

The Impact of Carbon Valley Half Marathon

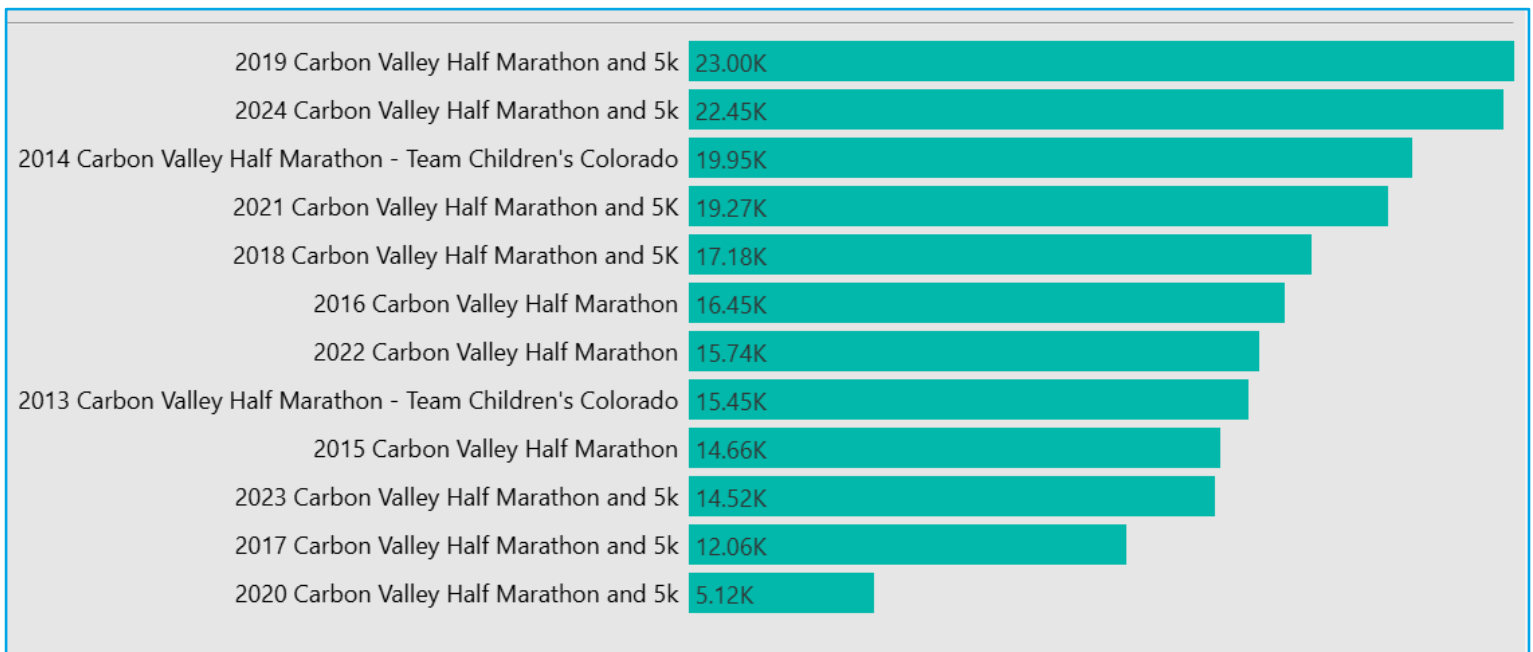
Making Strides to Embrace Autism



Children's Hospital Colorado
Foundation

\$195,860.67 Raised for Children's Hospital CO, Autism Research

Since 2013, the Carbon Valley Half Marathon has worked tirelessly on their annual half marathon and 5k fundraiser. The dedication, passion, and determination of this group is inspiring to all who work at Children's Hospital Colorado. All proceeds raised from this event benefit Children's Autism Research.



Above: CVHM's donations to Children's CO since 2013.



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The Impact:

Research updates courtesy of:

Ann Reynolds, MD

Professor, Pediatrics-Developmental
Pediatrics

Developmental Pediatrics is very grateful for the funding from the Carbon Valley Half Marathon.

•We have used the funds to provide statistical support for primary and secondary analyses of gastrointestinal (GI) problems in a large data set of preschool age children with autism, developmental delays (DD), and children from the general population (POP). The funds have had a significant impact on our understanding of GI symptoms in children with autism.

