

The Digestive System, Vagus Nerve & How Massage Can Assist Babies with Reflux

Article by:
Natalie Garmson, CIMI, MISI, Ass.Dip Sc, Cert I Aromatherapy
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The digestive system and the vagus nerve: a brief overview

Digestion is controlled by the Autonomic Nervous System (ANS), in particular, a branch of the ANS called the parasympathetic nervous system (1). Here you will find the vagus nerve (sometimes referred to as the vagal nerve). The vagus nerve sends signals from the brain to the stomach, pancreas and other digestive organs such as the oesophagus; its main use being to regulate the function of these major organs. The oesophagus is essentially a muscle under the control of the vagus nerve (2). The muscle at the lower end of the oesophagus (closest to the stomach) is the lower sphincter; this valve relaxes and contracts to allow food to pass through to the stomach. *It is the lower oesophageal sphincter contracting that prevents the reflux reaction occurring.* If this muscle is immature or weak, your child may experience reflux (Gastro-Oesophageal Reflux or GOR for short). Food passes down the oesophagus to the stomach by a series of wave-like contractions, known as peristalsis, forcing the sphincter muscle to contract and relax. The vagus nerve also controls peristalsis (2).

How human touch influences the vagus nerve:

The ANS comprises the sympathetic and parasympathetic branches. When your baby cries and is in pain (a symptom of reflux), the sympathetic branch is stimulated, releasing stress hormones such as adrenaline and cortisol (4). The sympathetic nervous system overpowers the parasympathetic (calm and relaxed) system (3). This is where the power of touch is in your hands. If you consider how massage can be used to effectively relax a tight muscle, normally you would directly massage that area and the muscle would loosen, however this becomes difficult in the case of reflux. When considering how massaging your baby is able to relieve symptoms of reflux, it helps to understand how the skin and the nervous system are connected. Massage on any area of the body is able to assist a reflux baby by stimulation of the vagus nerve and thus an increase in effectiveness of muscle control and regulation (remembering it is the vagus nerve that controls the lower sphincter in the oesophagus). Why is this so? Because the skin and the nervous system develop from the same cell layer (4). An increase in the amount and frequency of skin stimulation (eg pressure via massage) means that the vagus nerve is able to operate faster and more efficiently. This should result in greater muscle control. Remember, relief from reflux won't happen overnight. Consistency is the key, especially to relieve the symptoms of reflux in infants. Massage your baby **twice a day** for a reflux baby, as opposed to once a day for most healthy infants. As one infant massage instructor recalls "*I remember one little four month old girl... she had been diagnosed with reflux but her parents had seen no improvement after trying medications and various formulas. After introducing a simple massage routine twice a day, her parents reported complete improvement after only two weeks!*" (6).

Did you know?

Touch is the earliest sense to develop in all animal species. (4). Massaging your baby is a wonderful way of communicating to your newborn through positive, nurturing touch. It is amazing to think that by the end of the fourth month of development, the skin is formed. You may also see the skin referred to in text books as 'integument' which forms a part of the integumentary system (5).

Recommendations for massaging a reflux baby:

There are a few considerations that need to be taken into account when massaging a baby who suffers from reflux.

- (1) Alter the position of your baby for massage. Preferably lay your baby on a forty five (45) degree angle (as opposed to lying on the floor in front of you). You can do this simply by adding some cushions or a pillow, supporting their back and head or using a specially designed reflux sleeping wedge or reflux change mat (eg see www.pollywogbaby.com sleep wedge or www.buboo.com.au). Note: you may want to experiment with the angle at which your baby sleeps. A lower angle (eg 15 degrees) may not be beneficial to assist a baby with reflux. An angle up to 45 degrees is acceptable depending on the severity of the reflux.
- (2) If your baby's abdomen is tender or you think he/she may spit, avoid massaging this area for the moment.
- (3) When massaging your baby's back, instead of them lying on their tummy on the floor, consider lying your baby on his/her side whilst remaining in a forty five degree angle, or try the cuddle position. This is where you cuddle your baby, using one hand to support their bottom and legs, whilst the other hand massages their back. It is important ensure your body is supported, for example, by leaning back on a sofa whilst sitting comfortably on the floor.

For practical advice and further information about reflux, silent reflux and Gastro-oesophageal Reflux Disease (GORD) and products available for reflux:

www.pollywogbaby.com Practical Solutions for Infant Reflux and Colic

www.reflux.org.au Reflux Infants Support Association Inc. Australia

www.infantreflux.org Infant Reflux Solutions For Your Baby!

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