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Supplementary material

Why Is the Grass the Best Surface to Prevent Lameness? Integrative Analysis of Functional Ranges as a Key for Dairy Cows' Welfare

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Citation: Medina-González, P.; Moreno, K.; Gómez, M. Why Is the Grass the Best Surface to Prevent Lameness? Integrative Analysis of Functional Ranges as a Key for Dairy Cows' Welfare. *Animals* **2022**, *12*, 496. https://doi.org/10.3390/ani12040496

Academic Editor: Miriam Annika Vogt

Received: 25 December 2021
Accepted: 8 February 2022
Published: 17 February 2022

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Table S1. Documented prevalence of dairy cow lameness according to floor type.

Reference	Country [Sample characteristics]	Prevalence				
		Grass	**Sand**	**Rubber**	**Asphalt**	**Concrete**
Solano et al., 2015 [22]	Canada [5637 cows in 141 herds]			19%		64%
Frankena et al., 2009 [29]	Netherlands [240 cows in 12 herds]	1%				40.6%
Fabian et al., 2014 [31]	New Zealand [23949 cows in 59 herds]	8.3%				
Husfeldt & Endres, 2012 [33]	United States [37271 cows in 34 herds]		14.4%		19.8%	
Rahman et al., 2014 [35]	Bangladesh [2103 cows in 87 farms]			18.3%	13.3%	68.4%
Salfer et al., 2018 [36]	United States [12 herds]	22.5%	21.5%		40.9%	
Faye & Lescouret, 1989 [58]	France [80 farms]	2.9%				19.8%
Frankena et al., 1992[59]	Netherlands [1141 dairy calves]	4.6%				44.6%
Cook et al., 2003[68]	United States [3621 cows in 30 herds]		11.4%	17.4%		
Vokey et al., 2001 [69]	United States [120 primi-multiparous]		5%	5%		32%
Espejo et al, 2006[70]	United States [5626 cows in 53 herds]		17.1%	27.9%		
Cramer, 2007 [74]	Canada [13530 cows in 204 herds]			23.7%		52.6%
Cook et al., 2016 [75]	United States [9690 cows in 66 herds]		11%	17.5%		

