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Applications Towards Sports During Covid-19 Pandemic

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Abstract

COVID-19 pandemic, which has taken hold of the world, causes great difficulties in sports as it causes in any other field. Sports facilities are shut; training sessions and competitions are suspended temporarily. Even though the vaccination process has started, the COVID-19 pandemic still continues, keeps affecting our lives and some restrictions are put into application from time to time. This study focuses on the effects of COVID-19 on people performing sports activities and on the sports applications during this period. In this research, information about sports applications during the COVID-19 period is presented. Moreover, various suggestions are provided for supporting sports applications and for ensuring that sports activities can be performed safely during and after the pandemic process. This study shows how vital is the role played by sports and physical activities in terms of physical and mental condition and health in general.

Key Words: COVID-19, sports, application.

Covid-19 Döneminde Spora Yönelik Uygulamalar

Özet

Tüm dünyayı etkisi altına alan COVID-19 salgını, her alanda olduğu gibi spor alanında da büyük zorluklara neden olmuştur. Spor mekanları kapatılmış, antrenmanlara ve müsabakalara geçici olarak ara verilmiştir. Günümüzde aşılama yöntemi başlamış olmasına rağmen, halen COVID-19 pandemisi devam etmekte, etkisini sürdürmekte ve dönem dönem kısıtlamalar gündeme gelmektedir. Bu çalışma, COVID-19'un spor yapan bireyler üzerindeki etkisine ve bu dönemdeki spor uygulamalarına odaklanmıştır. Araştırmada betimsel araştırma türlerinden tarama yöntemi kullanılmıştır. Bu araştırmada, COVID-19 dönemi ve sonrasındaki spor uygulamaları hakkında bilgiler sunulmuştur. Araştırmada ayrıca, salgın sırasında ve sonrasındaki spor aktivitelerini desteklemek, spor aktivitelerinin güvenli bir şekilde yapılabilmesini sağlamak için çeşitli önerilerde bulunulmuştur. Yapılan bu çalışma, COVID-19 sürecinde fiziksel, zihinsel ve sağlık açısından sporun ve fiziksel aktivitelerin oynadığı hayati rolün ne kadar önemli olduğunu göstermektedir.

Anahtar Kelimeler: COVID-19, spor, uygulama.

INTRODUCTION

COVID-19 is a pandemic disease which started at the last month of 2019 in Wuhan, China with the increasing number of chronic pneumonia cases (1). COVID-19, caused the beginning of a worrisome period of time worldwide. Cities and even all countries of the world have been facing with this pandemic whose exact treatment is still unknown. The rapid spread of COVID-19 leads to restrictions or halts in sports or cultural activities in many areas. In order to prevent the spread of the pandemic, various precautions were taken by the authorities in

health, finance, education, sports, etc. (2). It is stated in the researches performed on the subject that there have been a need for comprehensive and precautionary strategies to hinder the spread of the pandemic and to cope with its outcomes since the moment when pandemic started with millions of confirmed cases over 180 countries worldwide (3,4). Each country tends to develop its own strategy to be able to cope with the pandemic accordingly.

Restriction of sports and physical activities which are among the most important components of social life, as far as severing them from all their ties

and reducing them into private space due to COVID-19, depicts a worrying picture in terms of the regularity of applications and getting the expected efficiency from these activities (5). During the pandemic period, as it is in normal periods of life, the possible positive contributions of regular sports and physical activities on health and social life is a fact that should not be ignored.

Effects of COVID-19 on People who Do Sports

Crowded sports organizations of global sports industry which make sport persons and spectators meet together and in which physical contact and social interaction are immense, cause the pandemic spread rapidly (6. It is stressed that concerts, collective religious practices or collective organizations in sports branches make it easy for the pandemic spread rapidly. Gilat and Cole (7) also state that easy and fast spread of pandemics like COVID-19 during big sports events can create an affect equal to that of a biological bomb. Similarly, in the research conducted on football players, Yingying et al. (8) express that the risk of virus spread during games is quite high as a player has close physical contact and performs physical actions containing infection risks many times during games.

