



# ANIMAL TRACKS



A newsletter for the Duke research community

February 2008

<http://vetmed.duhs.duke.edu>

## Changes to Program Policies

As part of the ongoing process of program development, the IACUC has changed certain program policies, which should facilitate research needs while assuring continuing program integrity.

**Policy of Required Signatures:** The animal program now accepts two forms of 'electronic signatures' for animal program forms, applications, or amendments. The standard 'electronic signature' (as used in an adobe or certified word document) is one option. Effectively immediately, a second option is that any animal program document sent from the Duke email account of the Principal Investigator is considered 'electronically signed.' Since all members of the Duke community have separate email accounts, and each of us have unique passwords for those accounts, the animal program considers a document sent from a Duke email account as having been intended and approved by the sender. This only applies to email accounts that end in duke.edu, and only the PIs Duke email account. Documents sent from the PIs non-Duke email account, or documents sent from the lab manager's Duke email account still require signatures (if signatures are a routine part of the document submitted).

**Policy on Enrichment for Species Other Than Non-Human Primates:** While the new policy grants more freedom for providing environmental enrichment to research animals, it also requires consultation of the PI prior to providing enhanced enrichment, to assure that the effects upon research outcomes are not impacted. The animal program sees this as a reasonable and practical balance of assuring research integrity while encouraging animal well being.

**Policy on Mouse Housing Density:** Animal housing density is a care parameter generally prescribed by the NIH / ILAR and our accreditation agreement. This change will not affect most mouse users, but for those who maintain mice beyond 45 grams in body weight, the cage density is now limited to 4 animals per cage (normal adult mice weigh 25-35 grams and can be housed at 5 per cage).

All program policies are available at the Duke Animal Program Website: <http://vetmed.duhs.duke.edu/> Wishing you a safe and productive research month,

## Preventing Injuries in the Lab and Office

By Courtney Stanion, MScEnvE, CIH

Workplace injuries can and do happen even with the safest of intentions. The Occupational and Environmental Safety Office (OESO) tracks work-related injuries and illnesses in order to improve employee safety at work and comply with federal law. Duke is required to post a Summary of Work-Related Injuries and Illnesses each year from February 1 to April 30. Summaries are posted for the various Duke groups on the OESO web site ([www.safety.duke.edu](http://www.safety.duke.edu) -- "OSHA Log Summaries" under "Resources & Links").

Overall, researchers at Duke have a relatively low risk of occupational injury. However, we at OESO wanted to share some of the types of incidents that have caused injuries among this group. We hope that awareness of these hazards can help researchers to work more safely.

⇒ **Work with sharps and glass:** There have been a few serious hand lacerations among researchers using scalpels or straight razors, or glass items that break. Consider using a retractable safety scalpel or other appropriate safe cutting device for lab work or opening boxes. Consider plastic cover slips, polystyrene pipettes, and other non-breakable substitutes for glass items. See the following web page for more information: [www.safety.duke.edu/BioSafety/SafeAlt.htm](http://www.safety.duke.edu/BioSafety/SafeAlt.htm).

⇒ **Repetitive motions:** Certain research tasks, such as working with microtomes, cryostats, and pipettes, may require repeated motions in sometimes-awkward postures, and may cause pain or other symptoms. There are many strategies for reducing risk during these types of tasks – see [www.safety.duke.edu/Ergonomics](http://www.safety.duke.edu/Ergonomics) for more information.

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## Signs of Pain and Distress in Animals—Part 3

Researchers and associates in our Duke research community are concerned about, and work diligently to prevent, pain and distress. The problem for most of us is recognizing the signs of pain or distress in animals. Animals express pain or distress using different behaviors than humans and sometimes we miss what our animals are trying to tell us. Animals tend to 'hide' outward signs of pain which further complicates our ability to tell when they are suffering. Most of our research species hide signs of discomfort as long as possible. Knowing signs of pain in animals is critical to a pain management plan. Observing one or more signs of pain can tell us when our pain management plan needs enhancement.

Part 1 was presented in the December 2007 issue of *Animal Tracks* and covered the most common research animals—mice and rats. Part 2 was presented in the January 2008 issue of *Animal Tracks* and covered primates, guinea pigs, gerbils, hamsters, and rabbits. In this issue we will look at other species used in research.

