Orthodontics...
More Than Just Braces

By Dr. Matt T. Walton, DMD

An understanding of growth, development, and the aging process is vital to obtaining excellent results from orthodontics and other cosmetic dental treatments. Researchers, and more recently Dr. David Sarver, have been documenting for years the inevitable facial changes that occur to all of us as we age and how those changes affect the treatment decisions we make. These factors have had a tremendous influence on orthodontics. The focus of orthodontics has changed from solely looking at changing the alignment and bite relationships of teeth to recognizing the importance of how teeth provide support to the soft tissues (lips, cheeks, tongue), define a smile, and contribute to the overall appearance of the face.

The purpose of this article is to suggest that the soft-tissue relationships of the face (facial form) as it relates to the underlying hard tissues are now the primary factors in determining the need and direction of orthodontic treatment. Growth of the face is a complex process of skeletal, dental (jaws and teeth), and facial or soft tissue growth combined with genetic and environmental factors which contribute significantly to the final facial form (appearance of the face).

Traditionally, researchers had always assumed that growth ceased at the completion of puberty, which coincides, in most individuals, with the early to middle teenage years. However, the latest scientific studies have indicated that skeletal and soft tissue growth is continuous throughout one's lifetime. We all see the changes that occur as we age and wonder what can be done to prevent or limit its effects. Fortunately, scientific research has qualified and quantified many of the specific changes that occur to the facial structures as we get older.

An example of how constant change affects the entire face, let's look at a single facial landmark, the lips. Have you ever noticed how the lips of teenagers are generally much fuller and thicker? It's true, research has shown that lip thickness in girls reaches its maximum by age 14 and stays that way until age 16; in boys, maximum lip thickness is attained by age 16 and then, thereafter, lip thickness in both sexes begins the process of thinning throughout life. In broad terms, facial changes have been documented from ages 8 to 80. Generally, throughout life, as the lips become less prominent, the facial profile becomes flatter, the nose becomes more prominent and the lower part of the face gets shorter. "The

naso-labial ("naso" – nose; "labial" – lip) complex rotates clockwise resulting in a longer upper lip, and thus less tooth display when your lips are at rest and during smiling."

"Tooth display" is the visible portion of your teeth that show when your lips are at rest and smiling. Increased tooth display is usually associated with a more pleasing youthful appearance and decreased tooth display is associated with increased age and is less pleasing (Fig. 1). One might ask…why is all this scientific stuff important to know? Believe it or not, these patterns of aging have been observed to be quite predictable and can be used to create more optimal results when incorporated into the smile design and the orthodontic treatment plan.

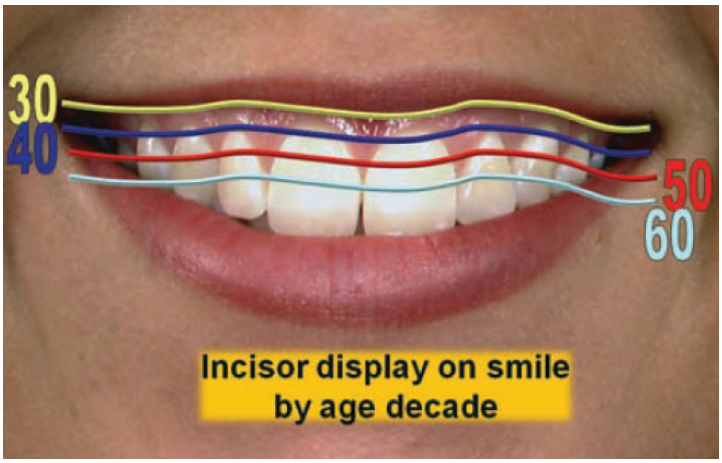

Figure 1: Tooth display and gumminess of the smile decrease with age. Illustration shows changes by decade of life. Copyright-Dr. David Sarver

The implication of this knowledge is that we can use it to catapult changes in the right direction with orthodontic treatment.

