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Mini Review

Guidelines for Using Personal Protective Equipment while Exercising

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Abstract

Daily life has changed drastically for nearly the entire world following the outbreak of the Covid-19 pandemic. Personal protective equipment (PPE) such as facemasks, gloves, face shields, and goggles have become the norm in many communities for people engaging in societal activities outside the home.

Keywords: Personal Protective Equipment (PPE);Facemasks; Gloves

Introduction

The utilization of PPE has proven to be useful in preventing the spreading and transmission of viruses like Covid-19 [1]; however, wearing certain PPE while exercising may pose threats that endanger users for increased risk of injury and potentially death. It is critical for exercisers to choose PPE that are appropriate for the activity, equipment, intensity, and conditioning level of the individual.

Four types of PPE that may be appropriate during physical activity

- **Facemasks**: Facemasks reduce potentially infected saliva from spreading, but should be used with caution by individuals with preexisting respiratory conditions, and circumvented during aerobically demanding activities.
- **Gloves:** Latex and vinyl gloves provide a physical barrier from coming into contact with viruses and can be used safely during many types of activities, but should be avoided during potentially dangerous activities like lifting free-weights.
- **Face shields:**Face shields protect from flying drops of sweat and saliva, but may limit the range of motion when performing overhead exercises, as well as move or fall during high impact activities, and cause the shield to hinder vision, or potentially fall and injure the user.
- **Goggles:**Goggles are a good way to protect the eyes from physical injury and exposure to viruses during exercise, but can become foggy and burdensome during fast-paced activities that require running, agility, and throwing and catching.

Risks

Utilizing PPE while exercising can help prevent the spread of viruses like Covid-19 [2], but they can also put users at a higher risk of injury depending on the exercise type, level of conditioning, setting, and intensity of the exercise. Special populations are more likely to experience dizziness, headache, and fatigue from hypercapnia resulting from wearing a facemask for prolonged periods of time[3]. This can be especially precarious for people with preexisting conditions and among geriatric individuals, who are already more likely to struggle with balance and stability [4].

Selecting what kind of PPE are appropriate for a particular exercise session should not compromise or obstruct mobility, vision, breathing, or safe use of equipment. Suitable PPE may not be identical for everyone in the same situation, and will likely vary throughout the course of an effective exercise program with different session focuses and the use of diverse equipment.

Recommendations

The spread of viruses can be prevented by using appropriate PPE when social distancing is not possible. The selected PPE should be suitable for the situation, as well as not interfere with the user's ability to safely perform exercises or use equipment properly. Impeding respiration, reducing vision, and limiting physical movement should be avoided at all costs while exercising, as all can result in serious injury. Being under a barbell while wearing non-lifting gloves can result in the bar being dropped; running on the treadmill with unclear lenses can lead to a slip and fall; executing full-range of motion skull crushers can be problematic with a face shield; and reduced oxygen intake can result in calamitous penalties among untrained and at-risk individuals [5].

PPE can be used to reduce the spread of viruses like Covid-19[6], but should be used with caution during exercise. PPE should be apposite and safe to use for the required physical activity, the level of intensity at which it is being performed, the environment in which it is being used, and the level of conditioning of the participant. Different PPE can be appropriate in various settings and for numerous exercises. The use of PPE should safely complement workouts, and be as uniquely tailored as exercise sessions are for individuals.

Discussion

With safety being the number one priority, it is important to note that high intensity aerobic exercise which involves heavy oxygen exchange, increases the risk of spreading viruses like Covid-19 when compared with low intensity activities like yoga [7]. As well as stopping infected saliva and mucus from entering the atmosphere, at high intensities, a face shield can provide protection for facial orifices from flying pathogens, without inhibiting respiration, limiting vision, or encouraging the development of pressure ulcers on the skin, as masks often do [8]. Face shields may be the best option when engaging in endurance exercise in public locations, especially for people with a higher risk of experiencing symptoms of hypercapnia.

With their extended coverage over the mouth and nose, facemasks are better suited for low intensity activity. Facemasks may allow for greater range of motion during overhead weight lifting exercises, and may actually be beneficial to the training of some individuals by improving strength and hypertrophy [9]. The United States Olympic training facility is located in Denver in an effort to benefit athletes with an increased production in red blood cells resulting from exercising in the thin Colorado air [10].

