FOCUSING ON DIGESTION IN INDIVIDUALS WITH CEREBRAL PALSY

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Taking food and nutrients into one’s body is vital for life. When assessing someone for positioning, primary attention is often focused on musculoskeletal, neuromuscular and integumentary systems. Systems such as respiration and digestion are often overlooked, assuming that these processes just occur. Although they are an autonomic nervous system function, malfunction in these areas often highlight their importance. Individuals who remain in a seated position often compromise these processes. To fully understand the impact of the potential limitations, one must understand the digestive system.

Digestion
Digestion is a complex process that incorporates the function of a multi-organ and gland system. The process allows for the breakdown and absorption of nutritional matter, providing sustenance to preserve life. There are four phases of digestion including ingestion, mechanical and chemical breakdown, absorption and finally, egestion, the excretion of solid waste.

When food enters the mouth, it is broken down through mastication and the chemical action of the salivary enzymes. If an individual is unable to successfully chew food, there is potentially great impact on the rest of the digestive process, to be discussed later. Once adequately broken down, a swallow reflex is elicited allowing the food bolus to travel down the esophagus. As the swallow reflex occurs, the process is then controlled by the autonomic nervous system. Rhythmic involuntary muscle movements (peristalsis) are used to propel the food into the stomach. The peristalsis movement allows swallowed food to travel to the stomach regardless of the position the person is in (sitting, standing, prone or supine). The movement is automatic in nature with no ability for the individual to control the speed or direction. If incoordination is present, the risk of improper bolus delivery is elevated. The epiglottis, a small flap that covers the opening to the trachea, is vital in protecting the lungs during the swallowing process. If respiration is not coordinated with swallowing, aspiration can occur. The risk of aspiration can also be influenced by an individual's posture. For example, if a forward head position is present during the oral or cephalic phase of eating, there is increased risk of incoordination of the swallowing effort leading to aspiration/respiratory inefficiency.

Once the food enters the stomach, the substances are further broken down through a bath in gastric acid. The stomach, a sack like organ, assists in the process through churning motions. It is the gastric acid that is excreted in the stomach and the chyme (partly digested food mixed with gastric acid) that can potentially reflux through the cardiac orifice of the stomach back into the esophagus. Once there, it can burn the esophageal tissue causing discomfort and scarring for the individual. Positioning plays a role in reflux as gravity can assist in keeping the gastric acid and chyme properly located within the stomach.

After leaving the stomach, the chyme continues through the intestinal track into the small intestine. It travels from the duodenum to the jejunum and then into the ileum. At this point, digestion is facilitated through bile, produced in the liver and stored in the gall bladder. Other enzymes are also released from the pancreas and the inner lining of the small intestine wall enter the small intestine to assist in the digestion process. Absorption of the nutrients can occur in this phase.

As the digested food moves out of the small intestine and into the large intestine, some of the water and electrolytes are removed from the food. There are many healthy bacteria that reside in the large intestine that continue with the digestion process. As food continues through the large intestine, it moves from the cecum to the ascending colon, across the abdomen in the transverse colon to the descending colon. It ends its time in the sigmoid colon. Once it is at this point, the necessary
nutrients, water and electrolytes have been pulled out for the body to use. The waste is then moved to the rectum. It remains here until it is excreted through the anus.

In order for all these components to work efficiently and safely, the organs need to be supported with adequate “space” for them to do their work. For example, if an individual is “slumped” forward with his head and shoulders in front of his trunk, undue pressure can be placed on his stomach. This can lead to limited movement when attempting to churn its contents. This then lengthens the process making it less efficient. If food is not properly chewed and large pieces are swallowed, the rest of the system has a difficult time breaking these down. The digestive system was designed to be efficient with properly chewed food. If large pieces are swallowed, they can remain in the system for long periods of time. They also might move through the system without proper digestion, exiting the body before the nutrients can be absorbed. Since the intestinal track has many feet of tubing, scoliotic and asymmetrical postures can impact the movement process of the food through it. Excessive pressure or compression through lack of postural tone and skeletal asymmetries can cause this. This can lead to poor absorption, chronic constipation and the feeling of indigestion or fullness. If the “full” feeling persists, it can impact one’s desire to eat orally, often leading to poor nutritional intake. Stress/tonal imbalances also impact the digestion process. Muscle imbalance and tone can slow down the digestion process, slowing down the movement of the food.

Posture and Positioning Intervention
To provide optimal alignment for eating and digestion, an upright and self supported trunk position is recommended. The head should be slightly forward with the chin tucked. The spine should be fairly straight with the pelvis level and under the shoulders. In dealing with individuals with postural asymmetries, supports and contact are needed to facilitate this posture without causing undue stress or pressure on the organs of digestion.

References


Maharishi Ayurveda Self Care System. Digestion System. www.mapi.com 11-12-08.