

**CARDIOVASCULAR CONTROL IN HEALTHY TERM INFANTS
IS ALTERED BY SLEEPING POSITION**

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Objective: Sudden Infant Death Syndrome (SIDS) is associated with prone sleeping and circulatory failure has been hypothesised as a factor in the fatal event. We aimed to determine the effect of prone sleeping on heart rate (HR) and blood pressure (BP) control over the first 6 mo of life.

Study design: Term infants (N=20) were studied longitudinally at 2-4 wk, 2-3 mo and 5-6 mo with daytime polysomnography. A photoplethysmographic cuff (Finometer™) on the infant's wrist measured (MAP), systolic (SAP), diastolic (DAP) arterial pressure and HR during quiet sleep (QS) and active sleep (AS) in both the supine and prone positions.

Results: BP in QS was lower compared to AS (by 3-9 mmHg) in both positions and at all three ages ($p<0.05$). At 2-3 mo a change from supine to prone in QS induced a fall in SAP (6 mmHg, $p<0.05$) and a rise in HR (4 bpm, $p<0.05$). An overall effect of PNA on BP was identified (ANOVA) with MAP and DAP consistently averaging less (by 1-9 mmHg) at 2-3 mo in both sleep states and sleeping positions compared with both other ages.

Conclusions: Infant BP is modified by sleep state and sleeping position. A tendency for BP to fall in the prone position appears to be prevented by elevated HR, except at 2-3 mo in QS. An uncompensated fall in BP in the prone position at 2-3 mo (when SIDS risk is greatest) could increase the possibility of circulatory failure and SIDS in vulnerable infants.