LOMIR BIOMEDICAL INC.

CANADA | USA | EUROPE | LOMIR.COM

Animal Jackets & Restraints

BEST PRACTICES FOR SUCCESSFUL USE

JACKETS

Today the use of jackets covers many varied research disciplines. In the past few years, several factors have combined allowing new technologies to be adopted within the lab animal field. These include housing in group or social settings, the miniaturization of devices and increased computing power, which gives us lightweight devices capable of all types of physiological measurements. The continued developments in behavioral management programs now include acclimation of animals to jackets and equipment. Functional textiles, new materials, and fasteners mean designs keep pace with these latest advances and may be quickly adapted for best practices.

Considerations for jacketing laboratory animals over an extended period

The success of subjects in jackets can be ensured by two or three key factors.

1 Design and Fit

make sure the design and fit of the jacket are appropriate for the experimental procedure and the species being used.

2 Acclimation

allow an acclimation period for animals that will be wearing the jacket system, before commencing the procedure.

3 Routine Monitoring

ensure routine monitoring of the jacket system in use.

DESIGN & FIT

Consider the size and species being used; for example, large hound type or mongrel dogs can be considered more active in jackets when compared to the Beagle dog. In practice, the choice of dog jacket design varies, but as a guideline, the full body jackets are more often used with a tether system as there is less of a risk of the animal "backing out" of the jacket. Velcro straps at the neck ensure an adjustable fit for individual animals. Jackets that are either too small or large can cause potential problems such as irritation from chafing. If the jacket is too large, there is always the possibility of the animal escaping. We do have customers who dust the axillary area with an antiseptic astringent powder to keep the animal comfortable while wearing the jacket. Having a number of spandex panels in different widths may further enhance the fit of each jacket. These are simply zipped in and out of the jackets.

Lomir Biomedical Inc.
95 Huot, Notre-Dame-de-l'Île-Perrot, QC
Canada J7W 1M3
Tel: 514-425-3604
Toll Free: 1-877-425-3604
Fax: 514-425-3605
Email: info@lomir.com

Lomir Biomedical Inc.
C/O Agenda Life Sciences
UK PO Box 24 Hull
HU128YK, UK
Tel: 03456 44 55 45
Email: info@lomir.com

Lomir Inc.
PO Box 778
Malone, NY
USA 12953
Tel: 518-483-7697
Toll Free: 1-877-425-3604
Email: info@lomir.com

ACCLIMATION

It is essential to acclimate animals to the jackets well before commencing the procedure. Animals are gradually introduced to the jackets starting with, say, 1 hour per day and extending the duration each day. Acclimation periods vary by organization from 3 to over 14 days. A range of 5-7 days seems to be most common. Where possible, acceptance of the jacket should be added to the inclusion criteria for the protocol. For tethering systems, introduce the tether set up part way through the acclimation.

MONITORING

As part of routine observations, the security and fit of the jacket should be monitored and adjustments should be made as necessary. Always have some "tie-wraps" on hand that can quickly be used to close broken zippers or damaged pockets. Consideration must also be made as to the cleanliness of the jacket, which should be replaced with a clean one as necessary. A clean, dry jacket will make the animal more comfortable and, again, reduce potential chafing problems. Routine monitoring and maintenance must include a check and adjustment, as necessary, to the set screws of the tether. Keep some extra set screws and Allen keys in your maintenance kit.

ADDITIONAL INFORMATION

Acclimation of Non-Human Primates

Suggestions for acclimation protocols for Non-Human Primates to External Telemetry systems

In all cases, the establishment of stable socialized groups or pairings is the key to success, followed by full acclimation to the complete telemetry system and infusion equipment if studies are combined. Equipment may be required in addition to the telemetry and infusion hardware; an external jacket and undershirt are recommended. The undershirt will hide the electrodes and other devices from the cage mates and reduce opportunity for picking and interfering. Acclimation protocols vary by organization, but sufficient background data exists to provide guidance. Periods have been as short as 4 days and as long as 28 days. The interesting take-away from the 28 day data was that this period made no difference to steady state data after around 14 days.

Lomir Biomedical Inc.
95 Huot, Notre-Dame-de-l'Île-Perrot, QC
Canada J7W 1M3
Tel: 514-425-3604
Toll Free: 1-877-425-3604
Fax: 514-425-3605
Email: info@lomir.com

Lomir Biomedical Inc.
C/O Agenda Life Sciences
UK PO Box 24 Hull
HU128YK, UK
Tel: 03456 44 55 45
Email: info@lomir.com

Lomir Inc.
PO Box 778
Malone, NY
USA 12953
Tel: 518-483-7697
Toll Free: 1-877-425-3604
Email: info@lomir.com

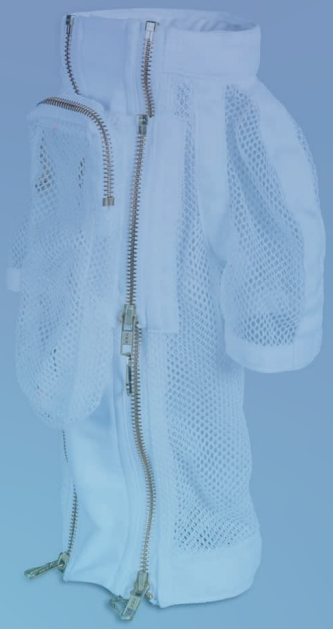
ADDITIONAL INFORMATION

Acclimation of Non-Human Primates

In most cases the following approaches are taken:

- Start with the jacket and a short exposure on day one.
- In subsequent days, add the undershirt to the jacket and stick with the same short exposure.
- Around day 4 or 5, add a sham weight to the pocket.
- Gradually extend exposure time until wearing continuously for 24 hours.

