Opportunities, Issues and Best Practices in Online
Education and Examination of University Students

ANALYSIS OF THE FORMS OF ONLINE TRAININGS DURING A PANDEMIC

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Abstract. The COVID-19 pandemic is unprecedented in its scale in the lifetime of most of us. The sport industry suffered a severe blow to the restrictions imposed to us by the government. However, the internet and online education make it possible to practice sport with a coach in the environment of our own house. The present study explores the online sport activities that the National Sports Academy "Vassil Levski" undertook, its reach and impact, in order to maintain citizens active through sport as well as to lead the path for the other sport organization in Bulgaria and try to minimize the negative effect of the social isolation. We reviewed some of the literature connected to conditions connected to social isolation and prescribed measures on how to avoid these. Theoretical analysis and synthesis were used for classification of the forms used in the online education for the different types of sport. Facebook's statistics were used in order to calculate the reach and impact of the forms of online training in sports used by us. We developed an algorithm for creating an online sport activity and an attempt was made to systemize those activities. The number of people reached with our videos was more than 226,000.

Keywords: sport; COVID-19; National Sports Academy

Introduction

The restrictions imposed upon us due to the SARS-CoV-2 or COVID-19 clearly had huge psychological effect upon humanity. For more than 2 months we were semi-volunteered prisoners in our own houses. The negative emotions and conditions related psychologically with COVID-19 included high levels of fear, stress, insecurity and disbelief, greater health anxiety, financial worry, and loneliness (Mathew, 2020). World Health Organization (WHO) emphasized the importance of exercise in its recommendations "Coping with stress during the 2019-nCoV outbreak" (WHO, 2019). These recommendations are part of information material and initiatives published by the WHO on various aspects of mental health during the COVID-19 pandemic. WHO has estimated that 1 in 4 adults is not active enough and more than 80% of the world's adolescent population is insufficiently physically active (WHO, 2020). We believe that this number has grown higher during the

COVID-19 pandemic. One of the best ways to deal with those negative conditions had remained the practice of sports. However, due to the nature of our confinement sports were difficult to practice during the quarantine. Unfortunately we still have no idea how long will this pandemic continue and will it repeat itself. That is why we have summarized the main sport related initiatives that the National Sports Academy "Vassil Levski" undertook in order to keep people active through sports during the pandemic. Roblyer & Edwards (2000) defined distance learning as "the acquisition of knowledge and skills through mediated information and instruction, encompassing all technologies and other forms of learning at a distance". Newby, Stepich, Lehman and Russell (2000) gave even less specific definition of distance learning as "an organized instructional program in which teacher and learners are physically separated". King et. al. (2000) go even further by acknowledging that student-teacher relation is more of a subcategory of learning which they call instruction. Based on this they define distance learning as "improved capabilities in knowledge and/or behaviors as a result of mediated experiences that are constrained by time and/or distance such that the learner does not share the same situation with what is being learned" (King et. al. 2001).

In terms of online distance learning there are several divisions based on different criteria. According to the e-student.org (2019) there are 10 types of e-learning:
1) Computer Managed Learning (CML)
2) Computer Assisted Instruction (CAI)
3) Synchronous Online Learning
4) Asynchronous Online Learning
5) Fixed E-Learning
6) Adaptive E-Learning
7) Linear E-Learning
8) Interactive Online Learning
9) Individual Online Learning
10) Collaborative Online Learning

However, none of them covers online physical training and acquiring skills in sport. This is mainly due to the fact that sport skills require the active participation of the coach in the learning process. However, apart from the technical training, training physical abilities can be less demanding or even lacking in terms of the coach's attention and direct feedback. Synchronous and Asynchronous online learning are the most convenient definitions of e-learning that we can use to help us define the methods and forms we used.

Aim and tasks of the research
The aim of this study was to give a summary of the organization of the different types of activities one can take in order to keep people active through sports and to examine its effect upon based on the reached audience.

The tasks that we performed were:

1. To systemize the activities, we performed in order to keep people active through sport based on several criteria.

2. To analyze the negative and positive sides of the performed activity and their organization.

3. To measure the audience reached.

Methods

The methods we used included literature review of the prescribed measure recommended by the World health Organization (WHO) in terms of dealing with stress via physical exercise and published papers on the subject of psychological conditions connected to social isolation. Theoretical analysis and synthesis were used for classification of the forms used in the online education for the different types of sport. Facebook's statistics were used in order to calculate the reach and impact of the forms of online training in sports used by us.

