

# The GH-Method

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## Health Improvements Using Summation of Metabolism Indexes of Four Different Time Periods in 9-Years (No. 225)

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**Keywords:** Metabolism index; Health; Lifestyle management; Chronic disease

**Abbreviations:** MI: metabolism index; GHSU: general health status unit

### 1. INTRODUCTION

In this research note, the author reviewed his past 8-years data from 2012 through 2019 by focusing on his performance on both diseases control and lifestyle management during four different time periods: 2014-2015, 2014-2018, 2015-2019, and 2018-2019.

### 2. METHODS

In 2014, by using advanced mathematics and engineering finite-element modeling techniques, the author developed a mathematical model of metabolic measurements, including 4-categories of diseases control (body outputs) and 6-categories of lifestyle management (body inputs). He started to collect his personal detailed data on 1/1/2012. Thus far, he has collected nearly 2 million data. He further assembled those 10-categories (with ~500 detailed elements) and combined them into two new terms: the metabolism index (MI), which is a combined daily score to show the body's health situation, and general health status unit (GHSU), which is the 90-days moving averaged number to show the trend.

He also identified a "break-even line" at 0.735 (73.5%) to separate his metabolism conditions between healthy (below 0.735) and unhealthy (above 0.735).

The main reasons he selected four specific time periods are listed below:

Period A (2012-2014): He was unhealthy with the MI above 73.5% from 2012 to mid-2014.

Period B (2014-2019): He became healthy near the end of 2014 and lasted through 2019 with the MI below 73.5%.

Period C (2015-2019): He started to reduce his diabetes medications since 2013 and discontinued them toward the end of 2015.

Period D (2018-2019): During these two years of a heavy travel schedule to attend 60+ international medical conferences, his daily life routine, including meals, sleep pattern, and stress level were affected to some degree with disruptions and damage to his health. Nevertheless, his behavior with direct control of his chronic diseases were maintained as before.

### 3. RESULTS

The author's first research demonstrates his overall metabolic conditions, including both MI and GHSU for the past 8-years (2012-2019), along with the detailed MI measurement standards of the above-mentioned four different periods. Both his MI and GHSU were >73.5% during 2012-2014 (unhealthy) and <73.5% during 2014-2019 (healthy). In 2014, his health greatly improved due to his knowledge and discipline.

His research tasks 2, 3, 4, and 5 depict the details of the following three categories of these four periods.

(1) Chronic disease conditions: M1 (obesity, weight), M2 (diabetes, glucose), M3 (hypertension, blood pressure), and M4 (hyperlipidemia, lipids);

(2) Lifestyle management details: M5 (exercise, 20,000 steps per day), M6 (water drinking, 3,000 cc per day), M7 (sleep, 9 elements), M8 (stress, 34 elements), M9 (food quality and quantity, 22 elements), and M10 (Daily life routines which are important for disease control and longevity, 22 elements); and

(3) MI and GHSU

His 6th research task lists numerical percentages of M1 through M10 among these four periods. It should be pointed out that the red numbers of Period A (2012-2014) are partial results of this particular period due to missing data in the beginning of this time period. Therefore, the complete picture of Period A is not totally clear. However, all of the measured data from the other three periods have shown a declining tendency from Periods B through D, which signifies improvements of health conditions. The author adopted the common medical practice that smaller numbers generally indicate better results. For example, his M1, i.e. weight in the morning, reduced from 183 lbs. (BMI 27.2) to 173 lbs. (BMI 25.5) and M2, i.e. daily averaged glucose, reduced from 131 mg/dL to 116 mg/dL. Other numbers shown in lower percentages showed improvement.

His 7th research task is a graphic bar-chart summarizing the comparison of four disease conditions and six lifestyle management categories among these four periods. Generally, disease control shows more obvious improvements than lifestyle management. However, lifestyle management is the “root cause” of metabolic disorders; therefore, it is more important but much harder to implement and maintained than controlling symptoms of the diseases. It should be re-emphasized here that all of those numbers after 2014 are under the “no medications” category (Figures 1–5).

