

ADVANTAGES OF XANTHAN GUM OVER STARCH BASED THICKENERS

SimplyThick thickening gel and AquaCareH2O thickened drinks are starch-free, using **xanthan gum** as the thickening agent. The advantages of xanthan gum over starch based thickeners, such as corn starch, used as a thickening agent for the treatment of dysphagia are manifold. These advantages have been confirmed in studies by the Veteran's Administration under the direction of Russell Mills, Ph.D. CCC-SLP, BRS-S, FASHA, as well as studies by Catriona M. Steele, Ph.D., CCC-SLP, SL-P(C), and Jane Mertz Garcia, Ph.D., CCC-SLP, all of whom relayed the results of their studies at the 2008 ASHA Conference in Chicago.

Xanthan has obvious advantages over corn starch aesthetically. When mixed, xanthan looks more like water than corn starch products. This factor alone can lead to increased consumption, which leads to better hydration for the patient (Mills). Better hydration leads to increased patient awareness and increased innate immune response in the form of more active cilia. More active cilia improves clearing of the lungs when aspiration does occur.

Xanthan is stable over time. Corn starch, especially granulated starches, continue to thicken over time after being mixed. This results in patients not receiving the consistencies prescribed by their SLP (Garcia, Mills). Mills' studies show that there is always a rise in viscosity over time with the use of starches. Some of the increases are as much as 5 times the original viscosity. Mixed xanthan increases less than 5% over the same time period, and pre-mixed xanthan showed no increase at all in viscosity over time.

Xanthan is heat stable. When cooking foods with starch, the starch continues to thicken and the water is cooked off. Xanthan has a higher specific heat than starch, and because it binds differently than starch, the consistency stays very close to the original consistency when heated.

Xanthan is stable when frozen. Starches dissociate after freezing, but xanthan can be frozen after it is mixed, and when it thaws, it will thaw in the consistency that it was frozen in. This property not only has implications in shelf stability of pre-mixed product, but it vastly increases the ways xanthan can be used by patients. Something as simple as a glass of ice water is possible.

Aspiration is reduced in patients drinking xanthan beverages. Amylase in the saliva starts to break down starch immediately, but the human body has no enzymes to break down xanthan. Patients under distress who take a long time to consume starch products have an increased chance of aspiration as the amylase breaks down the starched based beverage and separates the starch from the water. If aspiration does occur, xanthan is cleared from the lungs more readily than starch as it has a much lower inclusion rate to achieve the same viscosity as corn starch. This is of medical importance when dealing with an aspirator (Steele).

Xanthan reduces constipation in patients.

Xanthan has a cellulose backbone, which causes it to pass through the body like a fiber and reduce constipation.

Xanthan adds no calories to beverages it is mixed with. Eighty percent of stroke victims, whether diagnosed or not, are diabetic (Mayo Clinic study). Starch based products increase the caloric intake of patients as the starch converts to glucose and raises blood sugar levels, often leading to increased insulin consumption. While some patients on thickened protocol need extra calories, it is better for the patient to get those calories from protein. It is also easier for dietitians to control the diets of patients with xanthan thickened products than it is with starch based thickened products.

There is less waste with pre-thickened products than granular starch based beverages, both in labour costs and material not consumed by the patient. According to Mills' study, there is more consumption with xanthan based products than starch based products. More consumption of the product leads to better hydration, which promotes better patient health and fewer medical complications. In addition, pre-thickened products require less labour to mix, and have no variation in consistency. These findings brought ASHA to make their recommendation to switch from granular starch products to pre-thickened xanthan gum based products.