

The effect of the covid 19 pandemic on speed among high-level basketball players (A field study for the case of the Groupement Sportif des Pétroliers team)

تأثير جائحة كوفيد 19 على السرعة لدى لاعبي كرة السلة اكابر رفيعي المستوى (دراسة ميدانية لحالة فريق المجمع الرياضي للنفطيين)

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Received: 14/08/2023

Accepted: 16/02/2024

Published: 16 /03/2024

Abstract:

Preventive measures recommended by health authorities and governments to slow the spread of COVID-19 have resulted in the suspension of sports training and competitions. This study aimed to study the effect of the pandemic (covid-19) on the speed of a high-level Algerian basketball team. We used the descriptive approach, where the research sample was composed of 13 basketball players (Groupement sportif des pétroliers GSP) who participated in the African high-level basketball league. The study tools consisted of applying physical tests concerning the agility test (T-TEST) and the speed of movement (20m) before and after the covid19 pandemic. we concluded, that there are statistically significant differences between the pre and post test in favor of pre test (before the covid19 pandemic) for the agility test (T-TEST) and the movement speed test (20m) at the significance level $P < 0.05$.

Keywords: The pandemic (covid 19); Speed; Basketball; High level.

1. Introduction:

Basketball is a team sport that has progressed well. It requires speed of reaction, execution and acceleration. (Ghissassi, 2001). It is intense, explosive (Cometti, 1993), so basketball requires strong endurance, speed, agility and power (Siegler, Gaskill, & Ruby, 2003). Plyometric activity requires high speed when jumping and responsiveness when supporting the ground; Also for elevations, changes of pace and direction while developing fast fibers and achieving good speed performance and a general improvement in the basketball player's motor skills.

Speed is a physical quality that reflects the acceleration of movements. according to (Weineck J. , 1997) It implies the ability to act and react quickly, also from the start and race (ball handling, sprint and stop), It requires a speed of analysis and exploitation of the situation of the movement, it manifests itself on the speed of reaction, acyclic, cyclic and displacement. In addition to that the game situation with or without the ball including in defense and attack.

Endowed with an excellent speed of reaction that allows the basketball player in a period of time and in any situation to destabilize the opponent, which is an advantage in offensive and defensive actions while creating an effort of surprise that leaves no chance to his opponent, to analyze and even react to new situations, being confused. They even make mistakes (Simone, 2001).

The lethal weapon of the basketball player in attack is the fast game. It gives a sequence of offensive movements in order to put them in a zone of adequate success; They take the form of a shot in an effective area or a shot while running (Ciss, 2009, p. 10)

- an alactic anaerobic energy during counterattacks(speed of movement, jumps, sudden changes of direction (agility) is essential in a limited time and of a very high intensity. So any action or gesture requires speed.

- the Covid-19 pandemic is an infectious and pathogenic disease known as "severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (organisation mondiale de la santé, 2019) (World Health Organization, October 12, 2020). It is responsible for a global pandemic from where prevention requires social distancing, this has disrupted competitions and even postponed and canceled them. (Jared, et al., 2020) . (Corsini, Bisciotti, Eiralé, & Volpi, 2020) as the 2020 Summer Olympics in Tokyo, NBA, Euro League Basketball, African Basketball League (BAL) organized by FIBA were influenced by the pandemic (covid 19) including our team of the sports group of oil companies who participated in high-level matches. As a result, players have completely stopped practicing and training (GELEN , ELER , & ELER , 2020)

- The covid 19 has spread at a dizzying speed which has put the WHO to put recommendations to reduce and avoid gatherings and amplify the spread of virus: the high authorities of countries (Algeria) announced the suspension of sports activities, all disciplines combined on March 16, 2019.

-Following this situation, all major sporting events have been postponed and even canceled such as the 19th edition of the Mediterranean Games (JM) of Oran, African Mountain Bike Championship, African Basketball League (BAL). The GSP skipped the BAL tournaments

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under the aegis of the federation; , ; International Amateur Basketball (FIBA) organized in Kigali (Rawanda) from 27 to 29 November 2019 arguing the absence of the flight.

From this point of view, we wanted to know how the covid 19 pandemic affects the speed of the senior basketball team of the sports group of high-level tankers?

Therefore, our purpose of this study is to clarify the following questions:

1. Are there significant differences between the pre and post test for the T-TEST?
2. Are there significant differences between the pre and post test for the travel speed test (20m)?

Assumption:

General hypothesis:

The Coronavirus (covid19) pandemic has affected a drop in speed among the basketball players of the Algerian team (groupement sportif des pétroliers-GSP).

Hypothesis 01: There are significant differences between the pre and post test in favor of the pre test (before the covid 19 pandemic) for the agility test (T-TEST).