Results

We created an algorithm which shows us step by step the factors we have taken into consideration in designing the form, contents and distribution of the activities we used.
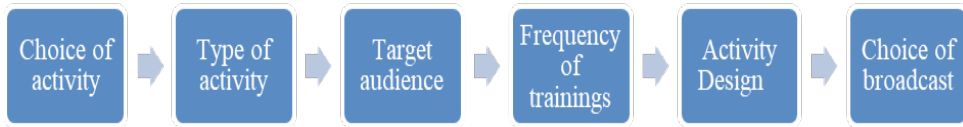
Figure 1. Algorithm for creating an online sport activity

1. Choice of activity includes the following considerations:

What type of sport will you choose?

The National Sports Academy "Vassil Levski" has 62 sports. This gave us a wide range of options. The most active sports that took part in this initiative were: taekwondo, rhythmic gymnastics, yoga, basic gymnastics

2. Type of activity:

The following were used:

– training session (personal or group) – where athletes will participate in a training session under the direct guidance (live or prerecorded) of a coach;

– self-training – where athletes will perform a training session according to a training plan, previously handed down to them by the coach;

– physical test – several times during the pandemic participants were asked to perform basic physical tests in order to measure their progress ;

– challenge – we used prerecorded sport specific movements or "tricks" and physical exercises and challenged athletes to try and reproduce and video record their execution and send it to us as a proof of their abilities;

– competition – we used a poomse (form) competition in taekwondo in order to add a new training and psychological stimulus to athletes in order to keep their motivation high. Both synchronous and asynchronous type of competition is possible.

3. Target audience

We distinguished two types of audience based on their experience – beginners and advanced. Beginners training sessions were design to start sport education from the beginning and advance onward step by step in order to engage more people, who have not practiced these types of sports.

4. The frequency of trainings

There were training sessions from Monday to Friday for the beginners. For the advanced the training sessions were from Monday to Saturday. The training frequency for the advanced students was bearable since they had experience in the type of sports and the training load was most of the time around 60 – 70% of the actual training load and intensity achieved during regular sessions. That was due to the space restrictions and the lack of a partner interacting (taekwondo) or inability to use maximum amplitude apparatus exercise (rhythmic gymnastics). For the beginners 5-day routine was scheduled in order to keep them active every working day due to confinement. However we consider this to be a mistake since beginners are not used to trainings 5 days a week and even though the beginner's trainings are designed accordingly to a beginner physical ability without any strenuous exercises, the beginners lacked the commitment and motivation to be kept engaged in an everyday activity.

4.1. Timeframe and duration

The trainings for beginners were with duration of 45 – 60 minutes and for the advanced – 60 – 90 minutes. Since this was an initiative of the sport clubs of the National Sport Academy, we were broadcasting the training sessions through the Facebook page of the Academy. This put restrictions on the time broadcasted, since at a certain time only one activity could be presented. The weekdays schedule was as follows:

Taekwondo from 3:00 – 4:00 pm;
Yoga/basic gymnastics/acrobatics from 4:00 – 5:00 pm;
Rhythmic gymnastics from 5:00 – 6:00 pm.

5. Activity Design

Due to the nature of the social isolation, there were several factors that were taken into consideration.

5.1. Safety of participants

No matter what the level and type of interaction with participants we had to avoid hazardous exercises with great risk of injury. Especially for the beginner's

class with no real time feedback to the coach we were very cautious in terms of the training load. We tried to control the maximum heart rate reached on every training session. Furthermore, the purpose of these trainings was not high level performance (which in domestic conditions is practically impossible) but to keep the participants active through sport and to help them overcome the negative conditions due to the social isolation.

5.2. The space available

The trainings were designed so the exercises can be performed at $4m^2$. Participants were asked to remove all sharp objects every time so they can practice in safe environment.

5.3. Main goal of the activity

The week training content was design about technical abilities and motor qualities that were possible to train (dynamic strength, strength endurance, flexibility, general endurance, etc.) No maximum strength and tactical exercises were prescribed for either group.

6. Type of broadcast

We used Facebook, Zoom, Messenger, Viber and Instagram depending on the different needs of the activity form and the number of direct participants. Main types of e-learning include synchronous and asynchronous learning. However, we have further divided them in order to facilitate coaches.

