

Euro Vaccines 2019 & Antibiotics 2019: Methodology of math-physical medicine, Gerald C. Hsu, Eclair MD Foundation

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Math-physical medicine approach (MPM) utilizes mathematics, physics, engineering models, and computer science in medical research. Initially, the author spent four years of self-studying six chronic diseases and food nutrition to gain in-depth medical domain knowledge. During 2014, he defined metabolism as a nonlinear, dynamic, and organic mathematical system having 10 categories with ~500 elements. He then applied topology concept with partial differential equation and nonlinear algebra to construct a metabolism equation. He further defined and calculated two variables, metabolism index and general health status unit. During the past 8.5 years, he has collected and processed 1.5 million data. Since 2015, he developed prediction models, i.e. equations, for both postprandial plasma glucose (PPG) and fasting plasma glucose (FPG). He identified 19 influential factors for PPG and five factors for FPG. He developed the PPG model using optical physics and signal processing. Furthermore, by using both wave and energy theories, he extended his research into the risk probability of heart attack or stroke. In this risk assessment, he applied structural mechanics concepts, including elasticity, dynamic plastic, and fracture mechanics, to simulate artery rupture and applied fluid dynamics concepts to simulate artery blockage. He further decomposed 12,000 glucose waveforms with 21,000 data and then re-integrated them into three distinctive PPG waveform types which revealed different personality traits and psychological behaviors of type 2 diabetes patients. Furthermore, he also applied Fourier Transform to conduct frequency domain analyses to discover some hidden characteristics of glucose waves. He then developed an AI Glucometer tool for patients to predict their weight, FPG, PPG, and A1C. It uses various computer science tools, including big data analytics, machine learning, and artificial intelligence to achieve very high accuracy (95% to 99%).

The creator built up his GH-Method: math-physical medication by applying arithmetic, material science, designing displaying, and software engineering (enormous information investigation and AI) to infer the scientific digestion. He has gathered and handled around 1.5 million information, while investigating ailments and way of life subtleties. The dataset is given by the creator, who utilizes his own sort 2 diabetes metabolic conditions control, as a contextual investigation by means of the "math-physical medication" approach of a non-conventional technique in clinical exploration.

Math-Physical Medicine (MPM) begins with the perception of the human body's physical marvels (not natural or substance attributes), gathering components of the ailment related

information (inclining toward large information), using pertinent building demonstrating strategies, creating proper numerical conditions (not simply factual examination), lastly foreseeing the course of the turn of events and control instrument of the ailment.

Catchphrases: Artificial Intelligence; Chronic Diseases; Exercise; Food; Lifestyle Data; Math-Physical Medicine; Metabolic Conditions; Metabolism; Postprandial Plasma Glucose; Type 2 Diabetes

Presentation: The creator has gone through eight years gathering and handling ~ 1.5 million information and investigating ailments and way of life subtleties on a patient (himself) with three interminable illnesses, for example, hyperlipidemia, type 2 diabetes (T2D), and hypertension. A similar individual experienced five heart scenes 1994 through 2006. The creator is an examination researcher in the field of endocrinology, diabetes, and metabolic issue. He applied his insight from cutting edge arithmetic, material science ideas, building demonstrating, and software engineering instruments to reevaluate the relationship with food, work out, and postprandial plasma glucose (PPG) for one specific T2D understanding, himself.

Techniques: The focal point of this paper is to apply vitality hypothesis explicitly from material science and building on medication. He utilized both optical material science and sign wave preparing to build up his PPG expectation model. He understood that weight is only a physical portrayal of inward vitality trade in the human body. The vitality implantation incorporates food and others, though vitality dispersion involves work out/action and others. The significant objective is to abstain from having vitality unevenness known as disequilibrium; in any case, the inordinate (left-finished) vitality will flow inside the blood glucose to harm one's inner organs. The food/dinner database contains ~8 million, while the patient's digestion information is ~1.5 million.

Results: The 4,354 food/dinners (3,927 suppers and 427 bites) in the chose time of 1,309 days (6/1/2015 - 12/31/2018) demonstrate the normal qualities for day by day glucose as 118.4 mg/dL and day by day carbs/sugar consumption as 15 grams for every feast. In the wake of expending carbs/sugar in the scope of 2 to 22 grams, he strolled 2,600 to 6,600 stages after every feast. The outcomes indicated that 94% of his absolute 3,927 PPG qualities would be lower than 120 mg/dL.