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## ADAPTIVE SOLUTIONS FOR THE JUNIOR BASKETBALL PLAYER TO MAINTAIN A HIGH LEVEL OF PHYSICAL TRAINING THROUGHOUT THE PANDEMIC

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### Abstract

The pandemic destabilized the smooth running of all fields of activity, socially and economically, and sport was no exception. All sport competitions were stopped, and the lockdown led to a cease in the physical training and in all sport practices.

*Aim.* The purpose of this study is to prove that adaptive solutions can be found to help players maintain and grow their value.

*Methods.* Through the quantitative research method, conducted as part of a survey, we tried to demonstrate that junior basketball players in Romania used various training programs to keep in shape and get ready for the restart after the pandemic.

*Results.* Even though, according to the survey, the pandemic had a negative impact on the training and performance of players (51,7%), 88,8% continued the training throughout the lockdown period. They found different training solutions (65% physical practice at home, 17% running or jogging, etc.).

*Conclusions.* Even though the pandemic might last for another couple of months or even longer, we need to find new and adapted manners to maintain a high level of training and to keep building on the technical and physical training foundations laid down before the pandemic.

*Keywords:* pandemic, basketball, training, players, solutions.

### Introduction

The outbreak of the COVID-19 pandemic is massively impacting all areas of society across the globe: the healthcare system, social life, the economy, employment, the education system. Sports were also severely impacted by the pandemic, with disastrous consequences at all levels: from coaches to staff, from athletes to sports clubs, from event organizers to sport media (Official Journal of the European Union, 2020).

From the alteration of the daily training sessions of professional athletes to the changes made to the competition schedules and postponement of the supreme competition (the Olympic Games) to the significant social and economic impact on the sports in general, the train of events has passed very quickly and required a lot of flexibility and adaptive capacity from all the parties involved.

In order to stop the spread of the coronavirus, specific and drastic measures were taken to save lives and protect the health of the population, which is the top priority of governments everywhere.

In the fight against the COVID-19 pandemic, saving lives and protecting the health of our citizens, remains the first and utmost priority.

Every athlete or individual who regularly used to practice various sports activities, every sport organization were forced to redefined themselves to some extent and to find ways to reduce the negative effects of the pandemic and of the imposed restrictions as much as possible.

At the level of the individual basketball player, they have had plenty to lose due to lack of training during the pandemic.

First of all, the changes in muscle size and architecture and in tendon properties have led to the lowering of power qualities. This further led to muscle strength power reduction and a decrease in the force development.

Secondly, aerobic and anaerobic endurance of players were affected by the drop in the cardiorespiratory function.

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As a third factor, the nutritional routine of players needed to be adjusted in order to minimize muscle atrophy and avoid excessive gains of body fat (Salazar et al. 2020).

No strength training at all or very little training can cause loss of muscle mass. Muscle atrophy results from an imbalance between protein degradation and synthesis (Mallinson & Murton, 2013).

Reduction in physical training, which automatically means a reduced energy consumption, will require a reduction in energy intake through nutrition, to avoid undesired body fat gains. If we were to consider an absolute amount of daily protein, when increasing protein to 2.3 g/kg, body mass will reduce muscle loss during periods of lower caloric intake (Mettler, Mitchell & Tipton, 2010).

Therefore, athletes may consider raising their protein intake to counter the anabolic resistance brought by stagnation, as well as to lessen the associated loss of muscle mass (Milsom, Barreira, Burgess, Iqbal & Morton. 2014).

At muscular level, if the period of inactivity is longer than 4 weeks, the transition will be made from fast twitch fibers to slow twitch fibers, characterized by explosive actions, because the fast twitch fibers are affected more severely during inactivity periods than the slow twitch fibers (Wang & Pessin, 2013).

Moreover, flexibility – the ability to move a joint through its optimal motion range without experiencing restriction or pain - depends on the condition of different anatomical structures (bone, muscle, and connective tissue).

Flexibility is also conditioned by the ability of muscles to produce an appropriate amount of force. Drops in flexibility have been reported after about 8 weeks of detraining (Caldwell & Peters, 2009).

The pandemic hasn't only affected the physical condition of athletes, but also the psychological and emotional condition. Isolation and lack of face-to-face training as a team have left their marks on their technical and tactical skills. Basketball specific elements, such as dribbling, passes, shootings, 4 x 4, 3 x 3, 2 x 2, 1 x 1 game situations were no longer practicable, so no room was left for perfecting and developing their skills based on these elements.

As a solution to these challenges and to prevent sport activities from collapsing but at the same time trying to keep the infection rates under control, the government – through the Order of the Ministry of Health and the Ministry of Youth and Sports 619/1.077/2020, containing regulations for outdoor sports events, partly restarted individual, physical and technical training, but in compliance with the rules of social distancing, without contact and interaction between athletes, based on the concept: one athlete one ball.

It has been difficult for basketball players and coaches, in times of corona, to achieve adequate training goals, given the lack of organized training, the movement restrictions and the fact that athletes and coaches couldn't communicate directly (Jukic et al., 2020).