Figure 2. E-training forms

6.1. Synchronous e-training

This type of learning requires the instructor and all enrolled students to interact online simultaneously. Participants interact through video and audio chat and text. Synchronous learning environments enable students to participate in a course from a distance in real time.
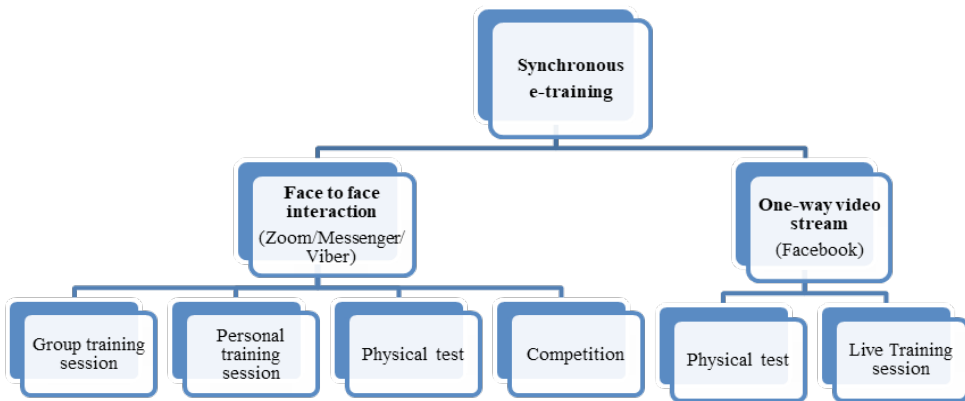
Figure 3. Synchronous forms of training

6.1.1. Face to face training interaction

This is the typical synchronous e-learning method. Despite the difficulties connected with sports training where correcting proper execution without physical contact is problematic, it is the best e-learning way to use the expertise of the coach to a full extent.

6.1.1.1 Group training sessions

This included training sessions that had direct visual and audio contact between coach and the participants. The main limitations were the space available and the lack of a partner.

6.1.1.2. Personal training sessions

These included one on one training sessions where the coach is engaged with only one participant through video and audio chat.

6.1.1.3. Physical test

We used physical test as an evaluation tool as well as a break from the typical training session method. The participants were given various standard physical tests (push-ups, sit-ups, splits etc.) during a live training session. The benefits of it versus the prerecorded one were that the coach can demand the proper execution of the exercises.

6.1.1.4. Competition

Depending on the nature of the sport there were opportunities to maintain a competition activity related to the specific sport. We managed to virtually host a taekwondo competition in "forms". We performed a synchronous one, where participants were evaluated after performing their forms (predetermined routine of taekwondo techniques) in real time.

6. 1.2. One-way video stream

This is considered a synchronous way of learning. However due to the visual restrictions we feel that it is important to differentiate this one from the

typical face to face online training. This type of trainings was used in order to perform training sessions with beginners. Since we used Facebook for this type of e – training, there was a possibility for feedback between the coach and the participants through the means of a chat, where the participants could write down the number of their repetitions for a specific exercise (e.g. push-ups, sit-ups etc.) or they could measure and inform the coach about their heart rate while he would give them a 6 second count. It gave them personal attention and eventual praise from the coach. It also gave feedback to the coach about the intensity of the exercises.

Another very important feature of the live one-way video stream was that it motivated participants to have a regular training schedule due to the involvement of the coach. It gave them sense of responsibility rather to have a large time frame to perform the training session and to postpone or miss the training eventually. The high number of viewers reached was also determined by the followers of the Facebook page or channel that it was broadcasted through. For example, the taekwondo training sessions were broadcasted simultaneously through the NSA Facebook page, the Bulgarian Taekwondo Federation page and sports club "Taekwondo Fitness NSA".

