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FROM WEIGHT MANAGEMENT VIA DIABETES CONTROL TO CARDIOVASCULAR RISK REDUCTION

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Introduction: Since 1997, the author has been diagnosed with obesity, type 2 diabetes (T2D), hypertension, hyperlipidemia, and suffered five cardiac episodes. He spent 20,000 hours since 2010 to study and research his chronic diseases in order to save his own life. This abstract tells his story.

Method: He created a math-physical medicine approach, instead of using the traditional biochemical method, to conduct his research. Initially, he defined inter-relationships among 11 categories and 500 elements of a human metabolism system. He collected and processed 1.5 million data of his lifestyle details and medical conditions. Furthermore, utilizing physics, mathematics, engineering modeling, and artificial intelligence (AI), he developed four prediction models with 99% accuracy, including weight, fasting plasma glucose, post prandial glucose, and hemoglobin A1C. Finally, he developed a risk probability calculation model of having heart attack or stroke.

Results: From the period of 2013-2018, he has reduced his weight from 220 lbs. to 167 lbs., waistline from 44" to 32", and BMI from 33.1 (obese) to 24.7 (normal). Based on his acquired knowledge, he developed AI-based prediction tools to reduce his average glucose value from 279 mg/dL to 116 mg/dL, A1C from 10% to 6.5%. Since 2016, his hypertension and hyperlipidemia are no longer health concerns along with dropping his cardiovascular risk from 74% to 31%.

Conclusion: Over eight years, the author was able to control his weight and T2D along with greatly reducing his cardiovascular risk. In addition to his willpower and persistence, his diligence in acquiring medical knowledge from reading hundreds of textbooks and medical papers has assisted him. More importantly, his knowledge from other disciplines in mathematics, physics, engineering, statistics, computer science, and technology have provided him the necessary tools.

BIOGRAPHY

Gerald C Hsu received an honorary PhD in mathematics and majored in engineering at MIT. He attended different universities over 17 years and studied seven academic disciplines. He has spent 20,000 hours in T2D research, initially studying six metabolic diseases and food nutrition during 2010-2013, then conducting his own diabetes research during 2014-2018. His approach is a "quantitative medicine" based on mathematics, physics, optical and electronics physics, engineering modeling, signal processing, computer science, big data analytics, statistics, machine learning, and artificial intelligence. He named it "math-physical medicine". His main focus is on preventive medicine using prediction tools.

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