**Sheep and Goats:** Changes in posture and movement are apparent, and a change in facial expression may be indicative of pain or distress. There is a general reluctance to move. Goats are more likely than cattle to vocalize in response to pain. Grinding of the teeth and grunting are also heard. Sheep, in particular, tolerate severe injury without overt signs of pain or distress. Following procedures such as castration and tail docking, lambs may show signs of discomfort such as standing up and lying down repeatedly, tail wagging, occasional bleating, neck extension, dorsal lip curling, kicking, rolling and hyperventilation. **Key Signs: rigid posture and reluctance to move.**

**Pigs:** Pigs in pain may show changes in gait and posture. They normally squeal and attempt to escape when handled; however, these reactions may be accentuated when the animal is in pain. Adult pigs may become aggressive. Squealing is also characteristic when painful areas are palpated. Handling of chronic lesions may not elicit signs of pain. Pigs will often be unwilling to move and may hide in bedding if possible. **Key Signs:**

**vocalization and the lack of normal social behavior may be helpful indicators of a pig in pain.**

**Birds:** Birds in pain may show escape reactions with vocalization and excessive movement. Head movements increase in extent and frequency. There may be an increase in heart and respiratory rates. Prolonged pain will result in inappetence and inactivity with a drooping, miserable appearance. The eyes may be partially closed, the wings held flat against the body, and the neck retracted. When handled, the escape reaction may be replaced by a state of tonic immobility. Birds with limb pain will avoid use of the affected limb and will "guard" it from extension. **Key Signs: escape reactions, atonic immobility, inappetence, avoidance of use of pain site.**

**Reptiles:** Acute pain in reptiles may be characterized by flinching and muscle contractions. There may be aversive movements away from the unpleasant stimulus, and attempts to bite. More chronic and persistent pain may be associated with anorexia, lethargy and weight loss, although it is difficult to associate any of these signs of lack of well-being specifically with pain. **Key Signs: flinching and muscle contractions, weight loss, anorexia.**

**Fishes:** It is difficult to determine the nature of the response to pain in fish. Although they exhibit a pronounced response to injuries or to contact with irritants, their response to chronic stimuli may be small or absent. Fish with severe wounds which would cause immobility in a mammal, will often appear to behave completely normally, even resuming feeding. Fish will react to noxious stimuli, such as that administered by a hypodermic needle, by strong muscular movements. When exposed to a noxious environment, such as a strong acid, they show abnormal swimming behavior with attempts to jump from the water, their coloring becomes darker and their opercular movements become more rapid. Such effects are indicative of some degree of distress; however, it is not possible to describe these as unequivocally as signs of pain in these species.

## Regulatory Watch OLAW/NIH Decision

**Q: When should rodents be counted? When born? After weaning? When used?**

A: The PHS *Policy* (NIH regulations) is applicable to live vertebrate animals used in research, research training, and biological testing, and clearly applies to pre-weanling animals. Accordingly, institutions need to appropriately monitor and document numbers of animals acquired (through breeding or other means) and used in approved activities. Monitoring should not exclude the disposition of animals inadvertently or necessarily produced in excess of the number needed or which do not meet criteria (e.g., genetic) established for the specific study proposal.

**OAWA NOTE:** This is a change in the manner in which Duke has been requiring animal accounting. How does this affect our program?

A. Protocols for animal use should INCLUDE the anticipated number of animals that will not be used for experimentation or breeding expansion (the animals that are the wrong genotype). When reviewing protocols, OAWA/IACUC reviewers will ask PIs if they have accounted for total animal production rather than just those that will be used for research (minus those discarded as the wrong construct).

B. Duke researchers must begin counting, if not already counting, all animals born instead of animals that reach weaning.

C. Future PI reports of animal numbers must include all animals born.

### Animal Welfare Hotline

For reporting concerns with any animal care or use activity at Duke

919.684.3535

## Preventing Injuries from page 1

⇒ **Work with animals:** The obvious hazard of working with animals is that they may bite or scratch. Usually, these injuries are minor, but occasionally they will be serious – either because the puncture or laceration is deep or because of exposure to a biological hazard. Using good animal handling techniques and puncture-resistant gloves will help to minimize risk.

Work with animals may also lead to animal allergies. At greatest risk are those with pre-existing respiratory allergies, but even a person with no history of allergies may develop symptoms. Employee Occupational Health and Wellness reviews animal handler health questionnaires to catch symptoms early and prevent progression to occupational asthma. Researchers may also use N95 respirators voluntarily to reduce exposure to animal allergens – for more information, call 684-5996 or see <http://www.safety.duke.edu/OHS/Documents/LabAnimalAllergyinfosheet.pdf>.