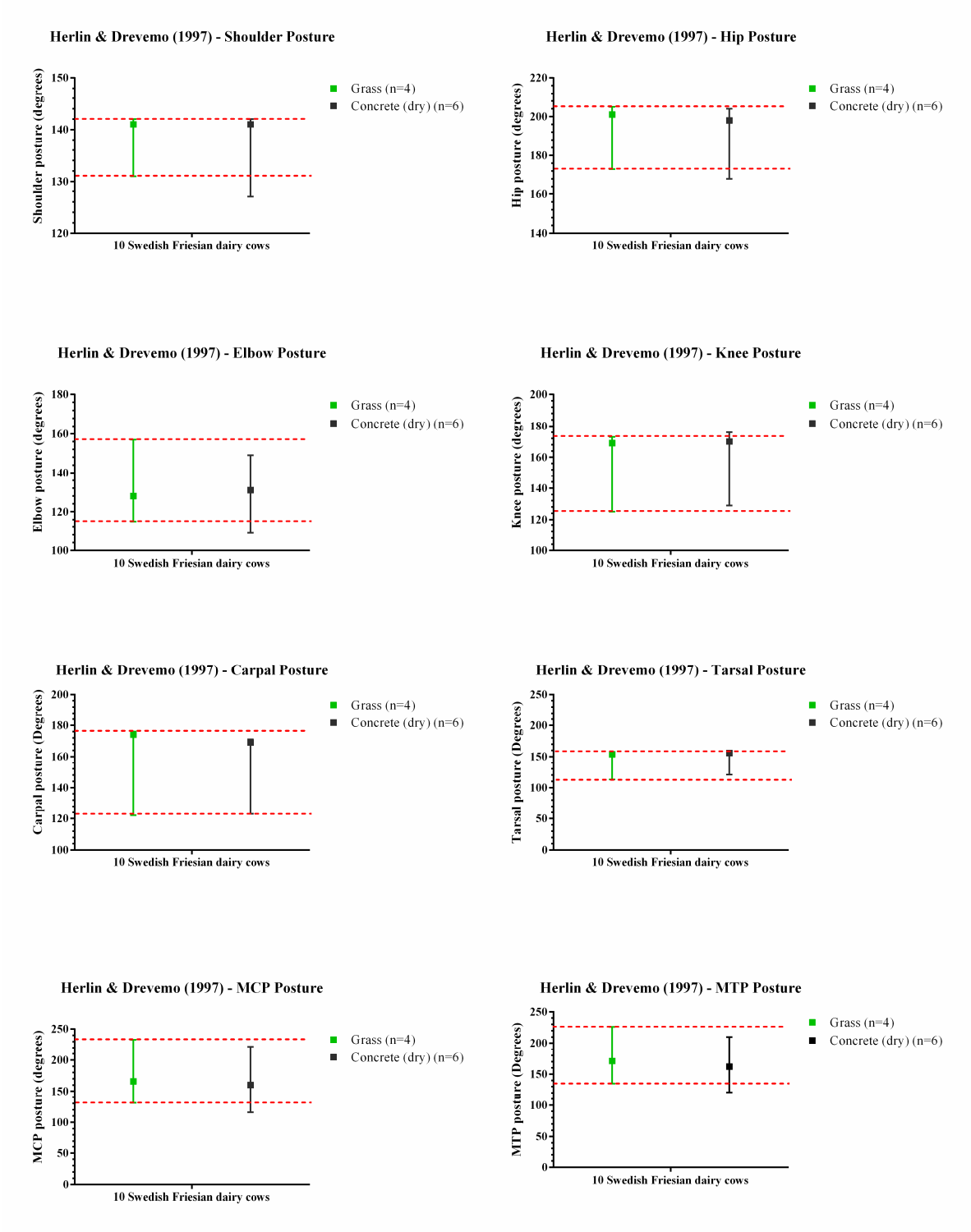


Figure S1. Posture parameters for grass and concrete surfaces.

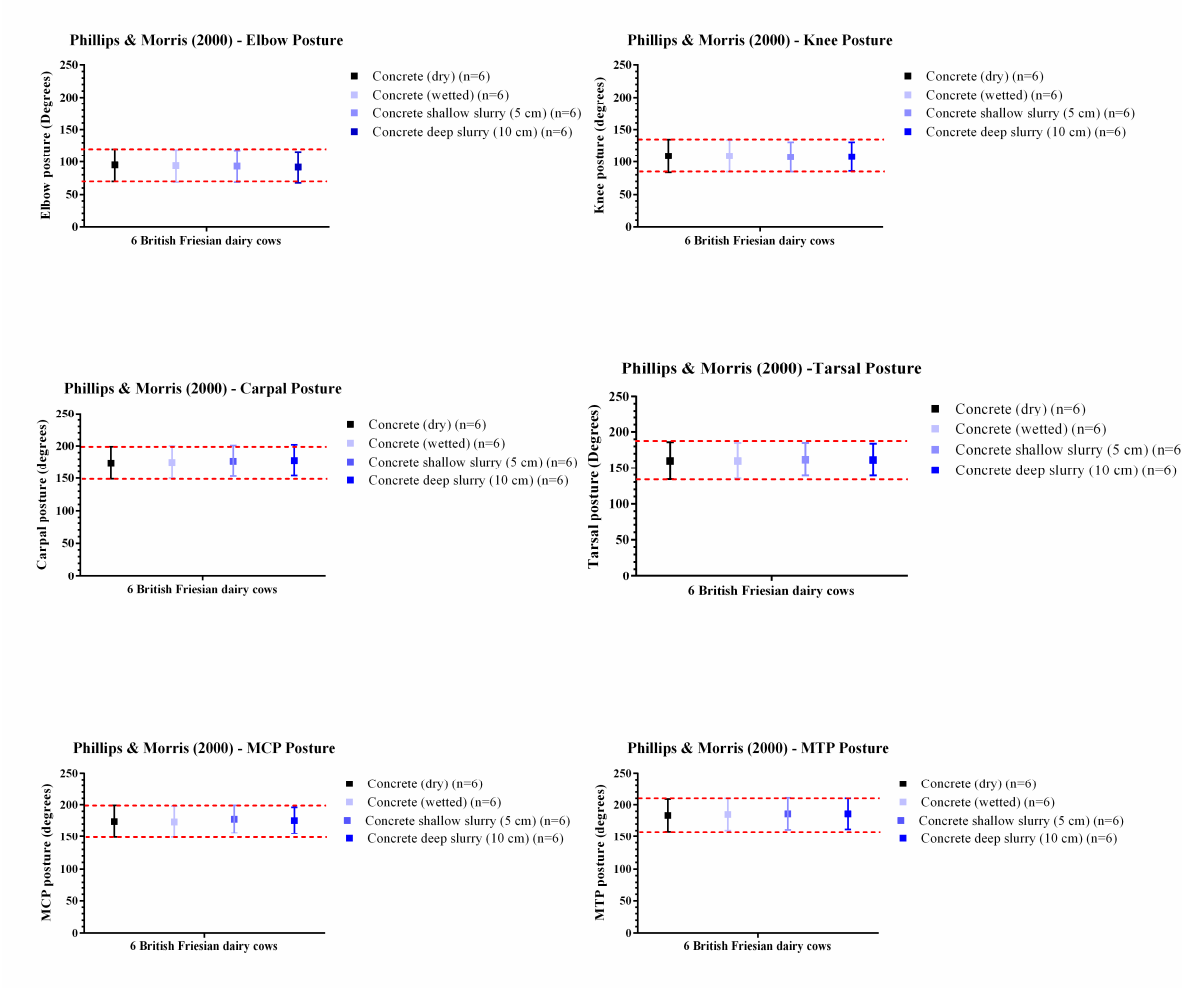


Figure S2. Posture parameters for concrete surface (soak factor).