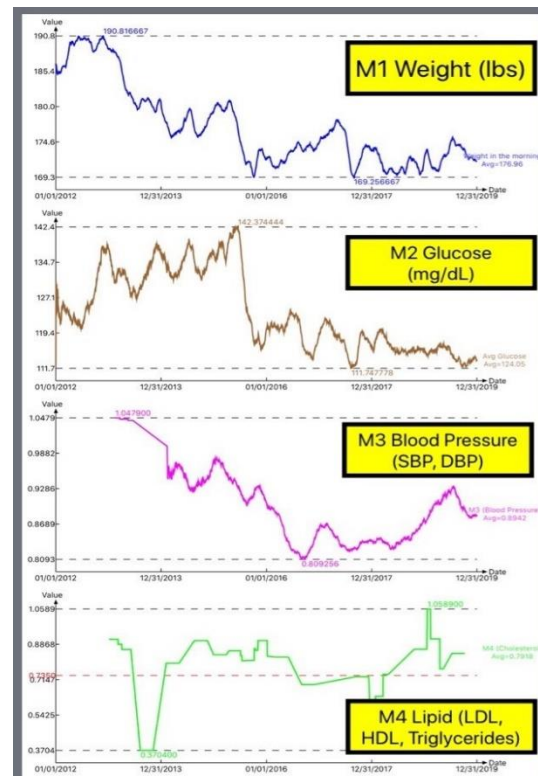


Figure 1: Four body output metabolism index: M1: weight, M2: glucose, M3: blood pressure, M4: lipid (2012-2019).

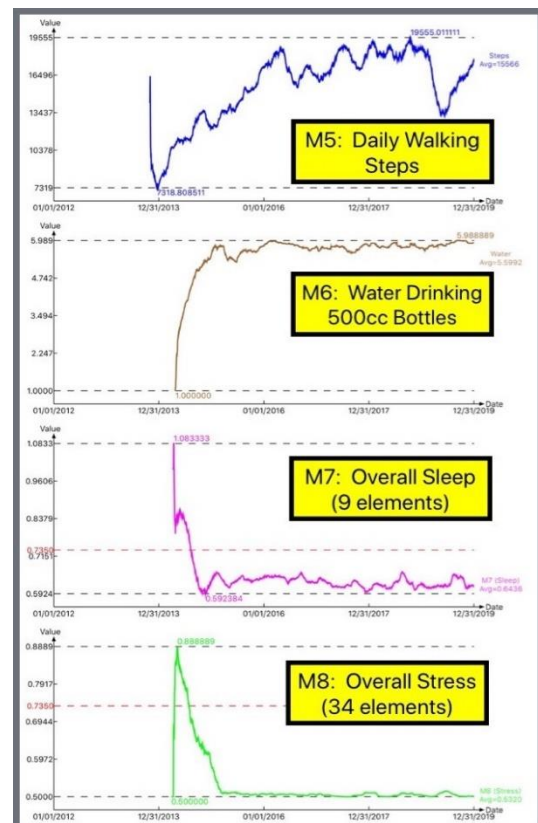


Figure 2: Body input metabolism index: M5 exercise, M6 water, M7 sleep, M8 stress (2012-2019).

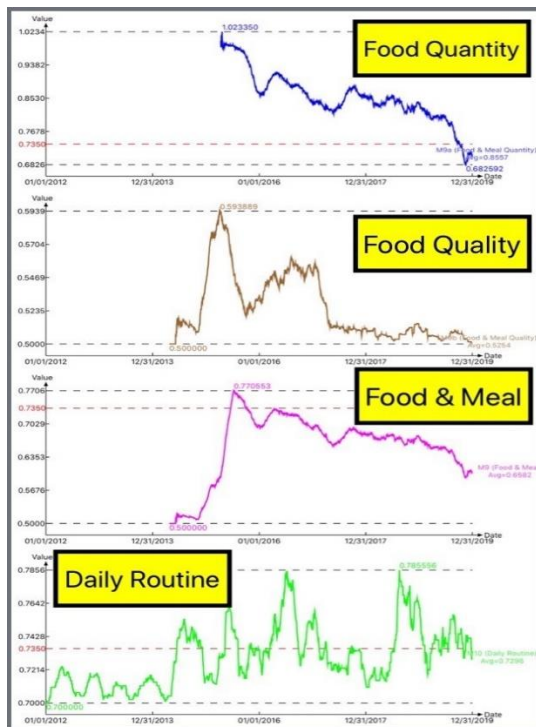


Figure 3: Body input MI: M9a food quantity, M9b food quality, M9 total food & meal, M10 daily routine (2012-2019).

