P3-784 A cross-sectional growth reference and chart of stretched penile length for Japanese boys aged 0–7 years: Ethnic differences and secular changes

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Nothing to disclose

Keio University 1858 CALAMVS GLADIO FORTIOR

Take Home Message

"Penile length needs to be assessed by a growth reference for the same ethnicity and generation".

Background and Aim

Reference values for penile length have not been established by the LMS method in any populations. We aimed to develop growth reference of stretched penile length (SPL) in Japanese boys using the LMS to contribute to the early identification of patients with disorders of sex development (DSD).

Subjects

SPLs of 1,628 Japanese boys aged 0-9 years with testicular volume of <3 mL were measured from 2007 through 2014. Boys with cryptorchidism, hypospadias, endocrine disorders, or major malformations were excluded.

Methods

1) Inter-observer variation of SPL measurements between the two examiners (T.I. and N.M.) was assessed in 32 boys (range, 0–11 years; median, 3) using the Bland-Altman plot.
2) A growth reference and chart for SPL in Japanese boys aged 0–7 years was developed by the LMS method.
3) The reference for SPL in Japanese boys in the present study was compared with that in boys of US Caucasian [1], Turkish [2], or Bulgarian [3] origin or that in boys of Japanese previous studies [4, 5].

Results

1) No significant fixed or proportional bias was found for inter-observer variation ($p = 0.5$; $r = 0.33$, $p = 0.06$; respectively).
2) SPL increases most rapidly in early life and continuously during prepubertal period (Figure 1).

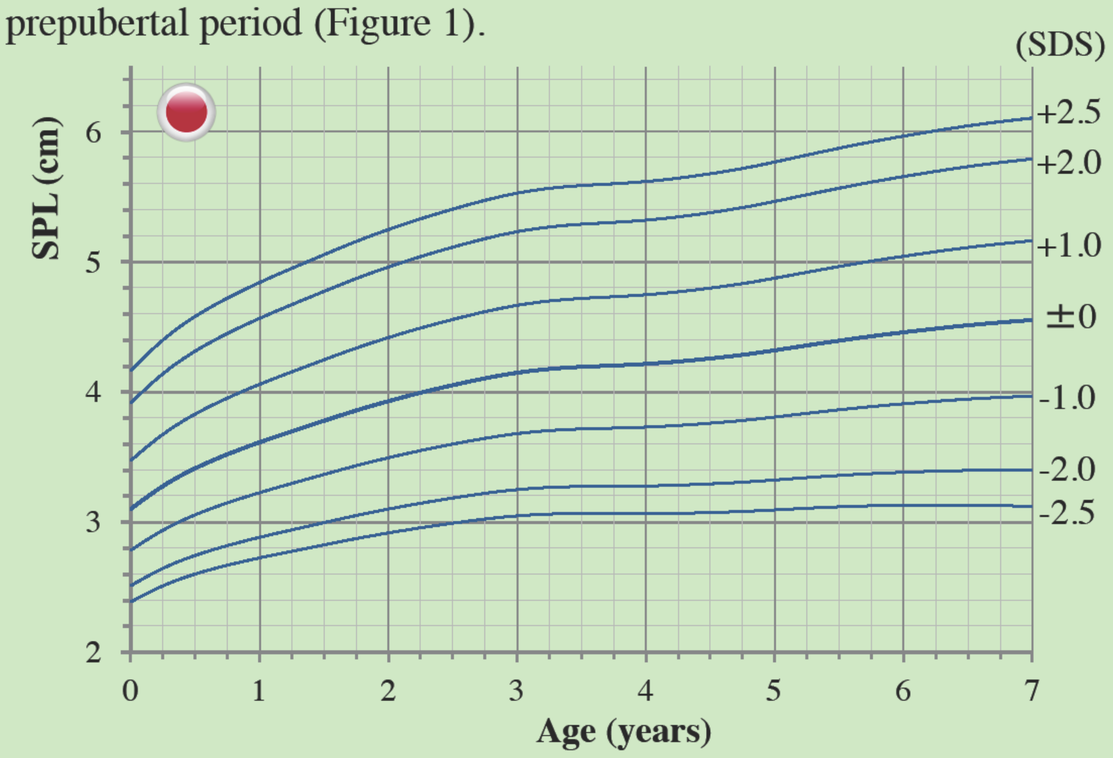

Figure 1 Penile length growth chart by age for Japanese boys.