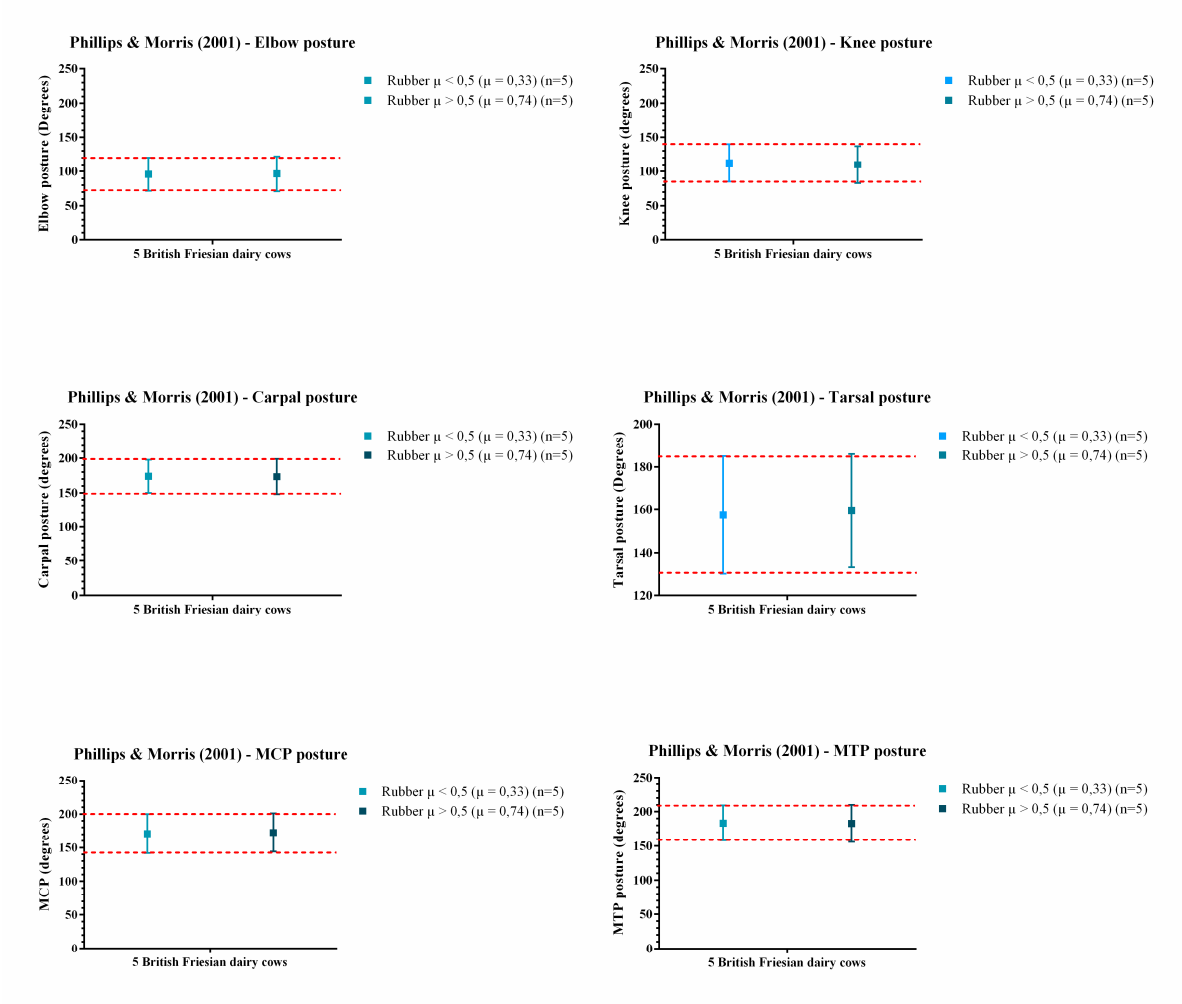


Figure S3. Posture parameters for rubber surface (friction factor).