Wearing latex gloves while exercising can be a safe option while using machines, community equipment, and during circuit training. However, using solely disposable latex or vinyl gloves for weightlifting can result in dropping a dumbbell or barbell, causing major travesty. If the latex gloves are snug and worn underneath, coupling them with weight-lifting gloves can keep hands protected from viruses like Covid-19 without forsaking grip strength.

Ventilated and anti-fog goggles can be particularly useful for protecting the eyes in small studio settings, and when exercising in enclosed areas with large crowds. The use of goggles can be safe for nearly anyone with good balance performing most exercises. When worn and used correctly, there are practically no safety concerns for goggles other than becoming foggy or sweaty and slipping off.

When exercising in commercial gyms and fitness studios, the use of PPE is not without warranty. Using PPE can minimize the spread of Covid-19 and similar viruses, and can be safely utilized by many individuals while exercising when used appropriately. The fitness level of individuals, exercise intensity, exercise type, and equipment are imperative elements and should be taken into account on an individual basis when deciding what kind of PPE to employ.

Individuals with preexisting conditions who are unable to safely use PPE while exercising in public can benefit from effective telehealth exercise options[11] such as remotely accessible on-demand exercise classes, online personal training, and exercise videos. Given the current health crisis, people with preexisting conditions who are at a higher risk of contracting Covid-19 may want to consider exercising outside of commercial gyms and fitness studios when possible, and choose PPE appropriate for individual needs without forfeiting personal safety when exercising in a public location.

Conclusion

Prevent the spread of Covid-19 and similar viruses with frequent handwashing and by using PPE. Selecting PPE appropriate for exercise is dependent on the intensity, exercise type, fitness level, and ability to social distance. Masks should not be worn when exercising[12], as they can affect respiration and can become wet and lose efficacy.

When it comes to high intensity exercise, social distancing may be the best defense against Covid-19. If social distancing is not possible when exercising, individuals should consider: using a face shield instead of a facemask; exercising outside rather than inside a gym; participating in lower intensity exercise; and choosing activities that do not compromise individual health or safety.

Commercial gyms and fitness studios can be risky places for people with preexisting conditions, and the incorrect use of PPE may put users at risk for injury – but public places are not the only place to exercise. Regular physical activity is essential for optimal health and can reduce the risk of dying from Covid-19 by preventing the development of comorbidities such as hypertension, heart disease, and certain respiratory ailment[13]. While the current gym limitations, restrictions, and impositions are not optimal for achieving specific advanced fitness goals, the truth is that all exercise at any intensity is salubrious and helpful with reducing the symptoms and health complications associated with all of the hyperkinetic diseases linked to Covid-19.

Bibliography

1. Leung NHL., *et al*. "Respiratory virus shedding in exhaled breath and efficacy of face masks". *Nature Medicine* 26 (2020): 676-680.

2. CDC. Coronavirus disease 2019. Everyone should (2020).

3. Reuters. "Reuters fact check. Partly false claim: Continually wearing a mask causes hypercapnia" (2020).

4. Benavidez D. "Improving mood in geriatric individuals (Doctoral dissertation, United States Sports Academy)". Proquest Dissertations and Theses Global 10587763 (2017).

5. Mills K. "Man, 26, suffers collapsed lung after jogging 2.5 miles while wearing face mask". *Mirror* (2020).

6. Web MD. "Lung disease and respiratory health. Coronavirus face masks: What you should know" (2020).

7. Jang S., *et al*. "Coronavirus disease cluster associated with fitness dance classes, South Korea". *Emerging Infectious Disease* 26.8 (2020).

8. Gasparini A. "Increased face mask wear can lead to skin irritation and damage - here's why and how to mitigate risk" (2017).

9. Feriche B., *et al*. "Resistance training using different hypoxic training strategies: A basis for hypertrophy and muscle power development". *Sports Medicine Open* 3.12 (2017).

10. Roberts A. "The truth about hypoxic training and oxygen reducing masks". Breaking Muscle.com (2014).

11. Garcia R. "Population health management telehealth intervention medical research training comorbid clinical obesity and depression in geriatric patients part one: Review of tele-medicine scientific research". *Research in Medical and Engineering Sciences* 1.5 (2017): 68-71.

12. WHO. Coronavirus disease (COVID-19) advice for the public. Fact: People should not wear masks while exercising (2020).

13. Yang J., *et al*. "Prevalence of comorbidities and its effects in patients infected with SARS-Co V-2: A systematic review and meta-analysis". *International Journal of Infectious Diseases* 94 (2020): 91-95.