



Stool Samples

As one of the most important type 1 diabetes (T1D) studies in the world, we are still going strong thanks to your participation. Now that we are going into our 15th year, the TEDDY scientists have made decisions about what parts of the protocol need to be continued to answer future TEDDY questions, and where we have the data we need now that all TEDDY kids are over 8. What this means is you/your child will no longer be asked to complete stool samples, ever again. Please toss out any stool kits you may have at home.

TEDDY Texting!

If you send us a text but do not have a response from us within 24-48 hours, please try again to contact us. Thank you!

Vitamin D and risk of islet autoimmunity

TEDDY scientists have discovered that low levels of vitamin D in children's blood, combined with a vitamin D receptor gene marker, are linked to a higher risk of developing islet autoimmunity (IA). Vitamin D levels were measured in TEDDY children during infancy and childhood. Levels from children who were autoantibody positive were compared to a group of similar children who were negative. Blood was also tested for different markers in the vitamin D receptor gene. This gene could affect the way that vitamin D is used by the body. TEDDY children that were autoantibody positive were more likely to have both low levels of vitamin D in their blood and a specific marker in their vitamin D receptor gene. This is exciting because previous studies have been unable to find a link between vitamin D and type 1 diabetes. It is important to note that researchers did not look at whether these children were given vitamin D supplements. Future research is needed to confirm these findings and learn more about the role of the vitamin D receptor gene.

Please talk to your pediatrician before making any changes to your child's diet based on this study or any other research you may find.

Norris JM, et al, *Diabetes*, 2018



Meet a fellow member of the TEDDY Colorado Family:
Naomi, 11 years

Later introduction to gluten and autoimmunity



TEDDY researchers have found an association between later introduction of gluten and islet autoimmunity (IA). Scientists looked at the age of introduction to foods TEDDY parents recorded in their first TEDDY Book and autoantibodies from the blood samples. Over 7,500 children from all six centers were included in this analysis. Foods were separated into categories such as rice, cereals, gluten-containing cereals, cow's milk, fruit, potato, meat, egg, and seafood. The data suggests that TEDDY children who were introduced to gluten after 9 months of age had an increased risk of developing IA (positive autoantibodies for diabetes). It is important to note that finding an association between later introduction to gluten and IA does not mean gluten caused IA. More research is necessary to determine causation and no recommendations for early infant feeding have been made based on these results. This research is an important step towards the goal to determine environmental triggers that cause children to get diabetes.

Uusitalo U, et al, *Diabetes Care*, 2018

Enteroviruses and TEDDY stool samples

A recent journal article describes some interesting new discoveries from TEDDY stool samples! Scientists already know that young kids often get sick from enteroviruses. An enterovirus (EV) is a specific virus that lives in the intestines. An example of an enterovirus is the coxsackievirus that can cause hand-foot-and-mouth disease. Most of our current knowledge of these viruses comes from kids that are sick. TEDDY scientists wanted to know if they could see these viruses in healthy kids as well. They wondered if the types and numbers of EVs would look different in healthy kids versus sick kids. They looked at over 4000 stool samples collected from kids aged 3-18 months collected between 2005 and 2009. Of those samples, 201 kids were found to have EVs. By looking at when and where these samples were collected, TEDDY scientists learned that children in Finland show less EVs when compared to all other TEDDY centers. Also, EVs are less common at all TEDDY centers during the winter. In the future, TEDDY scientists hope to use this information to find new ways to develop vaccines targeted against EVs.

Sioofy-Khojine AB, et al, *PLoS One*, 2018

TEDDY mom blog



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COLORADO TEDDY NEWSLETTER

The Environmental Determinants of Diabetes in the Young

www.teddystudy.org
www.teddycolorado.org

Remember siblings of your TEDDY child can be screened through ASK for autoantibodies for type 1 diabetes and celiac disease once a year. Tell your TEDDY staff if interested.

ASK 303-724-1275
ask.study@ucdenver.edu



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>

Guest Post A TEDDY Staff member at the Seattle TEDDY Center: Follow-up Q&A

How do you manage Greta's diabetes while she is at school?

We are lucky to have an elementary school with a full-time nurse, and it's been the same person the last 4 years. So far, we have intentionally not set up any remote monitoring for me, although we may in the future. Greta independently tests her blood sugar and gives insulin through her pump at lunch time. We pack lunch each day, so she doesn't have to guess on the amount of insulin she needs. The nurse checks in each afternoon to make sure her numbers are on track.

What is the biggest challenge for you and your family with Greta's diabetes?

Our biggest challenge, at age 10, is finding the right balance of independence and autonomy for Greta, while making sure that she is keeping herself safe and healthy. Sometimes, she wants to be a normal kid, not having to worry about her diabetes. Our job is helping her find the right strategies to manage her diabetes independently so she can participate in opportunities that come along as kids get older.

How do you talk to your son about what Greta has gone through and continues to live with?

That's such a great question. He was 11 months old when Greta was diagnosed, so it's all he's ever known. It only dawned on him at age 4 or 5 that not ALL families have someone with diabetes. He sometimes says he wants to have diabetes too. This makes Greta SO MAD. We tell her it's because he loves her and looks up to her. I think living around her has made him more empathic. And he can tell you A LOT about diabetes.

[Continued on blog...](#)



Whole Genome Sequencing

TEDDY scientists have known for a long time that specific HLA genes may increase a person's chances of getting type 1 diabetes (T1D). Whole genome sequencing is the next step for scientists to find new genes that may be important in the development of autoimmunity and T1D.

What is whole genome sequencing (WGS) and why is TEDDY interested in it?

- A genome is the genetic material of an organism. It is a person's entire set of DNA. It includes all of a person's genes.
- WGS is the process of figuring out the order of the building blocks (called bases) of a person's DNA.
- The human genome is made up of over 3 billion of these genetic bases. There are special machines that read this code.
- Scientists have to translate the string of bases to understand what the genome means.

We hope that by learning more about the genes they will understand more about how the environment and the genes interact. We are trying to learn why people with certain genes respond differently to the environment. Ultimately, scientists can learn more about why some people get diabetes and other people don't, even if they have the same HLA genes.

Eligible families are notified of the WGS testing; they are given a choice to say yes or no. This decision does not affect study participation for those who are still enrolled. If a family agrees, a blood sample is sent to the designated lab to be prepared for the sequencing.