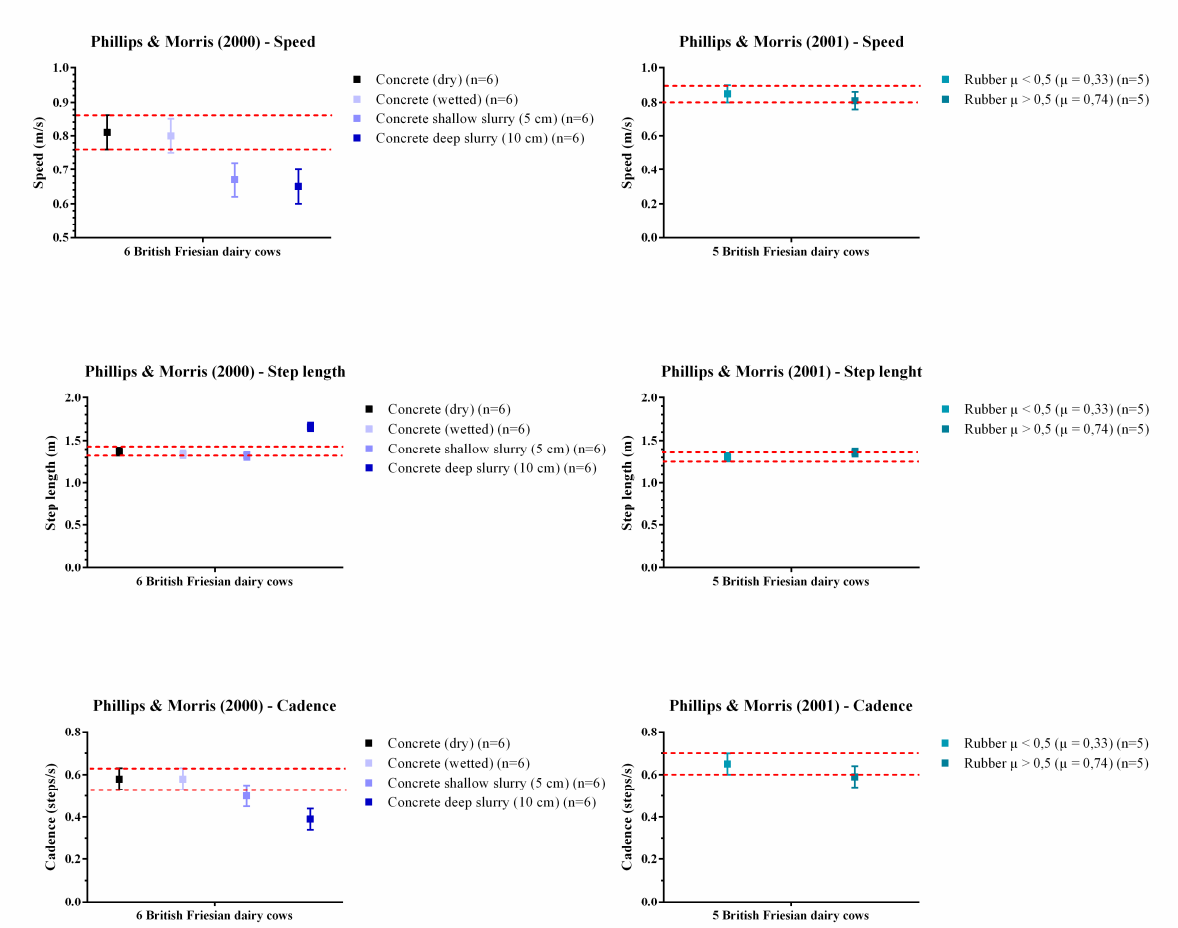


Figure S4. Kinematics parameters for rubber (friction factor) and concrete (soak factor) surfaces.

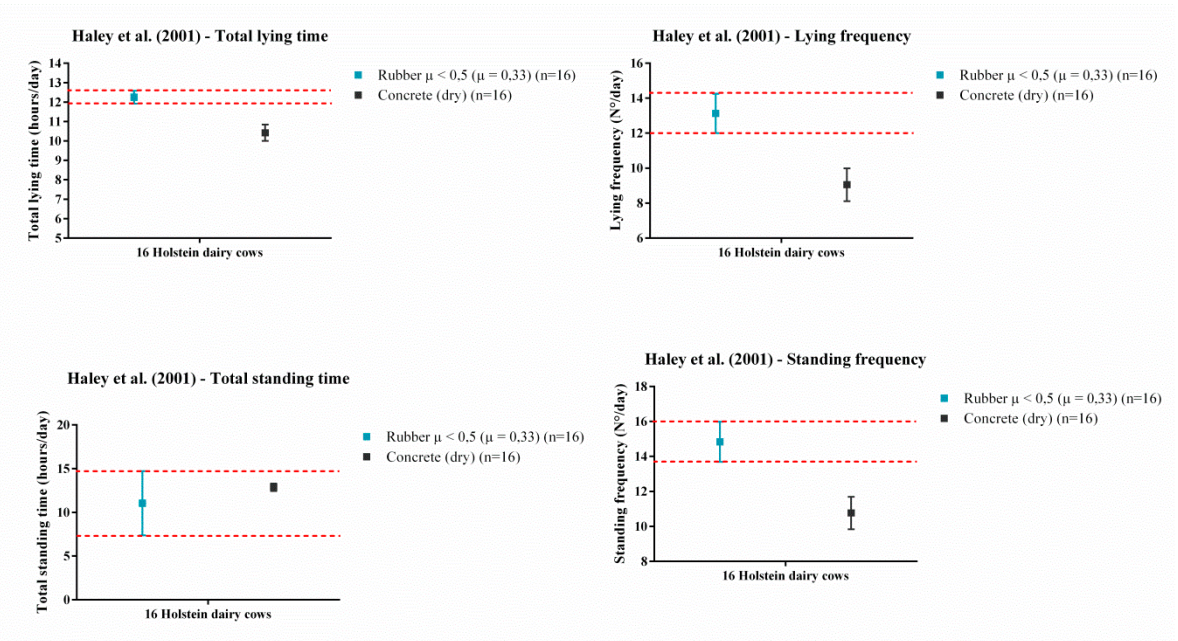


Figure S5. Behavior parameters for rubber and concrete surfaces.

