

Evaluation of the Super League Team's Competition Analysis before and after the COVID-19 Outbreak Is Given

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Abstract

The paper is aimed to determine whether there is a loss of performance by comparing the competition values of the Super League team before and after the COVID-19 epidemic. In order to reduce the performance losses of the athletes due to lack of training, 60-75 minutes of self-weight training was applied during the quarantine period. Paired t test was used for statistical analysis. A statistically significant difference was found in the Total Distance, High Intensity Distance, Sprint Distance, High Speed Distance, Number of High Intensity Runs, Number of Sprints, Number of High Speed Runs, Average Speed, Total Distance in Possession, Total Distance Out of Possession, Total Distance Ball Out of Play, High Intensity Distance in Possession, High Intensity Distance Out of Possession, High Intensity Distance Ball Out of Play, Sprint in Possession, Sprint Out of Possession, Sprint Ball Out of Play, High Speed Distance in Possession, High Speed Distance Out of Possession, High Speed Distance Ball Out of Play values of the athletes compared to $p < 0.05$. As a result, it has been observed that the training of super league football players with their own body weight during the quarantine period positively affects their performance during the season.

Keywords: COVID-19, Football, Education, Pandemic

1. Introduction

The new type of Coronavirus Disease (COVID-19) first appeared in Wuhan Province, China in late December 2019. It is a virus identified on January 13, 2020 as a result of research on a group of patients. Main symptoms of the respiratory tract are seen as fever, cough, and shortness of breath. The outbreak was initially detected in those in the seafood and animal market in this area. Later, it spread from person to person and spread to other cities in Hubei province, especially Wuhan, other provinces of the People's Republic of China and other world countries. Coronaviruses are a large family of viruses that can cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory infections, ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The New Coronavirus Disease is caused by the SAR-CoV-2 virus.

Although it has been reported that there may be asymptomatic cases with symptoms, their rate is unknown. The most common symptoms are fever, cough and shortness of breath. In severe cases, pneumonia, severe respiratory failure, kidney failure and death may occur. In the first months of 2020, the virus spread rapidly, forcing many countries into a quarantine process where freedom of movement was restricted (TC Ministry of Health, 2020a, 2020b).

Covidien-19 as it is in Turkey and Spread of Pandemic Process was published by the Ministry of Health of the Republic of Turkey and, as indicated in the data page is updated daily; Covidien-19 first cases in Turkey, it was found on March 11, 2020 (TC Ministry of Health, 2020b). May 12, 2020, the total number of tests performed in Turkey, as 16,013,974; The total number of cases from COVID-19 on the same date, 411,055; The total number of deaths was reported as 11,418. In mid-March, when the first case was detected, the daily average number of tests, which is 2-3 thousand, has recently reached 150 thousand 141. Still, the number of patients recovered in 19 cases in Turkey-Covidien is also well above the world average. As of November 15, 2020, the total cases worldwide were 53,507,282 of the total cases in Turkey it seems hardly to be 1% of this number (TC Ministry of Health, 2020a).

The World Health Organization (WHO) declared the epidemic as a pandemic after the meeting they held, declaring that the world is facing a serious problem (WHO, 2020). This decision taken by the World Health Organization has caused worldwide concern and fear. For this reason, countries have adopted very severe restrictions, including the curfew, and canceled many organizations. Despite the strict measures taken, with the addition of the inability to control the number of cases and deaths due to the COVID-19 pandemic (Zandifar & Badrfam, 2020), it was decided by the country federations to play the matches without spectators in order to prevent the spread of the pandemic, especially football (Çifçi & Demir, 2020).

Football is increasing its sphere of influence as football players and spectators in the world, and with this interest, a competitive environment has been created between teams and countries. With the help of sports sciences developing day by day, an increase in the

performance of football players has occurred. Performance is the ability of an athlete to demonstrate his ability and capacity in the best way he undertakes during training or competition (Arısoy et al., 2020).

Football is a sport of interaction (cooperative-position) between players, so training without other players will be largely out of context and far from the demands of real competition (Mon-Lopez, et al., 2020).

The matches were canceled on March 19, 2019 due to the COVID-19 epidemic that affected the whole world after the TFF Super League, whose start and end date was planned to be August 10, 2018 and May 19, 2019, was played for 26 weeks. After TFF's announcement, the TFF super league matches were postponed (the remaining 8 weeks of matches) with an uncertain date (depending on the COVID-19 process). Later, the spread rate of COVID-19 was followed and it was decided to play the remaining 8-week matches, starting on 12 June 2019 for the 12-week inevitable break. In this process, it is known that football players must maintain their performance in order to start the matches (TFF, 2020).