Results (cont'd)

3) The SPL of Japanese boys in the present study was significantly shorter than that of US Caucasian or Turkish boys (Figure 2) and longer than that reported by previous Japanese studies (Figure 3).

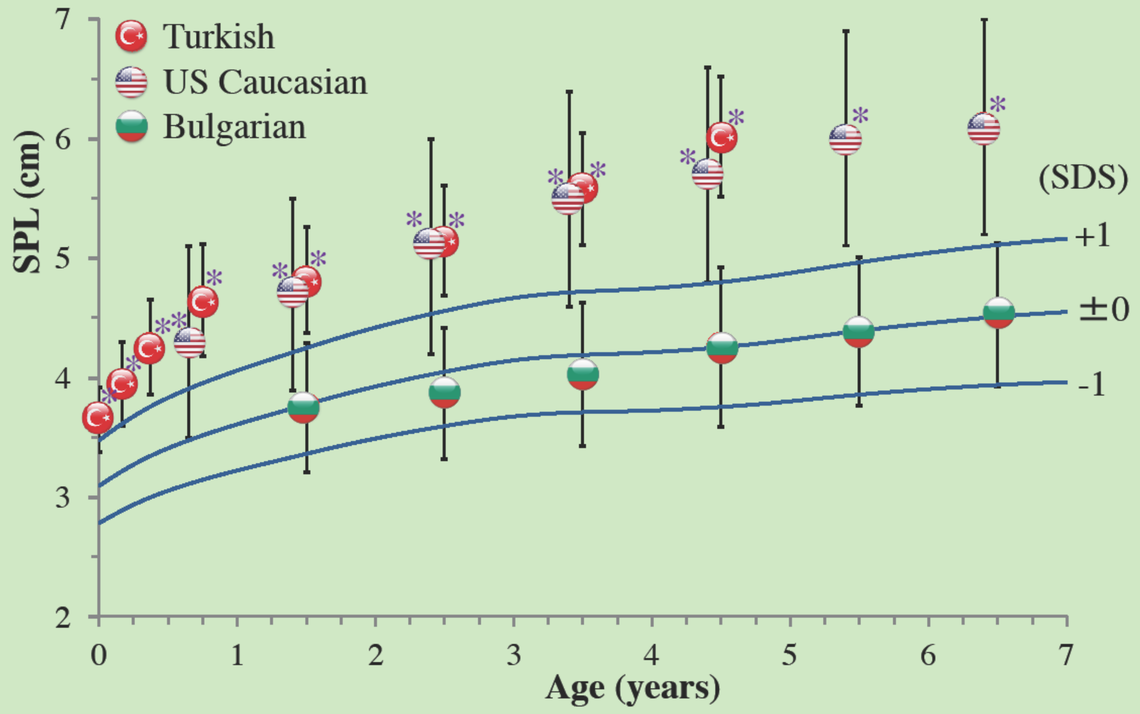

Figure 2 Penile lengths of US Caucasian, Turkish, or Bulgarian boys plotted against the growth chart for Japanese boys. The circles and error bars indicate means and SDs, respectively.
*: significantly longer than the current Japanese boys.

