# Diabetes: From EYES to TOES

by Samir I. Sayegh, MD, PhD

## DIABETES, INTRODUCTION AND BRIEF HISTORY

Diabetes was first described thousands of years ago in an ancient Egyptian papyrus. Hesy-Ra the chief physician had noticed the frequency of urination of his patients. Indeed *diabetes* comes from the word "siphon" since people with untreated diabetes urinate like a siphon draining water. The diabetes we are familiar with is called diabetes mellitus. Another form, is called diabetes insipidus. *Mellitus* comes from the Latin word for honey. Medieval physicians (and many small ants observed in antiquity) found that people with diabetes mellitus has a sweet smelling (and tasting) urine. *Insipidus* comes from insipid, which means lacking flavor, since diabetes insipidus has non-sweet urine.

There are two forms of diabetes mellitus. Type 1 affects younger patients due to a failure of the pancreas to secrete insulin. Unless insulin is supplied death may follow. In type 2 or adult onset diabetes, the pancreas still secretes insulin but cells in the body fail to use it effectively. While not as dramatic as type 1, type 2, on the long run can be devastating to your health and life.

## DIABETES: THE BAD NEWS

The US "leads" the world in diabetes and one diabetic in four doesn't even know it. This is a potential epidemic. Indeed complications of diabetes can be devastating. They include damage to the eye, including blindness, damage to the kidneys with the possibility of progressing to dialysis or kidney transplant, damage to the nerves, with ulcers on the feet developing into gangrene if untreated. Amputation of toes or limbs is unfortunately too common. High blood pressure and narrowing of the major arteries also increase the risk of heart disease, heart attacks and strokes.

In my own clinic I see patients with a range of eye problems related to diabetes. Some simply have fluctuation in their vision due to change in the sugar level. Some others have long term effects including bleeding inside the eye with sudden loss of vision and some irreversible damage to the eye. Indeed more than 2.5 million people worldwide, including about 24,000 annually in the United States, will lose their sight as a result of diabetic retinopathy.

## DIABETES: THE GOOD NEWS

First of all most diabetics have type 2. This gives you some time to act.

Second. Diet works. The most effective measure involves a change in lifestyle with weight reduction and increased physical activity. In the 19th century, during the rationing of food in Paris while under siege during the Franco-Prussian War, French physician Bouchardat noticed the disappearance of sugar in the urine in his diabetes patients. Closer to home, Kris Freeman, was diagnosed with diabetes at age 20 and told that his athletic career was over. Kris is perhaps the best cross-country skier in the United States, and competed in the most recent Olympics.

Third. Medicine works if you need to use it. Insulin was discovered by Banting and Macleod from The University of Toronto who received the Nobel Prize in 1923. They did not attempt to control commercial production. So insulin is now available as a treatment in addition to many pills. An inhaled version of insulin is soon going to be available.

So diet, exercise and medication form a solid triangle that can help lower blood sugar. The ultimate question is whether lowering blood sugar actually helps. The final good news came from two important studies, a US study for type 1 diabetes and a United Kingdom for type 2. The answer is that **lowering blood sugar, through whatever means, delays the onset and progression of long-term complications**.

An inspiring example was featured in a recent article in the New York Times about Gerald Cleveland, 90 years old and his brother, Robert, 85, diabetics since childhood. Through a strict diet and exercise routine and despite their very early diagnosis, they managed not only to survive against all odds, but to avert the majority of the complications of diabetes.

So if we are willing to work at it, these are sweet news. But please, don't call me Honey!