

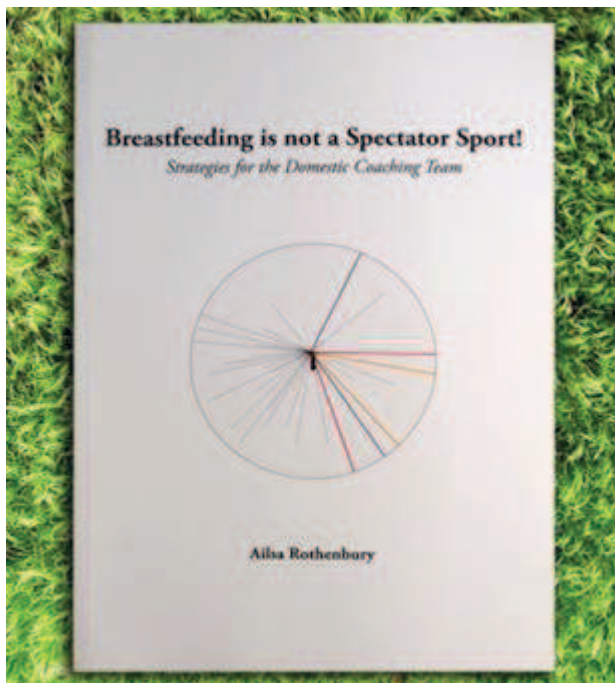
Question & Answer - Oral Sensory-Motor, Myofunctional, Vocal Tract, and Airway Information

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What are the root causes of many oral sensory-motor and ultimately dental problems?

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Whatever our area of expertise, we tend to deal with the specific problem in front of us.

Consequently, dental and long-term mouth development problems have not been factored into my parent education until recently. I have spent the last thirty years assisting breastfeeding mothers and babies. Now I can see that those of us who work with newborns have often been ignoring the early signs of oral sensory-motor dysfunction which will not resolve but may become prominent in the child's future. Mothers are the first to notice a problem. Even before modern medicine, physical therapy, speech-language pathology, otolaryngology, chiropractic, and other modern treatments were created, mothers knew there was a problem when babies did not feed normally and nipple trauma was obvious.

History has not helped us to recognize the implications of concerns noticed by mothers. For centuries, when the infants of mammals did not feed well they died. You can guess, with some certainty, that any historical figure, like Moses, Julius Caesar, Confucius, or Genghis Khan who survived infancy, was breast fed.

This was the case until quite recently in human history. It was not until medicine developed an interest in data collection that infant mortality became something we thought we could influence for the better.

In years past, what caused children to die in large numbers in the summer? The answer is *infections* - usually gastroenteritis. As recently as the 1900s, the mortality rate of babies was very high. This reduced significantly after science discovered pathogens, immunizations, and vitamins. As the mortality rate dropped, malnutrition became the next problem to be addressed. Parents tried but were helpless to change outcomes. The industrial revolution brought many changes in mechanical devices and processes which eventually contributed to child survival. Rubber was invented in 1839 by Charles Goodyear, but it was a smelly black variety useful for rubber tires. It needed work before it was palatable enough for use in infant feeding. Glass was an old product use by the Egyptians. Mass production combined with rubber teats proved to be a useful technological solution to feeding infants milk other than mother's milk.

My experience in infant feeding has been as a nurse, midwife, child health nurse, mother, breastfeeding counsellor, and lactation consultant (IBCLC). Recently, I was alerted to underlying basics of anatomy and physiology in oral sensory-motor function. For many years, I had been questioning things I found when assessing mothers and infants. Over the years, I was surprised by some answers I got from speech-language pathologists, neurologists, psychologists, medical practitioners, pediatric surgeons, and dentists. Some just passed off a query about bottle and formula use with the answer that "some babies need formula." It was all about nutrition, not the mechanics of suck-swallow-breathe coordination.

However, attendance at lactation conferences impressed upon me the fact *we don't just need to treat the problem but to find the cause and treat that*. It's sort of an inverse triangle model for efficient function. If I

cannot recognize underlying problems, I cannot educate parents about what might need to be done in the future by other members of the health care team. We also talk about breastfeeding as if it is one thing. It isn't, there are two patients (mom and baby), but usually one cause (i.e., something is often going on with the baby). There is lactation, and there is sensory-motor function required for feeding. Mothers lactate, and babies feed.

Simplistically, here are some scenarios:

-Blocked milk duct: Poor milk drainage

-Poor milk drainage: Dysfunctional oral-motor coordination

-Dysfunctional oral sensory-motor skills: Possible anatomical deviation (e.g., ankyloglossia)

-Ankyloglossia: Possible genetic predisposition

A similar pathway exists for many maternal symptoms such as nipple pain and trauma, as well as low milk production and anxiety. Infant symptoms such as slow weight gain, frequent feeding, gastric acid irritation, tonal deviations, and pain often relate to the infant, its age, and the circumstances of delivery. I can't do anything about genetics, but I can intervene at a functional level and teach parents to use strategies at home to assist a baby to feed well.

Medical myopia may permit a seemingly valid disregard of a maternal statement, "there is something wrong with baby's feeding." For decades we *blamed the mother* for being too tall/too short, breasts too big/too small, nipples too big/too small, insufficient/too much milk, anxious mother, inattentive mother, etc. In these situations, the mother was left *to pick up the tab* for oral sensory-motor dysfunction by enduring long and frequent feeds, nipple trauma, blocked ducts, mastitis, anxiety, and so on. For years I worked on that end of the problem when slow weight gain in infants

seemed to be the primary medical indicator of unsuccessful breastfeeding. However, the World Health Organization (WHO) stresses the importance of three measurements to ascertain normal growth and development (i.e., weight, height, and body mass index). And, there are unique standards for formula-fed babies vs. breast-fed babies.

