

Is the mattress important in helping babies keep warm?—Paradoxical effects of a sleeping surface with negligible thermal resistance.

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Background: Heavy wrapping and head covering are risk factors for Sudden Infant Death Syndrome. A new mattress construction, PurFlo, has extremely low thermal resistance, and when used with an infant sleeping bag minimizes the risk of head covering.

AIM: To investigate the thermal balance and metabolic rate of infants sleeping on a conventional mattress or a Purflo mattress in infant sleeping bags.

Methods: A longitudinal study of thermal balance of infants during day-time sleep on both mattress types in thermoneutral and cool conditions at ages 3 weeks (n = 24), 3 months (n = 22) and 5 months (n = 18).

RESULTS: In thermoneutral conditions auxiliary temperatures in quiet sleep were lower on the conventional mattress than on the PurFlo mattress ($p < 0.05$, Wilcoxon test). On lowering room temperature to 15-16 degrees C axillary temperatures fell, particularly in the older babies, and at each age were lower on the conventional mattress than the Purflo (differences 0.14-0.72 degrees C, $p < 0.05$, Wilcoxon test).

Conclusion: In both thermoneutral and cool conditions, infant temperatures were higher on the PurFlo than the conventional mattress. The more deformable surface of the PurFlo mattress may lead to more effective insulation by the sleeping bag despite a lack of mattress insulation.

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