

# Evaluation of Pulmonary Function, Endurance and Cognition in Health Care Workers Wearing Masks for Prolonged Duration of Time

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## Abstract

**Introduction:** Health Care Workers (HCWs) often wear masks for extended periods, potentially affecting lung function, endurance, and cognition. The aim of the study was to document the consequence of extended period of mask usage on pulmonary function, exercise capacity and cognition on HCWs.

### Objectives: Primary Objective:

1. To assess the consequence of prolonged usage of mask on respiratory function and exercise capacity in HCWs.

### Secondary Objective:

1. To assess the consequence of prolonged usage of mask on cognition in HCWs.
2. To analyze the consequence based on the type of mask.

**Methodology:** Hundred and six health care workers aged 25-45 years were included in the study that was conducted at selected hospital of South Bangalore, using masks for a minimum of 6 hours

daily. Spirometry, 6 Minute walk test and Cognitive Failure Questionnaire(CFQ) were used to assess their pulmonary function, endurance and cognitive abilities

**Results:** Predominantly female participants (64.15%) used mainly surgical masks, with irregular exercise patterns. Around 50% had experienced COVID-19 in the past three years. No significant differences in FVE1, FVC, and PEF were noted based on mask type, but FEV1/FVC ratios were clinically reduced. All HCWs achieved normal 6-minute walk distances, with slight declines in cognitive function.

**Conclusion:** This cross-sectional study reveals a clinically significant reduction in FEV1/FVC ratios among HCWs wearing masks. Despite this, 6 minute walk distances were within expected ranges for age and sex. Masks mildly affected cognitive function in HCWs.

**Keywords:** Cognition; Endurance; Health Care Workers; Six Minute Walk Test