

Performance of latex and non-latex medical examination gloves during simulated use

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BACKGROUND: In response to the rise in latex allergies, gloves made from a variety of nonlatex materials have been introduced into the health care environment. To date, at least 1 study, by Rego and Roley (1999), has reported that both latex and nitrile medical examination gloves provide comparable barrier protective qualities. The purpose of our study was to determine the effects of glove stress, type of material (vinyl, nitrile, copolymer, latex), and manufacturer on the barrier effectiveness of medical examination gloves.

METHOD: A total of 5510 medical examination gloves (1464 nitrile, 1052 latex, 1006 copolymer, and 1988 vinyl) were divided into 2 groups: stressed and unstressed. Unstressed gloves were visually inspected and water-tested according to the Food and Drug Administration water-testing standards. Stressed gloves were manipulated according to a designated stress protocol, visually inspected, and then subjected to the same Food and Drug Administration water-testing standards.

RESULTS: Our limited sample size demonstrated that nitrile gloves had the lowest failure rate (1.3%), followed by latex (2.2%); vinyl and copolymer gloves had the highest failure rate (both 8.2%). With use of a logistic regression analysis adjusting for manufacturer and stress, latex examination gloves were found to be 3 times more likely to fail than nitrile gloves (odds ratio, 3.2; 95% CI, 1.37–7.50). Nitrile gloves were also found to fail significantly less often than vinyl or copolymer gloves (odds ratio, 12.60; 95% CI, 5.80–27.40).

CONCLUSIONS: Nitrile examination gloves are a suitable alternative to latex, whereas vinyl and copolymer examination gloves were found to be less effective barriers. Further research is indicated to determine whether nitrile gloves can provide effective barrier qualities during clinical use versus laboratory simulations.

SOURCE: US National Library of Medicine (NLM) and PubMed