

Laboratory Animal Allergies

Significance

Some people develop allergies to the animals they work with or their own pets. The incidence is quite high with estimates that 15% of the human population is allergic to an animal species. If you are allergic to a species that you work with in your job, it can be quite debilitating. If you suffer from asthma, working with a species to which you are allergic can be a significant health risk.

Symptoms

Allergic individuals may display any of a number of symptoms; allergic rhinitis (a condition characterized by runny nose and sneezing similar to hay fever); allergic conjunctivitis (irritation and tearing of the eyes); asthma (characterized by wheezing and shortness of breath) or contact dermatitis (a red, bumpy rash that may appear where your skin touches the animal). If you have a stuffy nose or other respiratory signs and it seems to last longer than a common cold (weeks instead of days) then you may very well be suffering from an allergy. If you develop suspicious symptoms whenever you are exposed to a certain species, it is very likely that you have an animal allergy. Rarely, an employee with allergic symptoms will develop a potentially life-threatening reaction following an animal bite.

Biology

Workers may be allergic to any animal species. The allergens are proteins excreted in the animals' saliva, urine and from various glands associated with the skin. The proteins tend to be sticky and become associated with the animal's hair and dander. The allergens are unique to each species of animal so it is possible to be allergic to mice but not to rats and vice versa. It is also possible to be allergic to multiple species; in fact, a person who is already allergic to one allergen (animal or otherwise) has a greater chance of becoming allergic to a new allergen than a person that has no allergies at all.

The animals most commonly associated with workplace allergies are mice and rats since these are the most common laboratory animals. Other animals to which allergies are seen include rabbits, cats, guinea pigs, dogs, and cattle and pigs. An individual could potentially be allergic to almost any animal.

Relative Risk

Exposure to animals is only one of many risk factors associated with asthma and allergy. Various studies have shown that the incidence of animal allergies among animal handlers may range from 10% to 30%. While this means that the majority of animal handlers do not suffer from allergies to the animals under their care, it also means that animal handlers have an incidence of allergy and asthma about three times as high as that seen in workers who do not work with animals. Allergy is clearly an important risk associated with animals.

Most workers who develop allergic reactions to laboratory animals will do so within the first twelve months of working with them. Approximately half of allergic workers will have their initial symptoms subside and then recur three or four hours following the exposure. Other factors associated with allergic reaction to animals includes the individual's intensity, frequency and route of exposure. Activities such as handling animals and cleaning their cages may be associated with an increased risk of exposure to the animal's proteins and thereby place the worker at greater risk of developing an allergic reaction. Laboratory workers who have a personal or family history of asthma, seasonal allergies and dermatitis are also at increased risk. Individuals with no prior history of allergies and only brief work exposure can also develop allergic reactions to laboratory animals.

Prevention and Treatment

If you work in an animal facility or work with animals in a laboratory setting, the following practices may help reduce your exposure to animal allergens:

1. When possible, perform animal manipulations in a ventilated chemical fume hood or a biological safety cabinet (BSC).
2. When you are not working in a chemical fume hood or BSC, make sure that the animal room or other work area is adequately ventilated and that all the air handling equipment in the room is in good working order. If there is any doubt, your supervisor may request Facilities Management to measure the number of air changes in the room. Animal rooms should deliver at

least 10 air changes per hour.

3. Do not wear your street clothes when working with animals. Wear dedicated, protective clothing.
4. Launder your protective clothing at work or have it cleaned by a professional service. Do not take your protective clothing home.
5. Wash your hands frequently. Avoid touching your hands to your face while working in the vivarium.
6. Keep cages and your work area clean.
7. Use beddings that are not dusty. Most commercial beddings are not dusty. Wood shavings may be dusty or not depending on their source and quality.
8. Reduce your skin contact with animals by wearing nitrile gloves and long-sleeved lab coats.
9. Wear your personal protective equipment such as lab coat, goggles and safety eyewear. Washed hands and forearms with soap and water after removal of PPE.
10. Notify your supervisor of your symptoms for animal allergies and contact the EH&S Occupational Coordinator at 949-824-6200. Early identification of allergic reactions to animals and appropriate treatment will prevent further injury or development of asthma.
11. If you suffer from allergies to a species you must work with, consider wearing an approved, NIOSH certified N95 respirator when in the animal facility. Respirators are, in general, less effective than the other methods shown above and should not be used as a substitute for good work place hygiene.
 - If an N-95 is needed for your work (including allergy related reasons), before wearing the N-95 respirator you need to contact the EH&S Occupational Coordinator at 949-824-6200 for a medical

clearance and fit test. For more information review the Respiratory Program. <http://www.ehs.uci.edu/programs/ih/respiratory.html>

- If you are voluntarily wearing an N95, you need to take the following steps to document voluntary N95 use without a fit test:
<http://www.ehs.uci.edu/programs/ih/AppendixCUCIEHSRespiratoryProtectionVoluntaryUseAffidavit.doc>

12. If your job requires you to be exposed to something to which you are allergic, discuss with your physician what effect the allergy may have on your future health. Some workers are so severely affected that only a change in career will control their allergies.

References

Preventing Asthma in Animal Handlers. January, 1998. DHHS (NIOSH) Publication No. 97-116. Available on the Web at: www.cdc.gov/niosh/animalrt.html.

Laboratory Animal Allergy, Bush, R.K; Wood, R.A.; Eggleston, P.A., Journal of Allergy and Clinical Immunology 1998; 102:99-112.