The quality and quantity of training was also impacted by the sudden breaks and restrictions, which also interrupted the daily training routines of athletes (Andreato, Coimbra & Andrade, 2020).

## Methods

The purpose of the research The purpose of this study is to investigate the solutions found by coaches in response to the crisis created by the pandemic and the methods used during this period to maintain the motivation and training level of junior basketball players at the highest possible level.

Hypotheses:

- the individual training programs offered, the constant advice and the support of the coaches determined the basketball players to stay motivated during the pandemic;
- junior basketball players in Romania used various training programs to keep fit and prepare for the restart after the pandemic.

Objectives:

- identifying the way in which the training sessions took place during the pandemic and finding out the main reasons that prevented the players from training during this period.
- identifying the places where the athletes trained during the lockdown periods;
- identifying the partners with whom the basketball players trained during the suspension of the activities face to face.

Research method, technique, and tool: In the present research we used the method of quantitative research, the technique of administering questionnaires through sociological survey. For a higher participation rate, we used the snowball sampling method, asking coaches to send the questionnaire link to their players and to other colleagues.

Participants: The junior basketball players (n = 152) were chosen as respondents for the study, 76 girls and 76 boys, with age between 11 and 18 years old, members of the teams registered in 2020 in the National Junior Basketball Championship. Sampling was conducted at these teams to include in this study athletes from all areas of the country. The participation of basketball players in this research was voluntary, and their identity was confidential.

Research population: It is represented by all junior basketball players who were involved in the 2020 National Junior Championships, regardless of age, position, and team.

## Results

After collecting the answers, we proceeded to the analysis of the data obtained, which are presented below:

The gender distribution of the sample shows that, out of a total of 152 junior basketball players who participated in this study, 76 (50%) were boys and 76 (50%) were girls.

The distribution regarding the basketball teams and their age shows that we have respondents from 5 girls' teams and 3 boys' teams. For girls we have the following clubs: Gladius Târgu Mureș (22 players aged between 12 and 16); ACS Napoca Basketball School (18 players aged between 13 and 18); Smart Basketball Team Cluj (17 players aged between 11 and 16); BC Startes Iași (10 players aged between 11 and 14) and CSM Târgu Mureș (9 players aged between 12 and 14). The boys are represented by the following teams: U BT Cluj (33 players aged between 16 and 16); CSS Stomart Unirea Iași (29 players aged between 14 and 18) and Big Up (14 players aged between 12 and 16). 78 of the respondents, representing 51.3%, have been playing basketball for more than 5 years, 34 of the respondents, representing 22.4%, have been playing basketball for 4-5 years and 40 of the respondents, representing 26.3%, has been playing basketball for 2-3 years.

### Did you continue the physical preparation when you did not have face to face training sessions?

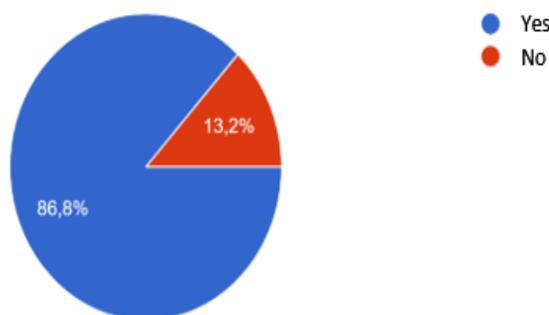


Figure 1. Continuity of training sessions during the pandemic

Although, according to the survey, the pandemic negatively affected the training and performance of the players, 88.8% of them continued their training throughout the lockdown periods, despite the restrictions imposed by the authorities and the suspension of face-to-face preparation. Internal motivation, ambition, pleasure to train, passion for basketball, desire to stay fit are some of the main reasons that determined respondents to stay active and train conscientiously at home, alone or with the online coach, on all this period, out of the desire that the recovery time be as fast as possible when resuming face-to-face activities.

### Did you keep in touch with your coach during lockdown?



Figure 2. Communication with the coach during the pandemic

Only 10.5% of basketball players did not keep in touch with the coach during the pandemic, 25% of respondents communicated with the coach at least once a week, while 45.4% of them spoke to their coach at least once every 2-3 days.

During lockdown, did you receive a personalized individual workout from the coach to do at home?

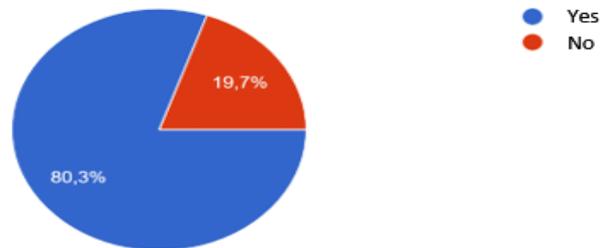


Figure 3. Individual training program during the pandemic

Most respondents (80.3%) received an individualized training program from their coaches to do at home. Individual physical training programs were the most used method of training during the period of suspension of face-to-face sessions.