The global spread of the pandemic makes it impossible to perform many regular daily activities of life including sports and physical activities. The pandemic have been limiting the sports and physical activities of professional or amateur individuals or groups from all strata. For instance, as they try to keep their forms at home, professional athletes need to reregulate their trainings according to the conditions of the pandemic and they face the risk of losing their professional sponsors directing and supporting them. Cancellations or suspensions of games and competitions in global or regional scale deprive people doing sports of the sources which help them strengthen social harmony, contribute to emotional excitement and incite them for practicing more physical activities (9). It is obvious that COVID-19 affects individuals performing branch of sports regardless of their purpose.

As athletes take part in the competitive environment of sports, they are careful about their training and daily lives greatly (10). Professional athletes must work hard and efficiently and pass from various stages of education for being successful in their relative branches. As long as athletes can achieve these, they will prove themselves in their branches (11). Furthermore,

suspended competitions due to COVID-19, social restrictions and ongoing uncertainty of pandemic will reflect on the daily lives of athletes. At times like this, it is not possible to avoid experiencing various problems and hardships in any area. At a time when championships are suspended and leagues are paused, professionals who live off sports lose income and diagnosis of COVID-19 for these athletes get them and their families worried. On the other hand, how transfer processes get affected from this situation is not certain. Transfer budgets are reduced obviously. It is expected that players who are in demand and meet their values will be transferred for good amount of money, and that amateur branches will also get shrunk or shut completely. Moreover, these and similar situations cause athletes to experience financial concerns (12). From April 2020, as most professional sports leagues have been suspended, thousands of athletes and sports clubs are in need of support for avoiding bankruptcy. For this reason, effective measures must be taken against these problems that will affect participation in sports and athletes for a long time (13).

COVID-19 also causes disruptions to the training and competition programs of athletes (14 Chen et al., 2020). These disruptions in COVID-19 training programs will affect their respiratory system and training capacity negatively in long term by affecting physical - physiological parameters of athletes (13). Social isolation and quarantine processes cause a decrease in their physical activity levels and a decrease in their maximal and submaximal training performances as they limit the training movements specific to their branches. Those losses observed in aerobic performances due to the limitations, affect cardiovascular function negatively or weaken the muscle metabolism. Since regular training cannot be performed during this period, it is observed that VO2 max decreases within 2-4 weeks, and losses increase further in the period that proceeds this 2-4 weeks (15).

Professional athletes have a career strategy that will ease the obstacles they face and carry themselves to their goals. Countries develop strategies aiming at solutions within their might. The goodness or badness of the means of countries will affect the athletes` career strategies leading them to their goals in a good way or bad way (16). Training programmes of the athletes intended for competitions must be regular. However, it is also a mystery that what type of approach must be

adopted against the disruption of access to the professional facilities that trainings can be performed and to the disciplined support teams. It will not be a sufficient application to take health precautions only and postpone the time line in situations like these (17).

Precautions taken during the COVID pandemic process has been affecting all individuals involved in sports including the ones who do it for recreative purposes but not professionally. No matter what branch it is, there is still an ongoing ambiguity about the creation of necessary conditions for letting spectators come together as they used to do before the pandemic and for ensuring that athletes avoid the physical contacts which would put themselves in danger (7). In this context, there are many questions to answer to and brand-new questions arise as new answers are reached. For example, it is not known exactly what kind of impact this situation will have on the health or the performance of athletes affected by COVID-19 in long term (18). When the subject is considered in terms of physical activity, it is stated in the epidemic report of the United Nations (UN) that many people cannot participate in sports activities outside their homes due to the pandemic restricting the areas of physical activity, and under these conditions most people are inclined towards being less physically active. UN (9) also states that lack of physical activity and exercise isolates many people from ordinary social life and this situation has negative effects on their participation in physical activities by causing stress and anxiety. However, in such situations, an individual should be strong physically and mentally. When the situation in question is considered in terms of individuals who do sports, it raises the question of at what degree does the pandemic affect the participation levels of individuals involved in sports in physical activities and sports.

