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New reference for height in Swedish boys and girls

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Objective:

The actual Swedish growth references are based on a cohort born 1974. Due to secular changes there is need for new height references.

Material

Height measurements from birth to adult height in a cohort born 1990, 20.796 from 1647 boys, and 19.202 from 1501 girls was used (ALL) and compared to both a subgroup with puberty close to mean PHV within ±0.3 years) of 3.726 heights from 259 boys and 3.759 from 271 girls (MP), and a subgroup with >10 height measurements evenly distributed (15.324 in 989 boys and 14.381 in 919 girls), and of high data quality (HQ). The reference of 1974 was also used for comparison.

Fig.1 1990 Cohort. Number of height measurements, Healthy, Nordic children born at term (GA 37-43)

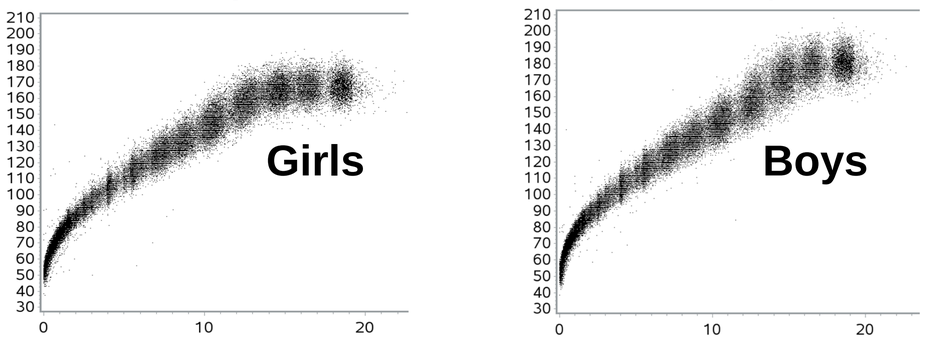
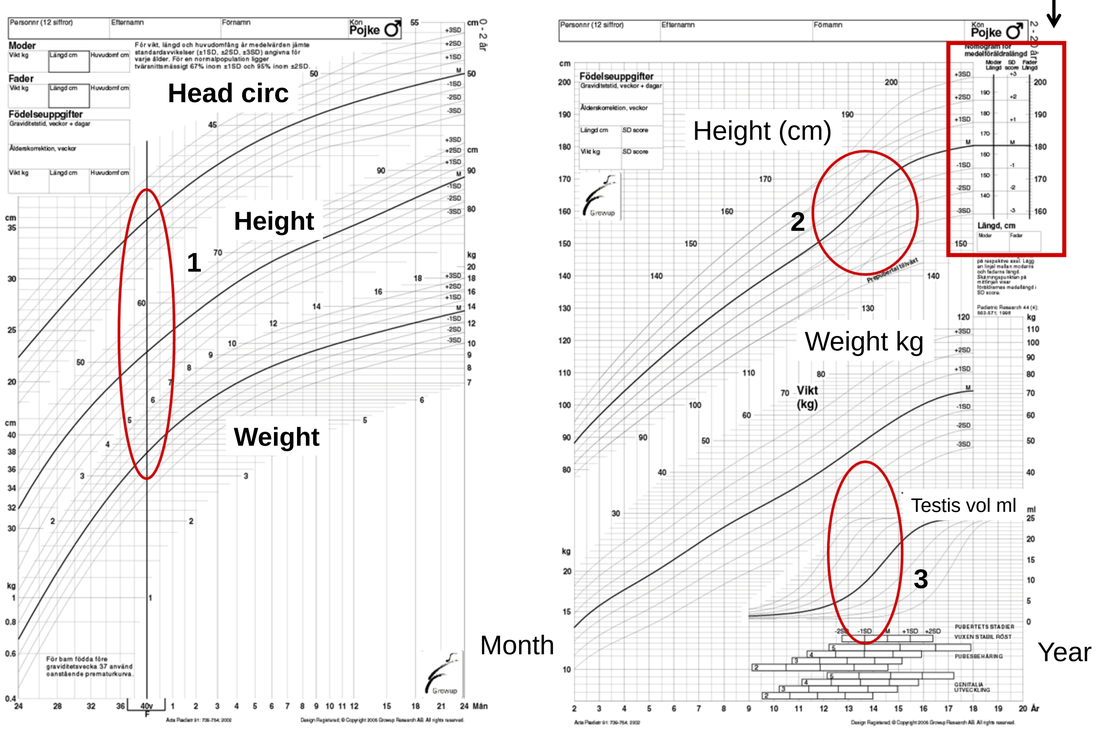


