

Message from the Director



As the Director of the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), I am pleased to present this annual report highlighting the research efforts and programs supported by the Institute. The NIDDK has a broad research responsibility that includes some of the most common, debilitating, and costly conditions affecting Americans. These conditions include diabetes and other endocrine and metabolic diseases; liver disease and other digestive diseases and conditions, such as inflammatory bowel disease and irritable bowel syndrome; nutritional disorders; obesity; kidney diseases, such as polycystic kidney disease and glomerular disease; urologic diseases and conditions, such as interstitial cystitis/bladder pain syndrome, prostatitis, and urinary tract infection; and blood diseases.

The 20th edition of this report highlights recent NIDDK-supported scientific advances, such as:

- Demonstration that treatment with a drug targeting the immune system can prevent onset of clinical type 1 diabetes in high-risk individuals for at least 2 years;
- New details on development of children's gut microbiomes;
- Finding that pre-pregnancy dietary supplementation with folate may reduce risk of gestational diabetes;

- Progress in therapeutic approaches for cystic fibrosis;
- Finding that people consumed more calories per day and gained weight on an ultra-processed diet;
- Demonstration that teens with severe obesity who underwent Roux-en-Y gastric bypass surgery were significantly more likely to have remission of both type 2 diabetes and high blood pressure compared to adults who had the same procedure;
- Identification of patient characteristics that can predict how well children with ulcerative colitis will respond to treatment, moving toward a more personalized approach to treat this disease;
- Development of remarkable liver organoids—miniature livers in a laboratory dish—to advance research on human fatty liver disease;
- Determination that intensive blood pressure control does not lead to kidney injury in people who do not have chronic kidney disease;
- New information about the frequency, intensity, and duration of urological chronic pelvic pain syndrome symptom exacerbations (“flares”); and
- Demonstration of the importance of fibrosis in lower urinary tract symptoms.

In addition to reporting on recent advances, this publication traces the multi-step path to research achievements through several “Stories of Discovery” and “Scientific Presentations.” These essays illustrate how major new discoveries that have greatly advanced biomedical science and are benefitting human health often emerge from incremental insights gained from research investments spanning many years and even multiple research disciplines.

This report also includes personal stories of those who have given time and effort to participate in

NIDDK-sponsored clinical research or whose lives have been transformed by biomedical research. A mother and daughter describe their dedication to participating in clinical research to prevent or delay clinical type 1 diabetes in those at high risk for the disease. A teenager with pancreatitis shares her experience undergoing a surgical procedure that removed her pancreas and also transplanted back her own healthy pancreatic insulin-producing cells to stave off diabetes. An avid cyclist describes how he was sidelined by a harrowing brush with drug-induced liver injury, and how he is participating in a national research network that is working toward better ways to detect, prevent, and manage the disease. Five women share their perspectives and experiences as participants in special focus groups designed to inform a larger research effort on improving bladder health among women and girls in the United States.

The NIDDK continues efforts to ensure that knowledge gained from its research is disseminated to health care providers, patients, and the public. We develop science-based information on diseases and disorders within the NIDDK mission and distribute it through our information and education programs and our website. I invite you to visit us at www.niddk.nih.gov. Health information, news, and scientific advances related to NIDDK research are also available on our Twitter feed: [@NIDDKgov](https://twitter.com/NIDDKgov).

This report reflects only a fraction of the immense body of NIDDK-funded research across the country, performed by basic scientists, clinical investigators, and patient volunteers. Moving forward, we remain committed to supporting these important areas of research and translating scientific discoveries into improvements in the health and quality of life of all people.

The efforts featured in this publication reflect the core mission of the NIDDK, including the Director's guiding principles:

- Maintain a vigorous investigator-initiated research portfolio
- Support pivotal clinical studies and trials
- Promote a steady and diverse pool of talented new investigators
- Foster exceptional research training and mentoring opportunities
- Ensure knowledge dissemination through outreach and communications

More information on how the NIDDK's activities support these core values can be found in the "NIDDK Funding Trends and Support of Guiding Principles" section at the end of this report and on our website at www.niddk.nih.gov.



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