Training; It is a planned and scientific education process that aims to increase the physiological, psychological, mental, technical, tactical, characteristics of human. Performance elements can be developed with a planned and systematic training and have positive effects on the energy generation system. In addition, the cardiovascular system improves with training, the aerobic strength of the athletes is improved and the resistance to fatigue increases. Nerve-muscle harmony is improved with training and Strength increases. Capabilities such as coordination, flexibility, mobility, skills are improved. In addition to these developments, the technical, tactical, mental and psychological characteristics of the athlete are reported (Bompa & Haff, 2015).

1.1 Detraining

Detraining, It is the case of a decrease and interruption in the duration, frequency and intensity of the exercise performed to maintain the gains resulting from the training (Hyaat et al., 2019).

The amount of reversibility of physiological adaptations that occur in exercise training; It depends on the individual's training status, genetic characteristics, how much the intensity and frequency components of the exercise are reduced and how long the exercise is left (Gelen et al., 2020). It is especially recommended for high-level athletes to reduce the lack of training stimulus due to the epidemic, instead of stopping training completely in order to reduce the negative effects on athlete performance. Previous gains begin to decline rapidly with a short break to training (Bompa & Haff, 2015).

Mujika and Padilla (2000a, 2000b) discussed the effects of short and long-term detraining periods on the organism as seen in Tables 1 and 2.

Table 1. The effects of the short-term detraining period on the organism (first 4 weeks)

Declining Varieties		Increasing Varieties
Maximal oxygen consumption	High density lipoprotein	Maximum Heart rate
Blood volume	Lactate threshold	Heart rate
Exercise Stroke volume	Bicarbonate level	Average blood pressure
Maximal Cardiac output	Muscle glycogen level	Ventilation threshold
Ventricular mass	Capillary density	Maximal respiratory change rate
Maximal respiratory volume	Oxidative enzyme activity	Sub-maximal respiratory change rate
Oxygen pulse	Glycogen synthesis activity	Postprandial lipemia
Durability performance	Mitochondrial ATP production	Low density lipoprotein
Insulin-mediated glucose uptake	Average fibril cross section	Submaximal blood lactate
GLUT-4 protein content in muscle	EMG activity	
Muscle lipoprotein lipase activity	Force-Power performance	

Table 2. Effects of long-term detraining period on organism (4-8 weeks)

Declining Varieties		Increasing Varieties
Maximal oxygen consumption	Muscle glycogen level	Maximum Heart rate
Blood volume	Capillary density	Sub-maximal Heart rate
Exercise Stroke volume	Arteriovenous oxygen difference	Recovery Heart rate
Maximal Cardiac output	Oxidative enzyme activity	Ventilation equivalent
Ventricular mass	Average fibril cross section	Sub-maximal respiratory change rate
Maximal respiratory volume	FT: ST ratio	Average blood pressure
Oxygen pulse	Muscle mass	Respiratory exchange rate
Durability performance	EMG activity	Submaximal blood lactate
Lipolysis	Force-Power performance	
High density lipoprotein		
Lactate threshold		

During the epidemic period, it was suggested that people should be mobile by exercising at home as much as possible. Therefore, programs have been prepared for athletes to do at home. These studies include stationary bicycles, treadmills, aerobic exercise and exercises with their own body weights. Aerobic exercises are those that produce low, medium or high cardiovascular tension.

WHO recommends muscle and bone strengthening exercises three times a week and 60

minutes of daily physical activity at moderate to vigorous aerobic intensity for children and adolescents (5-17 years) (WHO, 2010). WHO recommends 150 minutes/week of physical activity aimed at strengthening muscles and bones for adults and seniors over 17 years of age with vigorous aerobic exercise intensity 75 minutes/week or twice a week at moderate aerobic intensity (WHO, 2010).

Connolly et al. (2020) suggested in order to prevent cardiovascular, metabolic and musculoskeletal fitness disorders; They suggested gymnastic and aerobic exercise programs. Stationary bicycles, treadmills, and other home-based sports equipment suitable for aerobic training can be used to achieve health effects. This type of exercise provides moderate to vigorous aerobic training when set up as high-intensity self-pace exercise that can be controlled by heart rate monitors or a power output loading program (Bingöl et al., 2020).

The aim of this study is the comparison of the match played after the exercises of untrained Super League footballers taking exercise with their body weights at home during the COVID-19 period and the last match before the isolation period.

2. Methods

2.1 Participants

Players who are in the TFF Super League Gazişehir Gaziantep Football A Team and have no health problems. The matches of Gazişehir Gaziantep-MKE Ankaragücü and Aytemiz Alanyaspor-Gazişehir Gaziantep were analyzed.

2.2 Home Exercises during Restriction and Isolation

During this period, athletes exercised their own body weights at home for 60 to 75 minutes every other day.

