

Research Snapshot

Today, thanks to caring people like you, the Juvenile Diabetes Research Foundation is the leading funder and advocate for type 1 diabetes research. Your passion and dedication illustrate our commitment to helping people who are living with type 1 diabetes while we work toward finding ways to prevent, better treat, and ultimately cure the disease. Our research focuses on efforts to: 1) Stop type 1 diabetes or slow its progression in people who are newly diagnosed; 2) Reverse type 1 diabetes, and prevent or reverse its complications, for those who have lived with the disease for years; 3) Prevent type 1 diabetes in people at risk and in future generations; 4) Improve the treatment of type 1 diabetes and provide better tools to achieve tight blood glucose control for people at all stages of the disease. Please read about two of our research initiatives in the following highlights:

An Initiative to Improve Insulin

People with type 1 diabetes must take multiple injections of insulin daily or continually infuse insulin through a pump. They must also test their blood sugar by pricking their fingers for blood six or more times a day. While trying to balance insulin doses with their food intake and daily activities, people with type 1 still must always be prepared for serious low blood sugar (hypoglycemic) and high blood sugar (hyperglycemic) reactions. JDRF has prioritized the need to perfect insulin treatments through the Insulin Initiative – a research program focused on improving insulin with a long-term goal of making it easier for people with type 1 to control their blood sugar.

One of the biggest challenges in making insulin effective is the speed at which it begins to work. Currently available forms of insulin take longer to begin correcting blood sugar levels compared to the natural insulin produced in people who do not have type 1 diabetes. JDRF is supporting research focused on making insulin faster-acting. One area of study is examining how insulin is delivered to the body (current methods involve injection under the skin) and will test whether inhaled insulin would be a safe and

more effective mode of delivery. Another area of study is looking at changing the actual insulin molecule.

Advancing the science of insulin will not only improve the quality of day-to-day life for people with type 1 diabetes, but it will also support JDRF's Artificial Pancreas Project, one of our major research initiatives. An artificial pancreas would link a continuous glucose monitor with an insulin pump (using insulin) via a sophisticated computerized system. For a person with type 1, this would help to manage insulin delivery and stabilize blood sugar.

Addressing Eye Complications

The complications of type 1 diabetes present challenges for people living with the disease. One of the most prevalent complications is diabetic retinopathy, which can lead to vision impairment and, in some cases, loss of vision. Most people with type 1 will develop some degree of diabetic retinopathy in their lives, although not all will experience loss of vision. However, recent advances in research on diabetic eye disease, funded in part by support from JDRF, hold the potential to help prevent and reverse eye disease in people with type 1.



JDRF is extremely efficient—more than 80% of expenditures go directly to diabetes research and education

JDRF has launched a special research initiative with a focus on diabetic retinopathy. This research program addresses the prevention of eye disease through patient education and treatment. Specifically, people with type 1 are encouraged to schedule regular eye examinations and follow through with diagnosis and treatment. The importance of this education and treatment is underscored by new research which shows that the sooner eye problems are diagnosed and treated in people with type 1, the better the prognosis. More treatments for diabetic eye diseases continue to advance. Genentech, in collaboration with JDRF and academic investigators, has found that administration of ranibizumab injection made specifically for the eye resulted in a significant improvement in vision in people with diabetic macular edema (a form of retinopathy in which the center of the retina swells, which is particularly threatening to visual acuity). This is a major development, as previous efforts have only halted eye disease without reversing it. With increased education, awareness, and research, JDRF is looking forward to lessening the challenges of eye disease in people living with type 1 diabetes and helping them to maintain good eye health.

Want to learn more about JDRF research? Please visit our website at www.jdrf.org or check out JDRF's Countdown magazine online at <http://countdown.jdrf.org/>.