⇒ **Setting up or rearranging work areas:** A few recent injuries to lab employees have involved moving heavy lab or office equipment. If heavy, awkward equipment must be moved, hire trained professionals. For “everyday” materials handling tasks, keep the load close to your body during the lift and maintain your back’s natural curves. You can also reduce your risk by storing heavier items between knee and shoulder height. For additional information on safe materials handling methods, see [www.safety.duke.edu/Ergonomics](http://www.safety.duke.edu/Ergonomics).

⇒ **Working in the office:** Offices are typically very low-risk places to work, but there are occasional injuries related to office work. Most of the injuries we see in offices are related (believe it or not) to chairs and cords.

Use office chairs ONLY for sitting. Chairs can tip over if you lean too far back, or if you sit on the very edge of the seat. If a chair is broken, have it repaired or get a different chair. As you sit down, hold on to the arm or chair edge to make sure the chair is directly beneath you before attempting to sit down so it does not roll out from under you. Also, chairs are not for standing – use a stepstool or stepladder instead.

Look around your work area (and under your desk) for cords, backpack or purse straps, or other items that might cause you or someone else to trip. Use twist ties or cable straps to keep keyboard, mouse and other cables out of the way.

⇒ **Walking around campus:** Some of the most serious injuries at Duke are caused by falls that occur when employees are on their way to or from the buildings where they work. While there are many reasons a person may fall – such as tripping at a curb, missing a step, or turning an ankle on debris in the parking lot – inattention to surroundings is frequently a factor.

If you are injured or develop an illness you believe is related to your job, or if you have a safety concern related to your work, report these using the links on the OESO web page ([www.safety.duke.edu](http://www.safety.duke.edu)). These reports help OESO and managers to address hazards and prevent future injuries, helping to keep Duke employees safe on the job.

## Upcoming Dates & Deadlines

March 3	New protocol deadline
March 6	SC meeting
March 10	SC amendment deadline
March 20	SC meeting
March 24	SC amendment deadline
March 27	IACUC meeting
April 3	SC meeting
April 7	New protocol deadline
April 7	SC amendment deadline

*Deadlines are 5 PM on the date listed! No exceptions!*

## Training Opportunities

**Training in Survival Rodent Surgery:** The Duke Office of Animal Welfare Assurance has a CD that can be loaned to any laboratory for either group or individual training on survival surgery techniques in rodents. This CD was developed by a subcommittee of the NIH Animal Research Advisory Committee to assist in the development of proper surgical skills when performing survival surgery on rodents. It illustrates the most common practices used in research survival rodent surgery standards established by the NIH "Guidelines for Survival Rodent Surgery."

**Training in Basic Biostatistics for Laboratory Mice:** The Duke Office of Animal Welfare Assurance has a CD that can be loaned to any laboratory for either group or individual training on survival surgery techniques in rodents. This CD was developed by the National Human Genome Research Institute Office of Laboratory Animal Medicine and illustrates the most common practices used in research to promote proficiency in performing common techniques in the mouse. It consists of eight training modules, table of contents, list of definitions and help and reference sections.

**AALAS Learning Library:** The AALAS Learning Library provides training that is essential for investigators, laboratory managers, research associates, animal technicians and others working with animals in a research or education setting. The Learning Library emphasizes the appropriate handling, care, and use of animals and is designed to provide another avenue for obtaining important training and improve skills of those working in the animal research arena.

To obtain access to training tools, send an Email to [IACUC@duke.edu](mailto:IACUC@duke.edu) and request a username and password.

(see TRAINING ... on the next page)

Web course are available free of charge to any member of the Duke research community (funded by the animal care program). The AALAS Learning Library has two 'Libraries' that may be used:

**The Animal Care and Use Library:** This library will be of principal interest to most members of our research community. Web courses in this Library include:

- ⇒ Introduction to Mice (or Rats, or Guinea Pigs)
- ⇒ Introduction to Rabbits
- ⇒ Introduction to Hamsters / Gerbils
- ⇒ Introduction to Swine
- ⇒ Introduction to Nonhuman Primates
- ⇒ Introduction to Amphibians
- ⇒ Working with the Laboratory Mouse
- ⇒ Mouse Breeding Colony Management
- ⇒ Genetically Engineered Mice
- ⇒ Aseptic Technique for Rodent Survival Surgery
- ⇒ Maintaining Animal Procedure Areas
- ⇒ Pain Recognition and Alleviation in Laboratory Animals
- ⇒ Inhalation Anesthesia Systems for Rodents
- ⇒ Post-Procedure Care of Mice and Rats in Research: Minimizing Pain and Distress
- ⇒ Syringes and Needles
- ⇒ Selection of Cage Cleaning Products - Chemistry Driven
- ⇒ Nutrition
- ⇒ Biosafety in Microbiologic and Biomedical Laboratories
- ⇒ and many others ...

