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Original scientific paper

CONSIDERATIONS OF COVID-19 RISK EXPOSURE WHILE WEARING A GLOVE ON THE NON-PLAYING HAND AMONG RACQUET SPORTS PLAYERS

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Abstract

The utility of wearing a glove on the non-playing hand in racquet sports for reduced risk of viral exposure, may be considered within the context of re-opening competition during a global pandemic. We hypothesize that the visual image of the glove transmits a strong message of the importance of maintaining vigilance to the other players in the group, while the visceral sensation of wearing the glove serves to reduce the duration and frequency of face touches for the glove wearer. In a pilot study video analysis of badminton players, the group that contained a single glove-wearing player exhibited significantly reduced duration of face touches ($p = 0.046$) while the glove-wearing player exhibited reduced frequency and duration of face touches that may contribute to the spread of the coronavirus. This pilot study may help inform players and coaches as they plan for competition within the context of a global pandemic.

Keywords: Racquet sports, Covid-19 risk, badminton, sports glove, face touches

1. Introduction

As schools, universities and professional sports leagues tackle the challenge of instituting safety measures that could enable re-opening competition during the global Covid-19 pandemic, there is debate within the racquet sports regarding the utility of wearing a glove on the non-playing hand.

The World Health Organization states that wearing rubber gloves in public is not an effective way to prevent the spread of the Covid-19 virus. They correctly argue that transmission may occur from an infected glove by then touching the face (Halder, 2020). Going a step further, Dr. Deborah German, Dean of the University of Central Florida, School of Medicine, suggests that wearing a glove may provide a false sense of security (German, D., 2020) by conveying a feeling of safety while actually spreading the virus via the surface of the glove. The Center for Disease Control, however, states that increased duration of exposure relates to increased risk of

infection (CDC, 2020). From this perspective, when gloves are utilized properly, direct exposure time may be decreased.

A Healthline article reports that unconscious face touches may occur between 16-23 times per hour, citing studies from 2008 and 2015 and that wearing gloves "can be an effective physical reminder" to help break the habit according to psychologist Zachary Sikora. Dr. McLaws is quoted (Citroner, March, 2020), as saying "the general community needs to be aware of how often they are touching their face." In a New York Times piece, Parker-Pope (March, 2020) suggests that "gloves or mittens can also make you more mindful of not touching your face."

The National Sport Organization for the sport of racquetball in Canada, Racquetball Canada, takes a hedged approach (Racquetball Canada, 2021) by referencing gloves under the header of "Protective physical and psychological factors." Their suggestion is for players to consider wearing double gloves; however they do not provide a rationale that articulates whether the mechanism for protection is physical or psychological.

2. Mathod

We hypothesized that the visceral sensation of wearing a glove may decrease face touches among badminton players during a game. A quasi-random sample of badminton players was video-taped during Smashville Mainline doubles play in Pennsylvania during the global pandemic in July 2020. Players signed an informed consent and our Ethics Review Board determined that as an observational, retrospective study, our analysis of the visual data posed no risk to human subjects. In this pilot study, players that happened to walk on the court while the camera was running were analyzed. Two groups were compared, one without gloves on their non-playing hand, and one group with a player wearing a glove on the non-playing hand.

3. Results

Over an identical time period of 3.5 minutes the non-gloved group exhibited 20 face touches while the group with one gloved player exhibited 19 face touches. This slight difference may be argued to be negligible, however the duration of face touches averaged 1.4 seconds for the non-glove group, but only .84 seconds for the group with the gloved player. The duration of face touches was significantly lower for the glove group ($p = 0.046$).

