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Impact of facemasks during a submaximal exercise test in healthy adults

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Abstract

Background: Surgical (SM) or cloth facemasks (CM) has become mandatory in many public spaces during the COVID-19 pandemic. They may interfere with the participation in physical activities.

Objective: To evaluate the impact of these masks on dyspnea (primary outcome), exercise performance and cardiorespiratory response during a 1-min sit-to-stand test (STST), and to assess the discomfort caused by wearing the masks.

Methods: A randomized crossover trial was conducted in healthy adults. They performed 3 STST (with either no mask (NM), a SM, or a CM) separated from each other by 24-72 hours. The number of STST repetitions was measured. Dyspnea (Borg), hearth rate (HR), respiratory rate (RR) and SpO_2 were recorded before, after, and 1-min post STST. Mask discomfort was assessed using a visual analogue scale.

Results: Twenty adults (aged 22 ± 2y, 11 males, BMI 22 ± 3kg/m²) were recruited. Before, after and at 1-min post STST, the CM generated significantly higher dyspnea than NM (p=0.04), although not clinically relevant (mean dif < 1). At 1-min post STST, the CM also generated higher dyspnea than SM but remained not clinically relevant. There was no difference in HR, RR or SpO_2 between the three conditions at any time points. There was also no difference in the number of STST repetition between conditions. Mask discomfort was higher before exercise in the CM compared to the SM due to a higher breathing resistance sensation (p=0.05). At exercise, discomfort was similar in both NM and CM.

Conclusions: In healthy adults, surgical and cloth facemasks have no impact on dyspnea, cardiorespiratory response, and exercise performance during a short submaximal exercise test. Comfort is sensible to the kind of mask at rest.

Adults Physical activity

Footnotes

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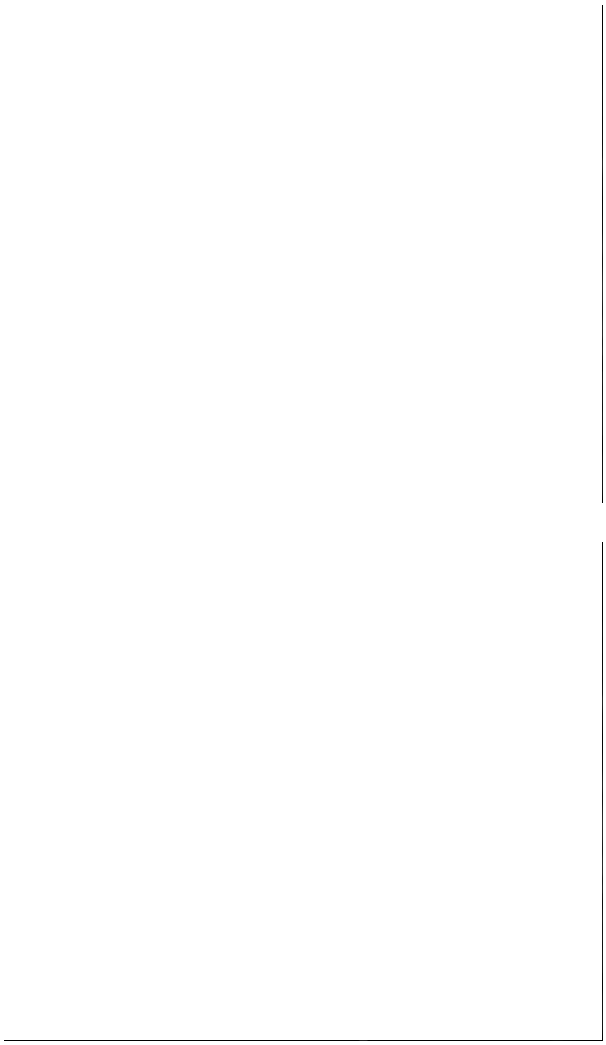

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