2.3 Measurement Methods and Tests

During the Competition Athletes's parameters listed below were checked.

Total Distance;

High Intensity Distance (20 km/h-24 km/h);

Sprint Distance (> 24 km/h);

High Speed Distance (> 20 km/h);

Number of High Intensity Runs;

Number of Sprints;

Number of High Speed Runs;

Average Speed;

Total Distance in Possession;

Total Distance Out of Possession;

Total Distance Ball Out of Play;

High Intensity Distance in Possession;

High Intensity Distance Out of Possession;

High Intensity Distance Ball Out of Play;

Sprint in Possession;

Sprint Out of Possession;

Sprint Ball Out of Play;

High Speed Distance in Possession;

High Speed Distance Out of Possession, High Speed Distance;

Ball Out of Play.

2.4 Statistical Evaluation

The data obtained in the study were recorded regularly during the competition. The recorded data were transferred to the SPSS 22.0 package program and necessary statistical processes were applied. Normality tests of measurement variables were made. Paired t Test analysis, one of the parametric tests, was performed to determine the difference between the previous and post evaluations of the study group. The significance level of the study was accepted at $p < 0.05$.

3. Findings

Table 3. Statistical comparison of the Total Distance, High Intensity Distance (20 km/h-24 km/h), Sprint Distance (> 24 km/h), High Speed Distance (> 20 km/h) values of the research team's last match before pandemic break and first match after the pandemic break

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95 % Confidence Interval of the Difference				
				Lower	Upper			
Total Distance	4361.00000	1.41421	1.00000	4348.29380	4373.70620	4361.000	1	.000
High Intensity Distance	-37712.00000	2.82843	2.00000	-37737.41241	-37686.58759	-18856.000	1	.000
Sprint Distance	-60.50000	.70711	.50000	-66.85310	-54.14690	-121.000	1	.005
High Speed Distance	227.50000	3.53553	2.50000	195.73449	259.26551	91.000	1	.007

Table 3 shows the comparison of Total Distance, High intensity distance, sprint distance and high speed distance values of the super league team with the Paired Sample-t test.

Statistically significant differences were detected in the values of Total Distance, High intensity distance, sprint distance and high speed distance ($p < 0.05$).

Table 4. The effects of the long term detraining period on the organism (4-8 weeks)

Declining Varieties		Increasing Varieties
Maximal oxygen consumption	Muscle glycogen level	Maximum Heart rate
Blood volume	Capillary density	Sub-maximal Heart rate
Exercise Stroke volume	Arteriovenous oxygen difference	Recovery Heart rate
Maximal Cardiac output	Oxidative enzyme activity	Ventilation equivalent
Ventricular mass	Average fibril cross section	Sub-maximal respiratory change rate
Maximal respiratory volume	FT: ST ratio	Average blood pressure
Oxygen pulse	Muscle mass	Respiratory exchange rate
Durability performance	EMG activity	Submaximal blood lactate
Lipolysis	Force-Power performance	
High density lipoprotein		
Lactate threshold		

Table 4 shows the comparison of the Super League team's Number of High Intensity Runs, Number of Sprints, Number of High Speed Runs and Average Speed values with the Paired Sample-t test. Statistically significant differences were detected in the values of Number of High Intensity Runs, Number of Sprints, Number of High Speed Runs and Average Speed ($p < 0.05$).

Table 5. Statistical comparison of the participants' Total Distance in Possession, Total Distance Out of Possession, Total Distance Ball Out of Play between values of the last match before the and the first match after pandemic break

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95 % Confidence Interval of the Difference				
				Lower	Upper			
Total Distance of Possession	5371.00000	1.41421	1.00000	5358.29380	5383.70620	5371.000	1	.000
Total Distance Out of Possession	4389.50000	.70711	.50000	4383.14690	4395.85310	8779.000	1	.000
Total Distance Ball Out of Play	-5400.50000	.70711	.50000	-5406.85310	-5394.14690	-10801.000	1	.000

Table 5 shows the comparison of the Total Distance in Possession, Total Distance Out of Possession, Total Distance Ball Out of Play values of the super league team with the Paired Sample-t test. Statistically significant differences were detected in the values of Total Distance in Possession, Total Distance Out of Possession, Total Distance Ball Out of Play ($p < 0.05$).