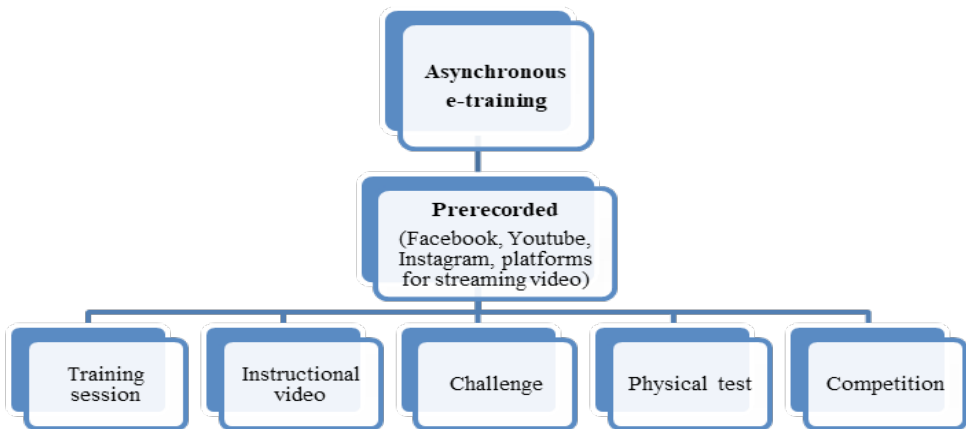### 6.2. Asynchronous e-training

Figure 4. Asynchronous forms of training

6.2.1. Prerecorded training sessions

We used this method on several occasions when the coach was not able to attend the training session at the scheduled time due to some reasons. Mind that, all the training sessions that were done live were posted on the NSA's Facebook page right after the session and were available so if for some reason people would miss the

training, they will have a chance to do it at a convenient time. We believe that this is the best practice since it combines both live involvement and the opportunity to do the training at a convenient time.

6.2.1. Instructional video

This included a recorded video of a technical element and the use of algorithm for learning the entire movement (Figure. 5).

The entire duration of these videos was between 2 – 3 minutes. Those types of short instructional videos were appealing due to their short duration and had positive effect upon people. They were also a break from the 1-hour training routine since one could perform them in 2 – 3 minutes and had a feeling of accomplishing something new.

Figure 5. Algorithm for basic education of a technical element

6.2.3. Challenge

Challenges are a social and cultural phenomenon specific to the internet. They tend to grow rapidly and become more widespread because the instant communication facilitates word of mouth. Challenges generally feature Internet users recording themselves taking a challenge and then distributing the resulting video through social media sites, often inspiring or daring other users to repeat the challenge. We used this on several occasions in order to keep the motivation of participant, to raise the awareness of the initiative and to diversify the training session routines. We compiled videos of all recorded challenges that we received, and we posted them online. Such practice gives a sense of worth and praise and makes the participants feel part of a team which is especially important during a social isolation.

6.2.4. Physical test

Given a specific physical test participant had to record their performance later via camera and send it to us as a proof. Of course, the level of execution of some of them presented a problem but we consider this to be of a lesser degree of importance during a pandemic.

6.2.5. Competition

We didn't use this type of competition but The Europe Taekwondo Union (Europe Taekwondo) hosted an asynchronous form of competition where participants had to send a prerecorded execution of the form and were later evaluated. This has become a regular practice since and there have been numerous taekwondo forms competition hosted all over the world.

7. Impact and audience reached

We used Facebook statistics to demonstrate the impact and audience reached (Figure 5).

Figure 6. Impact upon the audience

Chart 1 demonstrates the statistical data of the NSA's Facebook page. The data provided is for the period 1st of March 2020 to 24th of June. The videos of training sessions were broadcasted through the NSA's Facebook page from 15th of March to 24th of May (end of the isolation in Bulgaria). These are the statistics for 59 training sessions in taekwondo, 57 training sessions in rhythmic gymnastics, 6 sessions in basic gymnastics. There is a drastic rise between the minutes viewed before and during the pandemic.
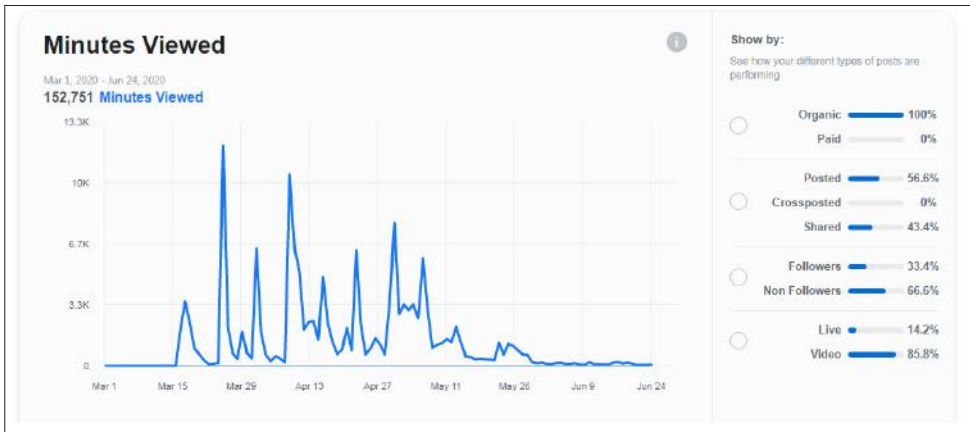
Figure 6. Minutes viewed

