

# “DETERMINATION OF FINAL HEIGHT IN GIRLS WITH PRECOCIOUS PUBERTY. WHICH IS THE MOST ACCURATE METHOD?”



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## OBJECTIVES

### Background

Central precocious puberty (PP), is a relatively common condition in girls, that exhibits early activation of the hypothalamic-pituitary-gonadal axis, and premature fusion of the epiphysis, which may result in deterioration of final height (FH); lower compared with their genetic target. Height prognosis (HP) is critical in the decision of treatment in these cases.

There are several methods for predicting final height in cases of PP but none of them is completely reliable. Most consider determination of bone age, which is a subjective method that depends on the judgment of the reporter. Currently, there is no consensus on which method is the most accurate in predicting FH in girls with PP.

### Aim:

To compare the accuracy of three different methods in the prediction of FH in girls with PP who have completed their growth.

## METHODS

### Patients and Methods:

A number of 143 girls consulted for PP in our institution between 1993- 2000, 93 of them had reached their final height without being treated with LHRH analogues and agreed to participate in this study and attended to measure their current height.

Final height (FH) was considered with bone age > 15 years. The height of their parents was registered. Bone age was reported by the same four observers.

We compared the initial HP, by 3 methods: Bayley-Pinneau, Roche-Wainer-Thissen and midparental height; with their FH. Statistical correlation between HP and FH was evaluated with Bland and Altman method.

## RESULTS

### Results:

• 93 girls: Age at diagnosis: 8.3±1.2 years (6,4-10,5); Bone age: 9.9±1.7 years.

• Current age: 19.1 ± 3.3 years.

• The 3 methods were compared to Final height showing the following differences (average and interindividual variation):

• **Bayley-Pinneau:** - 1.01 cm (+ 8.87 and -10.89 cm)

• **Roche-Wainer-Thissen:** +0.96 cm (+9.65 and -7.72 cm)

• **Midparental height:** +0.05 cm (+6.19 and -6.10 cm)

