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Animal-friendly alternatives to surgical castration, tail docking and teeth clipping significantly improve piglets' production and welfare

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Background: In most countries around the world, piglets routinely undergo a set of invasive procedures during the first days of their lives, which commonly includes tail docking, teeth clipping and surgical castration. However, each of these procedures involves a degree of tissue damage potentially resulting in pain and stress, which may have negative short and long term effects on the piglet's health, welfare and production measurements. Our objective was to examine production and welfare parameters of pigs from birth to slaughter under different managements, by avoiding these procedures, while providing alternatives such as anti-GnRH vaccine and environmental enrichment.

Study Design & Methodology: Litters (n=32 sows; 329 piglets; 3 days after farrowing) were allocated randomly into one of four groups; G1: Surgical castration, tail docking and teeth clipping, without environmental enrichment; G2: same as G1, but meaningful environmental enrichment was provided; G3: non-surgical sterilization with anti-GnRH vaccine (Improvac[®]), tail docking, teeth clipping, with environmental enrichment; G4: none of the invasive procedures were performed, piglet were vaccinated (Improvac[®]) and environmental enrichment was provided.

Results: Mixed-effects linear regression model revealed that slaughter weight significantly increased when invasive procedures were avoided and environmental enrichment was provided. Weight interval from birth to slaughter was higher in G4 (G1:992±107, G2:999±14, G3:1036±158, G4:1065±16 Kg; P<005). The odds ratio to be weak, dead or injured in the conventional, non-enriched G1, was 89% higher than in G4 (P<005). Hair cortisol at weaning, as a marker for chronic stress during lactation, decreased gradually as management becomes welfare friendlier (-366 pg/mg for each step group, G1→G2→G3→G4; P<005). Anti-GnRH vaccine was effective in reducing serum and hair testosterone, similar to surgical castration. In conclusion, replacing surgical castration by anti-GnRH vaccine, avoiding teeth clipping and tail docking and providing environmental enrichment are better alternatives that would substantially benefit both the animals and farmers.

Recent Publications

1. A Prunier and C Tallet (2015) Chapter 12 Endocrine and behavioural responses of sows to human interactions and consequences on reproductive performance in The gestating and lactating sow, The Netherlands: Wageningen Academic Publishers, ISBN: 978-90-8686-253-5.
2. M Sutherland (2015) Welfare implications of invasive piglet husbandry procedures, methods of alleviation and alternatives: a review. New Zealand Veterinary Journal 63(1):52-57.
3. B Fredriksen et al. (2009) Practice on castration of piglets in Europe. Animal 3(11):1480-1487.
4. M Hay, A Vulin, S Génin, P Sales, and A Prunier (2003) Assessment of pain induced by castration in piglets: Behavioral and physiological responses over the subsequent 5 days. Applied Animal Behaviour Science 82(3):201-218.
5. J N Marchant-Forde, D C Lay, K A McMunn, H W Cheng, E A Pajor, and R M Marchant-Forde (2014) Postnatal piglet husbandry practices and well-being: the effects of alternative techniques delivered in combination. Journal of Animal Science 92(3):1150-1160.

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Biography

Tal Raz is a Reproductive Biologist and a Theriogenologist at the Koret School of Veterinary Medicine (KSVM), Hebrew University, Israel. In 2002, he graduated as a DVM from KSVM, Hebrew University. In 2004, he began a three-year Theriogenology Residency Program in Animal Reproduction at the Western College of Veterinary Medicine, University of Saskatchewan, Canada, and in 2007, he became a Diplomate of the American College of Theriogenologists (ACT). In 2010, he completed his PhD in Animal Reproduction at the University of Saskatchewan, Canada, and thereafter conducted a Post-doctoral fellowship at the Weizmann Institute of Science, Israel. Since 2013, he is a Faculty Member and Researcher at the Koret School of Veterinary Medicine, Hebrew University. His current research is focused on the association between animal welfare and the reproductive system, the development of non-surgical sterilization methods, as well as the physiology and pathology of the female reproductive system.

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