Minutes viewed are the total number of minutes the videos were played. These include any time spent replaying the videos. Videos have been watched 158,751 minutes. However, those minutes do not represent the actual time people spent training with the instructions from the videos. They are however indicative of the raised awareness that whose videos brought to the audience about physical activity.
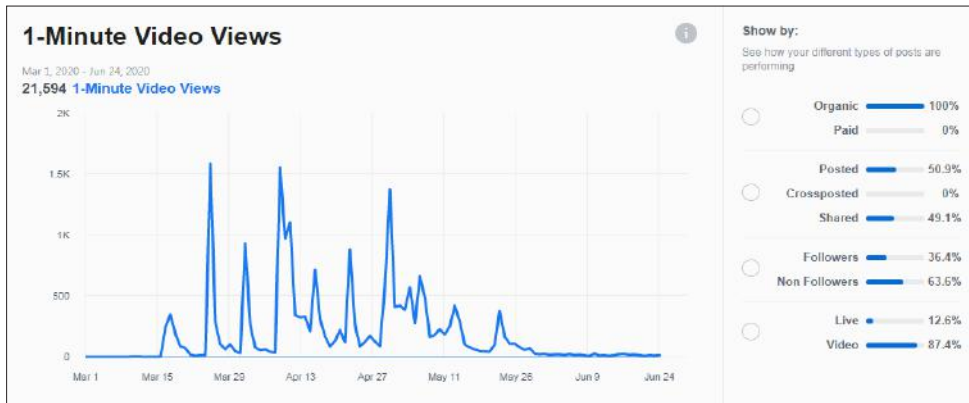
Figure 7. 1-minute video views

1-minute video viewed showed the number of times a video was played for at least 1 minute, excluding time spent replaying the video. The total number was 21,594. The number is also indicative of the raised awareness of the initiative having in mind that there was no paid advertising of any of the videos.
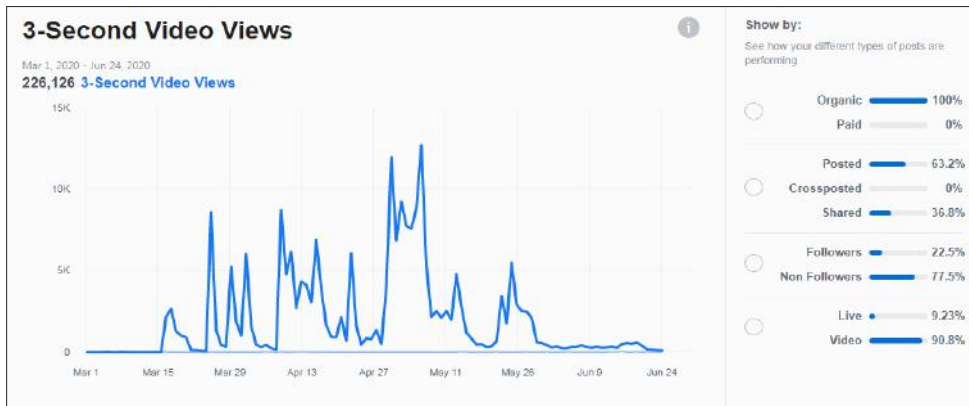

Figure 8. 3-second Video views

This is the number of times the videos were play for 3 seconds – 226,100. This number basically includes the scrolling down of one's Facebook page and coming across one of the videos for several reasons. This is the actual number people have come across the videos of the initiative. However, those may include same people coming across the same video more than ones. Still, we consider this a good number.
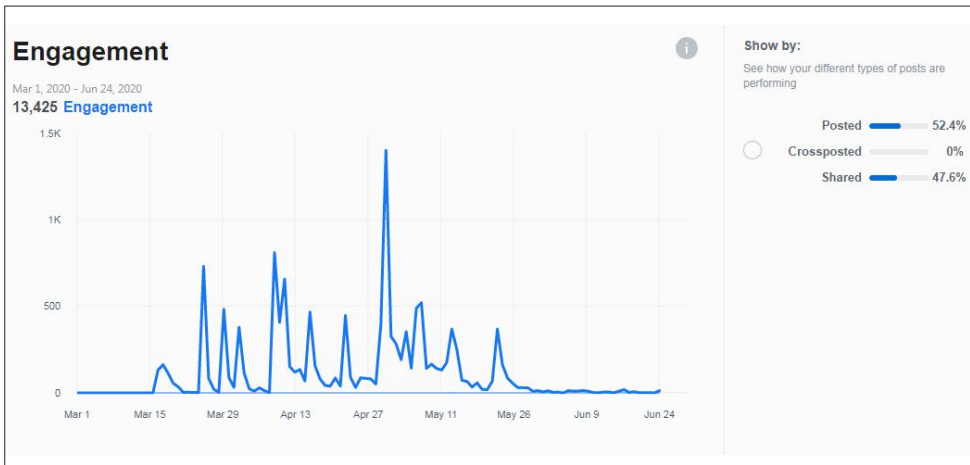
Figure 9. Engagement

