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The Insulin Pill

Diabetes is a very common disease. About 10% of Americans have some form of type 2 diabetes and about one million Americans are diagnosed with diabetes type 1. Type 1 diabetes is also known as insulin-dependent or immune-mediated diabetes. It is a disease that destroys the cells in the pancreas that produce the hormone insulin. Therefore, type 1 diabetics are unable to produce any insulin. Type 2, or non-insulin dependent diabetes is the most common form of the disease. It usually occurs in people who are over the age of 45 and overweight. Type 2 sufferers do not make enough insulin, or are unable to make proper use of it. Insulin moves blood sugar into the cells. Insulin is needed to control blood sugar levels. Without insulin death is inevitable.

For the most part diabetes is probably inherited, but diet and exercise make a difference in type 2 diabetics. In order to control blood sugar, frequent injections are necessary. This is not too invasive, but some diabetics need to inject before every meal to insure that their blood sugar does not get to high. This could be a real inconvenience at work or on vacation. Hopefully, pills are the next step.

There have been two different breakthroughs towards the development of the insulin pill. Purdue University scientists have developed a new acrylic-

based polymer coating on the pills to improve the body's absorption of insulin. The new product, so far only tested on rats and dogs would allow pills to pass through the harsh stomach acids and reach the milder small intestine. In the small intestine, the coating swells and the insulin is released. The other new idea is to find a substance that mimics insulin. A research team, of scientists from the US, Spain and Sweden, have screened more than 50,000 different compounds to discover if any of them might perform as a stand-in for insulin. The best prospect is from a fungus on a leaf found in Congo, Africa. It has been shown in experiments on mice to mimic the effects of insulin. But unlike insulin it can be swallowed instead of injected. The compound binds to the cell's insulin receptor and activates a certain enzyme as the first step towards enabling the cells to make use of glucose. Once the compound had been tested on the cultured cells, it was fed to two different strains of mice. It was found that it significantly lowered the mice's blood sugar.

Hopeful scientists want an FDA approval on either pill by 2004 but there is a consensus that it should be on the market within the decade. Since this is such a common disease and getting more common due to sedentary lifestyles, the insulin pill could be an easier and possibly as efficient way to treat this disease.