Hypothesis 02: There are significant differences between the pre and post test in favor of the pre test (before the covid 19 pandemic) for the travel speed test (20m)

Objective of the study:

-The main objective of our research is to determine the effect of the covid19 pandemic on speed performance in senior basketball players (GSP)

Research Terms and Definitions

- **Covid 19 pandemic:** is an infectious and contagious disease caused by Sars-Cov-2. The World Health Organization (WHO) announced on January 30, 2020 that Covid 19 was a global public health emergency (Gindt, Arnaud, Battista, & Florence L, 2021) And on March 11 it declared pandemic status (Cavée & Kaltenbach, 2021).

- **Speed:** an accomplishment of motor actions in a limited time everything depends on the neuromuscular system (Bounab, 2022).it has several types: speed of movement, acceleration, reaction, action ... etc) (Didier, 2017, p. 359)

-**Basketball:** is an intermittent team sport characterized by the repetition of high-intensity actions for four periods of 10 minutes each (Mckrag, 2003).

- **High level:** Great performance requires a degree of improvement of athletic quality in any discipline. It is conditioned by a plurality of specific factors (Weineck J. , 1997) .

2. Methods

2.1 Approach used

In keeping with the nature of the research and its objectives, we used the descriptive approach. To reach generalizations that increase the stock of knowledge of social or natural phenomena as they are, in order to prevent and plan for the future, we used the descriptive approach from where, based on analysis, comparison, classification, interpretation and evaluation (Rabhi & Guendouz, 2022)

The source of control (control) and its relationship to the skill performance of handball players

This study was carried out by an Algerian basketball team in two periods before and after the covid19 pandemic (2019-2020)/(2020-2021).

2.2 Presentation of the sample

13 basketball players from the team of the sports group of high-level oil companies (31.9 years); (96.3 ± 15.0 kg); (196.1 ± 10.5 cm) participated in this study.

2.3 Study variables

The independent variable: it is determined in: the pandemic (covid19)

The dependent variable: it is determined in: the velocity.

2.4 Experimental protocol

The Test: it is an exercise, tool or instrument where we use to make particular measurements.

2.5 Physical tests

Tests are instruments for describing and comparing the performance of a given subject (Guillevic, 2002).

➤ **Test n°01 :T-test**

➤ **Objective:**

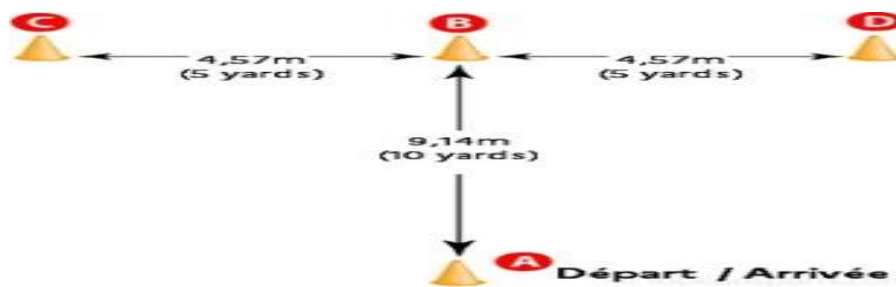
- Evaluation of a team sports athlete to change direction, acceleration, and lateral movement during pre-season testing protocols.

- Assess the ability of team sports athletes to change direction, including acceleration, deceleration and lateral movement during pre-season testing protocols (Allan & Lee , 2011).

➤ **Course of the test**

the athletes had to sprint forward 9.14 m from the start line to the first cone(B) and touch the tip with their right hand, mix 4.57m to the left to the cone(C) and touch with their left hand, then sprint 9.14 m to the right to the cone(D) and touch with their right, move back 4.57 m left to the cone (B) and touch with their left hand before pedaling back to the starting line cone(A).

Figure.1. Schematic representation of the T-test (agility)



Source : (FRANCK, 2022)

➤ **Test n°02 20m speed test**

Course of the event: before the test, a warm-up based on flexions, extensions, stretches and fast races. The athletes are on the starting points of standing position, The start is launched on the initiative of the player; feet behind the line. We start the 2nd try for the whole group following the last 20m race of the last player. The best essay is selected for each athlete.

Figure.2. The 20 meter Test



Source : (Bacquaert, 2023)

2.6 Research tools and means

2.6.1 Theoretical analysis:

It allow us to review the literature related to our theme. It consists of an analysis of documents, in order to provide additional theoretical information to carry out our research. The bibliography includes books, specialized journals, dissertations, polycopies, courses and conferences, websites and scientific articles that will be of great contribution to us, in order to carry out our work.