Certain of these modules (e.g. Intro to ...) would be most beneficial to new hires or visiting students, while other modules (e.g. pain recognition or aseptic technique) would be of greater value to active research associates. All modules are available to all Duke animal program participants.

The **JAALAS CEU Test Library** offers the opportunity to earn continuing education units (CEUs) by taking the self-administered test based on the scientific articles in *Contemporary Topics* online. These tests are published six times a year. The online test questions are the same as the questions published in each issue of the hardcopy version of *Contemporary Topics*. New questions will be posted online after each issue has been printed and mailed to subscribers. The Test Library for each issue will remain available for two months, after which the questions for the next issue will be posted. Answers to the previous issue's questions are also posted.

## When Expired Really Means Expired

The Office of Animal Welfare Assurance has been seeing an increased use of expired medical products in animal based research activities. There are certain specific situations where the use of expired materials are acceptable, but many more situations where expired products are not acceptable. Let's consider for a moment when it is appropriate (or not) to use expired products in animal related activities.

According to the NIH's Office of Laboratory Animal Welfare, "The use of expired pharmaceuticals, biologics, and supplies is not consistent with acceptable veterinary practice or adequate veterinary care. Euthanasia, anesthesia and analgesia agents should not be used beyond their expiration date, even if a procedure is terminal. Other expired materials should not be used unless the manufacturer verifies efficacy beyond the expiration date, or the investigator is able to document to the satisfaction of the IACUC that such use would not negatively impact animal welfare or compromise the validity of the study."

Seven simple guidelines will assure humane animal use:

1. Any medical or experimental material **MUST** be labeled as **EXPIRED** when it reaches the manufacturer expiration date. Use a **RED** or **BLACK** marker and write the word **EXPIRED** across multiple sides of the container to assure staff will not inadvertently use an expired product.
2. All expired products **MUST** be stored in an area separate from in-dated product. A separate cabinet is preferred, but if same cabinet storage is required, then a box or other container to hold the expired materials is recommended.
3. Products that are used for anesthesia / analgesia (pain management / pain control) **MUST** not be used when expired. These products cannot be guaranteed as efficacious beyond the manufacturer expiration date.
4. Products that are used for euthanasia **MUST** not be used when expired. These products cannot be guaranteed as efficacious beyond the manufacturer expiration date.
5. Antibiotics or disinfection products **MUST** not be used unless they can be validated as efficacious past the expiration date.
6. Fluids, washes, sutures, catheters, or other medical products may be used past the expiration date, but only in terminal (e.g. non-survival) procedures. The use of these products does not require specific IACUC approval in terminal animal procedures.
7. Other expired materials should not be used unless you can provide evidence to the IACUC that such use would not negatively impact animal welfare or compromise the validity of the study."





## OAWA's Brown Bag Seminar

Monday, March 24<sup>th</sup>, 2008

**10 a.m. – 11 a.m.**

**Bryan Research Building: Room 103**

**Dr. Ron Banks, OAWA Director**

**Will be presenting:**

### **Proper Sanitation within Animal Areas: What every person who works with animals needs to know**

### **Could you be carrying infection between animal areas and not even know it?**

It is the responsibility of every animal user on campus to take proper precautions to prevent the spread of infection between animal areas. This presentation will focus on the importance of proper sanitation within the animal areas, which is key to protecting the animals, your research, as well as yourself. The regulatory basis and institutional expectations will be covered in addition to information regarding the categories of products available based upon the target agent (bacterial, viral, fungal), the variety of methods used for monitoring our effectiveness of the program, and what you can do to improve the effectiveness of our sanitation program.

The presentation will be on **March 24<sup>th</sup>, 2008** in room  
**103 of the Bryan Research Building**,  
located at 421 Research Drive, on Duke University's West Campus.

OAWA will provide drinks and breakfast snacks. The session will begin promptly at 10 a.m.  
Please arrive early to sign-in and find a seat.

For those who will be coming from off campus, driving directions and parking information  
can be found at the following link: <http://neuro.duke.edu/Links/map.htm>

**This session will count for 1 CEU of AALAS In-house Training Credit**