It takes 5 days for diurnal effects to return to baseline. Non-acclimated or non-socialized animals will show diurnal changes due to stress factors. It is worth noting that if you are jacket training the animals before the study and then remove the complete system, you may need to build in a 1-2 day re-acclimation period as some animals may have forgotten the experience of wearing the outfit.



Lomir Biomedical Inc.

95 Huot, Notre-Dame-de-l'Île-Perrot, QC
Canada J7W 1M3
Tel: 514-425-3604
Toll Free: 1-877-425-3604
Fax: 514-425-3605
Email: info@lomir.com

Lomir Biomedical Inc.

C/O Agenda Life Sciences
UK PO Box 24 Hull
HU128YK, UK
Tel: 03456 44 55 45
Email: info@lomir.com

Lomir Inc.

PO Box 778
Malone, NY
USA 12953
Tel: 518-483-7697
Toll Free: 1-877-425-3604
Email: info@lomir.com

RESTRAINTS - LARGE ANIMAL

Restraint of laboratory animals is necessary to conduct various procedures. Because these products act as a stressor, design and fabrication of restraint devices must allow for minimal restraint and ensure the safety of both subject and handler. The adoption of behavioral management programs, as well as training or acclimation of subjects to the restrainers, has refined techniques allowing for the conduct of various investigations with a much greater precision. The Guide for the Care and Use of Animals includes the requirement for training and habituation of subjects to laboratory procedures

COMFORT AS A PRIORITY

It has long been understood that comfortable restraints improve animal welfare and, when used in conjunction with training and acclimation protocols, they result in calmer subjects and allow the collection of qualitative and quantitative data, including measurements of even very subtle changes in various physiological parameters.

PROPER PLANNING AND PROTOCOLS

Strategies and protocols for acclimation to equipment, devices and procedures must be well planned in advance and documented throughout. The design of devices must allow access to limbs and specific areas on the body for biological sampling, measurement or administration. Where necessary, the restrainer may be either adapted or custom made to accommodate specific measurements or procedures.

The amount of time animals may spend in a restraint device must be kept to a minimum sufficient for the procedure and it must be recognised that training and acclimation are labor intensive and for the duration of both training and throughout the study, animals must be under close supervision and not left unattended.

Acclimation protocols will vary considerably across species, application and facilities; regardless, the protocol should detail the procedures, duration, etc., and records should be maintained. Generally, acclimation is achieved by adopting positive reinforcement techniques in a stepwise manner and always allowing for additional refresher training, if needed, before commencing the study.

Lomir Biomedical Inc.
95 Huot, Notre-Dame-de-l'Île-Perrot, QC
Canada J7W 1M3
Tel: 514-425-3604
Toll Free: 1-877-425-3604
Fax: 514-425-3605
Email: info@lomir.com

Lomir Biomedical Inc.
C/O Agenda Life Sciences
UK PO Box 24 Hull
HU128YK, UK
Tel: 03456 44 55 45
Email: info@lomir.com

Lomir Inc.
PO Box 778
Malone, NY
USA 12953
Tel: 518-483-7697
Toll Free: 1-877-425-3604
Email: info@lomir.com

RESTRAINTS - SMALL ANIMAL

Small animals are prone to stress and require extra care in handling. Mechanical restraints frequently require the involvement of two personnel: one to restrain and one to perform. The resulting stress and discomfort for the subject can often jeopardize the efficiency of the procedure. This is why Lomir designed the "Snuggle Family" for small animal immobilization.

ADVANTAGES OF THE LOMIR "Snuggle Family"

The "Snuggle Family" uses the principle of a cocoon rather than a rigid structure for immobilization. The multiple flaps perform two functions: they are adjustable around the subject for effective yet comfortable restraint, and can be positioned or left open for access, depending on the procedure. Both restraint and procedure can be carried out by one handler.

The Lomir "Snuggle Family" is manufactured from flexible yet extremely durable canvas fabric. The fabric is coated with nylon to facilitate laundering for reuse. Wide flaps with Velcro™ fasteners allow for maximum flexibility, ease of use and adjustment for fit between individual subjects. "Snuggle" restrainers are available for a number of laboratory animal species: mouse, rat, guinea pig, rabbit, ferret and other small mammals. Designs vary by species taking into account anatomical features and common restraint techniques for each species. Snuggles for each species are available in a number of sizes based on given weight ranges and the Velcro™ bands allow for infinite fit and adjustment for individual animals. Routinely used for sample collection, dosing and other procedures, these restrainers may be further adapted for specialised applications.

DESIGN.
INTEGRITY.
RELIABILITY.

Lomir Biomedical Inc.

95 Huot, Notre-Dame-de-l'Île-Perrot, QC
Canada J7W 1M3
Tel: 514-425-3604
Toll Free: 1-877-425-3604
Fax: 514-425-3605
Email: info@lomir.com

Lomir Biomedical Inc.

C/O Agenda Life Sciences
UK PO Box 24 Hull
HU128YK, UK
Tel: 03456 44 55 45
Email: info@lomir.com

Lomir Inc.

PO Box 778
Malone, NY
USA 12953
Tel: 518-483-7697
Toll Free: 1-877-425-3604
Email: info@lomir.com