

Autophagy

“...How long after we eat does it actually start ...” ----- The difficulty in answering that question is because autophagy is not an “it” --- it is a they. By that I mean there are many different types of autophagy. Each type involves the activation of different enzymes, and each has its own particular purpose. ----- Autophagy is the use of lysozomal enzymes to catabolize intracellular proteins that are either no longer functional, or are invasive, or are expendable. The catabolism liberates amino acids that can then be recycled for productive purposes. So, in a very general sense, autophagy can be considered an intracellular “house cleaning”.

Some forms of autophagy are initiated by the cellular invasion of bacteria and viruses. The autophagy initiated is kind of an intracellular phagocytosis that digests the invading microbe. Another type of autophagy is provoked by the presence of cancer, and indeed, lab animals who have been genetically altered to inhibit autophagy are very susceptible to death from cancer. Another type of autophagy is essential to sustained muscular activity during exercise. Some types of autophagy contribute to the efficiency, strength and stamina of exercise, and, another type of autophagy is responsible for the long-term benefits of exercise. A deficiency of autophagy (and our capacity for autophagy decreases with age) contributes to the advance of degenerative diseases. A routine “house cleaning” is essential to maintain cellular youth.

So, there is a certain basal level of autophagy that must be maintained, but additionally there is autophagy induced by environmental/metabolic stressors.

Autophagy is the body’s natural defense against metabolic stressors such as starvation and cancer in particular. This concept was the essence behind the old Natural Hygienists of 100+ years ago who recommended systematic fasting as a way to preserve health and youth. (And by fasting they meant true fasting, not the “intermittent fasting” (which is not really fasting at all) that is now a popular natural medicine farce.)

To what extent managed autophagy can be used as a clinical tool, I do not know. But, restricting food intake, and particularly restricting the frequency of food intake, is one of the most important aspects of maintaining health. People are such pigs. They eat huge quantities and they eat almost incessantly. That is why the NUTRI-SPEC Fundamental Diet makes such a big point of eating no more than 3 meals daily (2 is probably better for many people). And there are definitely benefits to systematically restricting food intake even beyond that.

Using fasting-induced autophagy as a clinical tool as did the old Natural Hygienists is a tricky proposition. The Hygienists could always tell stories of miracle cures of patients with cancer, advanced arthritis, and so on, but for every poster child they could advertise, there were probably ten people who

partially self-destructed before they wised up and abandoned ship. For most people an occasional 24-40 hours fast probably yields more metabolic benefits than costs. That would particularly apply to those with multiple degenerative diseases in their initial stage of NUTRI-SPEC care. But for most, just following the principles of Eat Well – Be Well with no more than 3 feedings per day, and provided those feedings minimize sugars, starches, and HOHUM-PUFA's, health can be maintained without extensive therapeutic fasting.

NUTRI-SPEC actually gives you the perfect means to monitor patients should you choose to recommend a 24-40 hour fast. The fast will be beneficial as long as body temperature is maintained reasonably well, and the patient does not go into either an extreme Anaerobic/Dysaerobic Imbalance, or an extreme Glucogenic/Ketogenic Imbalance. But if the body temperature drops like a stone, and the urine specific gravity and pH (and to a certain extent the saliva pH) swing into some extreme Imbalance and stay fixed there, then the fast is too metabolically demanding --- more destructive than constructive.

Autophagy has been resurrected as a clinical consideration by several self-proclaimed internet gurus. They are all over the place in their recommendations and in the rationale behind their schemes, and almost all of them are ridiculous. Some actually claim that autophagy processes begin within 5-8 hours after the last meal. How ignorant could they be? A full meal may require 5 hours just to leave the stomach in anyone age 33+, and definitely will require at least 5 hours to leave the stomach in anyone age 53+. So, the body is certainly not in a state of autophagy-inducing fasting when the last meal has not even been absorbed yet.

How long after a meal is required before any benefits of autophagy are achieved? It varies to an extreme, depending on not only the quantity and content of the meal, but also on the metabolic state of the person. Glucogenic/Ketogenic Balance is a key factor here --- with Glucogenic patients tending to be “stuck” in an absorptive state, while Ketogenic patients maintain an excessive post-absorptive state. Sympathetic and Dysaerobic patients tend to run a consistent catabolic dominance of metabolism, and also tend to generate excessive products of lipid peroxidation. Thus, they would more quickly reach the systemic catabolic state that would begin to penetrate the cellular level and initiate autophagy.

Another consideration is that your typical patient is carrying an excessive load of body fat. Once the post-absorptive state is achieved, the patient has plenty of adipose reserve to mobilize and keep the metabolic fires burning. It would thus require quite a while before those patients feel the “need” to dig down into intracellular catabolism to generate energy in a protective effort.