In my opinion, formula use is often prescribed prematurely to avoid potential liability, and the underlying cause of the baby's feeding problem is often ignored. Bottle-fed babies don't need to have normal oral sensory-motor function as long as they swallow enough calories and adequate weight gain is demonstrated.

When I read what dentists and orthodontists are currently saying about normal facial growth and development, the history of infant feeding became highly relevant, as the last 150 years of bottle feeding seems to have masked many problems dentists and orthodontists face. The primary issue is facial growth and development.

Bottle feeding with modified milks as recommended by medical practitioners utilizes current nutrition science focused on food intake and resultant growth. We now know how to keep infants alive. However, many infants seem to be fed in this medicalized manner for the sake of convenience or other individual reasons. Yet, *breastfeeding produces better oral-facial structure/function outcomes* than bottle feeding according to *research*. So, where are the training programs for health care professionals and parents that teach these concepts? I worked in a university school of nursing 30 years ago, and it was not taught there. I then worked in the community health system as a child health nurse/lactation consultant, and there was no mandatory professional education on this topic. The significance of breastfeeding for adequate and appropriate oral and facial growth and development seemed to be ignored in a department which had normal child development as its *whole reason for*

being.

As children grow, the downstream problems related to oral sensory-motor dysfunction frequently worsen. Difficulties with eating solid foods, chewing, drooling, etc. are usually seen by speech-language pathologists. Crooked teeth are handled by dentists and orthodontists. Breathing difficulties are handled by physicians and surgeons. Over the past 60 or so years, we did not *connect the dots* but considered suboptimal oral sensory-motor and respiratory functions as separate conditions. Frequently, parents were advised that “*they will grow out of it.*” As Brian Palmer, DDS said at an Australian Breastfeeding Association conference in 2006, “*they don’t grow out of it.*”

Crooked teeth, narrow palates, open mouth posture, and so on can be traced back to uncorrected problems in infants. Correct oral sensory-motor function starts with sucking at 16 weeks gestation, swallowing at 32 weeks gestation, and the coordination of these two reflexes between birth and 4 weeks of age. This is a real window of opportunity to assess and correct oral sensory-motor dysfunction. The ability to use the correct muscles to breastfeed well leads to normal oral and facial growth and development. Today, I am suspicious of babies with bibs or bottles because babies should not leak milk during feeds and ideally should not need a bottle. And, I wonder, “*Why was formula required in place of breast milk?*”

When we say that modern orthodontics is a *result of mothers not breastfeeding enough*, we are again ignoring the history of how and why bottle feeding with manufactured milk developed. We dealt with an important short-term solution for infants who needed medicalized feeding, but if facial growth and development is the long-term objective, we have failed infants in our caring role. Even today, the number of health care professionals who recognize the connection between dysfunctional oral mechanics and an uncoordinated breathing cycle are far outnumbered by those who maintain the *status quo* of medicalized bottle

feeding. Just this week I heard a report of a very senior community nurse manager who told staff, "*I don't believe in tongue tie.*" It's anatomy and physiology that needs to be examined here, not personal beliefs.

Mothers have always been advocates for their children. Just as a successful driving test gets us a license to drive, successful breastfeeding gives baby a license to grow and develop normal oral and facial structures, to breathe well, eat well, and swallow normally. Professionals need a long vision and not a short-sighted vision which only involves their own area of expertise. All the parts of the puzzle are important. The continuum is important, and a trans-disciplinary approach is essential. Fortunately, there are increasing numbers of professionals from a variety of disciplines, who are working on this problem. However, we have a long way to go and a bumpy road ahead.

History is not only important for what we remember but also for what we forget.

About the Author

Ailsa Rothenbury has been involved in supporting breastfeeding mothers and babies since 1974. Her formal education was in nursing, midwifery, and community health. She also had voluntary roles in the Nursing Mothers Association of Australia 1974-77 in Papua New Guinea and was the first certified lactation consultant (IBCLC) in Western Australia in 1986. Her theoretical knowledge was practically tested and revised while feeding her own five children and discovering that everything is not in a textbook.

In 1999, she was the Australian representative on the IBCLC exam committee in Washington, DC. Her clinical practice changed after visiting the lactation clinics of Dr. Jack Newman in Toronto where she

realized what she learned in 1962 with bottle feeding in a pediatric hospital could be utilized in conjunction with finger feeding to re-train infant suck. The clinical results were good with babies gaining weight appropriately, and the rate of mastitis almost nil. By 2007, she decided to write a small pamphlet of what interventions were being used in the clinic and with community clients. This pamphlet grew to a book of more than 100 pages, finally published in 2009 entitled *Breastfeeding is not a Spectator Sport: Strategies for Parents*. The internet enabled professional contact which was not available in 1971 when she had her first child. She gleaned many interesting facts and increased her level of lactation-related trivia. Di Bahr, in particular, proved to be a great colleague.

Currently, having almost reached retirement age, she is excited to be connected with other health professionals who are interested in orofacial myology, speech-language pathology, and other related areas (e.g., feeding and mouth development). The internet has great potential for sharing knowledge, but unfortunately there are restrictions in innovative practices when people are employed by state health departments who must follow the policies of those organizations. Ailsa remains committed to the process of changing the paradigm in infant feeding assessment and treatment. She is developing an interest in learning more about oral-facial myology, as well as facial growth and architecture.

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