Tanner	n	(%)
I	4	4,3
II	68	73,1
III	19	20,4
IV	2	2,1

Table 1. Tanner stage at diagnosis

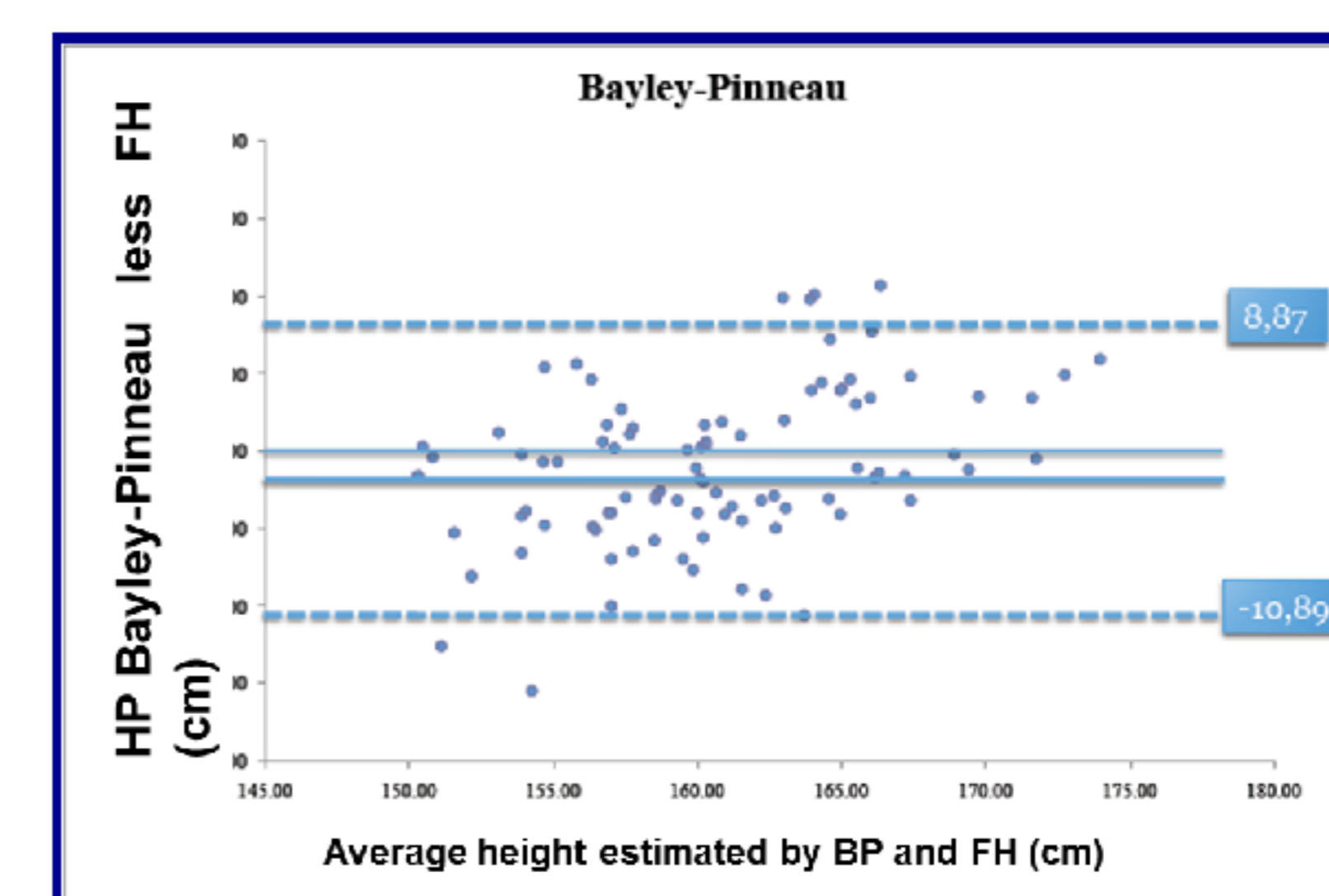


Figure 1: HP by Bayley- Pinneau method (considers height, gender, chronological and bone age)

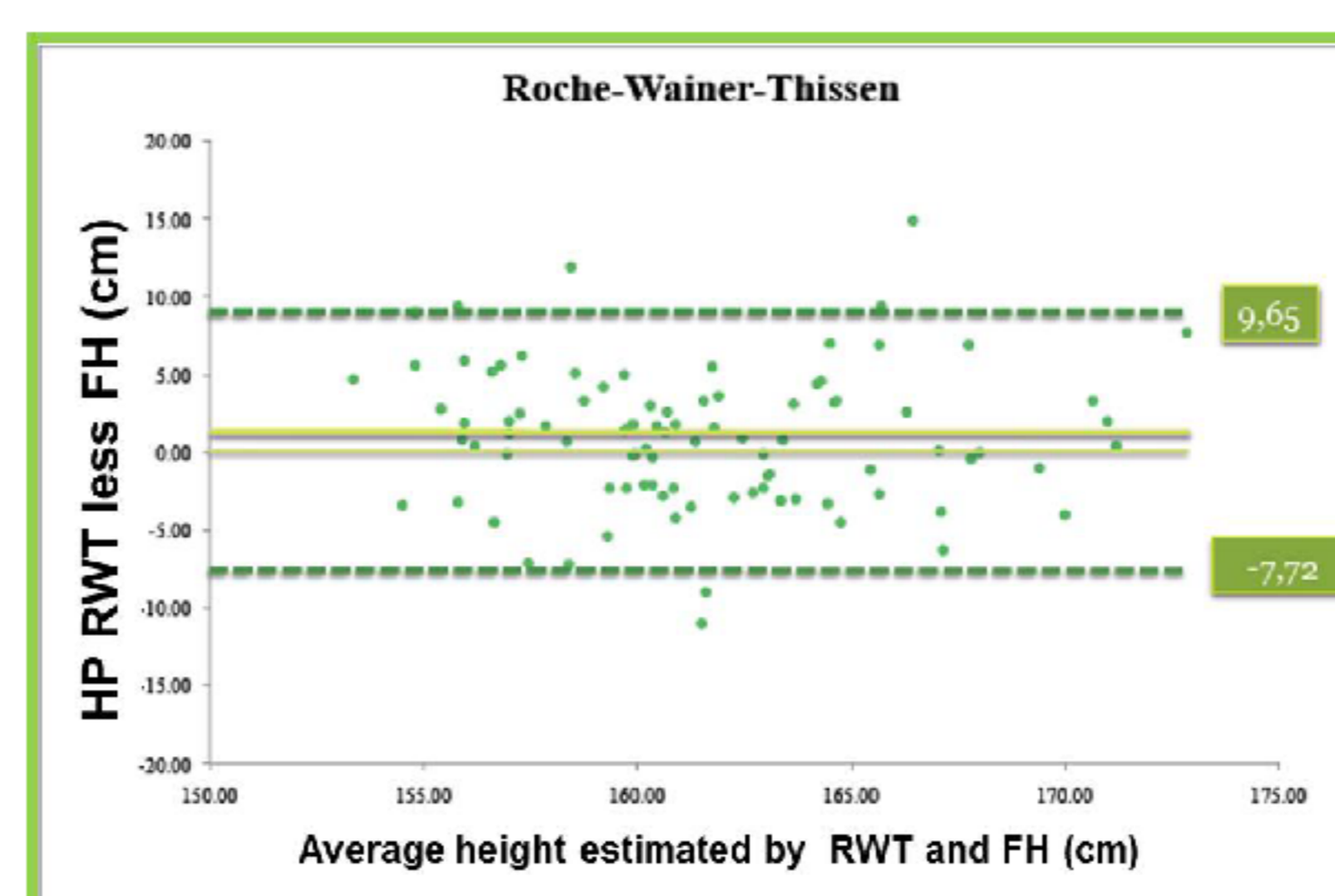


Figure 2: HP by Roche-Wainer-Thissen method (considers height, weight, bone age, midparental height)

