

THE SIGNIFICANCE OF THE DELIVERY SYSTEM DURING INFANT FEEDING AND NURTURING

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Biography: Dr. Palmer is a full-time private-practice general dentist with a special interest in the treatment of snoring and sleep apnea. He is a member of the national, state, and local dental societies, International Lactation Consultant Association (ILCA), Medical Associate of La Leche International, State of Missouri Breastfeeding Task Force, American Sleep Disorders Association (ASDA), Sleep Disorders Dental Society (SDDS), and a member of two hospital "sleep" teams. He has had special post graduate training in orthodontics, occlusion, TMJ, and myofunctional therapy. He has spent over 20 years observing and documenting the collapse of the oral cavity and airway, as well as researching skulls and the history of breastfeeding.

Lactation specialists provide the most important service of all the health care providers. I make this strong statement because I believe breastfeeding is the key to the best and cheapest form of health care. The ramifications of NOT breastfeeding are significant. Many are concerned only with the contents of the delivery system. I believe one must also be concerned with the "delivery system" itself since it will have a significant impact on the developing occlusion (the way the teeth meet)¹ and on total infant development. There is no delivery system or artificial content that will ever replace the act of feeding human milk direct from the breast.

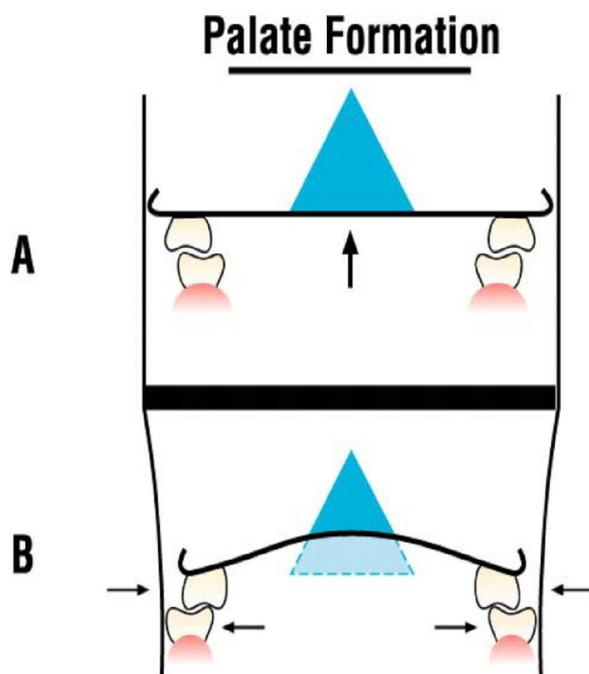
The purpose of this article is to discuss some of the important issues as to why the "delivery system" itself must be evaluated. The side effects of an improper delivery system will also be addressed.

Latex teats, dummies, and thumbs (fingers, blankets, arms, etc.) are deleterious to the development of the oral cavity and the airway. A good illustration would be to place your thumb on the underside of a thin, softened rectangular piece of wax and push up. The force of the thumb will push up and mold the wax into the shape of the thumb. The sides of the wax will also move inward. Thus, when the bottle teat, thumb, finger, or dummy press against the still soft bones of the palate, these bones are molded into a narrow unnatural shape. This can eventually lead to the poor alignment of teeth² and explains the "V" shaped arch as described by TA Hunter of the NZ Dental Association as early as 1941 in the book "Mothercraft"³. It also explains how the upper back teeth are pulled inward and cause a mismatch of the teeth or what is better known as a malocclusion.

Some teats, but mainly thumbs, can impact the position of the upper front teeth by pulling / pushing them forward and up, creating a "goofy" look. Teats and thumbs can also retard the growth of the mandible and create a retrognathic (back) lower jaw,

causing an “open” bite in which the upper and lower front teeth do not contact each other as they should. Once you have this malocclusion a domino effect occurs that damages the rest of the teeth. The damage that occurs includes - loose teeth, sore teeth, bone break-down, and notches near the gum line.

