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A Tribute to Dr. Richard K. Bernstein: Pioneering Normal Blood Sugars through Low-Carbohydrate Diabetes Management

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Abstract

Dr. Richard K. Bernstein, diagnosed with type 1 diabetes (T1D) at age 12, revolutionized diabetes management through his pioneering low-carbohydrate approach to achieving normal blood glucose levels. Initially an engineer, Bernstein's personal struggle with diabetic complications led him to self-monitor blood glucose using early devices and experiment with low-carbohydrate diets and insulin adjustments. His findings, which demonstrated the reversal of complications through tight glycemic control, faced rejection from medical journals due to his lack of credentials. Undeterred, Bernstein pursued medical training at age 45, became an endocrinologist, and established a practice focused on low-carbohydrate diabetes management. His influential books, including Dr. Bernstein's Diabetes Solution, and advocacy for frequent glucose monitoring and multiple daily insulin injections shaped modern diabetes care, influencing the Diabetes Control and Complications Trial (DCCT). Bernstein's legacy underscores a paradigm shift toward proactive, individualized diabetes care, improving outcomes for individuals with diabetes.

Keywords: Type 1 diabetes (T1D); Low-carbohydrate diet (LCD); Multiple daily injection (MDI); Self-monitoring of blood glucose (SMBG); Glycemic control; Diabetic complications

Commentary Article

A Tribute to Dr. Richard K. Bernstein: Pioneering Normal Blood Sugars through Low-Carbohydrate Diabetes Management

Dr. Richard K. Bernstein was born on June 17, 1934, in Brooklyn, New York. He was diagnosed with T1D at age 12, beginning his personal journey with the disease. He graduated from Columbia University with a BA (1954) and BS (1955) (Figure 1). Thereafter, he worked as an industrial-management engineer and later as director of research, development, and marketing for Clay Adams, a medical equipment manufacturer. During this time, Bernstein diligently followed the dogma of the time, but still suffered from numerous diabetic complications and frequent hypoglycemia episodes [1].

Bernstein began searching for literature on how to reverse diabetic complications and came across a study in animals that achieved such a feat by normalizing blood glucose. He was dismissed by his physician at the time due to the lack of human studies [1]. In October 1969, Bernstein found an advertisement for the Ames Reflectance Meter (ARM), a device that could help his situation, in the magazine Lab World. He obtained the 3-pound ARM (intended for hospital use) through his wife, a psychiatrist [1]. Utilizing his training in mathematics and engineering, Bernstein began self-monitoring blood glucose and discovered his highest blood sugars were after eating carbohydrate-containing foods. He would frequently have a tuna, mayo, and peanut butter on date nut bread sandwich for lunch [2]. Eating tuna, mayo, and a salad in place of the bread and peanut butter stabilized his blood sugars. He started experimenting with diet and insulin adjustments to achieve normal blood sugar levels,

reversing many of his diabetes-related complications. Bernstein found success in doing the opposite of what was in fashion in that era and confirmed that normalizing blood glucose in a human could prevent or improve diabetic complications.

CURRICULUM VITAE

NAME: Richard K. Bernstein, M.D., F.A.C.E.,F.A.C.N., FA..C.C.W.S.

DATE AND PLACE OF BIRTH: June 17, 1934, New York City

EDUCATION:

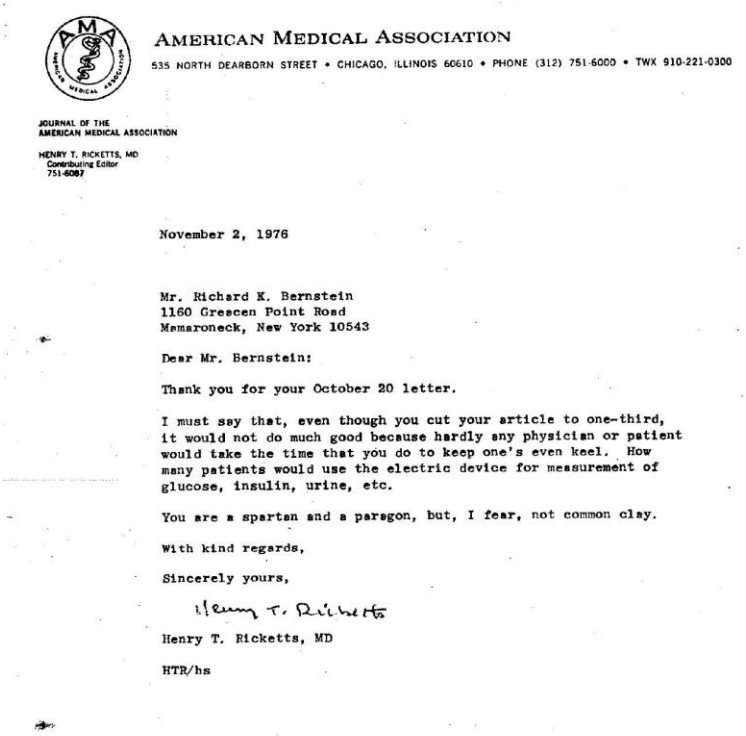
High School:	1947-50	Franklin School New York City
University:	1950-54	Columbia College New York, NY B.A. Degree in Liberal Arts and Mathematics
	1954-55	Columbia University School of Engineering and Applied Science New York, NY B.S. Degree in Industrial and Management Engineering
	1957	Columbia University School of General Studies New York, NY Non-matriculated graduate study in theoretical physics
	1959-60	Columbia University School of General Studies New York, NY200 Non-Matriculated graduate study in computer design, solid state circuits and advanced mathematics
	1978	Columbia University School of General Studies New York, NY Completion of Pre-medical curriculum (biology & organic chemistry)
	1979-82	Albert Einstein College of Medicine Bronx, NY, M.D. degree
	1982.83	Westchester County Medical Center (New York Medical College) Vahalla,N. Y. Internship in Internal Medicine

