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## Growth and development in preterm infants during the first 18 months

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### Summary

In a long-term prospective study 46 unselected infants born before 35 completed weeks of gestational age were followed up, and compared to 26 fullterm infants. At 9 and 18 months of chronological age their height and weight were still lower than that of fullterms, but the difference disappeared when age was corrected for gestational age at birth. The motor and neurological maturity and language development was delayed in the preterms still at 18 months, which could possibly also be explained by their lower biological age.

Ten of the preterm infants showed, at one or several occasions during follow up, definite neurological abnormality. At 18 months of age two of them were handicapped, one with retrolental fibroplasia, nearly blind, and another with cerebral palsy (slight spastic diplegia). Five of them had late psychomotor development, while two were borderline and one normal.

We defined pre- and perinatal risk groups, but found that development at 18 months was not correlated to degree of risk. Neither was there any correlation between neurological examination at term and later handicap or psychomotor retardation.

We found more illness, mostly due to common infections, during the first 18 months in the preterm group, as measured by the number of visits to a doctor and days spent in hospital.

preterm infant; 9 and 18 month follow-up; neurological optimal score; language development; physical growth; low risk preterm infant

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### Introduction

Although modern methods of perinatal care have improved the outlook for preterm infants, and even very low birthweight infants now have better chances of

survival and are less prone to increasing incidence of severe sequelae [10,12], the risk of developing handicaps is still greater in preterm infants than in infants born at term. Since the early identification of abnormal development is essential if a handicapped child is to be helped in good time and any secondary disorders prevented, it is equally important to know the 'normal' development of preterm infants.

One question that arises is whether the healthy preterm infant develops in the same way and at the same pace as it should have, had it remained in utero until term, as has been maintained, for example, by Saint-Anne Dargassies [3]; or whether, as others have suggested, that extrauterine stimulation, during what would normally have been the final phase of intrauterine life, may tend to accelerate development [7,17], or even result in overstimulation, which in turn may retard development [20,22].

Much discussion has been devoted to 'catch up', a concept sometimes taken to imply accelerated growth or development following a period during which, for example, some restrictive influence such as intrauterine or neonatal illness has been overcome [4], an interpretation that reflects nothing of subsequent development as compared with that of normal children. In practice, however, as it grows older the preterm infant is compared with children of comparable age, and thus catch up is often taken to refer to a preterm infant's having achieved normal growth and development for its age.

To analyse such aspects as these, we started a prospective study of an unselected group of infants born before 35 weeks of gestation [9]. Here we compare their growth and development during the first 18 months with that of full-term children, as reflected in the findings of repeated neurological examinations.

## Material and Methods

We studied 46 preterm infants, 20 girls and 26 boys, born at a gestational age of less than 35 completed weeks and delivered consecutively at Malmö General Hospital between November 1st, 1976 and December 1st, 1977. At birth their weight (mean  $\pm$  S.D.) was  $2.035 \pm 441$  g (range 900–3.200 g), and their gestational age (mean  $\pm$  S.D.)  $32.5 \pm 1.8$  wks (range 27–34 wks). The control group consisted of 26 full-term infants with a non-instrumental vaginal delivery, birthweight more than 3000 g, appropriate for gestational age and a normal neonatal period. At birth their weight (mean  $\pm$  S.D.) was  $3.651 \pm 316$  g (range 3.080–4.370 g), and their gestational age (mean  $\pm$  S.D.)  $40.0 \pm 1.0$  wks (range 38–41 wks).

All the preterm infants were nursed in the same neonatal ward and, in accordance with routine feeding practice, they all got breastmilk, if possible from their own mother, otherwise bankmilk. The mothers were encouraged to continue breastfeeding at home, and 32% of them did so for at least 1 month. The other infants got formula.

The study was approved by the Medical Ethics Committee of the University of Lund, and all parents gave their informed consent.

Forty of the 46 preterm infants were examined at 40 weeks conceptional age and

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