This is the number of people who have reacted, commented or shared one of the videos – 13,400.
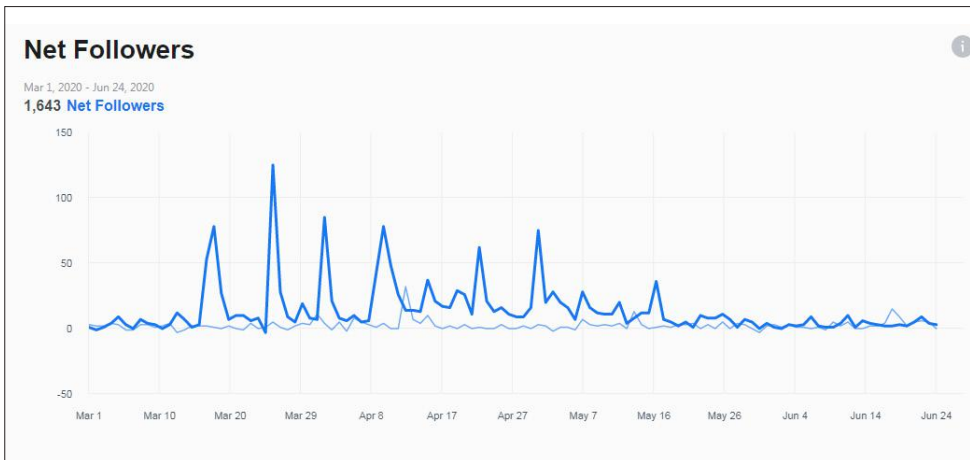
Figure 10. Net Followers

"Net followers" represents the number of new followers minus the number of unfollowings during this period – 1,643. As of 18th of June 2020 the Facebook page of the NSA has 11 991 followers. These are the people that are actually regularly engaged and interested in the information the Facebook page provides.

Discussion

The initiative's live viewers ranged from a minimum of 8 to 140 people. Higher numbers were reached in the beginning of the initiative where we think that a lot of people were curious as to what exactly is this. As the trainings settled in the regular number of live viewers ranged from 8 to 40. Another reason for this decline is that many sport clubs decided to start their own on-line club training sessions. This was also one of the goals and function of the National Sports Academy – to be the leading pioneer in the field of sport and sport innovations. Of course, the online training sessions were a financial tool for the survival of many of the sports club in Bulgaria. We started the online training sessions on March the 16th. We had feedback from participants from Iceland, Australia and of course Bulgaria. One of the setbacks in terms of worldwide coverage was that the training sessions were performed in Bulgarian. However worldwide coverage was not our goal. The purpose of the videos had a social aspect as well – to provide a way for the people to cope with the negative effects of the isolation and to ensure the maintaining of a good physical condition of the nation through the practice of sports during the fight with COVID-19.

In the course of the research we reached the conclusion that although e-learning is widely practiced and can be a real substitute to the real learning, online distance training is not a substitute for the real training sessions. It can be used as an additional method of training during normal social conditions. Under social isolation though it is a key instrument in maintaining good physical condition especially in people who do not have great experience with sports and need someone to organize and plan the training process.

Based on the experience with our beginners we concluded that following an everyday online training routine is difficult for beginners to maintain. We recommend training sessions at a frequency of 3 – 4 times a week and implementing a 15-minute routine every other day including stretching and basic physical exercises or interesting physical challenge.

Use of social platforms and mass media is vital in maintaining people's interest in sport during the pandemic. People tend to lose their motivation quickly. Different types of activity are needed in order to maintain interest in beginners in online trainings. The limitations of such activities due to home restrictions make the choice of exercises and methods of trainings very limited.

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