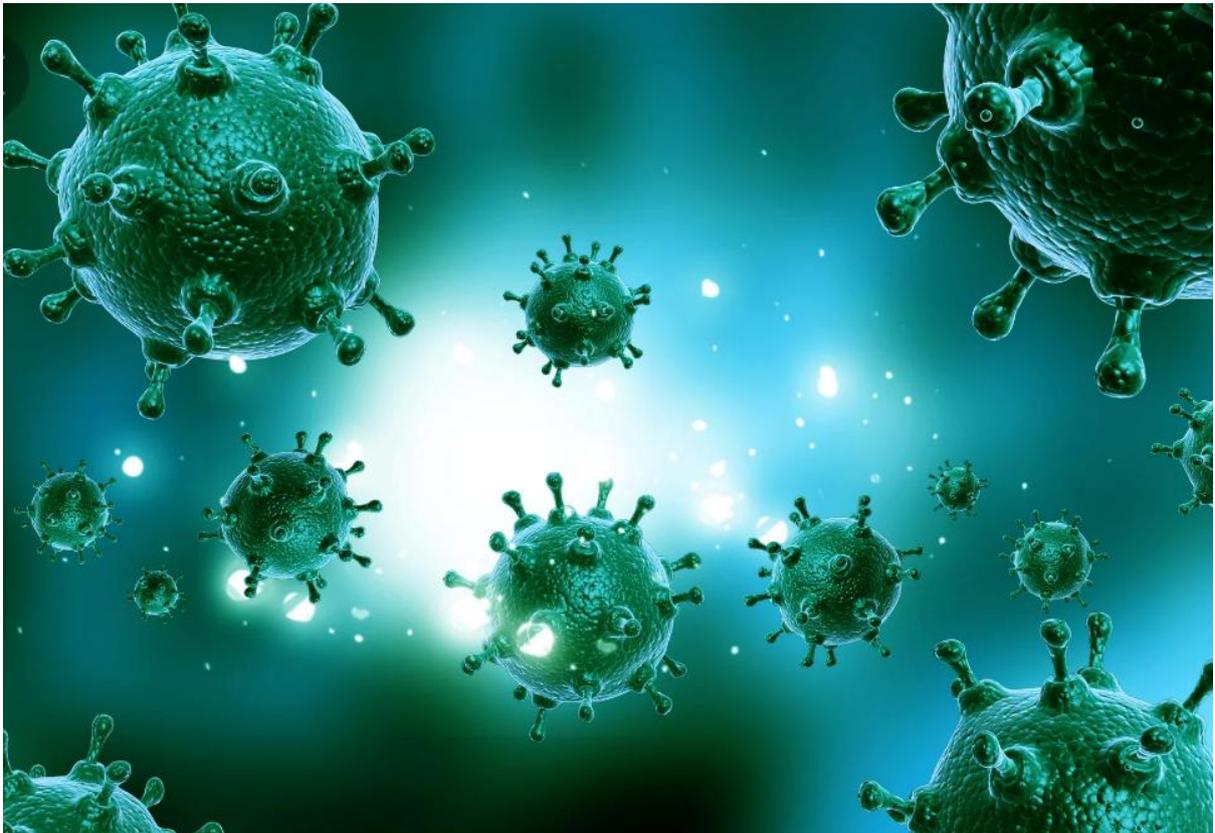


Health as Insurance: Reducing Risk from Random Environmental and Manmade Events



Guru Anaerobic

Health as Insurance: Reducing Risk from Random Environmental and Manmade Events

[NOTE: This isn't a guide as to what exercises to do or what diet to eat; just the general idea that ill health increases risk. It's obvious, but people need reminding]

It's taken an acute pandemic to underline we have a chronic pandemic. Early data suggests Covid-19 is more dangerous to those who have underlying health conditions. Even if it proves not to be the case with this current viral disease, the point still stands that poor health makes an individual more susceptible to stressors.

Health is the most important asset you have - but it's an invisible asset, only becoming apparent when you start losing it. As a healthy person you may have one hundred problems, as is the nature of human existence - but when you have a severe chronic condition you only have one problem.

The modern environment is such a reversal of our evolutionary landscape that in every slim person an overweight person is waiting to burst out. People have become predisposed to diabetes, predisposed to cancer, predisposed to heart disease, predisposed to long-term obesity – predisposed to conditions which, as far as we know, once barely existed.

People talk about key or 'master' conditions s.a. insulin resistance, obesity or inflammation from which ill-health springs, but those upstream conditions are downstream effects of lifestyle and environment. So rather than looking at a specific condition, or a supposed predisposition to a specific condition, we should look at the lifestyle/environment as the main driver from which the negative conditions spring. Spurious twin studies which prove that obesity (for instance) is mostly genetic have a blind spot in that separated twins inhabit the same modern environment; they also don't understand there is no contradiction in saying that a condition is genetically based *and* environmentally based.

UPSTREAM → DOWNSTREAM

Lifestyle & Environment → Metabolic disorders/chronic conditions → ↑Risk

Despite what we've been told by people seduced by modern diet and medicine, good health is our natural state – we don't need to be saved from our natural state; we have a predisposition for health, not illness. If people argue that “nature is trying to kill you”, we could respond, “the car is trying to kill you, pollution is trying to kill you, junk food is trying to kill you, too much comfort is trying to kill you...”. Modern trauma healthcare is miraculous in saving us from certain death from catastrophic accidents, but can't resolve the ‘diseases of civilization’ tsunami; meaning that millions of people live for years, ‘sick but not dead’. It's good that healthcare keeps us alive, but it's not good we are chronically sick. Having negative health conditions diminishes our enjoyment of life, and makes us fragile to environmental and manmade stressors and unexpected events.

