

# Sonographic Evaluation of Spleen Size in Tall Healthy Athletes

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## RESULTS

For the men, the mean height was 74.3 (189 cm)  $\pm$  (SD) 3.7 inches (9 cm) (range, 65– 83 inches [165–211 cm]) : **31.7% of the men had a spleen length of greater than 12 cm and 13.4% had a spleen length of greater than 13 cm.**

For the women, the mean body height was 69.3 (176 cm)  $\pm$  3.7 inches (9 cm) (range, 61– 78 inches [155–198 cm]) : **12.8% of the women had a spleen length of greater than 12 cm.**

All splenic measurements correlated better with height than weight.  
Splenic measurements correlate badly with renal length.

## DISCUSSION

Sensitivity of assessing splenomegaly by palpation of the abdomen varies from 50% at best to the more realistic estimate of 17%.

A study by Loftus et al. on 30 cadavers found a clear linear relationship between a sonographic measurement of splenic length and the actual length, volume, and weight as measured at autopsy.

Some investigators have sought to establish an internal reference standard against which spleen size can be calibrated. The most common such strategy is to compare the length of the spleen to the length of the left kidney. Loftus and Metreweli [4] proposed a spleen–kidney ratio of 1.25, as measured on sonography, as the upper limit of normal in a pediatric population. In our study, spleen length was correlated with kidney length in women, but not in men. We therefore found the spleen–kidney ratio to be an unreliable index for spleen size

Volumetric measurement is obtained most accurately on CT or MRI

Routine CT for the diagnosis and serial follow-up of patients for suspected splenic enlargement is difficult to justify in view of the radiation exposure (especially in a pediatric or young adult population) and the expense. MRI is hampered by expense and limited availability in many areas of the world.

3D sonography technique believed to provide a more accurate measurement of the spleen volume than conventional sonographic techniques but is cumbersome and time-consuming and therefore not practical for a busy sonographic practice.

A study by Rosenberg et al. found that a simple measurement of splenic length was accurate as a guide to spleen size. The authors proposed setting the upper normal limit of splenic length at 12 cm for girls 15 years or older and at 13 cm for boys 15 years or older.

TABLE 1	Men: Mean and Upper Limit of the Normal Range of Spleen Length for Increments of Body Height by Linear Regression Method	
	Height	Spleen Length (cm)
		Mean      Normal Upper Limit <sup>a</sup>
	6 ft (183 cm)	11.0      14.0
	6 ft 4 in (193 cm)	11.7      14.8
	6 ft 8 in (203 cm)	12.4      15.6
	7 ft (213 cm)	13.1      16.3

<sup>a</sup>Two SDs above the normal mean.

TABLE 2	Women: Mean and Upper Limit of the Normal Range of Spleen Length for Increments of Body Height by Linear Regression Method	
	Height	Spleen Length (cm)
		Mean      Normal Upper Limit <sup>a</sup>
	5 ft 8 in (173 cm)	10.2      12.6
	6 ft (183 cm)	10.6      13.2
	6 ft 2 in (188 cm)	10.8      13.4
	6 ft 6 in (198 cm)	11.2      14.0

<sup>a</sup>Two SDs above the normal mean.