Sports-Oriented Applications during the COVID-19 Process

It is observed that the expression of "nothing will be the same after COVID-19", expressed by all authorities, is directly in line with the thoughts of sports fans about participating in competitions during COVID-19 process. In a study conducted in the United States, in participating competitions, the availability of disinfectants at stadiums, the application of disinfection procedures, the health screening of employees and the sale of tickets as half of the stadium capacity become prominent among

the most important factors. Therefore, it is predicted that the effects of COVID-19 will continue for a while and the recovery process will take some time (19).

As the world begins to recover from COVID-19 process, there will be important issues to address to ensure the prosperity of sports activities and sports organizations at all levels. Regardless of their age, it is important for everybody to apply physical activities in order to stay healthy including at situations in which most people have no actual experience with the pandemic at all. Physical activity experts indicate that 150-300 minutes of moderate exercise and movements for strengthening muscles for two sessions twice per week are very beneficial (9). Every single minute that is spent actively is important for a healthier life (20,21). It is now a very well-known fact that regular physical activities have positive impacts on many health outcomes (22,23). Researches on the subject shows that regular physical activities bears many benefits in terms of physical, physiologic health parameters and positive health outcomes (24,25).

For many people it is possible to perform activities without physical having equipments or a special space at home during the pandemic process. In situations like this in which there is a necessity to stay indoors for a long time, many different options can be found for staying active throughout the day. For instance, stretching movements, routine household chores, climbing stairs, dance while listening to music or various exercise movements can be performed. In addition to this, for people who have internet access there are many free web resources which show the ways of being able to stay active during the pandemic process. Through internet, it is possible to access games with physical activity content which can attract the attention of people from all ages and groups and can be performed in small spaces such as home environment. Another important aspect of keeping physical fitness is the strength training which can provide necessary mobility for those who have physical disability and which can help in protecting muscle strength (9). What is important here is to be individuals who have awareness of doing sports under all situations and conditions. It is also important to expose the necessity of improving various ways to bring people in the habit of doing sports and physical activities.

Demiray (25), a national athlete and sports futurist who emphasizes the importance of physical activity during the epidemic, states that people understand the importance of doing physical activity at home better during the epidemic process and that the rate of physical activity will increase after the epidemic period. Demiray (25) states that during the time that is spent at home, it is perceived better that staying active comes first among the irreplaceable things. In this respect, it is necessary to make the best out of the available means in order to bring in sports and physical activities in societal level. Under these conditions, the use of technology which has become an important part of human life and makes daily life easier, in sports is on the agenda.

In the long run, technological innovations which shape many sectors have started to influence the entertainment styles, behaviours, needs and values of people in sports industry as well. The increase in technological trends in sports indicates that the change which will be observed in sports industry in the next ten years will be much more than that of the previous few decades. The points that really needs to be pondered on here should be "What type of sport will be the most striking after the epidemic?", "How will sports be structured in the best way possible?" and "How will people enjoy sports?" There will also be a need for developing a deeper interaction and a more diverse content strategy for existing sports to meet the changing behaviour and new demographic needs of sports enthusiasts (27).

It is predicted that sports industry will become digitalized rapidly with the pandemic process. This process will accelerate the integration of technology with sports. With the integration of sports into technology, mobile phones, which identify with people and recognize them, will help the individuals organise their daily lives like a mentor via physical activities, training programmes, diet and motivation programmes that are designed specifically for the person using it thanks to the applications which gather personal data

Due to the time limits, people will incline towards doing sports at home. There will be many changes for amateurs during this process as well. For example trainers will need to become more acquainted with technology more than anyone in order not to be left behind. Trainers will be able to lead people in doing sports activities from their

homes, in front of their cameras without any limitation of time or space thanks to technological equipments. By this way, it will be possible for people to follow trainers/instructors also from home during the social distancing rule applied in the pandemic period (25). With the pandemic, there is a huge increase in the use of web-based online applications for the purpose of doing sports and physical activities worldwide.