2.6.2 Statistical method:

For all the calculations in our study, we used the following statistical calculation tools:

Arithmetic mean

Which is the most accurate of the measures of the central tendency, it represents the sum of the measured values divided by their number, it determines the average value of a series of calculations.

Standard deviation calculation: Considered a measure of the dispersion of values from the mean.

T of student: This is a method of analysis that makes it possible to compare two arithmetic means taking into account the size and standard deviation of each mean. we used Excel 2010.

3. Results

3.1 Presentation and analysis of the T-test (agility test) at significance level 0.05, ddl=12

Table 1. T-test test results (agility test)

sp	Average	Ecart type	Typical deviation	tTabulated Student	signification
Pre-test (before the covid19 pandemic)	9.72	1.26	14.39	2.17	Significant
Post-test (after the covid19 pandemic)	10.83	1.19			

Through table N°01: the arithmetic mean of the team (GSP) reached (9.72) with an estimated standard deviation of 1.26 before the covid19 pandemic, although after the latter an arithmetic mean of 10.83 and a standard deviation of 1.19. Regarding the results of T-student: they proved that there are statically significant differences in favor of pre-test at a level of $p < 0.05$ and a degree of freedom of 12 (t tabulated (2.17) $<$ t calculated (14.39)).

3.2 Presentation and analysis of the speed test 20 m (travel speed) at significance level 0.05, DDL=12

Table 2. Test results travel speed (20 m)

sp	Average	Ecart type	Typical deviation	tTabulated Student	signification
Pre-test (before the covid19 pandemic)	3.25	0	6.41	2.17	Significant
Post-test (after the covid19 pandemic)	4.03	0			

Through table N°02: the arithmetic mean of the team (GSP) reached (3.25) with an estimated standard deviation of 00.00 before the covid19 pandemic, although after the latter an arithmetic mean of 4.03 and a standard deviation of 00.00. Regarding the results of T-

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student: they proved that there are statically significant differences in favor of pre-test at a level of $p < 0.05$ and a degree of freedom of 12 (t tabulated (2.17) $< t$ calculated (14.39)).

4. Discussion

4.1 Discussion of the results of the 1st hypothesis: T-test (agility test)

According to the analysis of the results of Table n°01: We recorded Tabulated T (2.17) $<$ Calculated T (14.39), this confirms that there is a statically significant difference between the pre-test and the post-test in favour of the pre-test (before the Covid 19 pandemic). The decrease in agility speed is due to the inactivity of our team (GSP) caused by the confinement following covid 19; as confirmed by the study by (Sousa, Neiva, Izquierdo, Cadore, Alves, & Marinho, 2019): a break in weekly training or less activity leads to an insufficiency in physical abilities unless there are specific sessions to perform (Bredt S. , et al., 2020) specify that players in a basketball game perform different tasks such as: jumping, trotting, sprinting, walking, and changing direction. (Bredt S. , et al., 2020) also confirm that inactivity reduces fast fibers to slow fibers. This change affects muscle performance in terms of strength and speed. This has had an effect on the GSP team due to the physiological demands and intensity of play in basketball that require rapid acceleration and changes of direction.

4.2. Discussion of the results of the 2nd hypothesis: speed of movement (20m)

According to the analysis of the results of Table n°02: we recorded t tabulé (2.17) $<$ calculated (6.41), this confirms that there is a statically significant difference between the pre-test and the post-test in favor of the pre-test (before the covid 19 pandemic), Given that the long period of the cessation of GSP training caused by the confinement due to the pandemic had a decrease in travel speed (20m) after the Pandemic This may be due to the phenomenon of detraining which consequently results in the inefficiency of the neuromuscular and cardiovascular systems and physical qualities such as "speed" (Bosquet, et al., 2013). This is also explained by the rapid decrease in fiber after a period of detraining (Neufer , Costill , Fielding , Flynn , & Kirwan , 1987). (Klausen, Andersen, & Pelle, 1981).

That is why experts believe that relaxation considered a dominant physical quality in basketball (Gérard & Raymond, 1976). And speed was indeed influenced.

5. Conclusions and suggestions

After this experimental study, we can conclude that the covid 19 pandemic had a negative effect on speed (agility speed: T-test and travel speed: 20 m. Therefore, we recommend avoiding the long duration of training stoppages and competitions emanating from the Algerian basketball federation. On the contrary, it is imperative to find adequate solutions in the pandemic period to resume competitions, which in turn can control training in general and the performance of teams in particular.

It is important to note that the effects of the pandemic may vary from player to player depending on several factors such as their individual situation, their access to training facilities and their ability to adapt to changes. Teams and players have measures in place to

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minimize these impacts, but it will likely take time to fully return to pre-pandemic performance levels

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