When Nature and Nurture *Combine to Obstruct Sleep*

Epidemiological studies have shown that African Americans are three times more likely to develop sleep apnea than Caucasians. Asians, too, face higher risk. Yet as Dr. Charles Ferzli explains, the condition is not necessarily tied to any specific gene or genetic predisposition. The same is true of temporomandibular joint (TMJ) issues, another common problem he sees at his TMJ and Sleep Therapy Centre in Cary.

But why the increased risk? Dr. Ferzli suggests that the cause stems from both nature and nurture. Anatomy can be the common "nature" characteristic predisposing family members to a condition. People with longer necks, for example, generally have more collapsible airways, while certain jaw configurations are more likely to constrict the airway. "If the parents have an airway problem," notes Dr. Ferzli, "there's a good chance the child will inherit that same airway." Therefore, Dr. Ferzli will more quickly recommend sleep studies for people whose family members share certain anatomical characteristics and have been found to have obstructive sleep apnea.

Similarly, certain physical and structural characteristics can promote or aggravate TMJ, he points out. "A narrow jaw arch offers less room for the tongue, which may then intrude on the airway. This can trigger nighttime breathing issues, poor oxygenation, teeth clenching, and a host of other inflammatory complications. And so, something that's not a genetic issue per se can still be passed from parent to child."

EARLY INTERVENTION IS KEY

Children require special attention, says Dr. Ferzli, "because the characteristics that predispose people to TMJ and sleep issues need to be addressed early.

"The first thing I look for in children is if they have circles around their eyes, so I can tell that they're not sleeping well. Dry, chapped lips can indicate habitual mouth breathing, which puts the child at greater risk for sleep problems and for mouth crowding later."

And mouth breathing affects more than sleep, Dr. Ferzli points out. Proper breathing helps clear the sinuses and release nitric oxide to the lungs. And while nose breathing helps the body filter and defend itself against germs, mouth breathing doesn't—making upper respiratory infections, bronchitis, and even asthma more likely to occur.

"Mouth breathers are also more likely to have TMJ problems," he continues, "since they clench their teeth while sleeping. And those with TMJ may experience headaches, neck pain, and more—in addition to jaw pain and locking. The less efficient release of oxygen to the muscles can further exacerbate pain and inflammation."

ENVIRONMENTAL FACTORS

Anatomy alone doesn't necessarily doom someone to TMJ or sleep issues, points out Dr. Ferzli. Nor does there need to be a genetic cause to this problem. "Environmental factors—rather than anatomy—may often be the cause of mouth breathing," he explains, "since they can trigger nasal congestion. And food allergies can combine with elevated stress hormones to impair digestion—which, in turn, can translate to poorer nutritional status, robbing individuals of the very nutrients needed to counter the increased stress and inflammation."

And all of these factors—mouth breathing, sleep deprivation, allergic response, and TMJ—add up to higher levels of cortisol, the "fight or flight" stress hormone. "And the more cortisol you have," Dr. Ferzli stresses, "the less likely you are to fall asleep and stay asleep. This vicious cycle of ill health drives poor sleep and vice versa—making recovery even more elusive."

BREAKING THE CYCLE

Typically, Dr. Ferzli will combine multiple treatment options with children to target the different underlying factors. Many of these modalities can show benefits quite quickly, but some aspects of treatment can continue until the child has all of his or her permanent teeth.

A typical treatment sequence might start with eight weeks of myofunctional therapy (*see box*)—a program of specific exercises that help tone the airway muscles, reducing snoring and allowing better quality sleep. This non-invasive, virtually risk-free approach may itself resolve many of the symptoms related to TMJ and sleep issues.

Next, Dr. Ferzli turns his attention to structural issues. "If they're mouth breathing, we might use an orthotic or an expander for the palate," he explains. "And we can't underestimate the critical importance of diet, so we will also want to address the dietary or digestive issues that underlie mouth breathing and other symptoms."

RAPID TURNAROUND FOR CHILDREN

The good news, notes Dr. Ferzli, is that "when addressed early, sleep and TMJ problems can be resolved fairly quickly." He recalls one eight-year old patient, "Billy," whose mom brought him in with a host of seemingly unrelated issues. Billy had multiple cavities, extremely swollen lymph nodes, and constantly cold hands and feet. Dr. Ferzli linked the swollen lymph nodes, along with other signs of poor digestion, to Billy's diet. Allergy testing helped uncover Billy's specific food sensitivities. Avoiding these triggers, along with reinforcing good dietary and oral habits, helped reduce inflammation and began to address some of Billy's breathing issues.

"Allergies and nasal congestion had habituated Billy to mouth breathing," explains Dr. Ferzli, "so we worked with him to restore proper nasal breathing. And we also evaluated him to determine whether other structural factors might be complicating his breathing.

