

## **Know Thine Enemy ..... To Thine Own Self Be True**

COVID19 Zimbabwe 4

*Don't be a victim .... be the victor!*

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The 6<sup>th</sup> Century BC Chinese general, military strategist and philosopher Sun Tzu quoting a Proverb, wrote *"If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle."*

In Shakespeare's Hamlet, the character Polonius, chief minister to King Claudius, speaks the immortal words *"To thine own self be true."*

Why are these two statements from literature so prophetic in the context of the current coronavirus 'pandemic' and what do they teach each of us, at a personal level, about reducing our individual susceptibility to severe COVID19 disease?

*Know thine enemy....*

Over the past several weeks many countries of the world have studied their individual pandemics. It has become very clear that the 'enemy' in this war, the novel coronavirus 2019, is a highly contagious pathogen but even more importantly we have learned that it's lethality is largely targeted at people who have a combination of older age and the presence of chronic metabolic disease. By this we mean underlying health conditions principally obesity, metabolic syndrome (prediabetes) and type 2 diabetes. The 'enemy' has no quarrel, it seems, with young people nor with the vast majority of those in good metabolic health at any age!

Lets look at some of the published statistics relating to COVID19 patients' hospitalisation, intensive care unit admission and deaths that bear this out:

- A UK study of 15,100 patients showed that being overweight is one of the most important risk factors in being hospitalised with severe COVID19 disease
- 73% of COVID19 patients admitted to ICU in UK are overweight or obese
- 80% of COVID19 patients admitted to ICU in the Netherlands are overweight or obese
- Over 60% of COVID19 patients admitted to ICU in USA hospitals are obese which also doubles their risk of needing a ventilator
- 60.7% of COVID19 patients admitted to hospitals in New York City are obese or morbidly obese
- 94% of COVID19 patients admitted to hospitals in New York City had 1 or more underlying health conditions, 88% had 2 or more co-existing health conditions
- Obesity in the under 50yr age group is a bigger risk factor for complicated COVID19 disease than hypertension + type 2 diabetes combined (USA figures)
- In patients under the age of 60, those who were obese were 2x more likely to be hospitalised and at even greater risk of requiring critical care (NYU Langone study)
- In Lille, France, 50% of 124 COVID19 hospitalised patients had obesity and the need for ventilation in ICU increased 7x in patients with severe obesity
- 97.5% of COVID19 deaths in Boston, USA had underlying medical conditions
- 73% of COVID19 deaths in the UK are in people with metabolic syndrome\* linked to obesity (UK, WHO)
- It is estimated that the presence of abnormal metabolic health increases the risk of dying from COVID19 by up to 10x

*\*Metabolic syndrome (prediabetes) is diagnosed in people who have 3 or more of the following abnormal health measures: overweight (belly fat obesity), hypertension, raised blood sugar (and/or high insulin levels), high blood triglycerides, low blood HDL cholesterol.*

Poor metabolic health appears to be the ‘target on one’s back’ so to speak. There are several mechanisms by which the ‘enemy’ potentially exploits the metabolically unhealthy body’s weak points. In doing so the virus is able to degrade our defensive capacity, wreak havoc and cause severe disruption to the point of the infected person requiring hospitalisation and in many cases intensive care management including the need for assisted ventilation. These mechanisms include:

1. *Cytokine storm* – obesity causes low-grade chronic inflammation in the body and an increase in circulating pro-inflammatory chemicals called cytokines (mostly secreted from unhealthy sites of body fat storage, notoriously the visceral fat in the abdomen i.e. your belly). These cytokines are implicated in a process called ‘cytokine storm’, literally a massive over-reaction of the body’s immune system which can lead to multi-organ failure and resulting death in COVID19 patients.
2. *Weaker immune function* – obesity plus a pre-diabetic state or type 2 diabetes with high blood sugar are associated with abnormal function of our innate and adaptive immune systems predisposing to a significantly increased risk of viral and other pathogen infections.
3. *High blood sugar means high viral activity* – in order to infect human cells and replicate itself, the coronavirus must bind to these cells and inject its RNA. The virus accomplishes this by utilising a receptor called Angiotensin Converting Enzyme 2 (ACE2 receptor) found on the outside of human cells (and especially abundant in our nose, throat and lungs). In the presence of raised blood sugar levels, which is part of the diabetic state and may indeed be induced by acute COVID19 infection, it has been shown that the virulence (activity) of ‘sugar-coated’ viral particles and their rate of entry using ‘sugar-coated’ ACE2 receptors into human cells is enhanced. In other words, it appears that COVID19 finds its way into human cells faster in the presence of elevated blood sugar levels.
4. *Reduced breathing efficiency* – abdominal (belly fat) obesity, often more prominent in men, may interfere with effective breathing through impaired diaphragm function and reduced chest capacity. This may complicate things for COVID19 patients who develop pneumonia and Acute Respiratory Distress Syndrome (ARDS) which has a very high fatality rate.
5. *Clotting risk* – obesity and diabetes are associated with increased risks of thrombotic (abnormal clotting) episodes and in some cases of severe COVID19 disease the patients develop a very dangerous thrombotic state affecting their lungs and heart which significantly increases the risk of death.

