures that make up the musculoskeletal system. Myalgia, muscle weakness, and decreased bone mass are common symptoms. The pathological and genetic similarity of the coronavirus types that emerged in the previous periods to Covid-19, and the short and long-term musculoskeletal problems reveal that these symptoms can also be seen in Covid-19 disease. Covid-19 patients will be able to minimize the problems that can be seen in the musculoskeletal system with regular exercises they will do in the period after the treatment process.

**Keywords:** Covid-19; Covid-19 Pandemic; Musculoskeletal System

### Introduction

It was reported by the World Health Organization (WHO) that in December 2019, many pneumonia patients whose cause could not be revealed were detected in the city of Wuhan, the capital of the Hubei region of China [1]. As a result of studies on pneumonia patients, it was revealed in January 2020 that the agent was a new type of coronavirus that had never been encountered before. Since this disease was first seen in 2019, it was named as Coronavirus Disease-2019 (Covid-19). With the spread of the disease worldwide, it became a pandemic [2]. It has been observed that the spread of Covid-19 is through contact or droplet on surfaces infected with the virus [3]. Studies have shown that the virus, which is the causative agent of the disease, can be found in respiratory secretions of patients 1-2 days before clinical symptoms appear and for about two weeks after symptoms appear [1,4]. While fever, dyspnea, dry cough, muscle pain and spasms are frequently observed in the early stages of the disease, headache, sore throat, nasal discharge, nausea and vomiting may be seen less frequently [4]. In patients with a more severe course of the disease, it has been found that dyspnea, respiratory distress and septic shock can be

seen after the first week [4]. According to data obtained from studies, it is seen that approximately 20% of Covid-19 patients receive treatment in intensive care [1]. Cognitive and physical problems due to immobilization can be seen in patients with Covid-19 who are dependent on mechanical ventilation device for a long time in intensive care units. In addition, it is seen that patients with severe respiratory difficulties develop pain as well as sleep problems. It has been determined that as the length of stay in the intensive care unit increases, problems such as muscle mass loss, neuropathies, joint contractures, and weakness with loss of muscle function have developed [5].

It has been reported that lung volume and capacity and exercise capacity decreased in 25% of patients, similar to SARS-COV seen in 2002 and MERS-COV seen in 2012, especially in the 6-month period after discharge in Covid-19 patients [6]. In a study, it was determined that at the end of the first year, there was a decrease in the level of quality of life in patients with psychological problems [7]. In another study, it was reported that approximately 50% of patients after COVID-19 experienced physical problems and serious difficulties, especially during activities of daily living at home [8].

When we look at the literature, it is seen that the studies on the long-term effects of Covid-19 on the health of individuals are very limited [9]. It is stated in the literature that there is an urgent need for long-term follow-up studies on persistent symptoms, lung functions, physical and cognitive problems in patients after discharge [9]. Our aim in this study is to reveal the musculoskeletal system problems seen especially during or after the Covid-19 infection in the studies conducted during the pandemic period, as well as to determine the treatment approaches.

### Clinical Findings in the Musculoskeletal System

Studies show that 25% of patients with Covid-19 symptoms have general muscle weakness and myalgia. When the data in some studies are examined, it is seen that muscle pain does not increase in proportion to the severity of Covid-19, but muscle pain in patients with abnormalities in imaging methods is an important factor in deciding the severity of the disease [10]. When we look at the literature, in a study conducted on 214 Covid-19 cases, it was revealed that 36% of the cases had motor control and functional problems of the muscles [11]. In the evaluation made 2 months after the completion of the treatment process in moderate and severe COVID-19 patients, it was found that there was a 32% decrease in grip strength and a 13% decrease in the 6-minute walk test distance [12]. This shows that the proinflammatory effects of Covid-19 and the decompression occurring during the recovery period cause both muscle strength and muscle endurance to be adversely affected. The decrease in the functional capacities of the cases results in a decrease in the quality of life levels. In addition, approximately 40% of these cases were able to return to work only 2-3 months after the treatment process [12]. Although there are not enough studies on the treatment of musculoskeletal problems due to Covid-19, there are rehabilitation programs created for SARS-CoV disease [12,13]. In a study conducted with 133 cases, it was observed that the patients who applied the rehabilitation program had an increase in muscle strength and function. In addition, an increase was observed in Vo2max and grip strength [12]. Rehabilitation including muscle strength programs applied in the post-illness period. We think that our studies will have positive effects on muscles, bones, ligaments and joints in Covid-19 patients.

### Conclusion and Recommendations

In this study, we focus on musculoskeletal problems that can occur with Covid-19 disease. Examples of the physical problems that occur in the types of coronavirus seen in previous periods are

also presented. The same physical problems can be seen between the types of coronavirus seen in previous years and Covid-19 due to genetic and pathological similarities [14]. Steroid-containing drugs used in the treatment process of Covid-19 can have negative effects on the musculoskeletal system. For this reason, long-term follow-up of patients who use these drugs, especially during the treatment process, is required. In addition, studies involving the treatment process and long-term follow-up of Covid-19 cases are needed. With these studies, the effects of Covid-19 on the musculoskeletal system of patients will be revealed and the treatment processes will be directed.

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