Where did you train during this period?

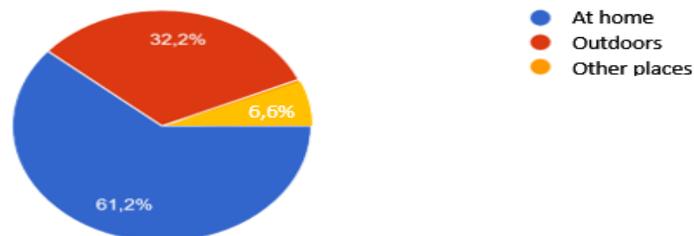


Figure 4. The player's training locations during lockdown

Most basketball players trained at home during the lockdown period (61.2%), while 32.2% preferred to train outdoors, the rest combined the two options. Lack of space and equipment were some of the main barriers that prevented respondents from training at home. Prohibition of access to sports facilities, the limited number of people allowed to meet in the same location, in conjunction with measures of social distance and wearing a mask have led to fewer players who have trained outdoors.

### Who did you train with during this period?

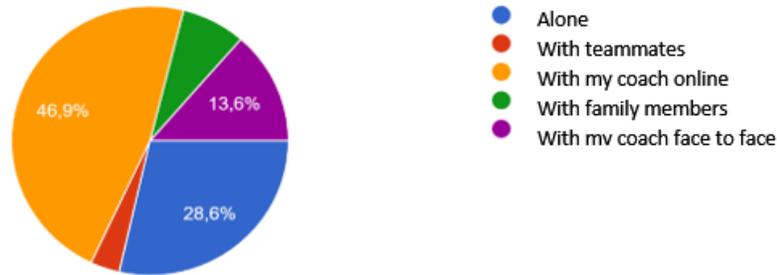


Figure 5. Training partners during the pandemic

Less than half of the basketball players trained online with the coach (46.9%). This shows that more than half of the coaches only gave the players an individualized program that they could follow on their own at home, without holding online training sessions with them. This had made 28.6% of respondents to train alone. A small number of respondents trained with family members and friends.

### If so, what kind of sports and physical activities did you practice during the pandemic?



Figure 6. Sports activities practiced by basketball players during the pandemic

Most respondents (65.8%) practiced exercises at home during the pandemic, did fitness exercises, followed exercise programs on applications, YouTube, etc., 17% of them run or jog, and only 8% practice other sports (dynamic games, volleyball, football, swimming).

### Which of the following reasons led you to train less during the pandemic?

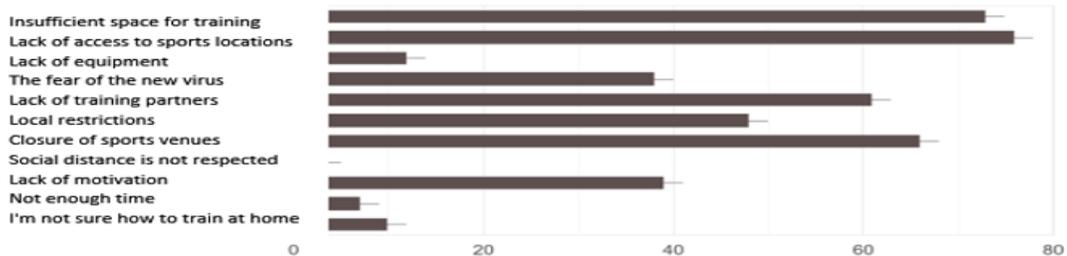


Figure 7. The reasons why basketball players reduced training during the pandemic

The main reasons for reducing training sessions during the pandemic were the lack of access to various locations for sports (50%), insufficient space for training (48%), the closure of sports facilities and measures of social distance



(43.4%) and lack of training partners (40.1%). Other determining factors were the local restrictions imposed by authorities (31.6%) and the fear of the new virus (25%). A very small number of respondents said they do not have enough time to train.

### Discussion

The objective of this paper is to show how coaches, athletes and physical trainers coped with the confinement periods and adapted the training, accordingly, using technology in the form of online platforms, videocalls, zoom and other apps to overcome the impossibility of face-to-face training sessions. At the same time, when normal training in the gym was possible again, they struggled to resume training sessions in a gradual manner, so that safe return to physical performance could be ensured.

### Conclusions

Based on the research and on the diagrams above here (involving 152 junior basketball players, of which 76 girls and 76 boys) we drew the conclusion that a large number of players kept in touch with their coaches and physical trainers online (89.5%). 80,3% of them were provided an individualized training program. 93,5% of the training sessions took place in the own home or on the outdoor basketball courts. Even though there were reasons enough for the players not to train during this pandemic (forced confinement, insufficient training space, lack of access to gyms, indoor training sessions banned, movement restrictions, fear of exposure to the new virus), most of the study participants still managed to continue physical training, jogging, individual training sessions for improving technique and tactics, all these under the guidance of the coaches, physical trainers and the rest of the staff – be it online or offline.

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