

GROWTH OF CHILDREN BORN PRETERM DURING THE FIRST 8 YEARS OF LIFE



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INTRODUCTION

Approximately 15 million children are born preterm worldwide yearly¹. Survival rates increased during the last decades with the improvement of neonatal care. Children born prematurely might experience a period of growth restriction just after birth and catch-up growth can be slow and progressive. Some children born preterm will remain short at later ages and adult life. Obesity is a current epidemic and intrauterine factors and the first months of life can be related. Rapid weight gain early in life can negatively affect health in the future and was associated with overweight and obesity².

CONCLUSIONS

Most preterm children recovered weight and length until 6 months of age. Rapid weight gain during the first 2 years of life was a risk factor for overweight/obesity. Breastfeeding had an indirect protective effect against obesity and overweight.

AIM

To evaluate spontaneous growth during the first 8 years of life of children born preterm.

SUBJECTS

170 children born with gestational age (GA) below 37 weeks at the Hospital de Clínicas, UFPR, Curitiba, Brazil.

METHODS

Measurements at birth, 6, 12 and 24 months of corrected age (CA) and at recall [6.4±0.5 years (5.2–8.0)]. Weight, length/height and BMI SDS were calculated (reference of Fenton & Kim³ until 50 weeks; WHO 2006⁴–2007⁵ after this age). Data are presented as mean ±SD (range), otherwise stated.

Exclusion Criteria: congenital malformation, genetic syndrome, cerebral palsy, chronic corticosteroid or growth hormone therapy, mothers users of alcohol, illegal or teratogenic drugs during pregnancy, large for GA.

Classification:

Underweight or short stature: SDS ≤ -2 (WHO, 2007)

Overweight: BMI SDS between 1 and 2 (WHO,2007)

Obesity: BMI SDS ≥ 2 (WHO, 2006-2007)

Small for GA (SGA): birth weight and/or birth length SDS < -2 (Fenton & Kim, 2013)

Appropriate for GA (AGA): birth weight and birth length SDS between -2 and 2 (Fenton & Kim, 2013)

RESULTS

Maternal and sociodemographic data (n = 150)	
Age at delivery (yr.-old)	28.0 ± 7.0 (14 to 46)
Education < 9 years, n (%)	58 (38.7)
Smoker, n (%)	20 (13.3)
Antenatal corticosteroids, n (%)	106 (70.7)
Maternal height (cm)	158.4 ± 5.6 (144.5 to 175.6)
Maternal height SDS, median (range)	-0.8 (-2.9 to 1.9)
Prematurity causes (n = 170)	
Pregnancy-induced hypertension, n (%)	39 (22.9)
Fetal distress, n (%)	36 (21.2)
Maternal infections, n (%)	22 (12.9)
Descompensated diabetes mellitus, n (%)	5 (2.9)
Neonatal data (n = 170)	
Boys, n (%)	97 (57.1)
GA (weeks)	32.5 ± 2.9 (24.0 to 36.7)
Extremely preterm (GA < 28 weeks ¹), n (%)	15 (8.8)
Very preterm (GA ≥ 28 and < 32 weeks ¹), n (%)	40 (23.5)
Birth weight (g), median (range)	1772.5 (580 to 3135)
Birth weight SDS, median (range)	-0.4 (-3.5 to 1.9)
Birth length (cm)	41.3 ± 4.6 (30 to 49)
Birth length SDS, median (range)	-0.3 (-3.7 to 1.9)
SGA, n (%)	20 (11.8)
AGA with EUGR [#] at 40 weeks, n (%)	49 (28.8)
Born at tertiary care center, n (%)	170 (100.0)
Cesarean section, n (%)	150 (88.2)
Respiratory distress syndrome, n (%)	28 (16.5)
Bronchopulmonary dysplasia, n (%)	20 (11.8)
Metabolic bone disease of prematurity, n (%)	18 (10.6)
Necrotizing enterocolitis, n (%)	12 (7.1)
Neonatal hospital stay (days), median (range)	29.1 (2 to 146)

