



life is now

**Research review:** *Prolonged rhythmic gum chewing suppresses nociceptive response via serotonergic descending inhibitory pathway in humans.* Mohri Y, et al. *Pain* (2005) 118, 35-42.

At first glance you might wonder what this research has to do with yoga. Then again your mind might have dozed off due to the scientific words in the title. Read on. This study helps explain some of the powerful effects of Japa Yoga. One way to consider Japa sadhana is as the repetition of a symbolic expression, or mantra. It also involves the contemplation of the implied meaning of the spoken or mentally repeated expression. As well, Japa may involve rhythmic hand movements such as when using your thumb to draw forth each successive bead of a mala after the completion of each repetition of the mantra.

This research, in more plain words, studied the effects of rhythmic movement on one of the anti-pain systems of humans. To do this, they looked at the effects of rhythmic gum chewing on subjective reports of pain to a noxious stimulus, on a protective muscular reflex mechanism, and on the amount of serotonin in the blood. Serotonin is a chemical neurotransmitter produced mainly in your central nervous system. When released into your nervous system, one of the effects is to decrease your pain experience.

Nine healthy young subjects rhythmically chewed gum for 20 minutes. At intervals during this time, they received a noxious stimulus – a small shock. After five minutes of gum chewing, there was a significant decrease in how painful this stimulus felt to the subjects, and after five minutes there was a decrease in the response from a protective muscular reflex. After the twenty minutes of gum chewing, there was also a significant increase in blood serotonin levels. These results all point to the power of rhythmic movements to decrease pain.

Two other important things to know: there is strong evidence that rhythmic movements do not have a direct influence on the endogenous opioid (endorphin) system. Other stimuli seem more effective at releasing our powerful endorphins. Second, other research has shown that rhythmic breathing also enhances activity of the serotonergic anti-nociceptive system.

The relevance to yoga...

When I was learning Japa, and especially when I was introduced to the practice of touching successive finger pads to thumb pad as I repeated, Sa Ta Na Ma, I was reminded of this article. During this specific Japa practice, one vocalizes “Sa”- as the index finger touches the thumb, “Ta”-as the middle finger touches the thumb, “Na”- as the ring finger touches the thumb, and “Ma”-as the little finger touches the thumb. The vocalization and the finger movements are repeated, and in time the breathing will start to flow into a rhythmic pattern as well.

In this Japa practice, we have rhythmic finger movement, rhythmic jaw movement, rhythmic breathing, and rhythmic sound. Although there is no scientific evidence yet supporting that there is an accumulative effect of combining different rhythmic movements, one wonders whether this is why this technique can be so effective at helping to decrease pain. I am now teaching this technique to all my clients and students with persistent pain who are willing to explore and practice. Many of them really connect to the meaning – Truth is my identity”, and begin to contemplate how this relates to their pain and their life.

Sometimes it helps to learn that yoga practices are grounded in modern science. We have learned that yoga was developed through a very scientific process – the science of one. Yet we have been conditioned to feel more secure when modern science validates the practice through its reductionism and ‘science of many’. It is probable that as modern science catches up, we will learn even more about the positive changes in our physiology which we experience when we practice Japa.

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