Table 6. Statistical comparison of the participants' High Intensity Distance in Possession, High Intensity Distance Out of Possession and High Intensity Distance Ball Out of Play between values of the last match before the and the first match after pandemic break

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95 % Confidence Interval of the Difference				
				Lower	Upper			
High Intensity Distance in Possession	281.00000	1.41421	1.00000	268.29380	293.70620	281.000	1	.002
High Intensity Distance Out of Possession	76.50000	.70711	.50000	70.14690	82.85310	153.000	1	.004
High Intensity Distance Ball Out of Play	-68.50000	2.12132	1.50000	-87.55931	-49.44069	-45.667	1	.014

Table 6 shows the comparison of the High Intensity Distance in Possession, High Intensity Distance Out of Possession and High Intensity Distance Ball Out of Play values of the super league team with the Paired Sample-t test. Statistically significant differences were detected in the values of High Intensity Distance in Possession, High Intensity Distance Out of Possession and High Intensity Distance Ball Out of Play ($p < 0.05$).

Table 7. Statistical comparison of the participants' Sprint in Possession, Sprint Out of Possession and Sprint Ball Out of Play between values of the last match before the and the first match after pandemic break

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95 % Confidence Interval of the Difference				
				Lower	Upper			
Sprint in Possession	199.00000	1.41421	1.00000	186.29380	211.70620	199.000	1	.003
Sprint Out of Possession	-252.50000	.70711	.50000	-258.85310	-246.14690	-505.000	1	.001
Sprint Ball Out of Play	-6.50000	.70711	.50000	-12.85310	-.14690	-13.000	1	.049

Table 7 shows the comparison of Sprint in Possession, Sprint Out of Possession and Sprint Ball Out of Play values of the super league team with the Paired Sample-t test. Statistically

significant differences were detected in the values of Sprint in Possession, Sprint Out of Possession and Sprint Ball Out of Play ($p < 0.05$).

Table 8. Statistical comparison of the participants' High Speed Distance in Possession, High Speed Distance Out of Possession and High Speed Distance Ball Out of Play between values of the last match before the and the first match after pandemic break

	Paired Differences					T	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95 % Confidence Interval of the Difference				
				Lower	Upper			
High Speed Distance in Possession	468.00000	1.41421	1.00000	455.29380	480.70620	468.000	1	.001
High Speed Distance Out of Possession	-168.50000	2.12132	1.50000	-187.55931	-149.44069	-112.333	1	.006
High Speed Distance Ball Out of Play	-78.00000	2.82843	2.00000	-103.41241	-52.58759	-39.000	1	.016

Table 8 shows the comparison of High Speed Distance in Possession, High Speed Distance Out of Possession and High Speed Distance Ball Out of Play values of the super league team with the Paired Sample-t test. Statistically significant differences were detected in the values of High Speed Distance in Possession, High Speed Distance Out of Possession and High Speed Distance Ball Out of Play ($p < 0.05$).

4. Discussion

To the best of the authors of the study, COVID-19 is the first study to evaluate team performance before and after the mandatory break given to football during the epidemic period.

The research shows that after the mandatory break due to COVID-19, the athletes cannot leave their homes and the trainers have prepared some exercise programs that the athletes can do at home to close this period with minimum performance loss. As a result of the exercises performed by the football team with their own body weights at home, some performance values of the team were discussed. According to this; When the values of the last match of the super league team before and the first match after the COVID-19 break, which is an average of 3 months, are examined, statistically significant differences were found in the Total Distance, High Intensity Distance, Sprint Distance, High Speed Distance, Number of High Intensity Runs, Number of Sprints, Number of High Speed Runs, Average Speed, Total Distance in Possession, Total Distance Out of Possession, Total Distance Ball Out of Play, High Intensity Distance in Possession, High Intensity Distance Out of Possession, High Intensity Distance Ball Out of Play, Sprint in Possession, Sprint Out of Possession, Sprint Ball Out of Play, High Speed Distance in Possession, High Speed Distance Out of Possession, High Speed Distance Ball Out of Play values compared to $p < 0.05$.

When the literature is examined; Mon-Lopez et al. (2020) stated that regarding the sports level of football players, male professional footballers train more days and hours than non-professional players. However, they noted that female professional footballers train more intensely and more days than non-professionals.

Reardon et al. (2019) and Mon-Lopez et al. (2020) stated in their study that moods and emotional intelligence can affect training variables and the performance of top-level football players. As a professional footballer who played in Turkey league COVID-19 to perceive the fear and the stress level is moderate and footballers were not very impressed by this process actually Çifçi and Demir (2020) was stated.

As a result, it was determined that professional football players who could not leave the house due to mandatory restrictions prevented the loss of performance in the work done with their own body weights during this period.

It is generally accepted that there is an overall loss of around 10% for each week of inactivity (Varandas et al., 2017). In the face of COVID-19, any epidemic or any compulsory situation that will restrain athletes to their homes, it is thought that athletes will at least reduce inactivity with their own bodyweight training and prevent performance loss. When this or a similar situation is encountered, the training should be increased gradually when the athletes return to the season and the risk of injury should be tried to be minimized.

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