Another problem that occurs during this same illustration is that of infringing on the space in the nasal cavity. As one pushes up on the roof of the mouth, the floor of the nasal chamber is rising at the same time. Since the bridge or the top edge of nose does not rise accordingly - you have a decrease in total nasal volume. This can have a dramatic effect on the individual’s breathing efficiency since the size of the chamber is decreased. There is a direct correlation between being healthy and ease of breathing.



24 Illustrates how a high palate impacts arch width and nasal space.

A challenge teat manufacturers have is the firmness of the latex or silicone that their product is made of. If it is too soft, it will stay compressed for a longer time after a suck and it will not refill very easily. Teats made of harder latex or silicone rebound and refill quickly. The problem however, is that the harder the teat composition, the more it will deform the hard palate.

The anatomy of a suck as described by Woolridge⁴ and Escott⁵ states that during breastfeeding, a compression wave moves from the tip to the back of the tongue against the underside of the nipple and breast tissue. This peristaltic like motion pushes the milk ahead of itself, until it is expressed out of approximately 15 pores

near the tip of the nipple in a volume the baby can easily swallow. A small amount of “suction” or negative pressure is created to hold the nipple in place at the junction of the soft palate, but the act of feeding from a breast is quite different to sucking. The breastfeeding infant develops proper perioral musculature (muscles around the mouth and jaw) by the way it works its jaw muscles in this physiologically normal process. The human nipple is not harmful to the hard palate, because it has appropriate flexibility to flatten and broaden. This accounts for the fact breastfed babies have nicely rounded “U” shaped hard palates.

With an artificial teat the infant does not caress the bottom side of the teat, but rather has to squeeze it to express the contents. Depending on the hardness of the composition and the size of the hole at the end of the teat, the milk either “gushes” or squirts in a thin hard stream out the end, causing the infant to posture its tongue at the back of the throat to prevent too much liquid from going down its throat. This sets up a tongue habit described by some as a tongue thrust or deviate swallow.

This type of swallow, patterned through infancy, can become the usual swallow for that child, persisting into adult life, with devastating consequences to the oral cavity and the dentition. The tongue thrust is also one of the causes of otitis media. As the tongue postures up and back, it can physically push the soft palate up and obstruct the eustachian tube (auditory canal), or it can prevent the Tensor Palatini muscle (the muscle that opens the eustachian tube during a swallow) from firing properly. Both have the same effect of preventing the infant from equalizing the pressure in its middle ear, decreasing circulation in the ear, and setting up a condition for otitis media.

Another contributing factor to the collapse of the airway involves the infant NOT receiving the mother’s immunological and antibiotic benefits that are normally passed through the natural breast milk. Because the infant does not receive these benefits, he/she is more prone to illness and infection, and to combat these the body has to “kick in” its filtering system - the tonsils and adenoids. The tonsils and adenoids become inflamed and swollen thus decreasing the size of the airway even more and further reducing the efficiency of airflow. The enlarged adenoids can also interfere with the efficiency of the eustachian tubes as discussed above.

If the composition of the teat is on the hard side, the contents of the bottle will “gush” excessively. On the other hand, if the composition is too soft, the infant may have to suck excessively to get the fluid out. With this action, a strong vacuum force is set up in the throat or oropharynx area. This can be devastating to the airway by collapsing the walls in the throat area and decreasing the size of the airway, leading to even more inefficiency of breathing. Add together the decreased nasal space and the decrease in throat space, and you can see how the infant’s ability to breathe is affected.

A decrease in the ability to breathe can have a harmful effect in the total health of the individual, as an infant as well as an adult. Decreased airflow leads to poor sleep quality, snoring, apnea, and enuresis (bed wetting). Growth hormone is related to sleep, obstructed airways lead to disrupted sleep, and ultimately to the growth and development of the child.

The delivery system of breastfeeding is so much healthier for the infant than bottle feeding, but it is little appreciated. Breastfeeding is often reduced by commercial interests to a nutritional issue, with occasional reference to its immunological benefits. Bottles, teats and dummies have become such a ubiquitous part of our culture that their impact on the infant is rarely questioned. I would like to solicit your help to educate mothers, doctors, other lactation specialists, governments, and insurance companies on the importance and benefits of breastfeeding, in the full sense of the word. Breastfeeding is truly the cheapest form of health care!

“We only see what we know, therefore we must know to serve!”

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