Adult Height Prediction with Sunlight BonAge

Sunlight BonAge – The Ultimate Tool for Growth Tracking
Sunlight BonAge is an ultrasound-based device used for the assessment of bone age. It provides on-the-spot results automatically calculated by the device, which are highly correlated with conventional bone age readings using the Gruelich and Pyle method. BonAge also provides an automatic calculation for adult height prediction for the patient, based on the bone age calculated by the device and other parameters.

Two Methods for Adult Height Prediction
The Sunlight BonAge device uses two different models, both well accepted among pediatricians, to predict adult height. These methods are the Bayley & Pinneau model¹ and the Tanner & Whitehouse Mark II model². Each model uses different parameters and a different algorithm to calculate adult height. Thus, the final adult height prediction may be different for the same patient with the two methods.

With both of these methods, the BonAge device calculates adult height prediction automatically, based on the bone age calculated by the device and other variables inputted by the physician.

The Bayley-Pinnaeu Method
The Bayley-Pinnaeu method uses the following variables for calculation of adult height:

- Current height
- Current age
- Bone age

It is important to input all required information for the patient so that the adult height prediction can be calculated.

The prediction is calculated using different tables, depending on whether the bone age is delayed, advanced, or in sync with the patient’s current age. In some situations, Bayley-Pinnaeu height prediction is not available for some ages (the lower or higher parts of the 5-18 age range the BonAge device measures). For example, the table this method uses for girls with accelerated bone age is available only for girls over the age of 7 years.

The Tanner-Whitehouse Method
The Tanner-Whitehouse method uses the following variables for calculation of adult height prediction:

- Current height
- Current age
- Bone age

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- Increment (increase) in height over the last year
- Increment (increase) in bone age over the last year
- Menarcheal state (for girls only)
- Age at menarche (for girls only)

It is important to input all available information for the patient so that the adult height prediction can be calculated. For example, it is important to note that adult height prediction with the Tanner-Whitehouse method cannot be calculated without menarche information for any girl over the age of 8 years.

**Adult Height Prediction – An Added Advantage of the BonAge Device**

Adult height prediction is used for many purposes by physicians, including some of the following:

- Regulating dosage of growth hormone or anabolic steroids.
- Designing intervention programs involving nutrition and incidence of disease
- Reassuring adolescents experiencing erratic growth, and their parents, that they will be of normal adult height
- Providing valuable information used in studying the effects of surgery for congenital heart disease and for the surgical management of anisomelic children.
- Providing information that is useful in determining what sports are most suited to the particular child and helping determine training schedules

Adult height prediction with the BonAge device permits the physician to provide patients with this information when measuring bone age with the BonAge device. It is important to stress to patients and their parents, however, that there is a margin of error in the prediction of adult height, and that the prediction is not guaranteed to be the patient’s final adult height.

**References**
