

On-court training in times of COVID-19: challenges and strategies

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SUMMARY

Children and youngsters all over the world have had their physical and sport practice severely disrupted, as clubs, academies, sporting associations and federations struggle to cope with repeated closures and re-openings, and transitions. In most of the countries, youth and a low level of performance-players have been the worst hit because of the emergency measures.

The uncertainty about the evolution of the pandemic and the time needed to achieve community immunity through large-scale vaccinations led us to realize that, in 2021, the handball community will still need to continue the battle COVID-19. Additionally, there is not yet an available vaccine for kids and teens.

As 'social distancing' is considered a key factor to slow down the spread of the Sars-Cov-2 virus and handball is a contact sport, it seems prudent to implement temporary practice and competition measures that might limit exposure risk and keep players motivated. Therefore, in this paper, we will approach how to modify, adapt, our handball practice to help circumvent this challenging and unprecedented time.

INTRODUCTION

Following the outbreak of the COVID-19 pandemic, a global response was undertaken to contain the spread of the Sars-Cov-2 virus. The emergence of the situation led most governments to introduce protective measures and enact policies to reduce social interaction, thus, a lockdown of all non-essential human activities was decreed. Thereby, sports facilities were closed and sporting competitions were postponed or cancelled. On-court training sessions were stopped and, during social confinement, at-home handball physical preparation or training was invented.

After a first lockdown, sporting activities and competitions were mainly resumed at a professional or elite level, with several special rules being placed to minimize the number of people gathered at the venue, such as without spectators and other nonessential persons. For big sporting events, the bubble model was developed.

As a general response, countries developed national hygiene and interpersonal behavior concepts, in order to outline that steps for protecting people were made. But, there is a substantial heterogeneity in physical distancing policies and their implementation between countries (Han et al., 2020). For instance, the level of enforcement of measures applied to sports and to handball may vary between countries and there may be specific rules and exceptions to the measures for training sessions or national/regional competitions. Also, as the situation is evolving rapidly, there is an on-going introduction of new measures and recommendations are taken by National and local governmental bodies.

Consequently, some countries imposed successive complete lockdowns, partial lockdowns or restrictions on population movement while concerns about social and economic costs are

rising. But we must not underestimate the potential impact of lengthening periods of social isolation and suppression of sports practice on the general health, emotional and cognitive levels, as well as on the motor development of children and teenagers. In many countries, there hasn't been any youth official or friendly handball match for about 9 months, and there is no realistic prevision about its restoration. Additionally, practice restrictions and organizational rules for physical educational lessons and team training sessions were introduced to ensure physical distance between students or athletes. So, questions about how artificial handball practice (to guarantee a secure distance between players) and the lack of competition will affect young players' motivation to keep practicing handball are also rising.

On the other hand, parents and young players appear to be scared about handball practice, as it implies systematic physical contact and proximity. There are no studies yet, but these fears might lead to many children and teenagers quitting handball permanently. In Portugal, the preliminary official numbers about the current sports season shows a dramatic loss of 23% male and 35% female affiliated players.

The purpose of this paper is to explore and discuss practical measures that can be taken to help reduce the risk of COVID-19 exposure and spread during handball trainings while still maintaining the highly motivational climate and handball practice authenticity. Similarly, it seems prudent to take actions to restore youth competitions through modified game forms to safely increase the inter-player distance, to minimize the on-game time in close contact and to avoid or limit physical contact. Please note that in no way should the specific plans and protocols provided by the local/national authorities be broken.

The urgency of finding the appropriate training strategies and safety measures during game-time are crucial to mitigate the potential effect of Covid-19 in our sport. If nothing is done, we will face a partial loss of this generation of young players.

2. CONSIDERATIONS AND STRATEGIES TO MITIGATE THE PROBLEM

2.1 Equipment preparation and usage, following general public health guidelines

- All the equipment should be cleaned, disinfected before and after the training sessions.
- Players should be encouraged to bring their own equipment (ball, training vest, towel for floor workout, etc.) to practice sessions and not to share it. When having group activities, each group should have its own set of balls that should be disinfected before being used by another group.
- Players should bring their own pre-filled reusable water bottles and not share them.
- All players, coaches and all other staff should use hand sanitizers or wash their hands before training sessions and, regularly, throughout the activity, whenever their hands are dirty or after a task when they shared some kind of equipment (balls, cones, etc.).

There are no known studies about the effect of resin on the SARS-CoV-2, but its use will dissuade players from touching their faces during practice.

