

# Effect of feeding management before weaning on behavioral and metabolic responses to stress in dairy sheep lambs



## OBJECTIVES

Compare **cortisol levels** and **behavior** of lambs reared on natural and artificial suckling systems.

## RESULTS & DISCUSSION

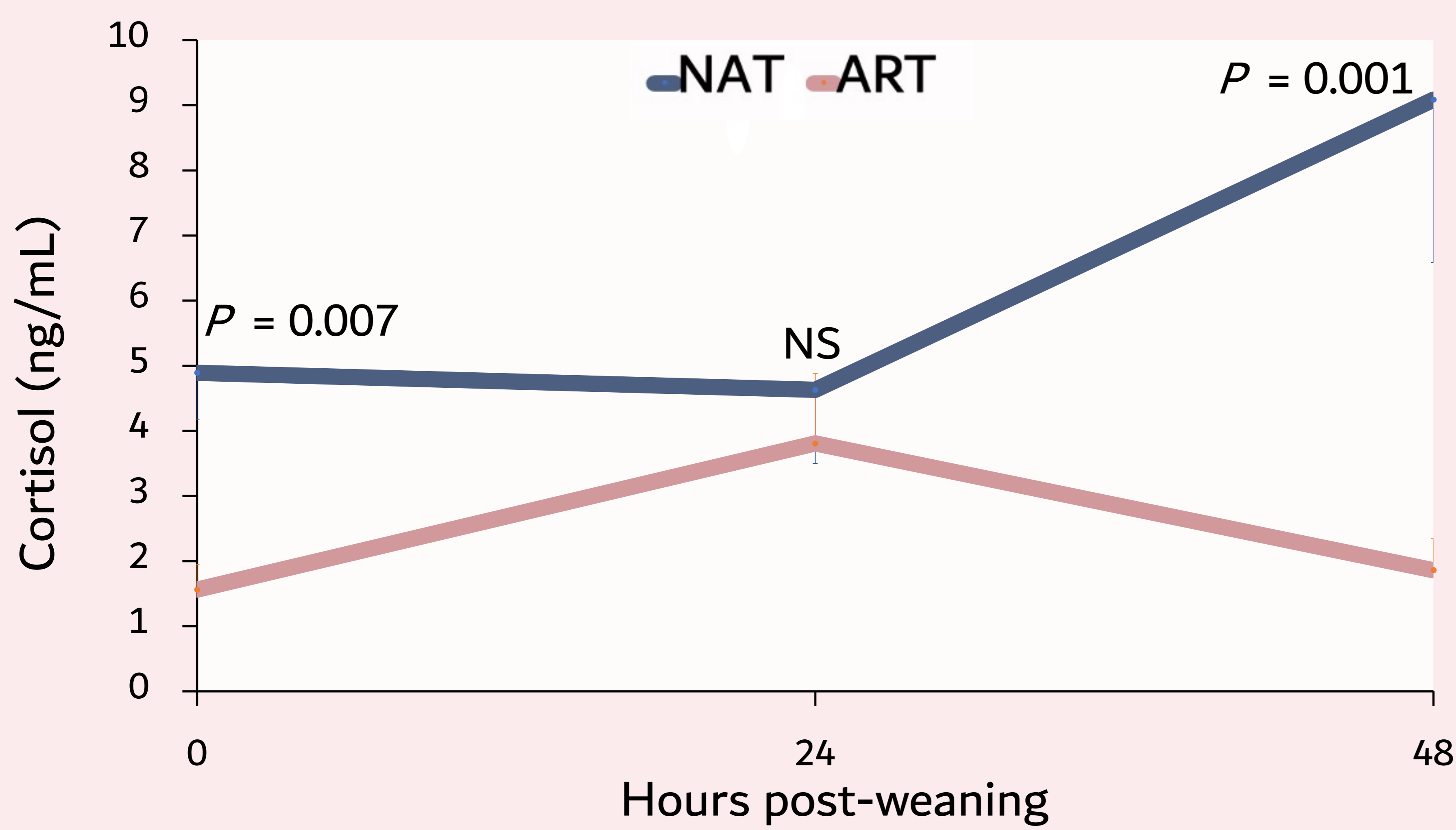


Fig 1. Effect of pre-weaning feeding management on cortisol levels after weaning in lambs . NAT= naturally suckled lambs. ART = artificially suckled lambs

### ➤ Differences in cortisol levels

- Artificially suckled lambs (ART) have **lower cortisol levels** than naturally suckled lambs.
- Naturally suckled lambs (NAT) are more fearful of humans due to **lack of contact before weaning**.
- The **stress of handling** and **venipuncture** activates the HPA axis.
- **Fear** affects the magnitude of the HPA axis response.

### ➤ Behavioral responses

- NAT lambs **increased their latency period by 132%** compared to ART lambs.
- A high adrenocortical response to fear **supress active behaviors** (vocalization and locomotor activity) in NAT lambs.
- NAT lambs have a **higher level of curiosity and sensory exploration** → conditions closer to their natural environment.

Table 1. Behavioral responses in arena test (AT) of lambs at 5 weeks of age. NAT= naturally suckled lambs. ART = artificially suckled lambs

Item	Treatment		Effect (P-value)
	ART	NAT	
No. of squares entered	30.0 ± 2.4	33.0 ± 1.1	0.290
Latency, s	13.0 ± 6.9	30.2 ± 8.2	0.147
No. of vocalizations	88.5 ± 15.5	48.0 ± 8.7	0.066
No. of sniffs	18.6 ± 3.6	39.2 ± 5.8	0.016
No. of wall climbings	37.5 ± 4.2	17.5 ± 4.2	0.025
No. of jumps	28.0 ± 4.5	27.0 ± 4.5	1.000

## CONCLUSIONS

- ❑ **Differences in cortisol levels:** fear of human presence.
- ❑ **Behavioral responses:** both groups exhibited exploratory behavior.
- ❑ Artificially reared lambs → **dare animals.**
- ❑ Naturally reared lambs → **cautious animals.**