Category	Worst Score	Best Score	Start MI Score	Start Satisfaction	End MI Score	End Satisfaction	Avg MI Score	Avg Satisfaction
Weight (M1)			190.8	112%	169.3	100%	177.0	104%
Glucose (M2)			142.4	11%	111.7	93%	124.4	103%
Blood Pressure (M3)			1.0479	105%	0.8093	81%	0.8942	89%
Lipid (M4)			1.0589	106%	0.3704	37%	0.7916	79%
Walking Steps (M5)	1.5	0.5	7319	113%	19555	52%	15566	72%
Water bottles (M6)	1.5	0.7	1.0000	167%	5.9889	63%	5.5992	71%
Sleep (M7)	1.5	0.5	1.0833	109%	0.9524	59%	0.8436	64%
Stress (M8)	1.5	0.5	0.8889	89%	0.5271	53%	0.5320	53%
Food & Meal (M9)	1.5	0.5	0.7706	77%	0.5000	50%	0.6582	66%
Food Quantity (M9a)	1.5	0.5	1.0234	102%	0.6826	68%	0.8557	86%
Food Quality (M9b)	1.5	0.5	0.5939	59%	0.5000	50%	0.5254	53%
Daily Routine (M10)	1.5	0.7	0.7856	78%	0.7000	70%	0.7396	73%

Category	Worst Score	Best Score	Best Condition	From 2012, 13, 14 through 2019
Weight (M1)			Weight 170 lbs is 1.0	reduced from 191 lbs to 169 lbs
Glucose (M2)			120 mg/dL is 1.0	reduced from 142 mg/dL to 112 mg/dL
Blood Pressure (M3)			SBP/DBP is 120/80	reduced from 105% peak to 89% avg
Lipid (M4)			HDL/LDL/Trig = 40/130/150	reduced from 106% peak to 79% avg
Walking (M5)	1.5	0.5	20,000 steps / day	increased from 7,319 to 19,555 steps
Water (M6)	1.5	0.7	6 bottles or 3,000 / day	increased from 500 cc to 2,995 cc
Sleep (M7)	1.5	0.5	total of 9 elements	improved from 108% to 59%
Stress (M8)	1.5	0.5	total of 34 elements	improved from 89% to 53%
Food & Meal (M9)	1.5	0.5	50% quantity & 50% quality	no change over 2 different periods
Food Quantity (M9a)	1.5	0.5	normal food portion at 100%	reduced from 102% to 68%
Food Quality (M9b)	1.5	0.5	healthy & balanced meals	High quality meals (53%)
Daily Routine (M10)	1.5	0.7	regular routine life pattern	Maintain a regular life routine at 73%

Figure 4: MI (M1 through M10) satisfaction level (%) table.

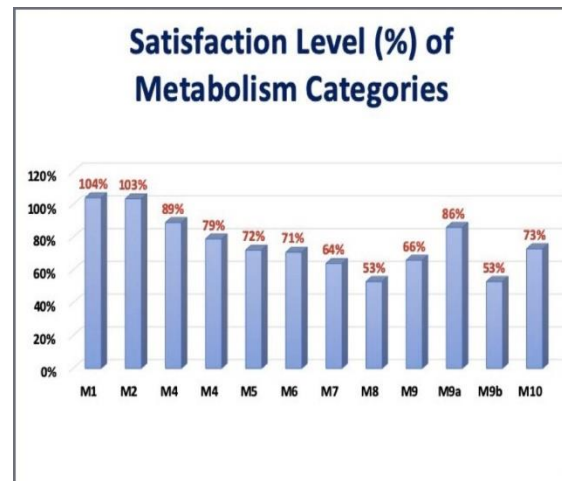


Figure 5: Averaged MI (M1 through M10) satisfaction level (%) bar chart.

#### 4. CONCLUSION

These period-based big data analytics calculation utilized a sophisticated mathematical metabolic model which has shown the effectiveness of chronic disease control via lifestyle management.