Thanks to the online content which can be accessed from all over the world and which can be adapted to different people, people from all groups can access activities that all family members can participate such as opening, stretching, meditation, yoga and dance lessons. In addition to this, many people can get access to fitness apps, online videos and audio classes changing daily for reasonable prices. Furthermore, there are countless online fitness presentations on social media platforms. Most of these classes offer sports activities in which household items or items of daily use can be used instead of special equipments (9).

However, everyone might not have the means to access such online contents that digital technology offers. So, access to such sources is far from being universal. In underdeveloped or developing countries, access to broadband is often limited and problematic or not available at all. For this reason alternative methods such as television and radio broadcasts might be used for reaching these people. As a matter of fact, television and radio broadcasts that offer physical activity and various sports exercises and encourage these, makes it possible for many households who are deprived of the technological means, who do not have internet access and live under risky conditions to reach such activities.

Recommendations for Sports Applications in the COVID-19 Period

In this process, sports can be used as a means to develop co-operation and sportsmanship among individuals who are affected by social isolation, and to encourage friendly competition away from conflict (9). Today, during the pandemic process, many individuals face with a situation in which they might lose the achievements that they have gained owing to their participation in sports. As the pandemic forces people who do sports or who are involved in sports to stay at home, virtual sports environments might be used as an alternative way for them to continue their sports activities from

home. To be able to get the most out of such sports and physical activities which are performed by using televisions and internet resources, the process must be led well and its planning must be done properly.

Doing exercise results in an increase in benign hormones. This is a scientific fact. Even the easiest exercises which anyone can do have many positive contributions. Exercises reduce the stress level of an individual, cause perspiration and cleanse toxins. What matters is to make a proper planning for an exercise. A well planned exercise can attract people to sports. In this process, it is very important to adapt people to the system step by step. Spans and days must be increased slowly. Trainers are important in terms of programming. The statements and applications of trainers are vital in this process Digitalization might make significant contributions to the development of trainers. On the other hand, it might also lead disadvantages.

There is little doubt that daily lives and routine applications of sports participants are changing or are being suspended by the epidemic. This situation means that interaction and methods for providing training will be reconstructed fundamentally. On the other hand, trainers might need to reassess how athletes will be monitored and the situations like injuries, training sessions and other situations that need feedback, due to the social distancing between the trainers and athletes. A webcam or a computer screen might provide a limited vision in terms of monitoring sports participants. Such situations can restrict the effectiveness of a trainer in sports where technical and physical skills are very important. Moreover, it can also lead to changes in the programs implemented due to the social distancing between trainers and athletes. For example, this situation may lead to the replacement of trainers with technical based strength and conditioning applications. Similarly, the trainers' ability to foster the development of a team, its cohesion and the sense of belonging will likely to change.

This period when it is spent away from all kinds of sports environment might give a chance to trainers to ponder on the applications they perform, to communicate with trainers of other branches, to exchange information and to evaluate the process. These might lead to changes in training philosophy and behaviour. These deductions offer new suggestions even though they are contradictory. For

instance, in many countries, it is decided that the duration of physical education must be kept shorter to reduce physical contact. Yet, along with this, the importance of staying active in this period is also emphasized (28). How should these contradictory suggestions be applied can cause uncertainty, and if teaching and training applications are to be regulated, such factors must be researched. Furthermore, how these changes should be applied and situations regarding their effects might take time in terms of determining the best methods that can be applied in this process. And also trainers should support their athletes by interacting with them in terms of their positions. Trainers need to show optimism about the future of their team and maintain regular communication and sustain team spirit with their athletes. Some trainers might need support for planning the near future realistically and for finding new professional opportunities in the emerging socio-economic environment. They might also need to strengthen their connections with their friends and relatives.