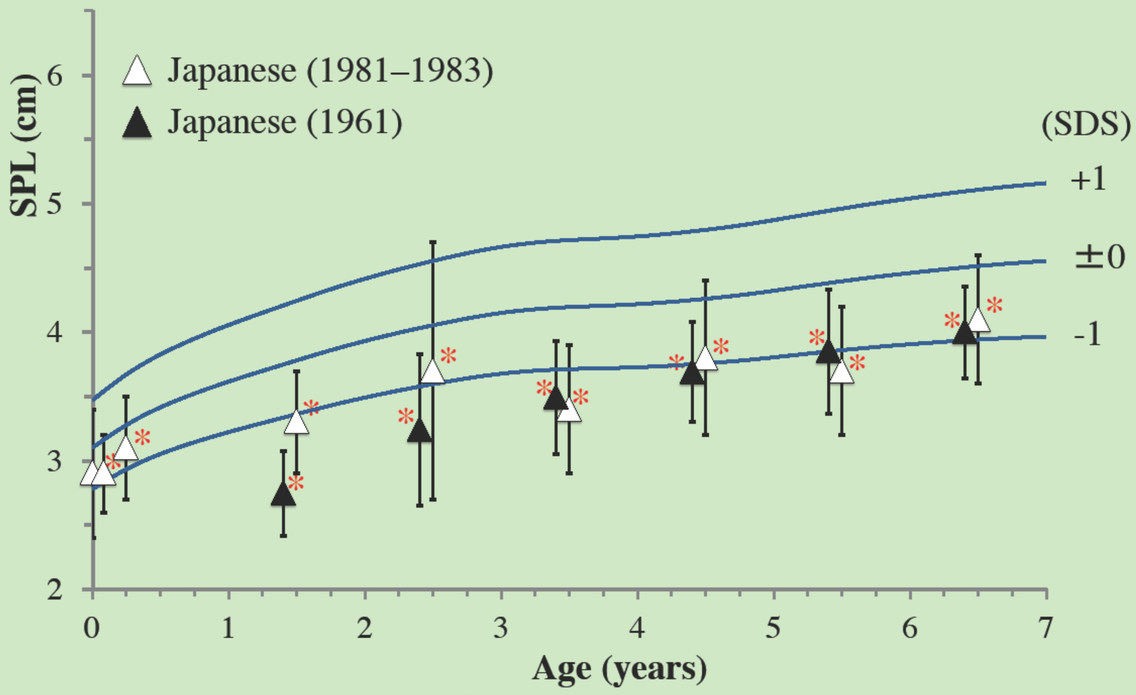

Figure 3 Penile lengths of the previous Japanese studies plotted against the growth chart for the current Japanese study. Triangles and error bars indicate means and SDs, respectively.
*: significantly shorter than the current Japanese boys (2007-2014).

Discussion

1) Ethnic differences

These results further highlight the ethnic differences in SPL throughout the prepubertal period between Asian and Caucasian boys. These ethnic differences did not simply result from those in body size. While the mean height of Bulgarian boys aged 0-7 are significantly greater than that of Japanese boys, there was no significant difference in SPL between Japanese and Bulgarian boys. The factors that contribute to ethnic differences in penile size remain to be determined; however, these results enforce the previously stated notion that SPL needs to be assessed with an appropriate reference for the same ethnic origin.

2) Secular changes

The present study indicates that SPL in Japanese prepubertal boys increased significantly after the 1980s, whereas there were no significant changes between 1961 and 1981–1983. The secular changes seen in SPL for Japanese boys may occur in parallel to changes in other anthropometric traits related to childhood growth, for which most parameters showed a continuous increase in Japanese children up to the year 2000 [6]. Extrapolation of these secular changes to other populations should be carried out with caution. These results suggest that SPL for Japanese boys be assessed with an available reference for the same generation.

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References [1] J Urol 1942;48:759-777; [2] Urology 2007;70:572-575; [3] Arch Pediatr Adolesc Med 2010;164:1152-1157; [4] J Jap Urol Assoc (in Japanese) 1961;52:172-188; [5] Acta Paediatr Jpn 1987;29:220-223; and [6] Clin Pediatr Endocrinol 2007;16:85-87

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