Figure 1: *Richard K. Bernstein's CV for Medical School Application.*

In the early 1970s, Dr. Bernstein had incorporated the Law of Small Numbers into his protocol, advocating smaller insulin doses and low-carbohydrate intake to minimize blood sugar fluctuations and reduce the risk of hypoglycemia. Bernstein simply stated, "Big input makes for big mistakes, small input makes for small mistakes," a phrase he attributes to his friend Kanji Ishikawa, whom he describes as the oldest surviving type 1 diabetic in Japan [3].

Bernstein submitted his protocol to numerous medical journals, which rejected it due to his lack of medical credentials [4]. One such rejection described Bernstein as a "spartan and a paragon," implying that it would be unlikely to find anyone to follow his rigid protocol (Figure 2). Bernstein had also been keeping up-to-date with diabetes research at the time and was disappointed to see article after article claim there was no way to normalize blood sugar. With free supplies from Ames, Bernstein was able to initiate two studies in the New York City area by 1977 [1]. The studies focused on diabetic patients and succeeded in reversing early complications through blood glucose self-monitoring and intensive management, consistent with Bernstein's own experience.

These experiences stimulated the trained engineer to pursue a career in medicine because as he said, "I couldn't beat 'em, so I had to join 'em" [1]. Bernstein enrolled at the Albert Einstein College of Medicine in 1979 at age 45 to gain medical credentials and legitimize his research. He graduated in 1982 as an endocrinologist and in 1983 opened a private medical practice in Mamaroneck, New York, dedicated to treating diabetes and prediabetes using his low-carbohydrate approach.



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November 2, 1976

Mr. Richard K. Bernstein
1160 Grescen Point Road
Mamaroneck, New York 10543

Dear Mr. Bernstein:

Thank you for your October 20 letter.

I must say that, even though you cut your article to one-third, it would not do much good because hardly any physician or patient would take the time that you do to keep one's even keel. How many patients would use the electric device for measurement of glucose, insulin, urine, etc.

You are a spartan and a paragon, but, I fear, not common clay.

With kind regards,

Sincerely yours,

Henry T. Ricketts

Henry T. Ricketts, MD

HTR/hs

Figure 2*: American Medical Association Rejection Letter.*

In 1980, Bernstein published an account of his personal experience [5]. "Diabetes: The Glucograf Method for Normalizing Blood Sugar", one of his early works outlining his blood sugar management techniques, was published in 1981. This book lays the groundwork for Bernstein's approach to insulin dosing, outlining his method of frequent blood glucose self-monitoring and multiple daily insulin injections (MDI) to maintain near-normal blood sugar levels. Although analog insulins did not yet exist, Bernstein would address the need to cover both basal and bolus (e.g., meal) insulin requirements.

Bernstein's self-experimentation and advocacy for frequent blood glucose monitoring were instrumental in convincing the diabetes community of its value. The National Institutes of Health decided to fund the Diabetes Control and Complications Trial (DCCT) in 1982 [6]. The DCCT, launched in 1983, assessed whether intensive frequent glucose monitoring and MDI of basal and bolus insulin could prevent or delay complications in T1D [7]. While the DCCT focused solely on intensive insulin therapy, adjusting insulin doses based on frequent blood sugar monitoring, it unfortunately did not incorporate Bernstein's low-carbohydrate

dietary approach. Participants were instructed to use as much insulin as needed to control blood sugar, and as a result, adverse outcomes occurred such as increased obesity and suboptimal glycemic control. On the other hand, the DCCT vindicated Bernstein's then controversial assertion that tight blood sugar monitoring and improved glycemic control reduces microvascular complications [7,8].

