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Circadian rhythm of foot temperature assessed using infrared thermography in sheep

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[fulltext]

The circadian rhythm of body core and surface temperature in 10 Comisana sheep kept under a natural photoperiod (06:30/19:00) was evaluated. Every 3 h for 24 consecutive hours rectal

were recorded. Particularly, foot temperature was recorded by infrared thermography, an ideal technique for evaluating the temperature not only at one point but also at the eight points as follows: in the right front of the interdigital area (FA1), in the left front of the interdigital area (FA2), in the right rear of the interdigital area (RA1), in the left rear of the interdigital area (RA2), in the right front of the interdigital line (FL1), in the left front of the interdigital line (FL2), in the right rear of the interdigital line (RL1) and in the left rear of the interdigital line (RL2). Two-way repeated measures ANOVA using SPSS, followed by Scheffé's test, showed a significant effect of the time of day and side of temperature collection ($P < 0.05$) on temperature values. The single cosinor procedure showed a daily rhythmicity of RT and foot temperature in all tested sides. The circadian oscillations of RT reflected the familiar circadian patterns of endogenous sources and the results of foot temperatures supported the idea that the daily rhythm was, at least in part, influenced by variation in the blood flow to the extremities. The infrared

thermography providing more information on the development of disturbances in the peripheral circulation may be used with an advantage in occupational health examinations and in special clinical work.

Keywords:

circadian rhythm; foot temperature; infrared thermography; rectal temperature; sheep

[fulltext]