

SUITABLE METHODS FOR COLLECTING HOUSE DUST SAMPLES FOR MEASUREMENT OF HOUSE DUST MITE ANTIGENS

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Background and Aims: Genetic and environmental factors are known to be involved in the development of allergic diseases and/or allergic sensitization. In particular, the daily exposure level to airborne antigens is critically important. However, precise and convenient methods for accurately measuring airborne antigens in a large cohort study have yet to be identified. To remedy this, we compared 3 different methods of collecting house dust samples for measurement of house dust mite antigens.

Methods: We collected house dust samples from 7 different homes by vacuuming futons using 3 different methods: 1) We visited each home and used the same vacuum cleaner; 2) We sent dust collection packs and asked the householders to use them with their own vacuum cleaners; and 3) We sent the same handy vacuum cleaners and asked the householders to use them. The levels of major Japanese indoor allergens, i.e., house dust mite Der p1 and Der f1, were measured with specific ELISA kits. The data were analyzed using Spearman's correlation test.

Results: The total weights of house dust samples did not differ among the three collection methods. The amounts of both Der p1 ($p=0.037$) and Der f1 ($p<0.001$) showed significant correlations between home-visit vacuuming (Method 1) and sending the same vacuum cleaners (Method 3). In contrast, the results using the householders' own vacuum cleaners (Method 2) did not correlate with the results of the other two methods.

Conclusions: Home-visit vacuuming and sending the same vacuum cleaners are likely to be suitable methods for collecting house dust samples. For a large epidemiological study, sending handy vacuum cleaners can be a feasible method for accurately assessing the exposure levels to mite antigens in homes.