2.2 Wearing a face mask in handball practice

The scientific community recommends the use of surgical or cloth masks to prevent transmission of COVID-19, as evidence supports that the virus is predominantly spread from person-to-person via respiratory droplets and/or contact routes. Therefore, wearing a mask during sporting activities might be important, especially when it is not possible to ensure a safe distance between athletes. The effect of using a mask during vigorous exercise and in sports with physical contact is a concern. However, scientific evidence shows that the usage of a facemask during moderate and vigorous exercise is safe and has no significant negative effect on muscle or blood oxygenation in young healthy subjects (for more see: Epstein et al, 2020, Fikenzer et al., 2020, Gillespie, 2020, Shaw et al., 2020).

Most likely, wearing a mask in high intensity handball exercises will increase the players' breathing (they will most likely complain of not being able to breathe properly), might be uncomfortable and might impair performance, but it is a sensible solution to prevent the spread of the virus and to organize more "normal" handball practice.

The current critics about the uselessness of wearing a mask in official competitions, particularly at an elite level, were expected. There is no specific face mask adapted to handball that will not slip off the player's face during an one-on-one fight. Also, the usage of resin is problematic for the need of recurrent mask positioning or change during a match.

2.3 Redesigning training sessions

Organizational issues and others behaviours

- Avoid having a large number of players on a team or sharing the space with more than one team, such as two teams training in half-court each.
- When starting the session, ensure that players are spread out on the field or seated (*e.g.*, on the floor, bench, stairs) with a physical distance of at least 1 meter (WHO, 2020), and remind them of the 'new' training rules (social distancing, respiratory etiquette and hygiene).
- Split the team into smaller groups (a maximum of six players per set is advised) and ensure that they remain in the same cohort as long as possible during the same session or set of sessions to limit the risk of transmission, if feasible.
- Organize the training tasks and play spaces to maintain physical separation between groups.
- When organizing tasks with all the players (*e.g.*, team or group drills or game play exercises) where they have to share any type of material (such as balls) and/or safe distancing is not possible, it is advisable to wear face coverings.
- When performing motor agility or coordination drills, positional shooting, specific goalkeeper's warm up with the team, etc., actively encourage players to avoid staying clustered together while waiting for their turn and keeping distance while performing the tasks.
- Educate players to avoid high fives or hugs and allow "team yell" only if done with physical distance.

Fostering distance between players and discouraging physical contact

Handball training sessions or physical education lessons can be conducted in different ways, not only with the chosen methodology but also the contents being prioritised, which rely on the coach/teacher's assumptions, background and experience.

Throughout the years, the debate regarding the best practice for coaching or educating handball has been intensified. The game-based approaches emerged as an imperative tool for game play understanding, creativity and skilful play.

As handball is an invasion and contact game, some schools temporarily suppressed handball from the curriculum and coaches adopted practice without physical contact and social distancing, meaning that only analytical and individual tasks are being used. Of course, the development and refinement of technical skills and conditional physical abilities should be prioritized in the current situation, but some evidence is emerging that children and youths are missing more and more training sessions. In this regard, the lack of competitions and this artificial, monotonous, handball practice seem to be the main reasons. To keep players' motivation and interest in handball training during this unprecedented time is a challenge for all of us. Therefore, it is critical to be creative by introducing more authenticity, challenge, diversity and competition in sessions while reducing the risk of player exposure to SARS-CoV-2.

Strategies to make the activities more game-like while controlling the COVID-19 risk

- **Preferably use game play situations with offensive numerical advantage**, which will reduce one-on-one actions and rule out shooting with opposition (the ball handler is not allowed to progress/shoot if opposed). This will discourage individual tackling and minimize time in close contact.

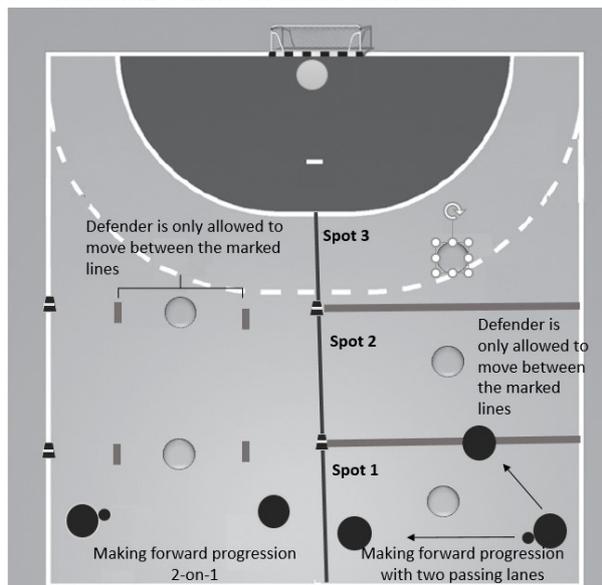


Fig. 1 Examples of tasks where defensive constraints are used to decrease players' proximity and physical contact.