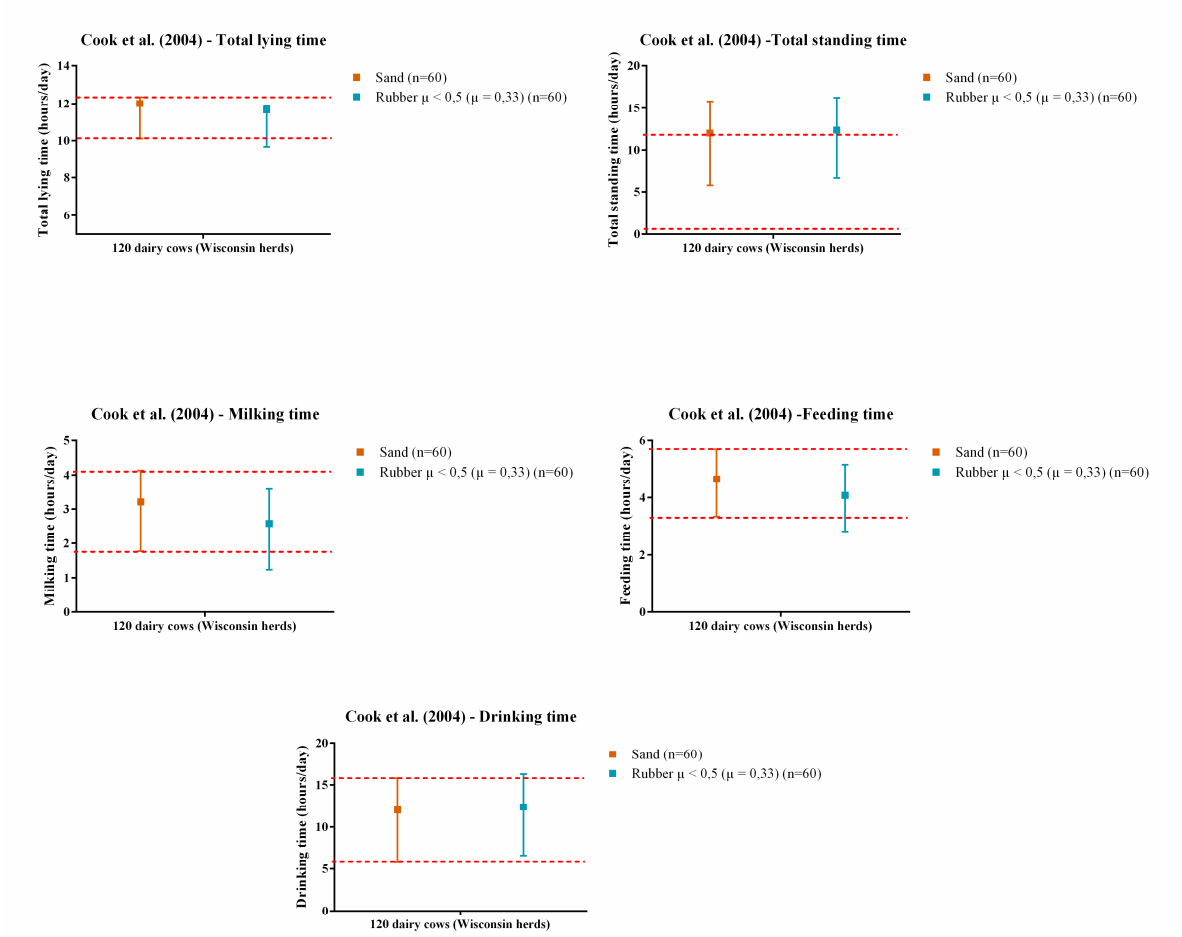


Figure S6. Behavior parameters for sand and rubber surfaces.

