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The Development of Laboratory Animal Jackets for Multiple Applications in Primates

AS PRESENTED BY TERESA WOODGER
TO MASSACHUSETTS GENERAL HOSPITAL IN
BOSTON, MA ON OCTOBER 31ST, 2014

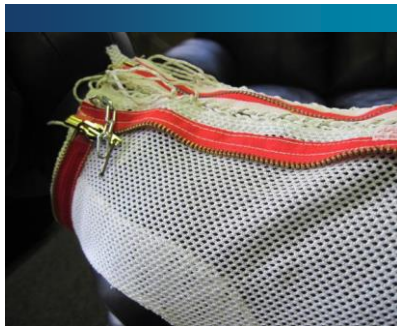
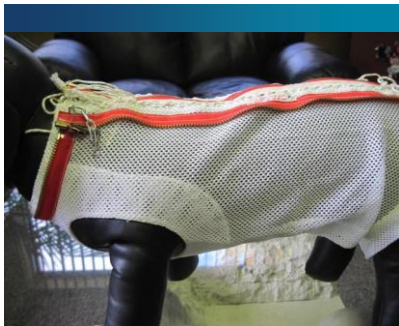
HISTORY



Early use of jackets for laboratory animals starts in late 1940s through to the 1960s, mainly around early space flights.

Ham's suit was created by Alice King Chatham whose company went on to design and manufactures the first commercially available jackets.

Changes in designs were driven by developments in fabrics and fasteners such as Velcro and to accommodate physiological measurement devices, social housing and incorporating features to maintain all aspects of animal welfare.



CUSTOM PRIMATE JACKET FEATURES



- Padding at chest area
- Padded smooth neck and waist band – caution if using pole and collar system
- “D” rings to secure zippers – group housing and extra security
- Zipper protectors
- Black canvas pocket for pump and bag – black good for photosensitive materials

- Short v neck – essential for pole and collar set-up
- Plastic anchor point on back with tether end plate riveted in place – location can vary as per surgery
- Zipper protector over pocket zipper – need for extra security and group housing
- Velcro bands secure and adjust at neck and waist
- Green strips here allow for bands to be trimmed to optimal length
- Jackets can feature reinforced areas such as upper chest, preventing damage to jackets.



KEYS TO SUCCESS

- Select correct size jacket
- Check fit of jacket
- Acclimation before procedures
- In recent years we have learned a lot about acclimation periods, duration and telemetry systems confirm that subjects return to a normal state of physiological parameters following acclimation.

US CRO

Days	Duration of Acclimation	Equipment Introduced
1	4	Jacket only
2	8	Jacket and undershirt
3	24	Jacket and undershirt + sham weight in pocket
5	4	Jacket only
6	8	Jacket and undershirt
7	24	Jacket and undershirt + complete telemetry hardware

UK CRO

Days	Duration of Acclimation	Equipment Introduced
1	2	Jacket
2	2	Jacket and undershirt
3	4	Jacket and undershirt
4	4	Jacket and undershirt
5	8	Jacket and undershirt + sham weight in pocket
6	8	Jacket and undershirt + sham weight in pocket
7	24	Jacket and undershirt + sham weight in pocket
8	24	Jacket and undershirt + complete telemetry hardware
9	24	Jacket and undershirt + complete telemetry hardware
10	24	Jacket and undershirt + complete telemetry hardware

Make sure you have considered all of the design features. For new designs evaluate small numbers of jackets to ensure correct fit etc.

APPLICATIONS



- Intravenous infusion – tethered and ambulatory



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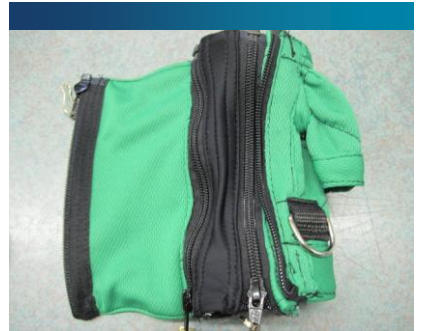
- Dermal or topical applications



- Holding devices in place at specific locations

APPLICATIONS

- ❖ Video Tracking – colored jackets enable software to separate and monitor individual animals



APPLICATIONS FOR UNDERSHIRTS AND SOFT GARMENTS

Recent advances in textiles have given us undershirts for various species, using spandex and moisture wicking fabrics from sportswear.

- Worn under mesh jacket to secure and support ECG leads; respiration bands etc for telemetry
- Worn on their own to secure devices
- Worn on their own to protect dermal application sites



FUTURE

- Future will be driven in large part by smart textiles in combination with equipment to quantitatively measure physiological parameters. We are already seeing this with human applications.





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