

### **WHAT IS A “BONE AGE?”**

A bone age is an estimate of the biological age of a child based on an X-ray taken of the child's non-dominant hand and wrist.

### **WHY BONES?**

Development of the bones of children occurs in a set pattern characterized by a progressive uptake of calcium in a discrete pattern. With a bone age, we can compare a child's growth pattern with known standards established by Gruelich and Pyle during their research in the 30's and 40's. Using these standards allows us to determine if growth and development are occurring at an appropriate pace.

### **WHAT IS AN “ABNORMAL” BONE AGE?**

A bone age that is *less than* the child's chronologic age suggests that the normal growth process is inhibited. A bone age *advanced* for the child's chronologic age suggest a more rapid than anticipated growth. Since boys have achieved 99% of their adult height when the bone age reaches 16.5 years and girls have 99% of their adult height when the bone age reaches 14.5 years, we can determine how many years of growth a child has yet to experience from the bone age study. Taken together with the current height, this allows us to predict the final adult height a child might expect to achieve assuming all the growth requiring factors are present and the child experiences good health.

### **IS A BONE AGE ACCURATE?**

While the bone age study is an extremely valuable tool for assessing growth, there is a wide degree of variability in normal children. A one-year difference between actual (chronologic) age and the bone age is a common finding in the school-age child. Therefore, in many instances, comparison of a current bone age of the child to a previous one obtained a year or more before gives us a better picture of the growth process.