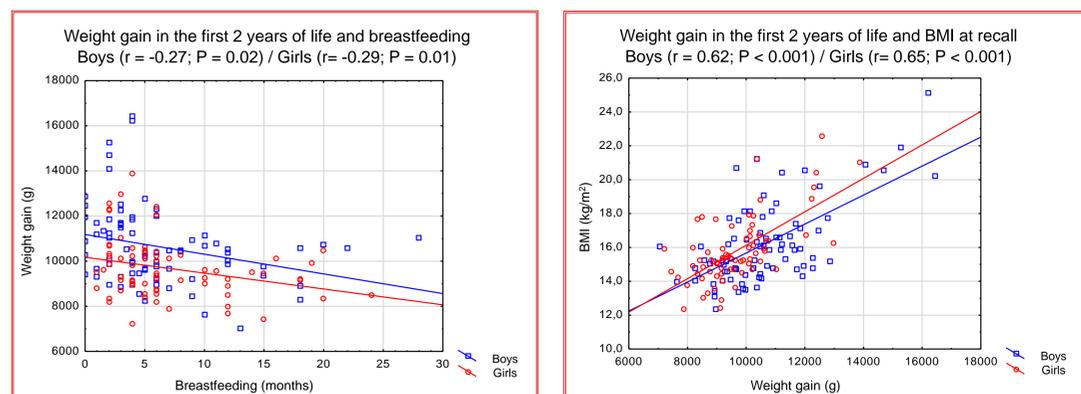
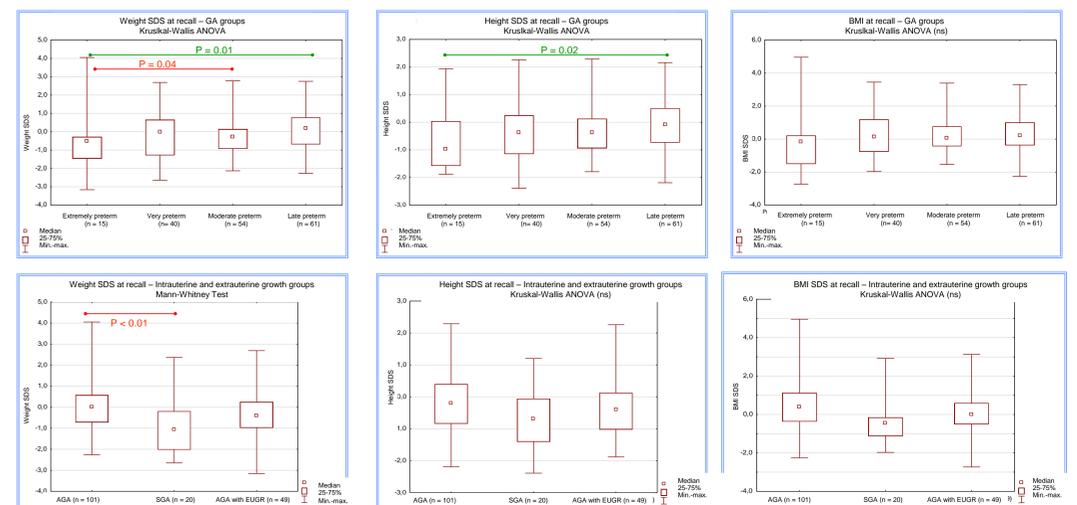
[#] EUGR: extrauterine growth restriction, defined as the difference ≥ 2.0 SDS between weight and/or length at birth and 40th week post-conceptual.

	6 months CA	12 months CA	24 months CA	At recall (6.4±0.5 years)
Weight SDS	-0.6 (-3.7 to 1.9)	-0.2 (-2.9 to 3.0)	-0.5 (-4.0 to 3.2)	-0.3 (-3.2 to 4.1)
Length SDS	-0.4 (-3.9 to 1.9)	-0.3 (-3.0 to 3.1)	-0.3 (-2.7 to 3.5)	-0.3 (-2.4 to 2.3)
BMI SDS		0.0 (-2.5 to 3.0)	0.1 (-2.8 to 3.7)	0.0 (-2.7 to 5.0)

Note: Median (range).

At recall:

- 12 (7.1%) underweight
- 6 (3.5%) short stature
- 27 (15.9%) overweight and 14 (8.2%) obesity



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