He published "Diabetes Type II: Living a Long, Healthy Life through Blood Sugar Normalization" in 1990, expanding his advocacy for normal blood sugars in individuals with type 2 diabetes (T2D). In this book, he applied his principles of frequent blood glucose monitoring, a low-carbohydrate diet, and tailored insulin or medication use for T2D management. In 1997, Dr. Bernstein published "Dr. Bernstein's Diabetes Solution: The Complete Guide to Achieving Normal Blood Sugars", a comprehensive guide that became a cornerstone for patients and families managing diabetes. The book detailed his low-carbohydrate diet and insulin management strategies. Bernstein explicitly adopted the terms "basal" and "bolus," reflecting the evolution of insulin therapy and terminology with the introduction of rapid-acting and long-acting insulin analogs in the 1990s. Updated editions followed, with the 4th edition released in 2011. He published "The Diabetes Diet: Dr. Bernstein's Low-Carbohydrate Solution" in 2005, focusing specifically on dietary strategies for diabetes management.

The TypeOneGrit Facebook group, which focuses on individuals with T1D following Dr. Bernstein's protocol, is one of the most prominent and well-documented social media groups of its kind. Dr. Bernstein was co-author of a cross-sectional survey of 316 TypeOneGrit participants. Bernstein's protocol was associated with exceptional glycemic control (near-normal HbA1c), low insulin requirements, and minimal adverse events in this self-selected T1D cohort [9]. This study supports Bernstein's approach and should further influence diabetes research in similar fashion to Bernstein's prior work.

Dr. Bernstein met with Tracey Brown, the American Diabetes Association (ADA) CEO at that time, as was made apparent in a tweet by Brown herself on February 11th, 2019. Later in the same year, the ADA officially released its Consensus Report on Nutrition Therapy for Adults with Diabetes or Prediabetes [10]. This report was the first to recognize that reducing overall carbohydrate intake has the most evidence for improving glycemia and recommended low-carbohydrate and very low-carbohydrate diets as viable options for individuals with T2D.

Dr. Bernstein reflected on his longevity in "My Life with Diabetes: 69 Years and Counting" on his website in 2015, attributing his survival past the average life expectancy for T1D to his low-carb diet and glycemic control [1]. He proclaimed that to his knowledge there were no persons from his diagnosis era diagnosed with T1D that were without active complications. He continued to practice medicine this year at age 90, accepting new patients while maintaining good health. In total, he published 9 books on diabetes management, with his work widely adopted by patients globally. He passed away peacefully at age 90 [11].

Global diabetes care, notably in Japan through the Japan Low Carbohydrate Diet Promotion Association (JLCDPA), has been positively impacted. Dr. Koji Ebe, founder of the JLCDPA in 2013, has drawn on Bernstein's methods to educate medical professionals about low-carbohydrate diets for diabetes therapy [12-14]. Ebe's efforts focus on challenging cultural dietary norms, such as reducing high rice consumption, to promote glycemic control, aligning with Bernstein's principles. The JLCDPA prioritizes disseminating accurate, evidence-based information about low-carbohydrate diets (LCDs) through seminars, workshops, and publications. This includes hosting regular educational events, such as cooking workshops and medical seminars, to teach patients and healthcare professionals about the benefits of LCDs (e.g., super-LCD, standard-LCD, and petite-LCD).

Dr. Richard K. Bernstein's pioneering work revolutionized diabetes management, demonstrating that tight blood glucose control through a low-carbohydrate diet, frequent monitoring, and precise insulin dosing could prevent and reverse complications in both T1D and T2D. Overcoming initial skepticism and professional barriers, his self-experimentation, rigorous studies, and influential publications legitimized his approach, shaping modern diabetes care. It took two decades and a large randomized clinical trial in order for SMBG to be recommended in guidelines for diabetes care. The 2019 ADA recognition of LCDs and the success of communities like TypeOneGrit underscore his lasting impact. Bernstein's legacy endures worldwide through improved patient outcomes and a paradigm shift toward proactive, individualized diabetes management.

Acknowledgments

This tribute to Dr. Richard K. Bernstein would not be complete without expressing deep gratitude to R.D. Dikeman, PhD, his son David Dikeman, and their family for their tireless dedication to advancing Dr. Bernstein's vision. Following David's diagnosis with type 1 diabetes in 2013, the Dikeman family embraced Dr. Bernstein's low-carbohydrate approach, transforming David's health and inspiring countless others. Their pivotal role in co-founding TypeOneGrit, a vibrant Facebook community, has provided a lifeline for thousands of people with type 1 diabetes, fostering support, education, and advocacy for achieving normal blood sugars. Additionally, R.D. and David's production and editing of Dr. Bernstein's Diabetes University, a free YouTube series, have made Dr. Bernstein's groundbreaking methods accessible to a global audience, empowering individuals to take control of their diabetes. Their passion, generosity, and

commitment to sharing Dr. Bernstein's philosophy have left an indelible mark on the diabetes community, amplifying his legacy and helping countless families thrive.

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