Another problem that might affect sports sector is the problems resulting from limitations and rules. Ball games are the most popular ones among children and teenagers. At countries in which ball games are restricted, young athletes should be encouraged for accepting the reality, for leaving the sports that they are interested in temporarily due to the limitations of social interactions and for doing entertaining physical activities that help protecting their health and are physically appropriate. This change may not be so easy for children and teenagers. The loss of social interaction for children and teenagers might put their relation with screen at risk. Early research findings show that the epidemic process increases anxiety and depression in youngsters (29) and waste of time (30). In a pessimistic or even in a moderate scenario, probably millions of children and teenagers might not return to their sports groups after the effects of pandemics will have ended.

Sports and exercise psychologists, physical education teachers, trainers and parents play a vital role in providing (online) psychological support to students and young athletes. These people can help young athletes improve routine tasks and self-regulation skills in this period. At the same time, they can make contributions to their improvement of developing pro-social motives for maintaining social distancing. In this period of time, support can be received from screens. These individuals should

not be subjected to excessive pressure to maintain social distancing (31). Maintaining team spirit during this period of time is important for young athletes. During social isolation, online group meetings can be held in cases where there is a need for coming together for supporting team spirit and screen help. By this way, social distancing can be maintained and mutual interaction can established at the same time. Sports psychologists, can help athletes develop skills to cope with anxiety and detect athletes who are affected negatively from the pandemic process or social isolation, and can direct those who experience problems to mental health professionals. The crisis caused by the pandemic can be turn into an opportunity to help athletes and their parents communicate with each other and improve their family relationships (32). The restrictions and rules caused by the epidemic raise questions about to what extent sports can be applicable in the future. It is necessary to ponder on some issues such as whether the globalisation of competitive sports can continue at a sustainable pace, or whether the restrictions that prioritize health protection should be included in the action or not.

Relatively little has been said about the impact of social distancing or isolation on sports at societal basis or local level. For instance, what would happen if the closeness of sports participants in the society would become a threat? What if "Sports for all' could not be sustained due to its increasing health risks for people such as for those who are pregnant, elderly or with chronic illnesses? What does it mean for sports clubs and institutions to be described in the community they function as the channels which spread epidemics/pandemics such as COVID-19 which are threatening human lives. How will these factors affect hygiene rules in sports, their applications and organisation processes? For example, Royal Dutch Football Association announced that spitting on the football field will result in booking. To what extend will it be possible to build sports around these existing organizational blocs that are rooted in the concepts of community, inclusion and mutual support? (28).

Nevertheless, due to the way the virus spreads, some types of sports might be affected more than others. For instance, Dutch team or indoor sports are more limited than individual or outdoor sports (28). Such situations show that the effects of the current pandemic are huge and affect the sports industry deeply. Even if it is not possible to eliminate the

effects of the pandemic completely, methods to be applied in the normalisation process can help ease the existing effects.

CONCLUSION

COVID-19 period is a time when there is confusion about how to do things in the field of sports, as in every field. It is obvious that this confusion caused by COVID-19 has changed the habits of individuals to do sports and caused some difficulties and troubles in the sports community. However, it is a fact that the impact of COVID-19 continues. Social cohesion and cooperation are essential in order to reach a solution stage by reducing the effects of COVID-19 pandemic and to carry out this struggle in a healthy way. This harmony includes members of the society who do sports or who are connected to sports in one way or another.

This study shows how vital the role that sports and physical activities related to sports play in terms of physical, mental and general health during COVID-19 process. The allowing of some sports activities with the normalization process is an exciting situation for millions of people who perform sports activities on their own will and who benefit from sports physically, mentally and socially. It is a fact that the risk cannot be eliminated in sports completely. However, on the condition that caution and care is maintained, the risks at sports can be minimized and benefits of sports can be enjoyed once again. For this reason, it is important for individuals in the sports community to act with a sense of responsibility in reducing or eliminating the material and spiritual damages that the epidemic causes and might cause in the future.