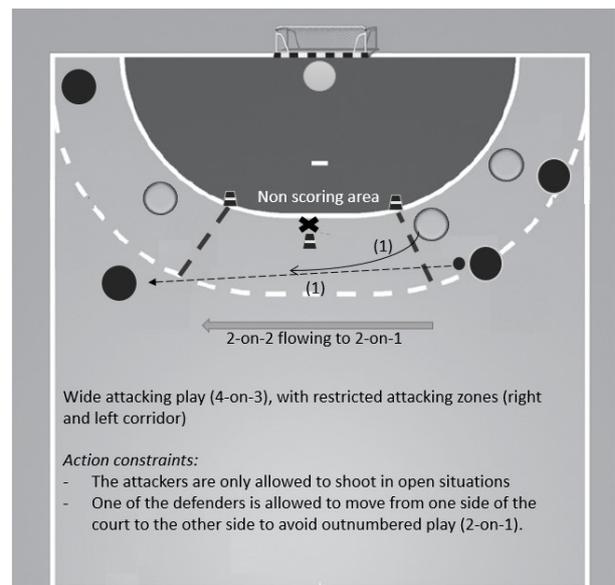


Fig. 2 Example of a task with positional offensive advantage, that fosters less time with ball, fast decision-making and less duels with close contact.

In the example provided at the right side of figure 1, there are three spots (bounded playing

areas) where they play 2-on-1, with a third attacker placed at the beginning of the next spot. This player is prepared to receive the ball and enters action to play 2-on-1, and then another attacker should move to the next spot, to enter action.

From an offensive perspective, the usage of numerical advantage can help in developing a more consistent and fast way of playing, with fewer interruptions, with a major focus on quick game reading and decision-making, on developing connecting passes while exploiting time-space advantage. Counting defenders and generating space (through timely threatening the goal, passing, and moving without the ball) are key abilities that can be developed and refined through these tasks.

From a defensive perspective, these challenging times can be used to develop defensive skills as well. Such as the ability to defend with defensive disadvantage - one defender against two attackers (1-on-2) with the attackers in the same or different lanes, in open space and in more positional zones. Also, more complex and demanding game-like tasks can be used, such as 2-on-3 or 3-on-4, and so on. Here, we should underline that the game seven against six brought up the need to develop defenders with a more creative and anticipative behaviour, from an individual and cooperative perspective, with the defensive focus placed on provoking offensive uncertainty, decision-making mistakes and regaining ball possession, as fast as possible.

- When making forward progression, the **dribble should be discouraged** (e.g., use 'one bounce' rule or ban it), as it will draw defenders towards ball possessor, and, therefore, he/she will be more prone to physical contact.
- **Dissuade tackling or holding:** here, a defender's action might be constrained through different strategies, such as carrying an extra ball (non-playable) with both hands (at chest level) while defending. This strategy will decrease attacker-defender proximity and avoid tackling or holding actions.
- In possession games, besides using the previous proposed strategies, we might **delimit the defenders and attackers' playing spaces/zones** to avoid physical contact or use several spread out gate-goals to promote wide attacking (and players' distancing).

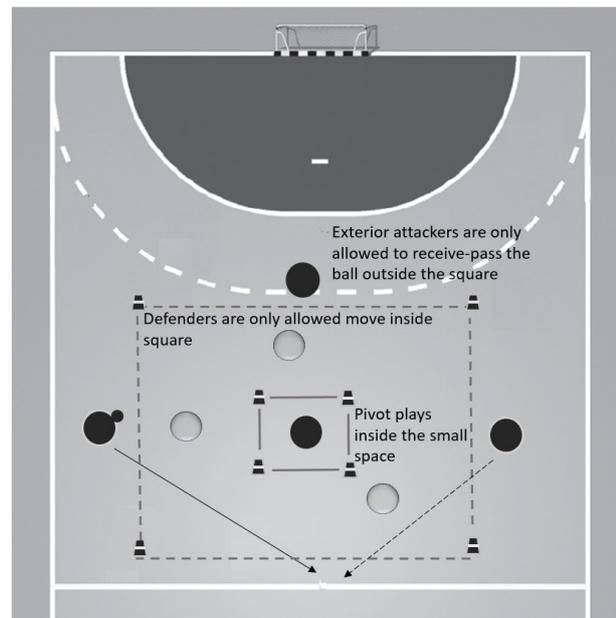


Fig. 3 Inter-passing game (4-on-3) with a pivot in the middle.

- When doing one-on-one tasks, **use defensive action constraints to minimize face-to-face contact, tackling and tracking actions**. There is a huge number of challenging and fun “one-on-one mirroring tasks”, where, through manipulation of space and time, a situation of disadvantage is created for the defender that can be used to work reaction time, defensive stance, fast closeout, slide, defensive footwork, backpedal, etc.. For example, the defender’s “course” of movements is increased or has to perform an extra task before the duel. These tasks can also be designed to develop individual attacking skills; due to the authenticity that defenders bring to the task, their behaviour can be manipulated to compel different attacking trajectories, fakes and shots.

