

Losing Weight with a Hydrogel



David Mendosa Thursday, April 22, 2010 [View All of David Mendosa's Posts](#)

Today, after 15 years of work, a Boston-based company focused on obesity and diabetes came out of stealth mode. **Gelesis Inc.** unveiled something that promises to make losing weight a lot easier.

Nothing on the immediate horizon could be more important for most of us who have diabetes. More than 85 percent of us are overweight or obese, according to a [survey](#) by the U.S. Centers for Disease Control and Prevention.

While I lost a lot of weight by using the first GLP-1 mimetic, Byetta, and then more by following a very low-carb diet, it wasn't easy. That personal experience is in part what makes me so excited about the product that Gelesis presented to the public for the first time today.

The company made its presentation at a media briefing that I was privileged to attend. Health Central sent me to Boston this week to attend the 19th annual meeting and clinical congress of the American Association of Clinical Endocrinologists. About 1,700 doctors from all over the world are here for the association's largest meeting ever.

I arrived in Boston yesterday evening, and for me the meeting started with the media briefing this morning. It started with a bang as two doctors presented the results of their efforts to date. After the briefing, I cornered four other experts involved with the development of their product.

Dr. Hassan Heshmati, the chief medical officer for Gelesis, kicked off the presentation. He announced that they have developed the first superabsorbent hydrogel composed entirely of food components. They call it Attiva.

It swells up after people swallow it, making people feel full. This feeling of satiety lasts even after it goes through the stomach into the intestines. Then it safely degrades in the colon and releases the liquids that it absorbs, one of Attiva's important safety features.

They designed Attiva to have the same physical properties as masticated food. The most common side effect was nausea. But only about 7 percent of the people in their clinical trial experienced it, Dr. Heshmati said.

After Dr. Heshmati's introduction of Attiva, Eric Elenko, Ph.D., showed us what Attiva can do. Dr. Elenko is a partner in Puretech Ventures, which co-founded Gelesis.



Eric Elenko Shows How Absorbent Attiva Really Is

To measure Attiva's effect on satiety, doctors at the Gemelli Hospital in Rome, Italy, gave it to 95 people. While some of them had a normal weight, others were overweight or obese, and they had an average body mass index of 31.

About half of them took two grams of Attiva before breakfast, lunch, and dinner. A control group took a placebo in a double-blind cross-over study. The results of the study show that Attiva significantly increased the post-meal feeling of satiety. In addition the people who took Attiva before lunch said that they were less hungry before dinner.

The study also showed that Attiva is safe and well-tolerated. I was particularly concerned about its safety, thinking back to when another company sold a highly absorbent fiber, guar gum, as a capsule for weight loss. That turned out to be dangerous when people didn't take it with enough water.

Fiber and Attiva work quite differently, Dr. Elenko told me after the media briefing. "Although Attiva can absorb hundreds of times more water than fiber can, its physical properties are more like food," he said. "So the body treats it more like food. In the colon it just falls apart."

Then, he says that Attiva and fiber have quite different elasticity and viscosity. Then they designed Attiva to respond to the pH environment in the body itself. "When the pH goes below a certain level, Attiva shrinks, and fiber doesn't do that. The increased viscosity in the small intestine slows down the rate of sugar absorption, which it turn results in increased glycemic control. Another difference is that in the colon all of the water goes with it when fiber goes through the body, whereas all the water is returned to the body with this product."

Finally, Dr. Elenko introduced me to the people who invented Attiva. They are Alessandro Sannino, Ph.D., who is now a project scientist with Gelesis, and Dr. Luigi Ambrosio, who is now the director of the Institute of Composite and Biometical Materials in Naples, Italy. They worked on it initially when Dr. Sannino studied under the direction of Dr. Ambrosio.

After this exciting presentation, I asked them the big question in my mind, "When are we going to be able to use it?"

Attiva acts "mechanically, not pharmacologically," Dr. Elenko said. "Because it is made entirely of food components -- which makes Attiva unique -- there potentially could be some regulatory flexibility. But right now we are thinking about going down a more formal prescription route in terms of it being a device."

Dr. Heshmati said that the next study would see if people actually lose weight while taking Attiva. Still, Dr. Sannino told me that "at the end of 2011 or early 2012" he expects that Attiva will come to market.

They can't tell us yet how Attiva's reduction of satiety translates into weight loss. But we all know that when we are hungry we eat. Unfortunately, sometimes we aren't in touch with our body's signals enough - or we overeat in a social setting -- and we eat when we aren't even hungry. Attiva can't help us there, so losing weight with it still isn't a sure thing. But I think that it is a huge step in the right direction.

When they presented Attiva to us, I hadn't had breakfast yet. So I figured that this would be the perfect time to take a capsule of Attiva to stave off hunger pangs. Quite willing under the circumstances to be a guinea pig, I asked them for a capsule then and there.

But Dr. Elenko just laughed. As I expected, he demurred because it would not be legal, since I wasn't in a clinical trial. At least I tried.

To view a video of how Attiva works, you can [click here](#). To view a PDF copy of the abstract, you can [click here](#).

<http://www.healthcentral.com/diabetes/c/17/109921/weight-hydrogel>