

The GH-Method

A Clinical Case of Using GH-Method: Math-Physical Medicine to Control Metabolic Conditions and Complications via Lifestyle Management (No. 023)

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Keywords: Glucose; Metabolic conditions; Lifestyle management; Chronic diseases

Abbreviations: FPG: fasting plasma glucose; PPG: postprandial plasma glucose

1. INTRODUCTION

The author has spent 8.5 years to monitor and analyze metabolic conditions and lifestyle details of a patient who has 4 chronic diseases. He has collected and processed ~1.5M data. This paper provides results and conclusions of the relationship between metabolic conditions and lifestyle management via GH-Method: math-physical medicine.

2. METHODS

In 2014, he researched and developed a mathematical model of metabolism to measure the multiple interactions of four metabolic disease outputs and six lifestyle inputs. During 2015-2016, he further developed four prediction tools, including weight, FPG, PPG, and A1C based on various technologies, including optical physics, signal processing, time-series, spatial analysis, frequency domain analysis, machine learning, big data analytics, and artificial intelligence (AI).

He has utilized specifically 414,050 data which include 81,900 metabolic conditions (obesity, diabetes, hypertension, hyperlipidemia) and 332,150 lifestyle conditions (food, exercise, water, sleep, stress, daily life routine) within 2,555 days (1/1/2012 – 12/31/2018). Finally, he separately calculated the combined scores of four metabolic conditions and six lifestyle categories.

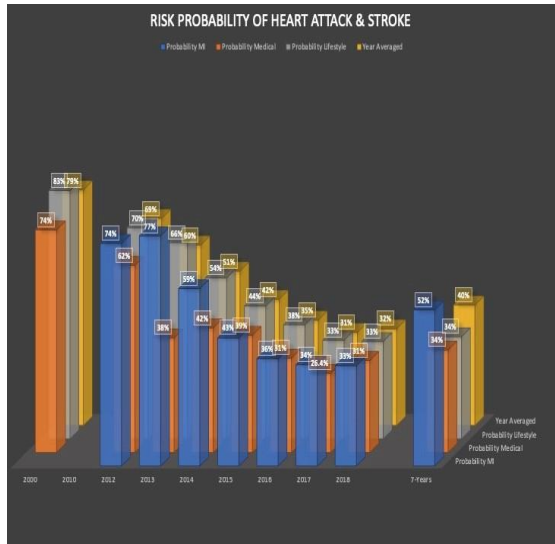
3. RESULTS

The patient's chronic diseases are completely under control via quantitative lifestyle management. His BMI dropped from >30 to <25. His average glucose and A1C decreased from 280 mg/dL to 119 mg/dL and 10.0% to 6.5%, respectively. He no longer has hypertension and hyperlipidemia. About 8 years ago, he had difficulty climbing stairs, but recently he completed 3 marathons. He had suffered 5 episodes of chest pain during the period of 1994 to 2006. His cardiovascular risk (Framingham) was 62% in 2012 and was 26% in 2017, 31% in 2018.

Year	Probabili	Probability	Probability	Year
	MI	Medical	Lifestyle	Averaged
2000		74%	83%	79%
2010				
2012	74%	62%	70%	69%
2013	77%	38%	66%	60%
2014	59%	42%	54%	51%
2015	43%	39%	44%	42%
2016	36%	31%	38%	35%
2017	34%	26.4%	33%	31%
2018	33%	31%	33%	32%
7-Years	52%	34%	34%	40%

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4. CONCLUSION

This 8.5-year project has monitored, collected, and processed big data including 10 categories, ~500 elements, ~1.5 million data of medical, health, and lifestyle situations. The patient’s “nearly-collapsed” condition has been turned into a “nearly-perfect-controlled” situation. Along the way, 4 useful prediction tools were developed via GH-Method: math-physical medicine (MPM) for other patients to use. All of these tools have reached to 97%-99% accuracy. This clinical case has demonstrated the importance of preventive medicine and the effectiveness of scientific lifestyle management for controlling chronic diseases.