For example, let's look at a real world patient. Alexis, an 11 year old adolescent female who had severely crowded teeth and a retrusive lower jaw - which means that her lower jaw was positioned behind the line of a normal lower jaw which makes it look like her chin was pushed back into her face or neck (Figure 2 and 4).

We can demonstrate how the knowledge of both skeletal and facial changes that occur throughout the growth and maturation process can be used to maximum advantage to offer her face some protection from the unforgiving effects of aging by considering an orthodontic plan of action.

• First of all, we wanted to take advantage of the growth spurt that occurs before puberty. Therefore, timing of treatment was not only important, it was crucial.

• Growth modification therapy was initiated at age 11 to orthodontically reposition her back teeth to open her deep overbite and simultaneously increase the height of her lower face.

• In an evaluation of her orthodontic problems versus the treatment options available to her, we knew that the removal of teeth would correct her crowded bite problem but it would also flatten her profile and would not improve her lipfullness and support. Since we also know her profile and lips would flatten, over time, even without treatment, we decided to move the front teeth forward which would solve the crowding problem and likely provide her improved lip support and shape.

• After 12 months of lower jaw growth guidance, a dramatic improvement resulted as well as sufficient space to correct her crowded teeth.

• Treatment was completed over the next 12 months and resulted in a functionally stable bite and a dramatic improvement in her profile (Figure 3)

Figure 2

Figure 3

The Take Home Message

Contemporary orthodontics today is more than just braces and crooked teeth. Our current approach to orthodontics is to coordinate treatment to coincide with the skeletal growth spurt, and not to be dictated by whether or not all permanent or adult teeth have surfaced (erupted).

You may want to take it upon yourself to have your child evaluated by an orthodontist if your dentist still adheres to the old-school view of waiting until all permanent teeth have come in before an orthodontic referral is made. The case above demonstrates how the transitional time frame between losing baby teeth and getting permanent teeth provided sufficient time to treat the patient without permanent tooth extraction and thus avoid the negative facial effects of traditional orthodontic protocols. In other words, take a proactive approach and treat the face along with the teeth.

Figure 4

Dr. Matt T. Walton, DMD is a Board Certified Specialist in Orthodontics and Dentofacial Orthopedics for Adults and Children in the John's Creek area of Forsyth County. His office is located in the Brookwood SuperTarget Center (next to Starbucks) at 2609 Peachtree Parkway, Suite C, Suwanee, GA 30024.

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About Dr. Walton

Dr. Walton is an orthodontic specialist with over 21 years of experience.

"I knew by the eighth grade that I wanted to be an orthodontist and that I would have to work hard to make good grades to get into dental school."

Dr. Walton graduated from Marist High School, where he was quite an athlete. He earned an athletic scholarship to play baseball at the University of Georgia and received a B.S. in Pre-Dentistry. In 1982, he was named the University of Georgia's top male scholar-athlete (highest GPA).

Dr. Walton continued on to attend the Medical College of Georgia for four years, where he graduated with a D.M.D. degree among the Top 5 in his class. Following that, he headed up to Boston, Massachusetts to complete his orthodontic residency at the prestigious Henry M. Goldman School of Graduate Dentistry at Boston University. After completing his residency in orthodontics, Dr. Walton began his professional career back in the Atlanta area.

Dr. Walton is one of only 20% of all orthodontists worldwide who is certified by the American Board of Orthodontics. He is also a member of the American Association of Orthodontists, American Dental Association, Southern Association of Orthodontists, Georgia Association of Orthodontists and the College of Diplomates of the American Board of Orthodontists. Dr. Walton has also been acknowledged in the American Journal of Orthodontics for his research on temporomandibular joint tomography.

When he is not creating beautiful smiles, Dr. Walton likes to spend time coaching kids in sports and spend time with his family. He continues to play competitive baseball in the MSBL (Men's Senior Baseball League) in Atlanta. He also enjoys music and collecting historical autographs.