*To thine own self be true....*

In a sense it can be said that, in the context of COVID19, chronic metabolic disease is the leading cause of death! It may not be that someone with obesity, prediabetes or diabetes is more likely to catch the viral infection but once infected then their chances of developing severe COVID19 with complications is substantially higher. This is a critical concept to understand because it lies at the heart of what we can do to help ourselves reduce our individual risk of being hospitalised or dying from this coronavirus infection. We need to ‘know ourselves’ and to ourselves be ‘true’ when it comes to health awareness and healthy actions. In some countries, like the USA and the UK, we know that only 1 in 8 people (12%!) are metabolically healthy! The rates of obesity, metabolic syndrome and diabetes are rife across all age-groups in these countries and they are not alone. We in Zimbabwe need to be aware and beware!

To move forward positively in this sphere we need to fully appreciate two things:

1. **What does it actually mean ‘to be metabolically healthy?’**
2. **How do we improve our own state of metabolic health?**

Starting with the question of what does it mean 'to be metabolically healthy' we can define a healthy metabolic state as being one where you have:

- ➔ A healthy body fat distribution with no excess body fat stored in the abdomen ('belly fat')
- ➔ A normal blood pressure
- ➔ A normal blood sugar level in the fasted state and no frequent spiking of blood sugar levels during the day

These parameters of good metabolic health can be measured as:

- a simple tape-measure measurement around your waist of less than 94cm if you are a man and 90cm for women
- blood pressure measured at 120/80 mmHg or less
- blood sugar in the normal range (fasting blood test required)

The answers to the second question of how to improve our state of metabolic health lie in two key areas of healthy lifestyle being NUTRITION and EXERCISE supported by other important aspects of healthy living. Healthy eating is probably the 80% factor in improving and maintaining your metabolic health! Obesity, metabolic syndrome and type 2 diabetes are all conditions strongly associated with a state of so called 'insulin resistance' in the body which is in turn directly correlated with our intake of sugar and ultra-processed foodstuffs. The World Health Organisation says that excess sugar intake leads to abnormal health and sets the limits at 6 teaspoons of sugar a day for adults and 3 teaspoons for children. If you consider that a single can of coca-cola contains 10 teaspoons of sugar it helps us to gain some perspective of the quantity of sugar that many people consume daily, estimated to be more often than not in excess of 50 teaspoons a day! The 'secret' to healthy eating lies in the concept of 'Real Food' i.e. ensuring that most of the food we prepare and eat is unprocessed and as natural as possible like vegetables, fruits, nuts, eggs, meat and fish thereby minimising the 'carbage' of the modern food industry like ultra-processed grains, cereals, sweets, soft drinks, fruit juices and junkfood. We also know from modern nutrition science, like the Virta Diabetes Reversal Program in USA, that cutting sugar and unhealthy processed food from the diet can make substantial improvements to your metabolic health in a matter of weeks and often long before significant weight loss occurs! I write a lot about real food and health in my book, *The Low-Carb Companion*.

Regular exercise is key to maintaining healthy strong muscles that are insulin sensitive and energy consuming as well keeping our hearts, blood vessels & circulation and our lungs in a healthy state. A minimum of 2 – 3 hours a week of walking, running, cycling or the like along with some simple strength exercises like bodyweight pull ups, push ups, squats and core plank exercises done 2 or 3x a week are all that is required to build and maintain a healthy metabolic state. Understand though that science says you 'cannot outrun a bad diet'! So exercising whilst continuing to eat junk food is not the most intelligent nor successful way forward!

The other important healthy behaviours you need to pay attention to are:

- good quality and quantity of sleep
- regular sunlight
- reducing / managing stress to low levels (a challenge during COVID-19 lock-down!)

In conclusion, 'knowing thine enemy' and what puts a target on your back if COVID19 comes your way means you need to ensure that you are living a lifestyle being 'true to thine self' that ensures your good metabolic health. Start by measuring yourself against the measures indicated and pay real attention to what you eat and how much you exercise. Good metabolic health is the key to fighting off this virus and making it a non-event in your life!