

Breastfeeding: Reducing the Risk for Obstructive Sleep Apnea

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The nutritional, immunological, and emotional benefits of breastfeeding have long been discussed. This article will address yet another benefit of breastfeeding, that of reducing the risk of snoring and obstructive sleep apnea (OSA).

Obstructive sleep apnea is a serious medical condition involving the ability to breathe while sleeping. A simplified definition of OSA is the stoppage/blockage of airflow for at least 10 seconds in the presence of respiratory effort while sleeping. OSA is usually characterized by loud snoring, daytime sleepiness, and interrupted sleep with periods of not breathing, which usually end in a snort. Other symptoms of OSA in adults include high blood pressure, morning headaches, depression, temperamental behavior, intellectual deterioration, poor job performance, impotence in males, and short-term memory loss. Symptoms in children include snoring, headaches, hyperactivity, developmental delay, behavior problems, restless sleep, nightmares, bed wetting^{1,2} and attention disorders.³

How is OSA related to breastfeeding?

Breastfeeding is important to the proper development of the swallowing action of the tongue, proper alignment of the teeth, and the shaping of the hard palate.^{4,5} Bottle-feeding, pacifier use, and infant habits such as excessive thumb-sucking, arm-sucking, etc., can cause tongue thrusts and malocclusions. Occlusion and a high palate impact the flow of air through the airway and thus may contribute to OSA.

Based on the results of a 1973 survey,⁶ the American Academy of Pediatric Dentistry noted that 89 percent of children between the ages of 12 and 17 had some form of occlusal disharmony, and that 16 percent of youth had such a severe, handicapping malocclusion that treatment was mandatory. These figures are staggering when compared to my skull research,⁴ and that of others,⁷⁻¹¹ which shows that before the invention of the modern baby bottle about 200 years ago, people had minimal malocclusion or decay.

Labbok¹² has shown a direct relationship between length of breastfeeding and occlusion, the longer the infant was breastfed, the better was the occlusion. Other authors¹³⁻²⁰ have shown that bottle-feeding, pacifier use and other habits can cause problems with breastfeeding or can lead to malocclusion. Farsi²¹ showed that the longer a child was breastfed, the lower the incidence of digit and pacifier sucking. Hultcrantz²² found that 6.2 percent of the children studied snored every night by the age of 4, and another 18 percent snored when they were sick. Among the snorers, more children used pacifiers than among the non-snorers (60 percent vs. 35 percent).

An article published in 1997 by a sleep research team from Stanford describes a formula for predicting OSA.²³ It states that individuals with high palates, narrow dental arches, overjets (lower jaw retruded), and large necks who are overweight are at risk for OSA. The information is extremely significant when one realizes that evidence from skulls shows that before the invention of baby bottles and pacifiers, high palates, narrow dental arches, and overjets were rare.

A high palate can impact occlusion and breathing. It can also narrow the upper dental arch and cause a crossbite. Since the roof of the mouth is also the floor of the nose, any increase in the height of the palate decreases the volume size of the nasal chamber. This decreased size can then increase the air resistance through the nose. High palates also lead to a narrowing of the posterior nasal aperture or choanae (skull opening at the back of the nose). A smaller opening means a narrower opening into the soft tissue section of the airway. The narrower the beginning of the airway, the greater the risk of the airway collapsing. Skulls from eras where there was universal breastfeeding rarely have small posterior nasal apertures. Possibly, humans may not have had OSA at all before the invention of artificial nipples.

Anything placed in a child's mouth excessively other than the mother's breast can impact occlusion. The impact is affected by a number of factors, including intensity, duration, and frequency. While the soft breast adapts to the shape of the infant's mouth, anything firm requires the mouth to do the adapting.²⁴ In addition, during breastfeeding, the tongue moves in a peristaltic motion underneath the breast.²⁵⁻²⁷ This motion is critical for the proper development of swallowing, alignment of the teeth, and the shaping of the hard palate. (Movement of the tongue is also a reason for clipping a tight lingual frenulum in a newborn. This will allow the tongue to compress the breast and to develop the proper motion. By preventing this motion, a tight frenulum can lead to a tongue thrust with a resultant malocclusion.)

Many factors, including heredity, influence malocclusion. Because of modern medicine, babies who might have died in the past are now surviving, including those with recessive genes that might impact occlusion. Other contributing factors to malocclusion include: inter-cultural marriages, size differences in parents, tight frenulums, tongue size, tonsil size, pathology, allergies, central nervous system dysfunction affecting facial muscles, and even diet.⁷ These factors alone, however, cannot account for the 89 percent rate of malocclusion found in 1973. Infant habits appear to be a major contributing factor to malocclusion.

The health and economic consequences of OSA are staggering. The best prevention is breastfeeding and keeping objects like pacifiers out of the mouth. Since craniofacial development is 90 percent complete by the age of 12,²⁸ it is important to intervene early.²⁹⁻³⁵ The prevention of OSA is yet another reason that the public, health insurance companies, and health care professionals should recognize the importance of breastfeeding.

Dr. Palmer is a private-practice dentist in Kansas City, Missouri. He has a special interest in the treatment of snoring and obstructive sleep apnea and has been doing self-funded research for more than 20 years on the collapse of the oral cavity and airway, tight frenulums, and infant caries.