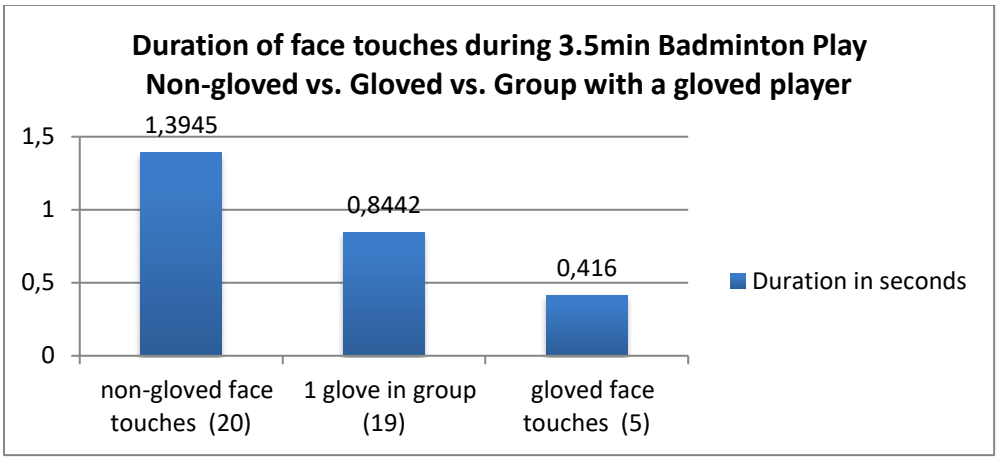

Figure 1. Both frequency and duration of face touches were reduced for gloved vs. non-gloved players

Non-gloved players touched their face 20 times with their non-playing hand as compared with 5 times for the gloved player. Average duration of face touches for the gloved players was .41 seconds which was significantly lower than the corresponding non-glove face touches lasting an average of 1.39 seconds (p = .045)

Additionally, while the instances of the actual glove touching the face only occurred 5 times, the duration averaged .41 seconds, which was significantly lower than corresponding non-glove face touches for all non-gloved players lasting an average of 1.31 seconds (p = 0.041). Within the same player, duration of face touches with the glove average .41 seconds, however when touching the face with the non-gloved hand the duration was more than double at .93 seconds which was significantly higher (p = .036).

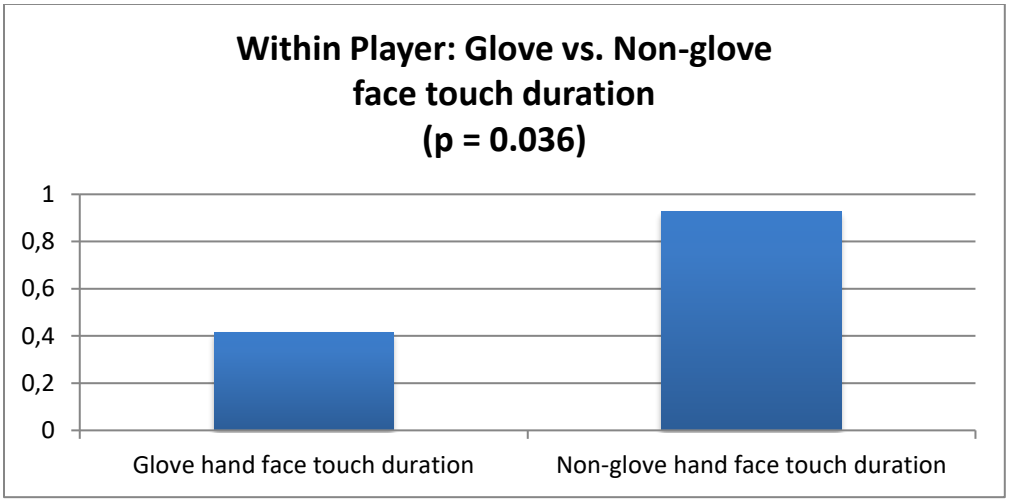

Figure 2. Glove hand face touch duration was less than half of bare hand facial touches (p= 0.036) within a single player

4. Discussion

We hypothesize that the visual image of the glove transmits a strong message of the importance of maintaining vigilance to the other players in the group, while the visceral sensation of wearing the glove serves to reduce the duration and frequency of face touches for the glove wearer. While the addition of wearing a glove on the non-playing hand served to add face touches with the non-gloved playing hand, the duration of the face touches by the same player was less than half with the gloved hand as compared with the non-gloved hand. Practical applications would need to consider a process to sanitize the glove at least as frequently as recommended hand sanitizing practice.

5. Conclusion

In summary, this preliminary data corroborates the findings of Drs. McLaws and Sikora with regard to the frequency of unconscious face touches (we found 20 face touches over 3.5 minutes) and the likelihood that wearing a glove may communicate a message to maintain vigilance. The group that contained a single glove-wearing player exhibited significantly reduced duration of face touches while the glove-wearing player exhibited reduced frequency and duration of face touches that may contribute to the spread of the coronavirus. For the gloved player, the duration of face touches was more than double with the non-gloved hand as compared with the gloved hand. This pilot study may help inform players and coaches as they plan for competition within the context of a global pandemic.

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