Fig.2 Clinical tools in the Swedish growth reference from the 1974-Cohort



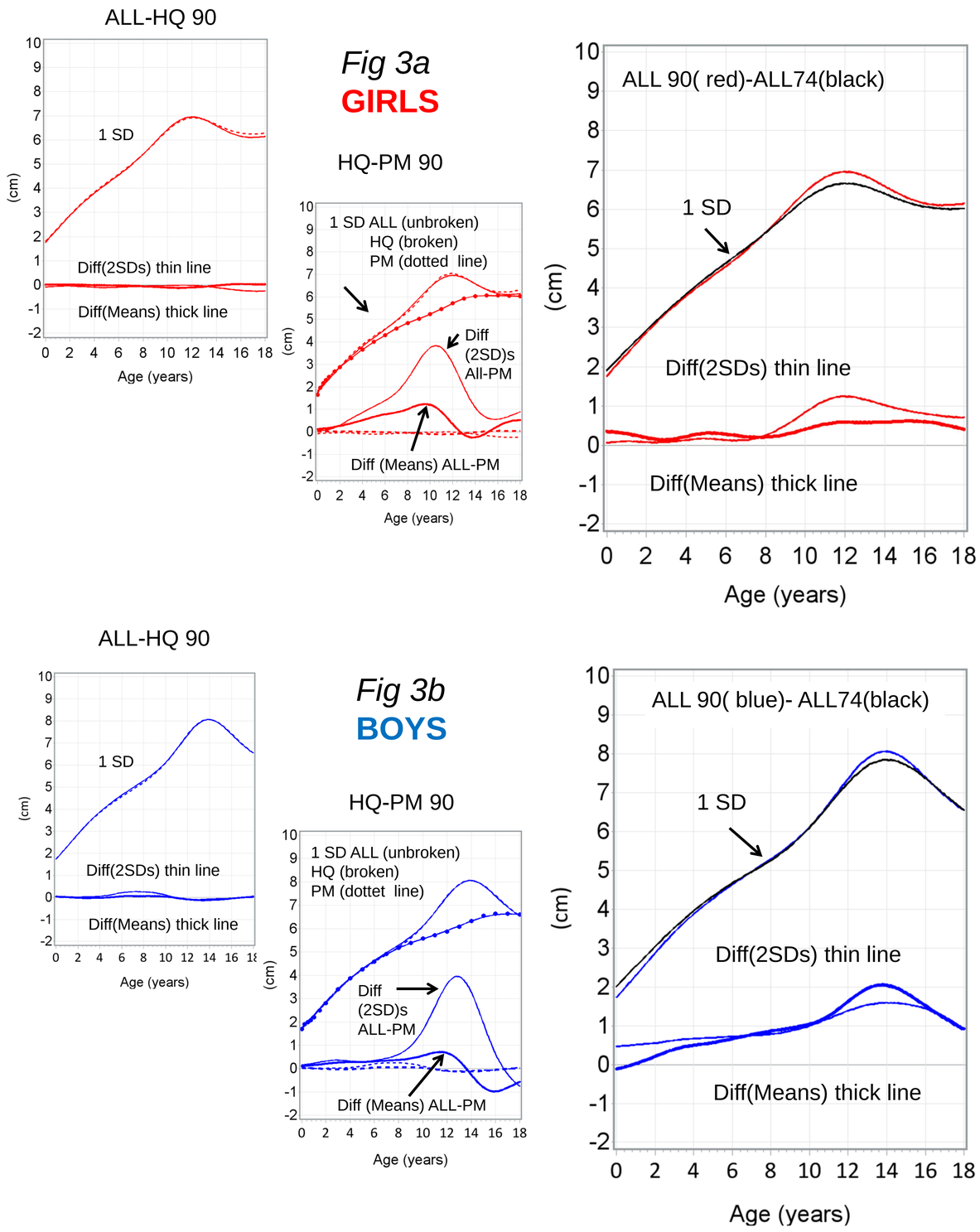
1. Contiuous curves for preterm infants. 2. Puberty adjustment. 3 Testis volume

Conclusion

There was no or only small differences between the ALL, High Quality or Puberty Mean material for both boys and girls, except for using close puberty as inclusion criteria, an expected reduced variation in total growth during adolescence was found.

Thus, the ALL material will be used for new height reference, taking the secular changes into account.

Results:



Methods

For construction of height curves a modified LMS method was used with LMS parameters based directly on the data: the power in the Box-Cox transformation (L), the median (M), and the generalized coefficient of variation (S). The GAMLSS R-package with a special LMS program was used, giving skewness and kurtosis as functions of age.

Height reference curves, mean ± 1, 2 SD score was obtained for 1990 of the ALL vs. PM and HQ material. All three cohorts were compared. The mean height was less increased compared to ±1 and ±2 SD scores. The 1990 reference compared to 1974 take into account that the 1990 cohort was heavier/taller at birth, had faster infancy growth, increased prepubertal growth (especially in boys), increased pubertal gain in girls and increased adult height in both genders.

Disclosure: Nothing to declare.

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