References

1. Weider, D., M. Sateia, and R. West. Nocturnal enuresis in children with upper airway obstruction. *Otolaryngol Head Neck Surg* 1991; 105(3):427-32.
2. Timms, D. Rapid maxillary expansion in the treatment of nocturnal enuresis. *Angle Ortho* 1990; 60(3):229-33.
3. Chervin, R. et al. Symptoms of sleep disorders, inattention, and hyperactivity in children. *Sleep* 1997; 20(12):1185-92.
4. Palmer, B. The influence of breastfeeding on the development of the oral cavity: A commentary. *J Hum Lact* 1998; 14(2):93-98.
5. Palmer, B. The significance of the delivery system during infant feeding and nurturing. *Australian Lactation Consultant Association (ALCA) News* 1996; 7(1):26-29.
6. American Academy of Pediatric Dentistry. Reference Manual, Vision Statement and Policies. *Pediatr Dent* 1995-96; Special issue, 17(6): 1-6, 24-26, 28.
7. Price, W. A. *Nutrition and Physical Degeneration*, 6th ed. New Canaan, CN: Keats, 1998.
8. Black, G. V. *Operative Dentistry: The Pathology of the Hard Tissues of the Teeth*, 2nd ed. London: Medico-Dental, 1914.
9. Torney, P. H. Prolonged, on-demand breastfeeding and dental decay: An investigation. M. Dent. SC, thesis, Dublin, 1992.
10. Molnar, S. and I. Molnar. *Dental Arch Shape and Tooth Wear Among the Prehistoric Populations of the Murray River Valley in Craniofacial Variations in Pacific Populations*. Adelaide, S. Australia: Gillingham Printers. 1992, 99-111.
11. Larsson, E. Malocclusions in juvenile medieval skull material. *Swed Dent J* 1983; 7:185-90.
12. Labbok, M. and G. Hendershot. Does breastfeeding protect against malocclusion? An analysis of the 1981 Child Health Supplement to the National Health Interview Survey. *Am J Prev Med* 1987; 3(4):227-32.
13. Melsen, B., K. Stensgaard, and J. Pedersen. Sucking habits and their influence on swallowing pattern and prevalence of malocclusion. *Eur J Ortho* 1979; 1(4):271-80.

14. Davis, D. and P Bell. Infant feeding practices and occlusal outcomes: A longitudinal study. *Can Dent Assoc* 1991; 57(7):593-94.
15. Paunio, P., P Rautava, and M. Sillanpaa. The Finnish family competence study: The effects of living conditions on sucking habits in 3-year-old Finnish children and the association between these habits and dental occlusion. *Acta Odontol Scand* 1993; 51(1):23-29.
16. Ogaard, B., E. Larsson, and R. Lindsten. The effect of sucking habits, cohort, sex, intercanine arch widths, and breast or bottle feeding on posterior crossbite in Norwegian and Swedish 3-year-old children. *Am J Orthod Dentofac Ortho* 1994; 106(2):161-66.
17. Legovic, M. and L. Ostric. The effects of feeding methods on the growth of the jaws in infants. *J Dent Children* 1991; 58(3):253-55.
18. Newman, J. Breastfeeding problems associated with the early introduction of bottles and pacifiers. *J Hum Lact* 1990; 6(2):59-63.
19. Picard, P. Bottle-feeding as preventive orthodontics. *J Calif State Dent Assoc* 1959; 35(3):90-95.
20. Larsson, E. F. *The prevalence, etiology and effect on the dentition of initial and prolonged fingersucking*. Second International Symposium on Feeding and Dento-Facial Development. Chicago: 1988.
21. Farsi, N., F. Salama, and C. Pedro. Sucking habits in Saudi children: Prevalence, contributing factors and effects on the primary dentition. *Pediatr Dent* 1997; 19(1):28-33.
22. Hultcrantz, E. et al. The epidemiology of sleep related breathing disorders in children. *Int J Pediatr Otorhinolaryngol* 1995; 32 (Suppl):s63-s66.
23. Kushida, C., B. Efron, and C. Guilleminault. A predictive morphometric model for the obstructive sleep apnea syndrome. *Ann Intern Med* 1997; 127(8):581-87.
24. Drane, D. The effect of use of dummies and teats on orofacial development *Breastfeeding Review* 1996; 4(2):59-64.
25. Woolridge, M. The 'anatomy' of infant sucking. *Midwifery* 1986; 2(4):164-71.
26. Escott, R. Positioning, attachment and milk transfer. *Breastfeeding Review* 1989; 1(14):31-37.
27. Neil, J. Ultrasound in the assessment of breastfeeding problems. Australian Lactation Consultant Association (ALCA) National Conference. Hobart, Australia: 1996.
28. Shepard, J. et al. Evaluation of the upper airway in patients with obstructive sleep apnea. *Sleep* 1991; 14(4):361-71.
29. Rosen, C. L. Obstructive sleep apnea syndrome (OSAS) in children: Diagnostic challenges. *Sleep* 1996; 19(10):S274-77.
30. Guilleminault, C. et al. Recognition of sleep-disordered breathing in children. *Pediatrics* 1996; 98(5):871-82.
31. Zucconi, M. et al. Habitual snoring and obstructive sleep apnea syndrome in children: Effects of early tonsil surgery. *Int J Pediatr Otorhinolaryngol* 1993; 26(3):235-43.
32. Meredith, G.M. Airway and dentofacial development. *Am J Rhinol* 1985; 2(1):33-41.

33. Jamieson, A. G. et al. Obstructive sleep apneic patients have craniomandibular abnormalities. *Sleep* 1986; 9(4):469-77.

34. Pottenger, F. and B. Krohn. Influence of breastfeeding on facial development. *Arch Ped* 1950; 67(10):454-61.

35. Cistullit, P., R. Palmisano, and M. Poole. Treatment of obstructive sleep apnea syndrome by rapid maxillary expansion. *Sleep* 1998; 21(8):831-35.

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