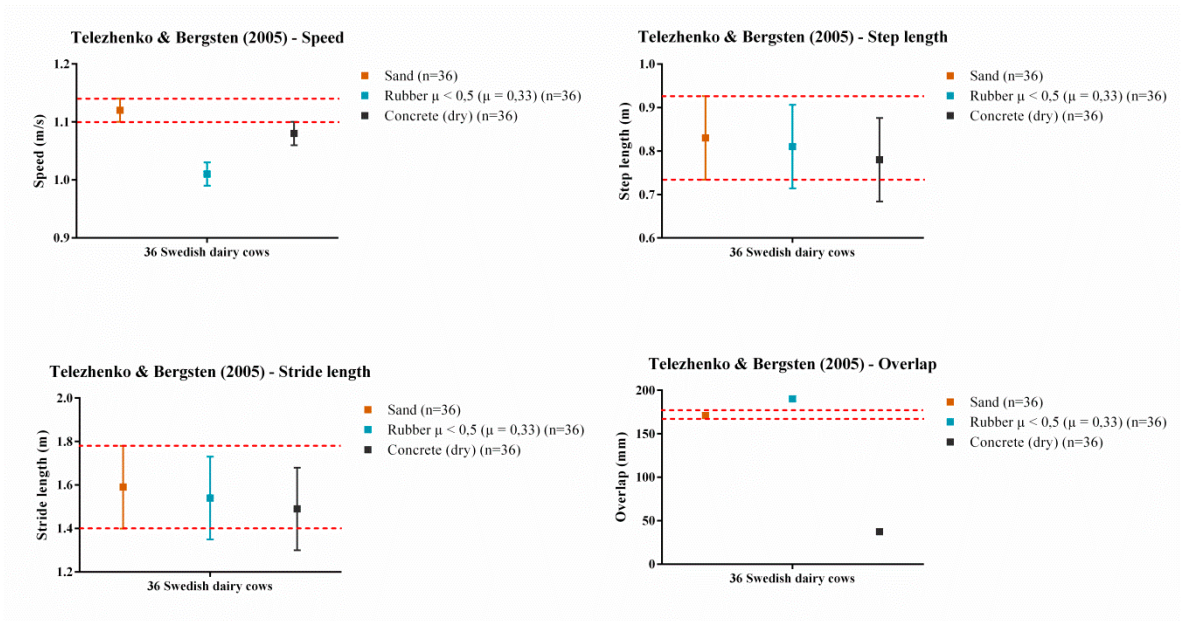


Figure S7. Kinematics parameters for sand, rubber and concrete surfaces.

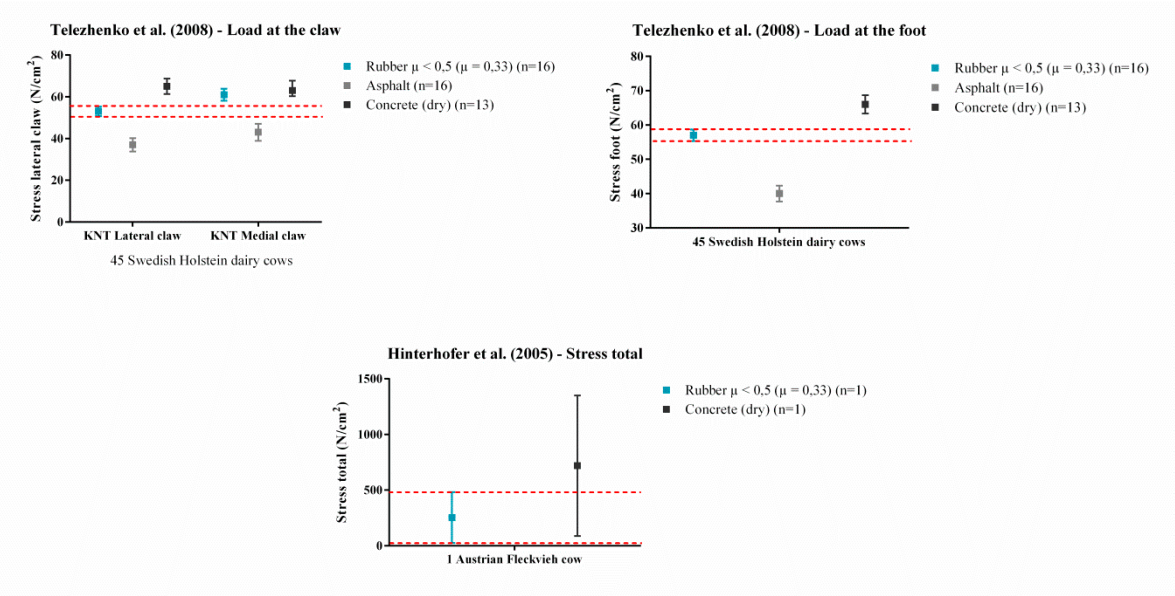


Figure S8. Kinetics parameters for rubber, asphalt and concrete surfaces.