Practical examples and recommendations in the wake of COVID-19:

Handball at School <https://youtu.be/mIYTye9SkIk>

Training with beginners (age 6 to 12) <https://youtu.be/pRSH-MjzkuA>

Training with young players (age 12 to 14) <https://youtu.be/IFzZpMU-ymM>

2.4 “COVID-Friendly game play match” to restart competition – a proposal

While the current situation around Covid-19 is still evolving, it is also raising awareness about the lack of youth competitions for a long period. Therefore, in coaches’ voices, the restart of competition is of utmost importance, leading some to take the young talented players to play in the upper adult teams, where the competition is allowed. With this problem in mind, maybe, we need to reinvent on-court handball to ensure an infection-free game play environment as much as possible.

These tips are meant to be used specially within team competitions, between teams from the same club/school or local geographic area. The modified game rules or action constraints presented here can be used in isolation or combined when appropriate.

- Increase players’ distance by reducing the number of players on the court (5-on-5 or 6-on-6).
- Use offensive numerical advantage (6v5/5v4/4v3) by substituting the goalkeeper for a field player; to facilitate the exchange, allow goalkeepers to leave and enter court at any place at the side line, for example.
- Use defensive restrictions according to development aims, such as not being allowed to defend out of the 9-meter line, forbidding physical contact, etc.
- While attacking, the player with ball cannot shoot/progress when being opposed (with the defender positioned between the goal and the ball lane).
- Consider using a mask while playing and using resin-free balls. To avoid extreme fatigue, it is advisable to regularly exchange players during the match.

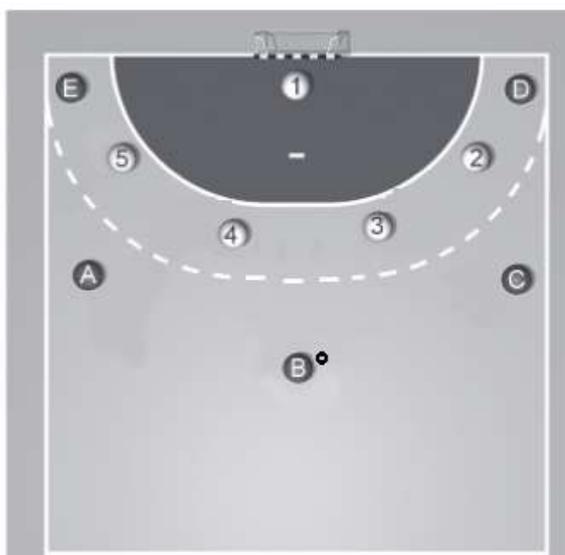


Fig. 4 COVID-Friendly game play 5 against 4, without pivot (an example).

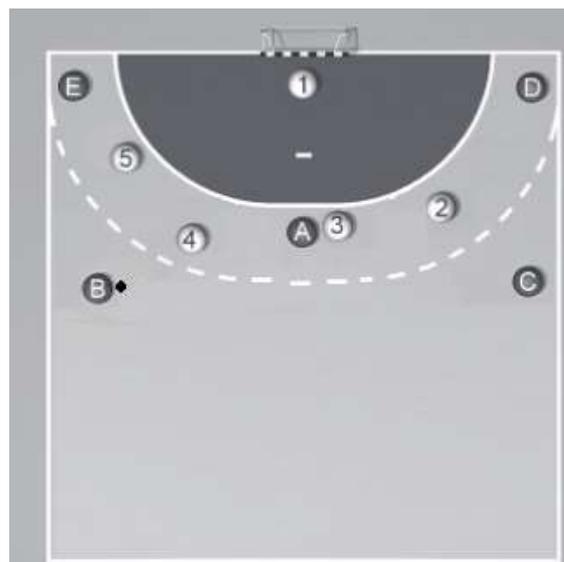


Fig. 5 COVID-Friendly game play 5 against 4, with pivot (an example).

For practical examples of modified game forms for young players watch here

<https://youtu.be/gONDyhEF9zs>

3. FINAL CONSIDERATIONS

We need to be realistic about the impact of the Covid-19 pandemic on our sport, as it might lead to a dramatic loss of a potential generation of young players. Here, we are not only talking about children, but also teenagers that, if they stop handball practice, will have huge difficulties in restarting another competitive sport. Meanwhile, the confinement measures and imposed practice restrictions will most likely contribute to the rise of sedentary behaviour among the young generation, which include watching something or playing on tables, computers and phones.

Several countries had a prolonged complete lockdown or partial lockdowns and are in the likelihood of experiencing more restrictions to avoid new waves and spread of the new SARS-CoV-2 variants. While vaccination is now our best hopes to stop the pandemic, and new scientific evidences becomes available, in 2021, our handball community will still need to join forces in finding practical solutions for the “new normal”.

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