

# 비침습적 인공호흡기 마스크의 인간공학적 설계 및 평가 방법: 문헌 조사

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## A Literature Review on Ergonomic Issues for Design and Evaluation of Noninvasive Ventilation (NIV) Mask

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### ABSTRACT

**Objective:** The present study aimed to organize ergonomic issues to use as a reference for future development and application of NIV masks. **Background:** Non-invasive ventilation (NIV) masks have been widely used to manage respiratory failures with different etiologies, but patients still suffer from the adverse effects caused by a low level of fit between the face and mask interface. **Method:** Eighty-eight papers on respiratory facial masks (e.g. NIV masks and dust respirators) were reviewed in terms mask design and evaluation. **Result:** Two broad ergonomic issues in terms of mask design and evaluation are presented in this review. Research issues related to ergonomic design of NIV mask were divided into three categories based on design process: (1) acquiring facial dimensions, (2) designing mask shape, and (3) refining the design through usability testing. Usability evaluation can be conducted with subjective and objective method (e.g. measure contact pressure with films). Virtual evaluation method is popular because it's accuracy, convenience and avoidance of experimental injury on human. **Discussion:** The comprehensive information identified in this paper can provide an ergonomic perspective on NIV masks and enhance the process to improve the comfort and satisfaction of patients in the future.

**Keywords:** Non-Invasive Ventilation (NIV), Oxygen Mask, Face Anthropometry, Mask Design and Evaluation

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