The GH-Method

Using GH-Method: Math-Physical Medicine with Wave Theory and Energy Theory to Identify Practical Tips of Diet & Exercise Associated with Three Distinctive PPG Waveform Patterns (No. 038)

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Abbreviations: PPG: postprandial plasma glucose; T2D: type 2 diabetes

1. INTRODUCTION

This article addresses the author's recent discovery of three distinctive postprandial plasma glucose (PPG) waveform patterns using a continuous glucose monitor device (CGM Sensor). It also provides a concise summary of his practical tips or recommendations to other type 2 diabetes (T2D) patients for their diet and exercise aimed at optimizing their PPG control.

2. METHODS

The author meticulously collected 17,046 glucose data points over 241 days, spanning from May 5, 2018, to October 31, 2018, resulting in an impressive average of around 71 measurements per day. Employing principles from wave theory in physics, the author analyzed and categorized these glucose waveforms into three distinct patterns, i.e. Himalaya shape, Twi-peak shape, and Grand Canyon shape. Furthermore, drawing upon the principles of energy theory from engineering, the author calculated the associated energy levels, shedding light on the potential "damaging power" of PPG on internal organs. Additionally, a reasonable perturbation range of energy variance was identified, ranging between -13% and +8%.

Throughout this analysis, practical strategies to prevent the accumulation of excessively high-amplitude PPG waves (e.g., through control of carbohydrate/sugar intake) and ways to dissipate this energy swiftly (e.g., through appropriate exercise patterns and quantity) were discovered.

3. RESULTS

Several practical approaches can help achieve the aforementioned objectives:

1. Utilize his developed AI-based Glucometer software tool to predict PPG values before each meal.

2. Limit carbohydrate/sugar intake to 30-40 grams per meal to keep his PPG peak within the range of 160-180 mg/dL (<20 grams to maintain PPG <140 mg/dL).

3. He engages in a 15-20 minute (1500-2000 steps) post-meal walk. For other severe T2D patients, consider 40 minutes of walking (>4,000 steps). If overindulged, extend the walking duration over more than an hour.

4. Experiment with a walking pattern that includes resting for 5 minutes after 10 minutes of walking when walking for over 40 minutes.

5. Incorporate fruit consumption between meals, but consume only 1/3 of a portion each time at 10 am, 3 pm, and 9 pm. Avoid sweet desserts, cakes, and soft drinks entirely.

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Minimize processed snacks, and if consumed, place them between two meals without being too close to the next meal.

6. Avoid the creation of a "Himalaya" shaped glucose curve (due to inactivity) or a "Twin-Peaks" shape (due to insufficient exercise or improper exercise patterns), which can lead to the accumulation of excessive "left-over" energy causing harm to internal organs. Rigorous exercise, longer walking periods, and adherence to appropriate exercise patterns can effectively lower the PPG peak and transform the glucose waveform into a "Grand Canyon" shape. This shape may still have a high peak of glucose amplitude, but it will contain significantly less "left-over" energy in the body (Figures 1–6).

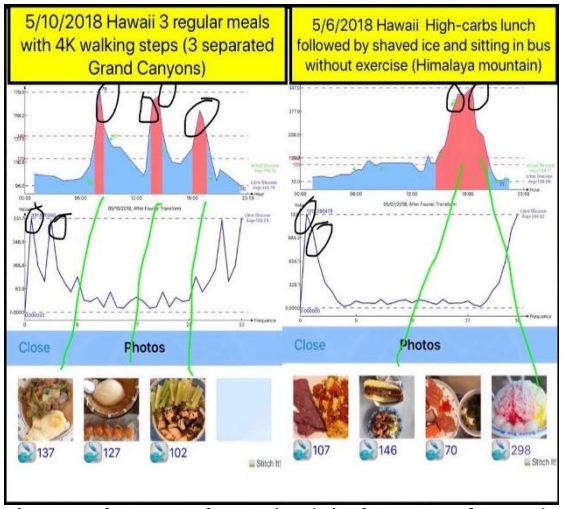

Figure 1: Glucose waveform variety (Himalaya vs Grand Canyon).

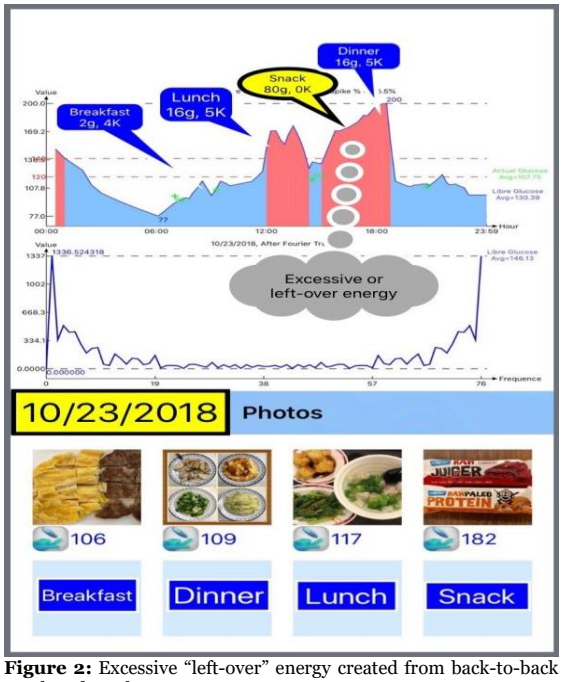

Figure 2: Excessive "left-over" energy created from back-to-back snack and meal.

