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Introduction

Pes valgus is a common idiopathic condition characterized by ligamentous laxity resulting a decrease in the medial longitudinal arch, valgus hindfoot and forefoot abduction on weight bearing. While conservative methods often lead to improvement, persistent cases can cause pain when walking. Among the various methods of measuring pes valgus, the relaxed calcaneal stance position (RCSP) is widely used because of its simplicity. However, RCSP suffers from low inter-rater reliability and reproducibility. Recently, Kwak’s foot posture assessment (KFPA) has been developed as a new method to measure pes valgus. The aim of this study is to conduct a pilot study comparing the KFPA with the RCSP to determine whether the KFPA offers superior measurement capabilities.

Methods

This pilot study included 7 patients aged from 8 to 10 years with pes valgus. Patients who consented to measurement during outpatient visits were included. Pes valgus was measured using both RCSP and KFPA. The measurement methods were as follows: RCSP involved drawing a bisecting line on the calcaneus with the subject in a supine position and then measuring the angle of the bisecting line when the subject was standing comfortably with weight bearing (Fig. 1). KFPA involved measuring the distance from the apex of the lateral malleolus to the contact surface of the lateral heel with the subject standing comfortably with weight bearing (Fig. 2).



Figure 1. Relaxed calcaneal stance position.



Figure 2. Kwak’s foot posture assessment.

Results

The study included 7 patients aged 8 to 10 years with pes valgus. The focus on this age group was due to potential age-related variations in KFPA measurements. Of the participants, 2 were 8 years old, 3 were 9 years old and 2 were 10 years old, giving a total of 14 measurements from both feet. Analysis revealed a significant positive correlation between KFPA and RCSP measurements (Fig. 3) (Table 1). This correlation suggests that the KFPA may provide comparable results to the RCSP in the assessment of pes valgus.

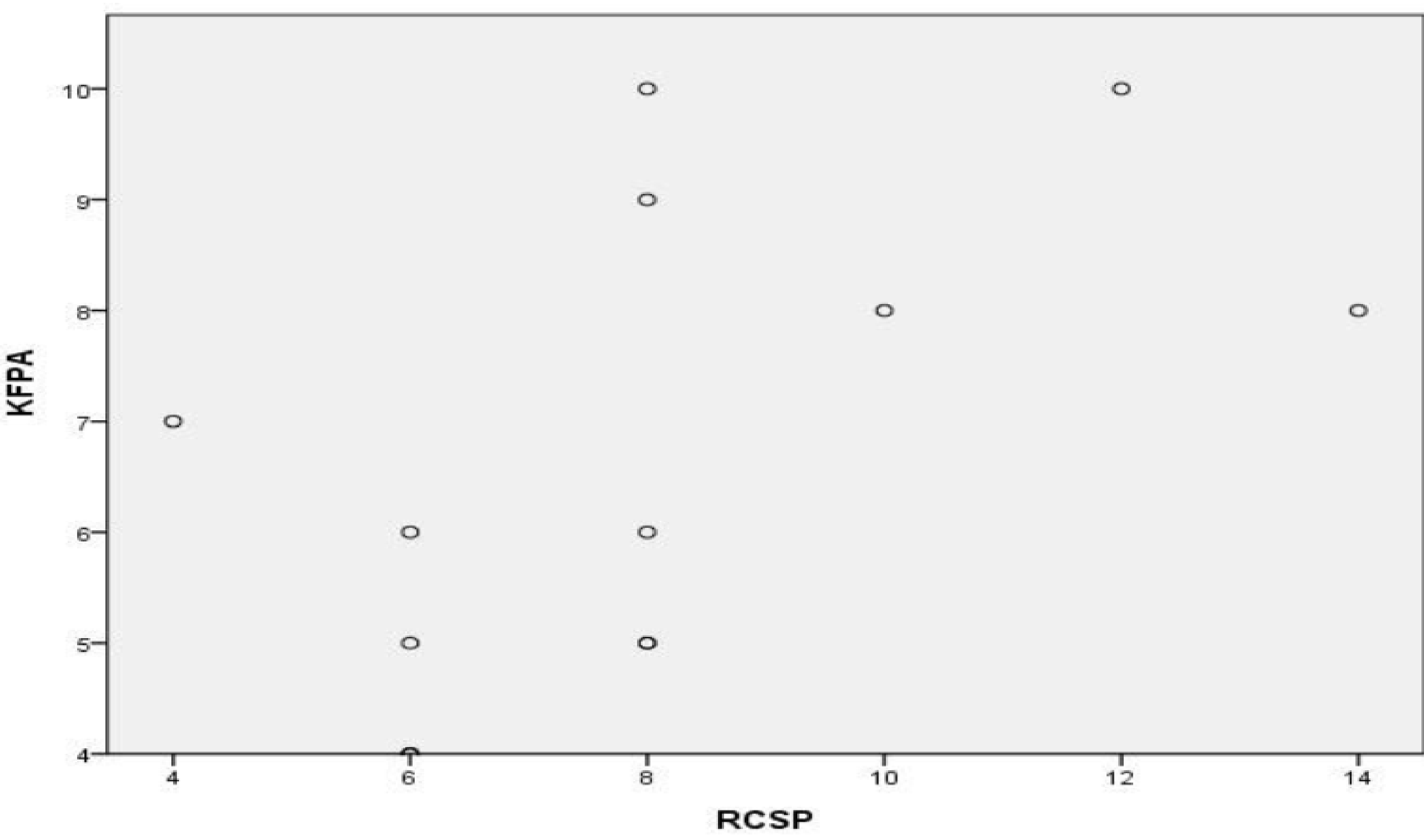


Figure 3. Correlation between relaxed calcaneal stance position and Kwak’s foot posture assessment.

Table 1. Correlation between RCSP and KFPA		RCSP
KFPA	Pearson Correlation	0.573
	p-value	0.032*

RCSP; relaxed calcaneal stance position, KFPA; Kwak’s foot posture assessment, Asterisk means statistically significant ($p<0.05$).

Conclusion

As KFPA measurements can vary with age and growth, the study was limited to an age range of 8-10 years. The pilot study suggests that KFPA may serve as a viable alternative to RCSP, but further research with larger sample sizes is warranted. In addition, it would be beneficial to determine means for each age and height group.

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