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Relationship between stepping and kicking behavior and milking management in dairy cattle herds

J.O.L. Cerqueira, J.P.P. Araújo, I. Blanco-Penedo, J. Cantalapiedra, J.T. Sorensen, J.J.R. Niza-Ribeiro



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1 **Relationship between stepping and kicking behavior and milking management in dairy**
2 **cattle herds**

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4 J.O.L. Cerqueira^{1,2*}, J.P.P. Araújo^{1,3}, I. Blanco-Penedo⁴, J. Cantalapiedra⁵, J.T. Sorensen⁶, J.J.R.
5 Niza-Ribeiro⁷

6 ¹*Escola Superior Agrária de Ponte de Lima*

7 *Mosteiro – Refóios do Lima*

8 *4990-706 Ponte de Lima*

9 *Portugal*

10 *Tel. +351 258909740*

11 *E-mail address: cerqueira@esa.ipvc.pt*

12 ²*Animal and Veterinary Research Centre (CECAV) - UTAD,*

13 *Quinta de Prados, 5000-801 Vila Real, Portugal.*

14 ³*CIMO - Centro de Investigação de Alta Montanha,*

15 *Campus de Santa Apolónia - Apartado 1172*

16 *5301-855 Bragança, Portugal.*

17 *E-mail address: pedropi@esa.ipvc.pt*

18 ⁴*Animal Welfare Subprogramme, IRTA,*

19 *Veïnat de Sies s/n E-17121, Monells (Girona), Spain.*

20 *E-mail address: i.blanco.penedo@gmail.com*

21 ⁵*Servicio de Ganadería de Lugo, Xunta de Galicia,*

22 *Rda. da Muralla, 70 Bajo 1 - 27071 Lugo, Spain.*

23 *E-mail address: tsukijizo@gmail.com*

24 ⁶*Department of Animal Science, Aarhus University, Denmark.*

25 *E-mail address: JanTind.Sorensen@agrsci.dk*

26 ⁷*Instituto de Ciências Biomédicas Abel Salazar da Universidade do Porto,*

27 *Porto, Portugal.*

28 *E-mail address: nizaribeiro@gmail.com*

29
30 **Corresponding author:*

31 *Joaquim Orlando Lima Cerqueira*

32 *Escola Superior Agrária de Ponte de Lima*

33 *Mosteiro – Refóios do Lima*

34 *4990-706 Ponte de Lima*

35 *Portugal*

36 *Tel. +351 258909740*

37 *E-mail address: cerqueira@esa.ipvc.pt*

38
39 **Abstract**

40 We studied the relationship between behaviour during milking with milking parlor management,
41 measuring the occurrence of steps and kicks, and cow-related factors. We also investigated the link
42 between stepping and kicking during milking and udder health. A total of 2,903 direct observations
43 of milking behavior were collected in 44 dairy herds in the north of Portugal. The results showed
44 great variability in the occurrence of stepping and kicking among herds during milking. Mixed linear
45 and logistic regression models for factors associated with stepping and kicking were developed.
46 Cows in tandem milking parlors took fewer steps ($P < 0.003$) than in herringbone ones, although in
47 the tandem milking system more kicking occurred than in parallel and herringbone systems. Milking
48 room temperatures over 27°C led to a higher frequency of kicks among cows ($P < 0.010$). The
49 practice of overmilking also produced a significantly greater frequency of cow stepping ($P < 0.001$).

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