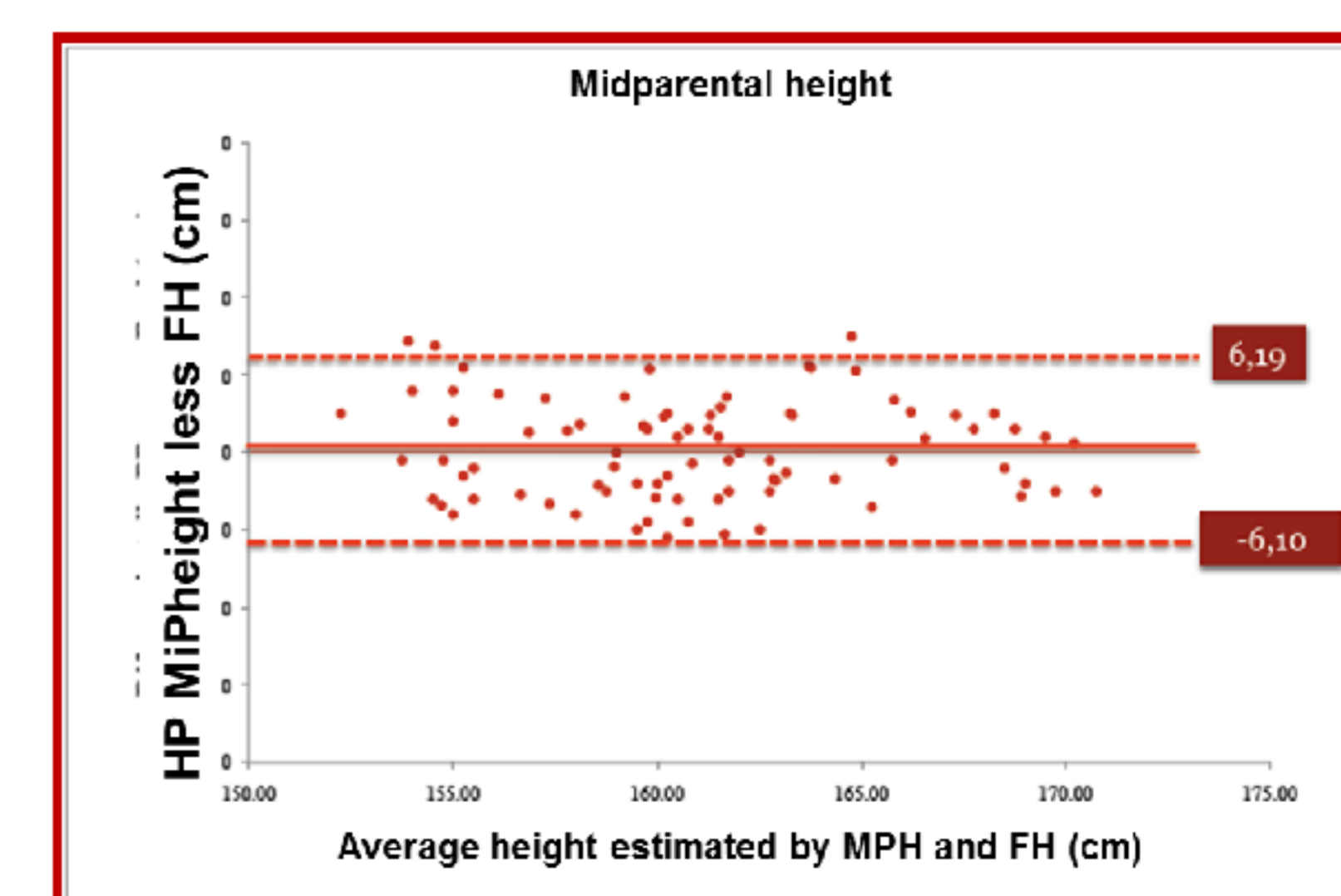


Figure 3: HP by midparental height (mother height + (father height -13) cm/2)

## CONCLUSIONS

### Summary and Conclusions:

• While all methods for predicting final height in girls with PP show good results on average, there is a considerable individual variation in the responses.

• The greater variability observed in methods that require determination of bone age is probably due to the subjectivity of the radiological interpretation.

• Midparental height, a simple method that does not consider bone age like others do, demonstrated superior ability to predict final height in girls with PP.

