EU Reference Centre
for Animal Welfare Pigs

Transport of Pigs

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Transport and its Effect on Pigs

Road transportation of pigs is an essential but stressful process:

Transport : a multifactorial stressor

- Feed deprivation
- contact with stockpersons,
- Loading and unloading)
- Vibrations
- Changes in acceleration and driving methods
- Ambient conditions.

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Transport and its Effect on Pigs

Stress associated with transport:

- Significant changes in live weight **(Warris, 1998),**
- Blood concentrations of cortisol, glucose, creatine, CDK, LDH, albumin, total protein **(Averós et al., 2007)**
- Pig may become fatigued, non-ambulatory, or eventually die **(Sutherland et al., 2009).**
- Mortality during transit depends of the level of stress and can vary between 0.03% to 0.5% for journeys less than 8 h within the European Union **(Temple et al., 2014).**

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Factors influencing a pigs response to transport

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Journey Duration

- Short (1 h), as well as long (>8 h) transportation increased the mortality rate **Werner et al. (2007)**
- pigs transported for (15 min) showed a more intense physiological response to moderately long (3 h) transport **(Pérez et al., 2002).**
- **Brown et al. (1999)** long distance transport increases plasma protein and albumin concentrations indicating dehydration.
- Positive correlation between transport duration and mortality **(Ritter et al., 2006)**

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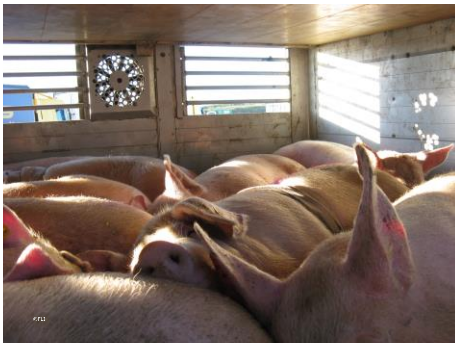
Journey Duration



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Fitness for transport

Fitness for transport: Currently no agreed scientific definition.

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Fitness for transport

Key area to focus during fitness of transport inspection.

Pathological processes:

- Lameness
- Prolapses
- Wounds
- Ear lesions
- Tail lesions
- Decubital shoulder
- ulcers
- Hernias

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Fitness for transport

Key area to focus during fitness of transport inspection.

Physiological processes

	Indicator and description	Assessment
	*Anaemia and emaciation:* Pigs having pale skins and breathing quickly (anaemia: low red cell count in blood, low hemoglobin levels) or having a very low body condition (emaciation).	Visually
	*Gestation stage of sows:* Pregnant females for whom 90% or more of the expected gestation period has already passed. Females who have given birth in the previous week.	Farm records
	*Age of piglets:* New-born mammals in which the navel has not completely healed. Pigs less than three weeks, unless they are transported less than 100 km.	Visually Farm records

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Deck height

Vertical space (or internal deck height) is crucial for pig comfort and welfare during transport.

Insufficient vertical space can affect:

- Ventilation
- Hinders natural movement: ability to stand upright and expression of natural behaviour
- Restrict access to water
- Cause injuries

Aside animal welfare: deck height affects :

- The accessibility of the animals for inspection,
- Driver working condition,
- Transport capacity
- Fuel efficiency

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Deck Height

Recent study : examine the effect of deck height in transport vehicles (60 vs 80 cm and 70 vs 90 cm) on 20–25 kg weaner pigs during 8h and 23 h transport (Kobek-Kjeldager et al., 2025)

- Natural movements : huddling, aggression, lying and standing on other pigs
- Adequate ventilation: Temperature, CO_2 levels, speed

Findings: the compared deck height only had minor effects ion behavioural measures and indicators of adequate ventilation.

A **complex interplay between factors like microclimatic conditions (e.g., temperature, CO_2) and driving speed play a larger role on the well being of pigs during transport**

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Deck height

Indicators for adequate ventilation

- ➢ Temperature
- ➢ Carbon dioxide
- ➢ Ammonia levels

To prevent injury, pigs must be able to stand without hitting their heads, shoulders, or hips against the ceiling.

(SCAHAW, 2002) recommends a deck height of 90 cm for a pig with a live weight of 100kg

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Minimizing welfare Problems

Improved assessment of pigs' fitness for transport

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References

- Averós, X., Herranz, A., Sanchez, R., Comella, J. X., & Gonzalvez, L. F. (2007). Serum stress parameters in pigs transported to slaughter under commercial conditions in different seasons. Veterinarni Medicina-Praha-, 52(8), 333.
- Brown, S. N., Knowles, T. G., Edwards, J. E., & Warriss, P. D. (1999). Behavioural and physiological responses of pigs to being transported for up to 24 hours followed by six hours recovery in lairage. Veterinary record, 145(15), 421-426.
- Kobek-Kjeldager, C., Jensen, L. D., Foldager, L., Kaiser, M., Thodberg, K., & Herskin, M. S. (2025). Deck height did not affect behavioural measures of 'natural movements' and 'adequate ventilation'during 8 h and 23 h transport of weaner pigs. *Applied Animal Behaviour Science*, 106714.
- Pérez, M. P., Palacio, J., Santolaria, M. P., Aceña, M. C., Chacón, G., Gascón, M., ... & GarciaBelenguer, S. (2002). Effect of transport time on welfare and meat quality in pigs. Meat science, 61(4), 425-433.
- Ritter, M. J., Ellis, M., Bowman, R., Brinkmann, J., Curtis, S. E., DeDecker, J. M., ... & Rojo, A. (2008). Effects of season and distance moved during loading on transport losses of market-weight pigs in two commercially available types of trailer. Journal of Animal Science, 86(11), 3137-3145

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References

- SCAHAW 2002. SCAHAW (Scientific Committee on Animal Health and Animal Welfare), 2002. The welfare of animals during transport (details for horses, pigs, sheep and cattle). European Commission, Report of the Scientific Committee on Animal Health and Animal Welfare. 130 pp.
- Sutherland, M. A., McDonald, A., & McGlone, J. J. (2009). Effects of variations in the environment, length of journey and type of trailer on the mortality and morbidity of pigs being transported to slaughter. Veterinary Record, 165(1), 13-1
- Temple, D., Mainau, E., & ManTEC, X. (2014). Economic impact of stress caused by road transport of pigs. Animal Welfare Education Center (FAWEC).
- Warriss, P. D. "The welfare of slaughter pigs during transport." *Animal welfare* 7.4 (1998): 365-381.
- Werner, C., Reiners, K., & Wicke, M. (2007). Short as well as long transport duration can affect the welfare of slaughter pigs. Animal Welfare, 16(3), 385-389.

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Review of fitness for transport of pigs

Mette S. Herskin, Marien A. Gerritzen, Michael Marahrens, Marc B.M. Bracke, Hans A.M. Spoolder

Review on transport of sows

Mette S. Herskin, Isa Kemberger-Fischer, Marien A. Gerritzen

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Questions

- **What are the problems regarding pig transport in your country.**
- **How do you assess the fitnesss of the animals for transport. If you have any specific guidelines could you send as copy or the link.**
- **Do you use these guidelines and do you recommned them to the drivers**
- **What are the usual internal vertical heights in the transport vehicles, if possible for the different pig categories.**
- **What are the measures you take to prevent heat stress in the summer during transport.**

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Thank you for your attention

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