

AperTO - Archivio Istituzionale Open Access dell'Università di Torino

Effect of transport on body temperature and heart rate of lambs measured by subcutaneous bio-loggers

This is the author's manuscript

Original Citation:

Availability:

This version is available <http://hdl.handle.net/2318/1962732> since 2024-03-18T08:35:27Z

Terms of use:

Open Access

Anyone can freely access the full text of works made available as "Open Access". Works made available under a Creative Commons license can be used according to the terms and conditions of said license. Use of all other works requires consent of the right holder (author or publisher) if not exempted from copyright protection by the applicable law.

(Article begins on next page)



Effect of transport on body temperature and heart rate of lambs measured by subcutaneous bio-loggers

Isabella Manenti¹, José Alfonso Abecia², Irene Viola¹, Francisco Canto², Paola Toschi¹, Asgeir Bjarnason³, Genaro Miranda-de la Lama²,
Silvia Miretti¹
(1. Univ. di Torino, 2. Univ. de Zaragoza, 3. Star-Oddi LTD)

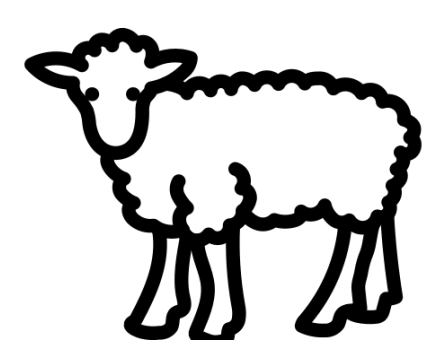
INTRODUCTION

The **transport** of livestock is an **animal welfare** issue, but an essential activity in the meat production system. During transport, animals are exposed to a variety of environmental stressors. The shifts in temperature, vibration, noise, stocking density, and human handling represent some of the most common physical and psychological discomforts.

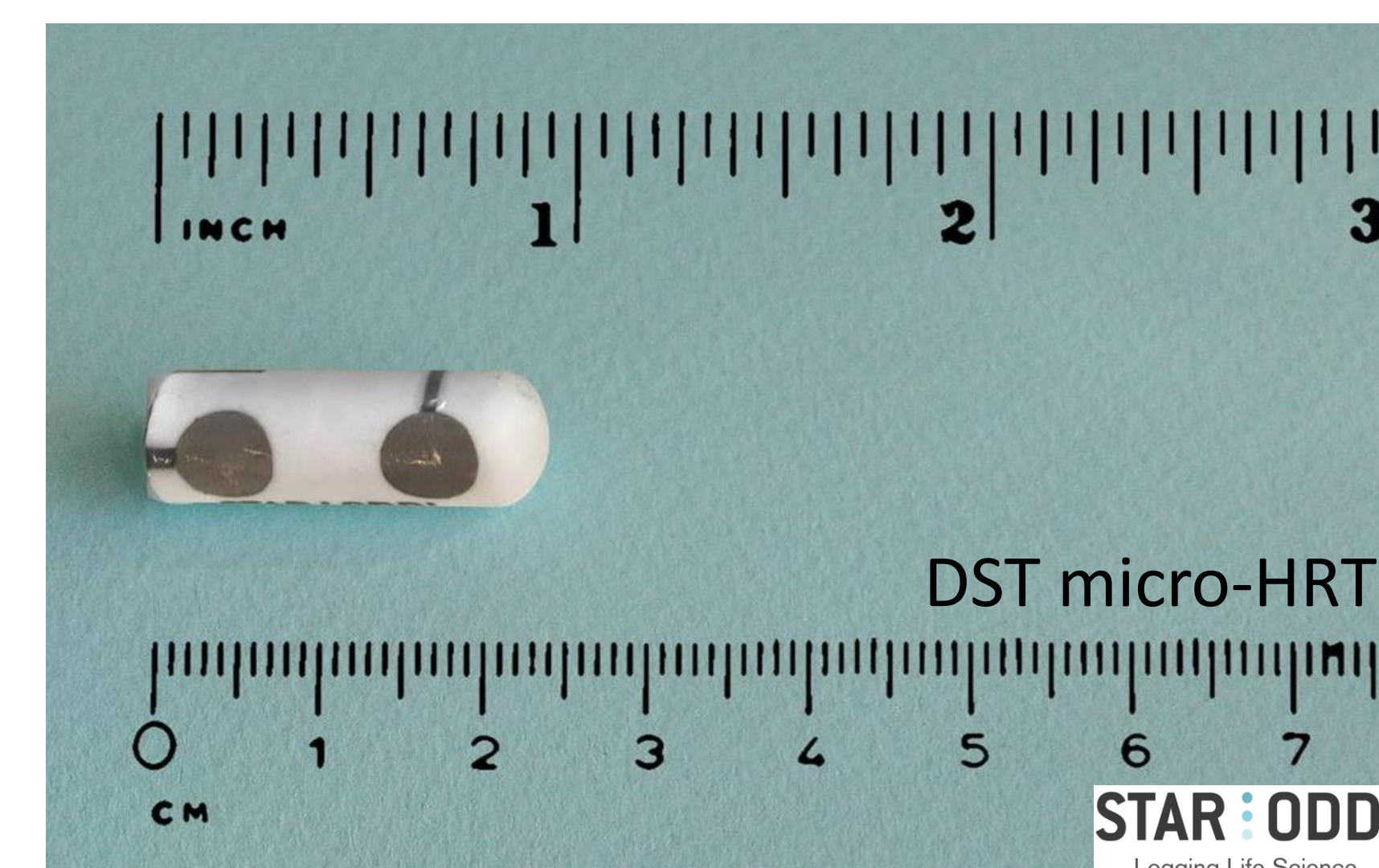
GOAL

We have used subcutaneous bio-loggers to determine the effect of transport on **body temperature** (T, °C) and **heart rate** (HR, bpm) of lambs, as potential indicators of stress.

