

The Advantages of using Feather pillows versus synthetic pillows.

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Sensitization to dust mites has been demonstrated as an important risk factor for asthma. Asthma has increased in prevalence over the last years and the increase in the exposure to indoor allergens (house dust mite, pets and moulds) may be one of the contributing factors. Perennial allergic rhinitis (hay fever) in the Northern Europe is frequently caused by sensitization to house dust mites.

Several works in the past 5 years have demonstrated significantly higher house dust mite allergen levels from synthetic pillows, compared to feather pillows. Reasons for these differences could be lower permeability of feather pillow coverings to allergen, greater HDM penetration of synthetic pillow covering, or both.

A study from New Zealand 2004 (<http://www.ncbi.nlm.nih.gov/pubmed/15196275>) concluded that standard synthetic pillow coverings to live HDMs, and their greater permeability to house dust mites explain their reported higher HDM allergen levels, compared to feather pillow coverings. Some types of synthetic pillow coverings are similar to feather pillow coverings in their permeability to HDMs and house dust.

The same group in 2002 (<http://www.ncbi.nlm.nih.gov/pubmed/12033480>) has shown that high levels of House dust mite allergen (Der p 1) levels in bedding and other individual bedding items have been associated with the clinical severity of asthma. Synthetic pillows and duvets yielded significantly higher Der p 1 than feather pillows and duvets (about 7-fold and 15-fold respectively). The presence of synthetic bedding resulted in significantly higher pillow and duvet Der p 1 levels. Mattresses >10 years old contained significantly higher Der p 1 levels. The advice for house dust mite sensitized individuals to use synthetic bedding does not prevent from house dust mite allergen exposure.

Another work from New Zealand 2009 (<http://www.ncbi.nlm.nih.gov/pubmed/19191140>) was about the level of fungal allergens. Beta-(1,3)-glucan is a pro-inflammatory component of the fungal cell wall and indoor levels of which have only been considered in a few studies. Synthetic bedding and mattresses contained higher beta-(1,3)-glucan levels. Synthetic bedding contains higher levels of beta-(1,3)-glucan than feather bedding, which may be of importance to asthmatics.

Researchers in the USA have shown in 2002 (<http://www.ncbi.nlm.nih.gov/pubmed/1208636>) that feather pillows, whether covered or not, do not internally accumulate dust-mite allergen when used in mite-infested bedrooms over a 3-month period. They have concluded that pillows manufactured with processed feathers, whether encased in a dust cover or not, do not become contaminated by dust-mite allergen after 90 days of use in environments containing significant dust-mite allergen contamination.

If we speak about animal allergens there is a nice study from the UK (<http://www.ncbi.nlm.nih.gov/pubmed/10893007>) It demonstrated that synthetic pillows significantly more pet allergens than feather pillows, supporting the view that tightly encasements surrounding feather pillows act as a barrier for allergen.

All those studies have shown that in case of house dust mite allergy, mould and pet allergy, synthetic pillows do not help to avoid allergens, these pillows need to be frequently washed and replaced. In addition one of the solutions to achieve reduction may be covering all pillows with fabric impermeable to mite allergen.

A study in Thailand in 2003 (<http://www.ncbi.nlm.nih.gov/pubmed/14510714>) compared various types of fabric in terms of the impermeability to mites and their allergens. A regular cotton-based bedspread allows a significant amount of leakage of mite allergens. Both woven and non-woven materials are efficient barriers against mite allergen in terms of impermeability. However, with regard to mite colonization, non-woven covers have the drawback of mites being able to penetrate and colonize the fabric fibers. Woven covers (i.e. AllerGuard) are therefore recommended because of their advantages of not allowing the colonization of mites within the fabric, being easy to clean and comfortable.

Direct allergic sensitisation to feathers is a very rare condition. There was a study in Finland (<http://www.ncbi.nlm.nih.gov/pubmed/9534914>), showing that only one case of clinically significant allergy to feathers was diagnosed among 269 patients with suspected allergic symptoms.

We can conclude that all old pillows, duvets and mattresses that have not been covered with an effective, tightly woven house dust mite barrier contain large amounts of house dust mites. Synthetic pillows after 3 months contain more house dust mite than feather pillows, resulting in increased exposure to house dust mite allergens. Use of impermeable encasings (i.e. AllerGuard) on mattress, duvet and pillow can help to reduce exposure.