- Children in the ASD group were over 3 times more likely to have parent-reported GI symptoms than the POP group, and almost 2 times more likely than the DD group. This was the largest study of its kind that included control groups. These control groups help to determine what symptoms are specific to ASD. It also found that children with ASD and a history of regression were found to have more GI symptoms than children with autism without regression. We then used this data to better understand the possible causes of GI symptoms in children with ASD and DD. Understanding etiology may lead to better treatments and to a better understanding of the association of GI with anxiety, behavior and sleep. These findings may also be informative for understanding phenotypic subtypes in ASD in future analyses of risk factors for ASD.



SOURCES:

Reynolds AM, Soke GN, Sabourin KR, Croen LA, Daniels JL, Fallin MD, Kral TVE, Lee LC, Newschaffer CJ, Pinto-Martin JA, Schieve LA, Sims A, Wiggins L, Levy SE. *Gastrointestinal Symptoms in 2- to 5-Year-Old Children in the Study to Explore Early Development.* *J Autism Dev Disord.* 2021 Jan 4; doi: 10.1007/s10803-020-04786-9. [Epub ahead of print] PubMed PMID: 33394243.

The Impact:

CONTINUED:

- We then tested whether polygenic risk scores for each of three GI disorders (ulcerative colitis, inflammatory bowel disease, and Crohn's disease) were related to GI symptoms in children with and without ASD. Statistical models were used to estimate associations between the genetic risk scores and GI symptoms. Children without ASD who had the genetic risk, were more likely to have GI symptoms, especially if they had diarrhea or loose stools. However, children with autism with genetic risk for ulcerative colitis, Crohn's disease, and Inflammatory Bowel disease were not more likely to have GI symptoms. The supports the theory that there is a unique biological etiology for the association between ASD and GI symptoms.
- We are now looking for any association between GI symptoms and potential risk factors for changes in the microbiome around the time of delivery such as C-section delivery or breastfeeding.



SOURCES:

Reynolds AM, Soke GN, Sabourin KR, Croen LA, Daniels JL, Fallin MD, Kral TVE, Lee LC, Newschaffer CJ, Pinto-Martin JA, Schieve LA, Sims A, Wiggins L, Levy SE. *Gastrointestinal Symptoms in 2- to 5-Year-Old Children in the Study to Explore Early Development.* *J Autism Dev Disord.* 2021 Jan 4; doi: 10.1007/s10803-020-04786-9. [Epub ahead of print] PubMed PMID: 33394243.

The Impact:

LASTLY:

- We have also used the funds to provide statistical support for a secondary analysis of issues associated with sleep problems in a large data set of preschool age children with autism, developmental delays, and children from the general population. The study found that anxiety and GI symptoms predict sleep problems in all preschool age children including those with autism. We plan to look for genetic risk scores in children with autism and sleep problems in the near future.

- Vitamin D deficiency is more prevalent among children with ASD than other children in the United States. Primary care providers should consider screening for vitamin D deficiency in children with ASD and counsel families about nutritional sources of vitamin D or supplementation when necessary.

- We are currently conducting a quality improvement project for our transition to adulthood clinic for youth with autism. We are surveying families and completing focus groups with some of them to determine what families find helpful and what they would like added to our transition clinic. We just had our first focus group, and it was very helpful. The goal is to provide resources that are tailored to the adolescent/young adult with autism and other developmental delays.



SOURCES:

*Reynolds AM, Soke GN, Sabourin KR, Croen LA, Daniels JL, Fallin MD, Kral TVE, Lee LC, Newschaffer CJ, Pinto-Martin JA, Schieve LA, Sims A, Wiggins L, Levy SE. Gastrointestinal Symptoms in 2- to 5-Year-Old Children in the Study to Explore Early Development. *J Autism Dev Disord.* 2021 Jan 4; doi: 10.1007/s10803-020-04786-9. [Epub ahead of print] PubMed PMID: 33394243.*

We cannot full express our level of gratitude or appreciation for the Carbon Valley Half Marathon team. You are a driving force in accelerating autism research and changing lives for our patients. We are incredibly thankful to have your support.



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Anschutz Medical Campus
13123 E. 16th Ave., Box 045
Aurora, CO 80045

ChildrensColoradoFoundation.org