In this study, the impact of COIVID-19 on sports and the measures that can be taken in sports are emphasized with a multifaceted approach. Although it is difficult to determine the final effects of the COVID-19 epidemic on sports in this process, the information presented in this study can help athletes, coaches, Physical Education Teachers, trainers to carry out the epidemic process in a safer and more efficient way. The easy transmission of COVID-19 increases the risk of transmission in sports environments. In order to prevent infection, it is recommended that individuals minimize contact in contact sports, follow personal hygiene rules, avoid risky behaviors in the areas where they do sports, and adjust their sports activities according to the epidemic case rates in the region they live.

REFERENCES.

- Huang, Y., Zhao, N.Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: A web-based cross-sectional survey. medRxiv. 2020; 288: 11954.
- 2. Parnell, D., Widdop, P., Bond, A., Wilson, R. COVID-19, networks and sport. Managing Sport and Leisure, 2020; 1-7.
- Xiang, Y.T. Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry, 2020; 7(3): 228 –229.
- Mamun, M. A., Griffiths, M.D. First COVID-19 suicide casein Bangladesh due to fear of COVID-19 and xenophobia: possible suicide prevention strategies. Asian J of Psychiatry, 2020; 51:102073.
- 5. Türkmen, M, Özsarı, A. Covid-19 salgını ve spor sektörüne etkileri. Int J of Sport Culture and Sci, 2020; 8 (2): 55-67.
- Memish, Z.A., Steffen, R., White, P., Dar, O., Azhar, E.I., Sharma, A., Zumla, A. Mass gatherings medicine: public health issues arising from mass gathering religious andsporting events. The Lancet, 2019; 393(1085): 2073–2084.
- Gilat, R., & Cole, B. J. Editorial Commentary: COVID-19, medicine, and sports. Arthroscopy, Sports Medicine, and Rehabilitation, 2020; 2(3): 175,176.
- Ying-YingWong A., Samuel Ka-KinLing S., Lobo Hung-TakLouie L., Ying-KanLaw, G., Chi-HungSo, R., Chi-WoLee, D., Chung-FaiYau, F., Shu-HangYung, P. Impact of the COVID-19 pandemic on sports and exercise. Asia-Pacific J of Sports Medicine, Arthroscopy, Rehabilitation and Technology 2020; 22: 39-44.
- United Nations (UN). [İnternet]. The impact of COVID-19 on sport, physical activity and well-being and its effects on social development. [cited 2021 Apr 12]. Avaliable from: https://www.un.org/development/desa/dspd/2020/05/covid-19-sport/
- 10. Genç, D. A. Spor hukuku. İstanbul: Alfa Basım, 1998.
- Afacan, E. Spor Felsefesi. Ankara: Akademisyen Yayınevi, 2019.
- 12. Büyükbaykal, G. [İnternet]. Pandemi sürecinin spor sektörüne etkileri, [cited 2021 Apr 12]. Avaliable from: https://www.istanbul.edu.tr/tr/haber/pandemi-sureci-sporendustrisini-nasil-etkiledi
- 13. Timpka, T. (2020). Sports health during the SARS-Cov-2 pandemic. Sports Medicine, 2020; 50(8):1413-1416.
- 14. Chen, N., Zhou, M., Dong, X., Qu, J., Gong, F., Han, Y., et al. Epidemiological and clinical characteris-tics of 99 cases of 2019 novel coronavirus pneumo-nia in Wuhan, China: a descriptive study. The Lancet, 2020; 395(10223): 507-513.
- Jukic, I., Calleja-González, J., Cos, F., Cuzzolin, F., Olmo, J., Terrados, N., et al. Strategies and solutions for team sports athletes in isolation due to COVID-19. Sports, 2020; 8(4):56.
- Anderson, R. M., Heesterbeek, H., Klinkenberg, D., Hollingsworth, T. D. How will country-based mitigation measures influence the course of the COVID-19 epidemic? The Lancet, 2020; 395(10228): 931-934.
- 17. Mann, R.H., Clift, B.C., Boykoff, J., Bekker, S. Athletes as community; athletes incommunity: Covid-19, sporting megaevents and athlete health protection. British J of Sports Medicine. 2020; 54(18);1071-172.
- 18. Koçak, U., & Kaya, Ö. D. COVID-19 pandemisi, spor, sporcu üçgeni: etkilenimler ve öneriler. İzmir Kâtip Çelebi