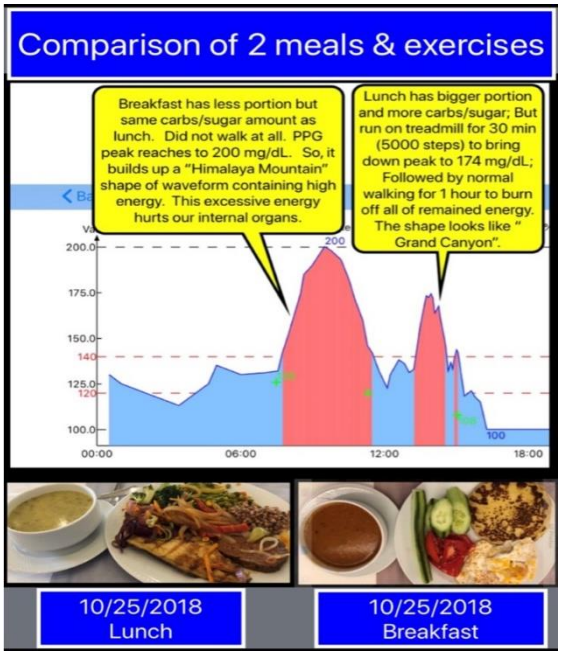

Figure 3: Himalaya shape due to post-breakfast inactivity vs Twin-Peaks shape due to insufficient post-lunch exercise.

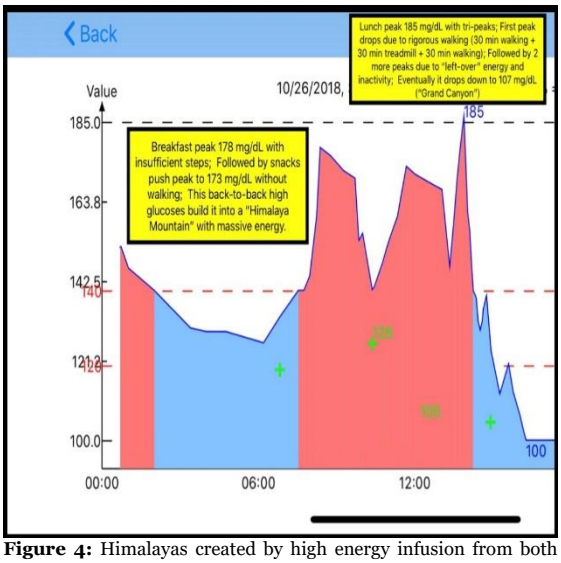

Figure 4: Himalayas created by high energy infusion from both breakfast & lunch and they are close to each other.

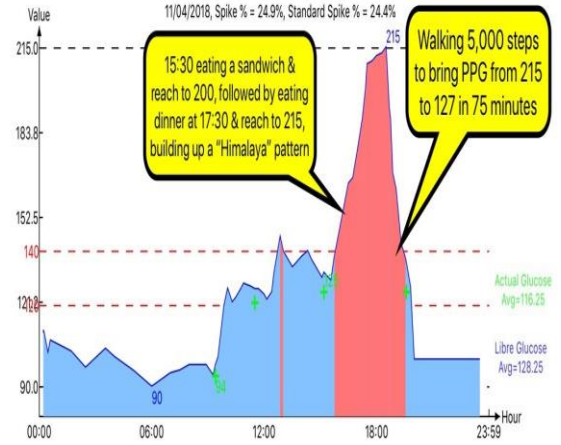

Figure 5: Build up a Himalaya due to back-to-back snacks and dinner, but exercise turns it into a Grand Canyon.

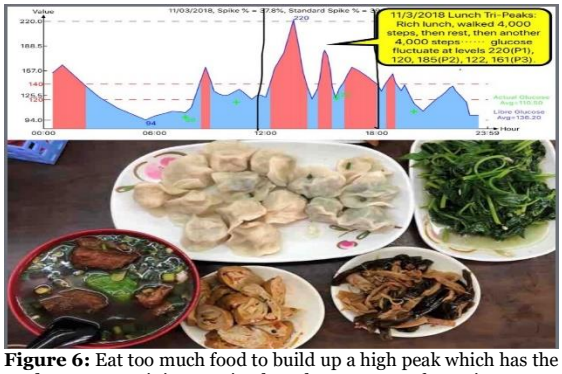

Figure 6: Eat too much food to build up a high peak which has the tendency to turn it into a Himalaya, but 2 stages of exercise to turn it into a Triple-Peak shape which has less associated energy (insufficient exercise but still better than inactivity).

4. CONCLUSION

The GH-Method, a math-physical medicine approach, combined with practical tips, offers a numerical framework for optimizing the balance of energy infusion through carbohydrate and sugar intake and energy consumption through post-meal walking. These tips can guide and assist other type 2 diabetes (T2D) patients in achieving improved control over their PPG levels.