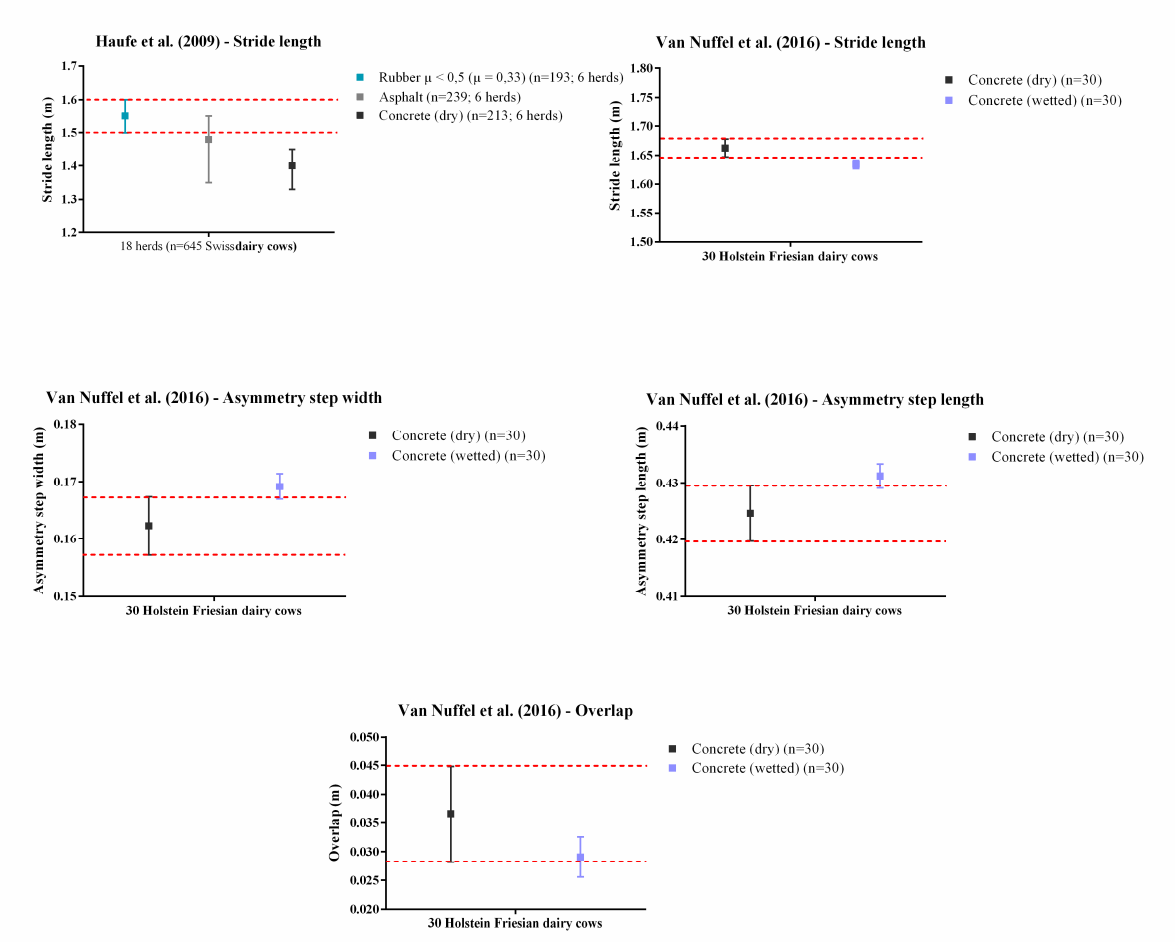


Figure S9. Kinematics parameters for rubber, asphalt and concrete (soak factor) surfaces.

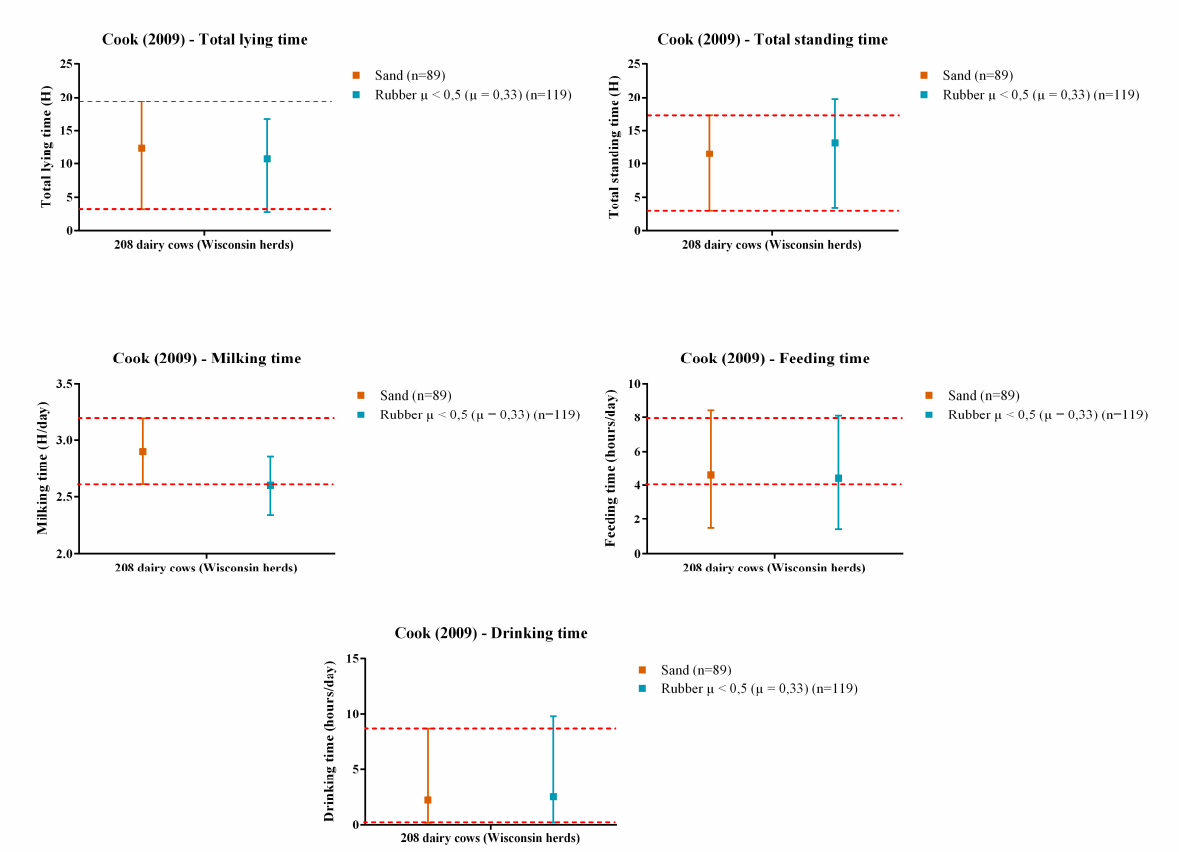


Figure S10. Behavior parameters for sand and rubber surfaces.