MATERIALS AND METHODS



Eighteen 90-day-old lambs with a **subcutaneous bio-loggers**, programmed to record data at 1-min intervals.

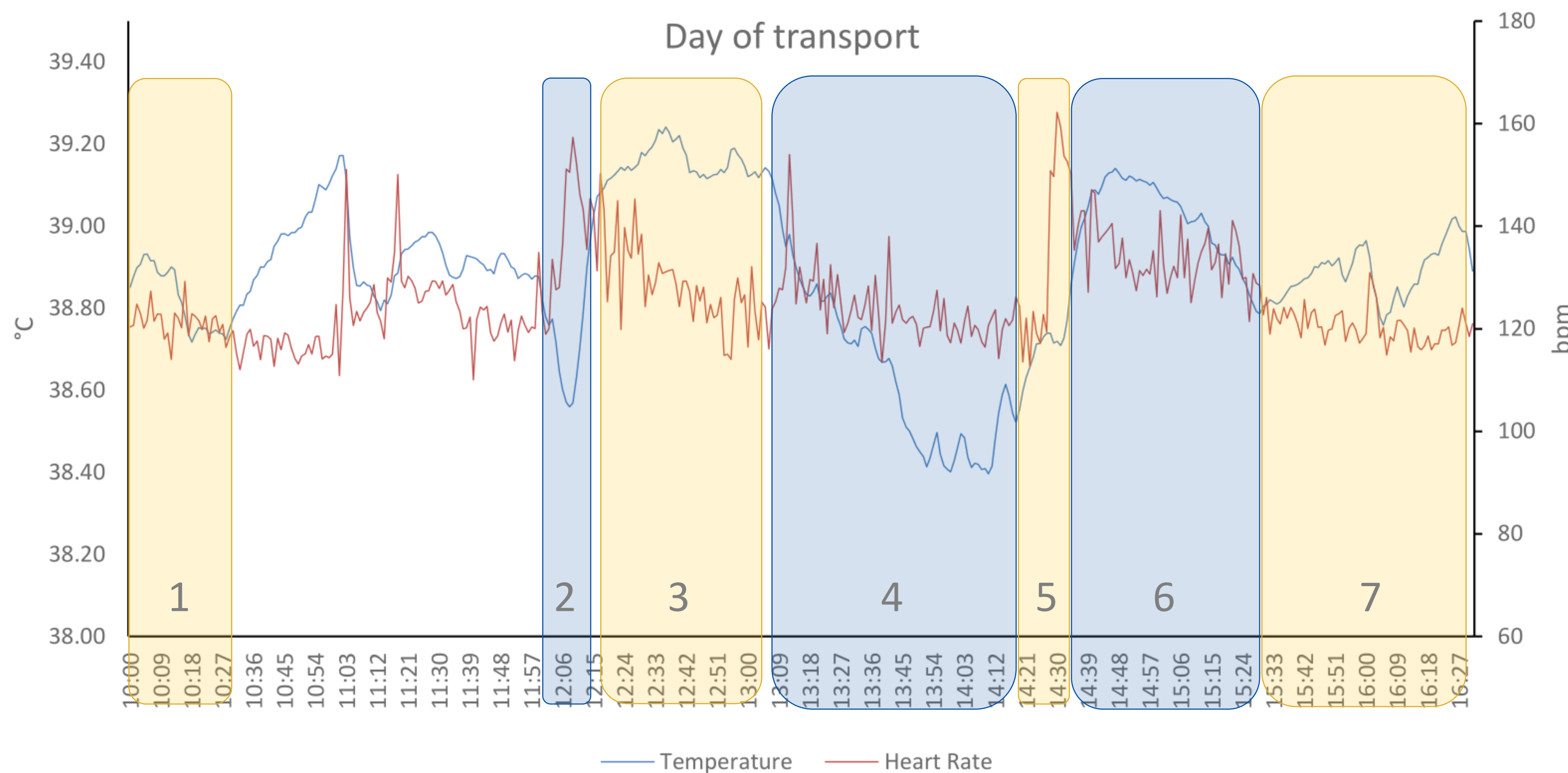


The day of transport (75 min) was divided into seven phases:

1. Two hours before transport
2. Loading
3. Lambs loaded in the stopped lorry
4. Transport
5. Unloading
6. First hour after transport
7. Second hour after transport



RESULTS



Temperature: lambs showed highly significant differences ($P < 0.001$) between phases 1 and 7 and phases 3 and 6.

No differences were observed for T during phases 2, 4 and 5 which were significantly lower than phase 1 ($P < 0.001$).

Heart rate: lambs had similar HR during phases 1, 4, 5 and 7. They reached the maximum HR during phases 2 and 6.

	1	2	3	4	5	6	7
T	38.90	38.72	39.15	38.63	38.72	39.00	38.89
HR	122.12	136.04	130.93	122.99	128.00	134.46	120.45

CONCLUSIONS

In conclusion, the bio-loggers used in this experiment have demonstrated a high sensibility to detect changes in T and HR of lambs before, during and after a stressor as transport. For T, transport produced a **hyperthermia** when the lorry was **not in movement** and a **higher HR** during **loading** and first hour **after transport**.