



TEDDY Statistics

TEDDY International

- 8,667 children have ever been enrolled
- 391 children have 2+ autoantibodies
- 217 children have developed type 1 diabetes

TEDDY Colorado

- 1,375 children have ever been enrolled
- 57 children have 2+ autoantibodies
- 33 children have developed type 1 diabetes

TEDDY Publishing!

TEDDY turns 11 years old this September! This means we have a lot of data, especially regarding the first 5 years of life. TEDDY scientists are publishing papers much more frequently and we want you to know what TEDDY has discovered! We have included summaries of three publications in this newsletter. Please email teddy.study@ucdenver.edu if you would like the PDF of any of our published articles. Unfortunately, we will **NOT** have an Evening with Investigators this year due to a low turnout in 2014. However, we hope to find creative ways to keep you informed. We still have a long way to go and a lot more data to collect, thank you for being a part of TEDDY!



Josie 6.5 years
Josie and friends recently
ran a lemonade stand and
donated \$30 to the JDRF,
a children's diabetes
foundation that supports
TEDDY!

Progression from autoantibody positivity to diabetes

TEDDY recently published an article describing the progression of children who were autoantibody positive and went on to develop type 1 diabetes. Data shows that 70% of children with two or more type 1 diabetes autoantibodies will get diabetes in ten or less years. The TEDDY Study tests for autoantibodies at each visit. Children with one or more autoantibodies on two visits in a row are at an increased risk of developing type 1 diabetes. Out of the 8,503 TEDDY participants, 577 participants have ever been autoantibody positive. Researchers found a few traits that were linked to a shorter time between getting autoantibodies and diagnosis of type 1 diabetes. Those children who were very young (less than 2) when first showing an autoantibody or had multiple autoantibodies on the first positive visit often developed type 1 diabetes in a shorter time period. Researchers still have a lot to learn about the progression of diabetes.

Steck AK, et al, *Diabetes Care* 2015

Role of type 1 diabetes-associated SNPs

In 2014 TEDDY scientists found that there are certain pieces of our genes that play a role in the development of autoantibodies and type 1 diabetes. These gene pieces are different than the genes that qualified you to be in the TEDDY study, and they are called SNPs. SNP stands for single nucleotide polymorphism. Even a very small, one building block change (SNP) in a strand of DNA can lead to a change in the protein that is made. Altered proteins can cause changes in how your body works. This very small change can be like changing the amount of baking powder in a cake. It might seem like a small change but it means big changes for how the cake turns out in the end. TEDDY identified 8 such gene regions (SNPs) that are associated with an increased risk for autoimmunity in TEDDY participants who already have an increased genetic risk. Further research on these small genetic changes will give TEDDY scientists more information on the cause of type 1 diabetes.

Törn C, et al., *Diabetes* 2015



Age at gluten introduction and risk of celiac disease

Gluten is a common ingredient found in foods containing wheat, rye or barley. Its presence is important because a person that has celiac disease develops autoantibodies to gluten and can become very sick when gluten is eaten. Several studies have looked into the age of gluten introduction in children via cereals, breads, pasta and follow up formulas as a possible factor for the development of celiac disease and celiac disease autoantibodies. Scientists also looked at the effects that breastfeeding may have on the risk of celiac disease. Both early and late introductions to gluten had been linked to increased risk for celiac disease, and being breastfed at the time of gluten introduction has been related to a decrease in risk.

TEDDY scientists decided to look at these same questions using diet record information and celiac disease autoantibody results. Data from 6672 children across all of the TEDDY sites was examined. TEDDY saw that the timing of gluten introduction was not connected to a greater risk of developing celiac autoantibodies or celiac disease. Data also showed that continued breastfeeding at the time of gluten introduction may increase the risk of celiac disease autoantibodies, but not celiac disease. Although this finding may seem shocking, further analyses are needed to verify these results.

Aronsson CA, et al, *Pediatrics*, 2015



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COLORADO TEDDY NEWSLETTER

The Environmental Determinants of Diabetes in the Young

www.teddystudy.org
www.teddycolorado.org

TEDDY mom blog



We have a blog written by a TEDDY mom who is also a staff member at one of our centers. There you can read blogs about difficult blood draws, poop samples, interviews with adults who have celiac disease or diabetes, parents of children with celiac disease and many more. If you'd like to write a guest post, please email teddy.study@ucdenver.edu <http://teddystudymom.blogspot.com>

Science DAY

TEDDY Science Day was a blast for my son and daughter this spring. They both loved participating in the experiments. The bouncy ball station was a big hit followed by the candy blood components station. Our bouncy ball actually lasted a few days even though it flattened out and had to be reshaped several times. My favorite was the strawberry DNA followed by the lava lamps.

In addition to the experiments my son enjoyed helping me at the Science Day. I brought him early to help setup. He was eager to assist and watch all the TEDDY staff getting ready. He also volunteered to stay late with me as opposed to leaving with his sister and dad so he could help with the cleanup. Since he was about 4 he has been very interested in what I do at the TEDDY events even if it was just putting food out. It was so enjoyable to be able to go through the experiments with my son and daughter and watch the other TEDDY children have a good time.

A lot of planning went into the TEDDY Science Day and it was fun to see all the TEDDY staff get so involved. Almost everyone was on an experiment team. Teams were first assigned an experiment but then had to figure out all the materials that would be needed, cost for the budget, write instructions, and create posters. The creativity was awesome! Some of the posters will be displayed in the clinic rooms and hallway starting this fall.

We hope this will be an event we will run once a year as TEDDY is always trying new ways to keep you and your child engaged in our study. If you attended we hope you had a great time, if you could not attend we hope to see you next year!



Increase in the amount of blood collected

We have recently received approval to obtain more blood from the TEDDY Study participants. The TEDDY Study coordinators had many discussions about this decision so we could provide our families with the most informative answer as to why we want more blood.

As you all know the blood we collect from our TEDDY Study participants is very valuable due to the unique group of kids participating in the study and the frequency with which we obtain samples. Study scientists decided it's important to collect more blood to answer future questions about the development of type 1 diabetes, celiac disease and other autoimmune diseases. Scientific technology advancements are constantly changing and improving. TEDDY wants to be prepared for these changes and have the ability to stay current by providing the best opportunity to find the prevention/cure for type 1 diabetes. Collecting more blood will allow our scientists to take part in more cutting edge research during the lifespan of TEDDY. The new volume of blood collected is within a safe range based on the weight of your child.

As always, our number one priority is making sure our families are comfortable with any changes we make that affect your participation. Please know our clinicians will be discussing this with you at your next visit to make sure we answer any questions and address any concerns about this change. Thank you again for your participation in TEDDY!

New Activity Monitor Options

Beginning this summer there will be a new activity meter option in hopes of making this process easier for families. With this new option a meter would be sent to your home prior to your next visit. Instead of mailing the meter back when you are finished, you would bring the meter to your visit and would be paid for it on the spot! Here's how it works:

Either when you schedule your next visit, or one month prior to your already scheduled visit, you will receive a phone call asking if you are interested in having the activity monitor sent to you before your visit. About three weeks prior to your visit you will receive your meter in the mail along with your activity log and instructions for when to have your child begin wearing the meter. When the week of activity monitoring is complete, simply take the meter off and bring it to clinic with you.