- Üniversitesi Sağlık Bilimleri Fakültesi Dergisi, 2020; 5 (2): 129-133.
- Şahin, M. COVID-19 salgını spor ekonomisini derinden etkiledi, Published on: 19 Mayıs 2020, https://iste.edu.tr/haber-merkezi/2020/05/17/1041 adresinden alınmıştır. (Erişim tarihi; 20.03-2021).
- 20. Demirci, N. Fight Coronavirus Disease (COVID-19): More active people for a healthier world: physical activity recommendations Int J of Disabilities Sports & Health Science, 2020: 3(1); 1-4.
- Rhodes, R. E., Janssen, I, Bredin S.S.D., Warburton, E.R.D. Bauman, A. Physical activity: Health impact, prevalence, correlates and interventions. Psychology & Health, 2017: 32(8): 942-975.
- Pedersen, B. K., Saltin, B. Exercise as medicine– evidence for prescribing exercise astherapy in 26 different chronic diseases. Scandinavian J of Medicine & Science in Sports, 2015; 25(3): 1–72.
- 23. Powell, K. E., Paluch, A. E., Blair, S. N. Physicalactivity for health: What kind? How much? How intense? On top of what? Annual Review of Public Health, 2011; 32(1): 349–365.
- 24. Chekroud, S. R., Gueorguieva, R., Zheutlin, A. B., Paulus, M., Krumholz, H. M., Krystal, J. H., Chekroud, A. M. Association between physical exercise and mental health in 1·2 million individuals in the USA between 2011 and 2015: A cross-sectional study. The Lancet Psychiatry, 2018; 5(9): 739–746.
- Mathieu, R. A., Powell-Wiley, T. M., Ayers, C. R., McGuire, D. K., Khera, A., Das, S. R., Lakoski, S. G. Physical activity participation, health perceptions, and cardiovascular disease mortality in a multiethnic population: The Dallas heart study. American Heart J, 2012; 163(6): 1037–1040.
- 26. Demiray, H. [İnternet]. Korona virüsün spor sektörüne getirdiği maliyetler [cited 2020 Oct 22]. Avaliable from: https://www.aa.com.tr/tr/spor/spor-futuristi-demiray-koronavirus-spor-sektorune-ciddi-maliyet-getirecek/1841114
- Bradford, J. [İnternet]. COVID- 19 impact on sport [cited 2020 Oct 22]. Avaliable from: https://www.mediacom.com/uk/article/index?id=covid-19impact-on-sport
- Evans, A.B., Blackwell, J., Dolan, P., Fahlén, J., Hoekman, R., Lenneis, V., McNarry, G., Smith, M., Wilcock, L. Sport in the face of the COVID-19 pandemic: Towards an agenda for research in the sociology of sport. European J for Sportand Society, 2020; 17(2): 85-95.
- Huang, Y., Zhao, N. Generalized anxiety disorder, depressive symptoms and sleep quality during COVID-19 epidemic in China: A web-based cross-sectional survey. medRxiv. 2020; 288:11954.
- Taub, A. [İnternet]. A new Covid-19 crisis: Domestic abuse rises World wide. New York Times, 6. sayı –no sayfa [cited 2021 Apr. 02]. Avaliable from: https://www.nytimes.com/2020/04/06/world/coronavirusdomestic-violence.html
- 31. Oosterhoff, B., palmer, C., Wilson, J., & Shook, N. Adolescents' Motivations to Engage in Social Distancing during the COVID-19 Pandemic: Associations with Mental and Social Health. 2020; 67(2):179-185.
- Papaioannou, A.G., Schinke, R.J., Chang, Y.K., Kim, YH.H., Duda, J.L. Physical activity, health and well-being in an imposed social distanced world, Int J of Sport and Exercise Psychology, 2020; 18(4): 414-419.