

# #ABSEBF00181 EFFECTS OF SHORT TRANSPORT AND BODY CONDITION ON STRESS AND IMMUNE PARAMETERS IN 2-4 WEEK OLD DAIRY CALVES

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Transport is a well-known risk factor for pneumonia in cattle, but its immunosuppressive effects in the very young calves, destined for the veal industry, are poorly documented. Especially lightweight calves appear predisposed to develop infectious bronchopneumonia. The objective of this randomized field trial was to determine the effects of body condition and short transport on the inflammatory state of 2-4 week old calves.

## Methods

Twenty one male dairy calves were allocated to 4 treatment groups: low body weight (< 46 kg), no transport (LC); low body weight plus transport (LT); high body weight (> 46 kg), no transport (HC) and high body weight with transport (HT). Transport duration was 2h. Animals were blood sampled before departure (0h), at arrival (2h) and 5h, 24h, 48h and 72h post transport. Analysis included determination of cortisol, white blood cell counts, electrophoresis, reactive oxygen species (ROS) production by neutrophils and monocytes, proliferation and cytokine release of peripheral blood mononuclear cell (PBMCs) after stimulation.

## Results

Transport induced a mild increase in cortisol immediately after transport. Only the LT group showed a numerical rise in total white blood cells, neutrophils, lymphocytes and a significant rise in monocytes 5h after transport. In contrast, an eosinophilia was observed simultaneously in two animals from the HT group. LT calves showed an increased proliferation of PBMCs 24h after transport. ROS production was not significantly affected. Transport increased pro-inflammatory cytokine secretion by PBMCs. Lightweight calves exhibited significantly lower serum concentrations of total protein and immunoglobulin (Ig).

## Conclusions

A 2h transport resulted in a minor stress response in 2-4 week old calves. The lower Ig levels, the increase in lymphocyte proliferation and the modulated inflammatory response after transport in lightweight calves might partly explain their increased susceptibility to infectious diseases.