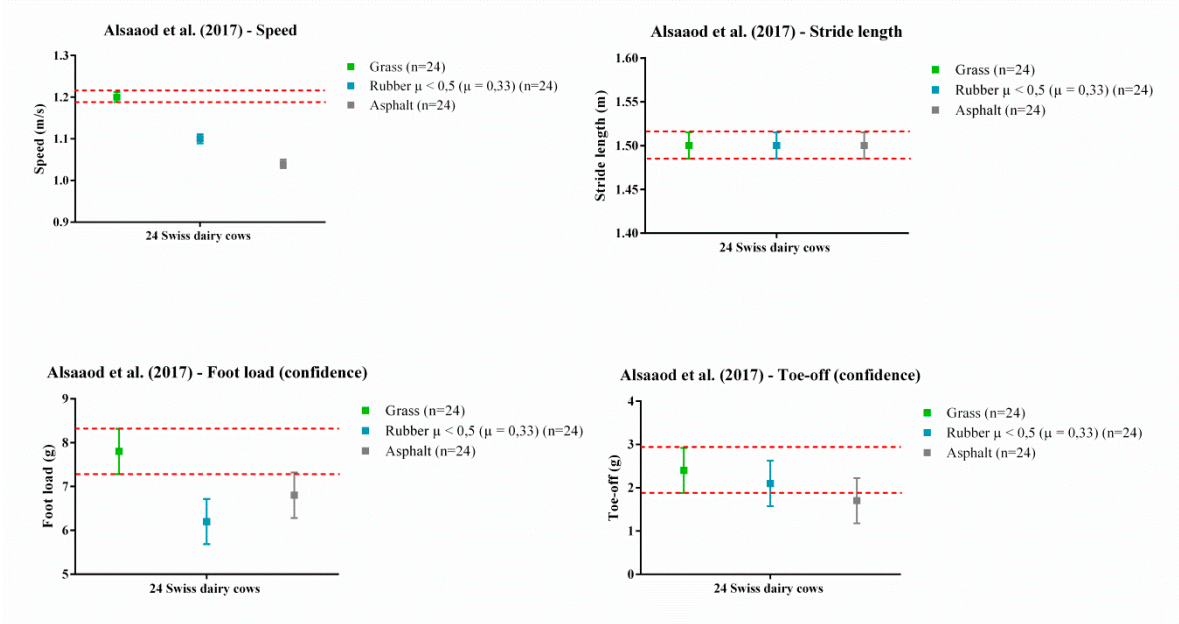


Figure S11. Kinematics and Kinetics parameters for grass, rubber and asphalt surfaces.

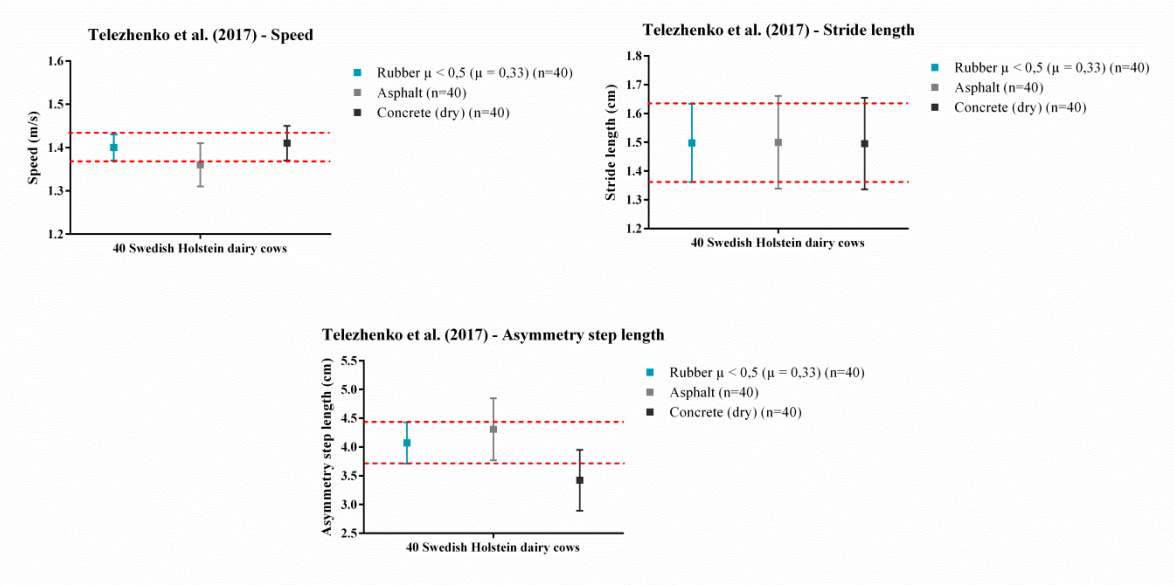


Figure S12. Kinematics parameters for rubber, asphalt and concrete surfaces.

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