

“Citations on the Unique Qualities of Natural Rubber Latex Gloves: Extracts from Journals and Papers by Experts.”

“After changing to powder-free, low-protein latex gloves, the incidence of skin allergy in Germany has reduced by 89%.”

*Dr. Henning Allmers, Director of the Department of Occupational Medicine, University of Osnabruck, Germany. Trends of Medical Glove Usage in Europe, April 2007.*

“American hospitals should consider turning to latex medical gloves with lower protein and powder levels to reduce latex sensitivity rather than opting for the facility-wide use of synthetic alternatives.”

*ECRI's Monthly Journal Health Devices. "Lower-Protein Latex Gloves: A Way to Reduce Allergic Reactions in Hospital Staff.", September 2004.*

“Low-protein, powder-free gloves dominate the market and have reduced exposures in the healthcare setting.”

*Donald Beezhold (NIOSH) & Gordon Sussman (University of Toronto). Lessons Learned from Latex Allergy, Business Briefing: Global Surgery – Future Directions, September 2005.*

“At that time (mid-1990s) latex allergy peaked, and 8% to 12% of people who used latex were sensitized to it. Now, that number is down to about 1%. This is mainly due to a change in the way latex gloves are manufactured... (which) has led to a 1000-fold drop in the allergen content of the gloves.”

*Kevin Kelly, (Chair of the Latex Allergy Committee for the American Academy of Asthma, Allergy & Immunology). Health Link, Medical College of Wisconsin, August 2005.*

“Healthcare workers shown to be latex-sensitive were therefore provided with non-latex gloves, and their co-workers with low or non-powdered latex gloves... These maneuvers have reduced the prevalence of new latex-sensitive patients to a minimal degree and it appears that the epidemic has been eliminated.”

*Jordan N. Fink, Professor of Pediatrics, Allergy Division, Medical College of Wisconsin. Business Briefing: Global Surgery – Future Directions, September 2005.*

Of gloves made from other materials, such as synthetic rubbers or polymers, "none possesses the unique mix of properties found in NRL (Natural Rubber Latex) gloves."

*Medical Gloves Powder Report, September 1997. U.S. Food and Drug Administration.*



Hospital Studies II  
More Hospital Studies Endorse Low Protein, Powder-Free Natural Rubber Latex Gloves

Hospital studies show that changing to low protein latex gloves that are either low powder or powder-free can significantly reduce the incidence of latex protein sensitivity among hospital workers. From 1998-2002, seven studies have reported that improved Natural Rubber Latex (NRL) gloves have reduced allergy risks. Since then, four new studies have further confirmed that allergy risks are reduced with the use of improved NRL gloves.

Standard Malaysian Glove



POWDER-FREE



POWDERED

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## Hospital Studies II

More Hospital Studies  
Endorse Low Protein,  
Powder-Free Natural  
Rubber Latex Gloves



### Study 1

#### “Latex Allergy: A Follow-up Study of 1040 Healthcare Workers.”

*Filon, F. Larese Radman, G., J. Occupational and Environmental Medicine. 2006 Feb; 63(2): 121-5.*

In the years 1997-1999, 1,040 healthcare workers exposed to latex allergen for latex related symptoms and sensitization were evaluated. Three years after changing over to powder-free gloves with low-latex release, none were prick positive to latex, although 19 new subjects (2.4%) complained of itching erythema when using gloves.

Symptoms significantly improved and in most cases disappeared ( $p < 0.0001$ ). It was concluded, "Simple measures such as the avoidance of unnecessary glove use, the use of non-powdered latex gloves by all workers, and use of non-latex gloves by sensitized subjects can stop the progression of latex symptoms and can avoid new cases of sensitization."

### Study 2

#### “Conversion to Low-Protein, Powder-free Surgical Gloves – Is it Worth the Cost?”

*Korniewicz D.M., Chookaew N., Elmasri M., Mudd K., Bollinger M.E., J. AAOHN 2005; 53(9): 388-393.*

The study was a 2-year, longitudinal design with retrospective and prospective aspects developed to determine healthcare workers use of powder-free, low-protein NRL gloves sensitization, cost, and glove satisfaction. The study involved 103 healthcare workers.

Prior to glove conversion, nearly one-half (44%, 36 of 82) of the operating room staff reported symptoms related to NRL exposure. By T4, only 27% (22 of 82, McNemar test = .007) reported symptoms related to NRL exposure. Additionally, a cost savings of US\$10,000 per year for gloves was evident with reports of increased user satisfaction.

This study has demonstrated that conversion to the use of powder-free, low-protein NRL gloves not only reduces healthcare worker NRL symptoms, but also positively affects the cost of glove purchases and worker compensation.

### Study 3

#### “Challenge Tests with Powder-Free Natural Rubber Latex (NRL) Gloves in Healthcare Workers with a History of NRL-Induced Asthma.”

*Allmers, H., Beezhold, D., Hamilton, R. G. Sutherland, E. R. J. Allergy Clin. Immunol. 2004;113(2): S60, Abstract #38.*

The amount of NRL-allergen produced by handling up to 20 powder-free NRL-gloves was not sufficient to induce any clinically observable allergic reactions in the skin, mucosa or bronchi of latex allergic asthmatics. Powder-free NRL-gloves can be safely used by other personnel without inducing injury in NRL-allergic co-workers.

### Study 4

#### “A Significant Decrease in the Incidence of Latex-Allergic Healthcare Workers Parallels with a Decreasing Percentage of Highly Allergenic Latex Gloves in the Market in Finland.”

*Reunala, T. Turjanmaa, K., Alenius, H., Reinikka-Railo, H. and Palosuo, T. J. Allergy Clin. Immunol. 2004;113(2): S60, Abstract #140.*

This study shows that the national strategy of Finland to regularly measure the allergen content of medical latex gloves and provide information from these surveys to the public seems to be an efficient way to reduce presence of high-allergenic glove brands in the market. A parallel and significant decrease in the incidence of latex-allergic healthcare workers suggests that the strategy employed also has marked effects on primary prevention of occupational latex allergy.