"Some children," notes Dr. Ferzli, "have deficient mandibles or very small arches and retruded airways. In those cases, we will work to reposition both jaws before the permanent teeth come in—making more room in the back for the airway.

"In Billy's case, there weren't any obvious signs of those types of structural issues, but we still referred him to an ear, nose, and throat specialist to evaluate his tonsils and nasal passages in order to rule out any less obvious airway problems.

"With children, the bulk of the work is done at the beginning," says Dr. Ferzli. "This can yield rapid results, with often dramatic improvement in as little time as two or three months. The key to success is catching the subtle signs to address sleep and other issues before they lead to bigger health problems." h&h

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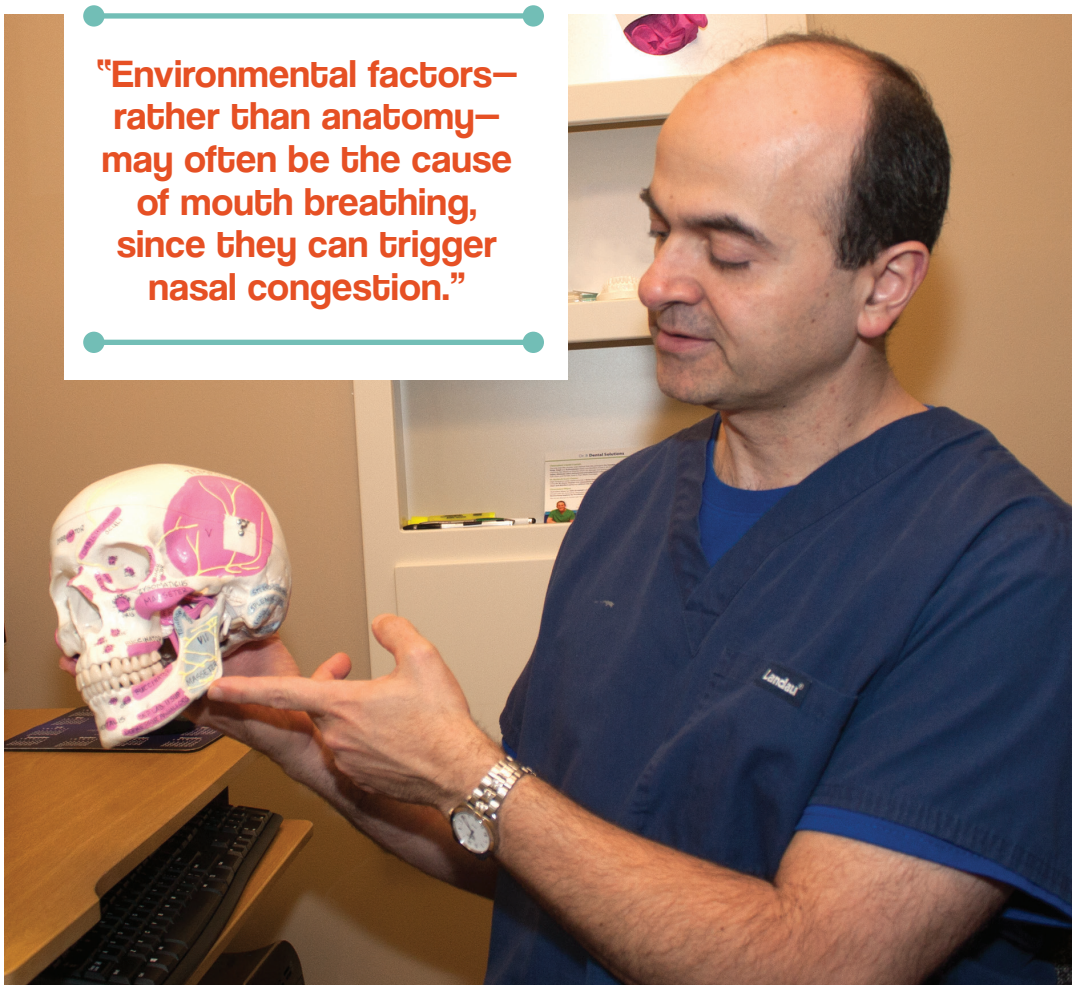

Dr. Ferzli explains that certain jaw configurations can contribute to both TMJ and sleep problems by constricting the airway.

MYOFUNCTIONAL THERAPY

Dr. Ferzli explains that "myofunctional therapy is a program of specific exercises that target the facial muscles used to chew and swallow. It may effectively manage symptoms of sleep apnea, poor digestion, headaches, TMJ, and periodontal disease." Myofunctional therapy, he explains, "is non-invasive, and has no major risks."

Exercises used to strengthen the tongue include: pushing the tongue to the roof of the mouth; touching the nose with the tip of the tongue; rolling the tongue; and pushing the tongue left and right.

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