Recent research found that only 12.2% of US adults are metabolically healthy. It concluded, *‘Prevalence of metabolic health in American adults is alarmingly low, even in normal weight individuals. The large number of people not achieving optimal levels of risk factors, even in low-risk groups, has serious implications for public health’*.

Even ‘low risk’ groups are at risk. Patently, *everyone is at risk*. If you stick to the status quo, you are at risk.

Ever see those films where some sort of disaster or crises happens? Who are the first to die? The old, the unfit, the obese, the stupid and the unlucky. There's nothing you can do about bad luck – but being fit, robust and dynamic can only be good; it is an insurance policy for when an unholy challenge strikes.

- It gives you a greater ability to avoid, escape, or deal with sudden life-threatening events – you come out unscathed, or less harmed than others. You live to fight another day. The robustness of a biological system is marked by its ability to cope with (or thrive from) variation - this is the same for an organisation or the economy. Organisms which can't cope with variation are fragile. Life is a stress test; age is a stress test, random events are stress tests. Banks are subject to stress tests to see if they can cope with fluctuations, outliers, and extreme situations. Your assets to survive real-life stress tests are physical strength and robust health.

- The disaster that everyone faces is getting old. People have insurance policies for all sorts of things, their cars, their houses, inability to work, and so on - but the average person doesn't look after their health, even though they *know* aging is going to

happen. Many young people think they are healthy, when, in fact, their health is mostly a function of youth not because they look after themselves. As they age, they start suffering from the same conditions that older people suffer from. So it's not only about being able to cope with the acute risks of meteor-strikes, being chased by zombies or novel viruses, but the long-term risk that everyone faces. The way to see the long-term risk is to look at people older than yourself. What do they look like? What are they suffering from? This is the window into your future if you don't look after your health.

AGING IS DIMINISHING VARIATION

The single most important quality to retain is the ability to generate and tolerate extremes.

Retired Brits move to Spain to escape the British winter - the damp messes with their joints. Warm weather, not too hot, not too cold, feels more comfortable. This reflects a wider property that *aging means diminishing tails*, extremes, variation; whatever you want to call it. The popular saying (used as an excuse by non-exercisers) is, "you can't outrun a bad diet", ok, but a 'good' diet on its own is not enough. You need to keep your body physically prepared for war. It sounds dramatic but aging is a war on your body.

As you get older you should dedicate a greater proportion of your diminishing exercise capacity to hard and robust exercise – yet you're told to take it easy. If all you do is "take it easy", eventually all you'll be able to do is take it easy - your body will have lost its capacity to generate and tolerate force, a high heart rate, acidosis, shocks or running for the bus - until eventually, even the normal task of walking up a flight of stairs is an effort and leaves you breathless. Senescence means decreasing variation. A diminishing exercise capacity is strongly associated with aging. An indicator that the physiological systems which enable you to exercise are no longer as effective

In aging we want to maintain our physical variability (beta-blockers are designed to clip the heart rate to protect the patient; variation may kill them). Two things happen over time if you don't push your heart rate (HR); max HR decreases and resting HR increases. Endurance training lowers the resting HR but doesn't work the top end; a reason to keep up high intensity work, to 'push' the high HR, which also has the effect of lowering the resting HR.

You need to reacquaint yourself with acidosis, a high heart rate and muscular effort, especially generated by the lower limbs. Use it or lose it.

Note: It makes *logical sense* to retain the ability to generate ‘extremes’ even if we hadn’t any scientific evidence to back it up. When we look at universal principles, we wait for science to catch up. If we see that young animals are more capable in their physical abilities than older animals, we can say with a good amount of certainty that retaining those qualities will help keep us young. More specifically, *the things we need to do to retain those abilities* (exercise and diet) keep us young. By *what process* they keep us young is neither here nor there.

If you argue, “why do I need to train so hard that I induce the burning sensation of acidosis? How does it benefit me?” My response would be that you *used to be able to do it*, and cope with it – there’s the reason. It recreates what you could do when you were younger; and if you can do what you could do when you were younger, you *are* younger.

A study found that lactic acid (as sodium lactate, injected into the blood stream) in mice, keeps them young by assisting in the production of mitochondria, the power generators in every cell. Aging is partly the result of a ‘cellular energy crisis’ from a reduction in the number of mitochondria in the cells. The consequence is that the cells start to function less well as a result of the energy shortage. The study concluded, ‘our results suggest that lactate, which is well known to be increased during exercise, also acts as a signal for upregulating genes related to mitochondrial function’, and, ‘although the skeletal muscle is the primary site of lactate production, the effects of lactate may not be limited to the skeletal muscle.’

Requisite Variety

In his book, *An Introduction to Cybernetics* (1956), Ross Ashby introduced his ‘*Law of Requisite Variety*’. This is the 1st Law of Cybernetics. Ashby was primarily interested in homeostasis (in living systems) - the way in which complex systems, operating in changing environments, succeed in maintaining equilibrium within tightly defined limits. Simply put, his law proposed that if a system is to be able to deal successfully with the diversity of challenges that its environment produces, then it needs to have a range of responses which is (at least) as varied as the problems thrown up by the environment. A viable system is one that can handle the variability of its environment.

For us it means that **in order to be able to deal with the variety of situations and events that life presents, we need to have physiological, metabolic, nervous and psychological systems which have flexible coping mechanisms.** Aging means we lose the variety in response needed to cope with the variety of normal life.

Requisite variety implies there are two ways an older person can deal with the physical and physiological challenges of life;

1/ Seek to reduce variation in the environment, hence moving to a warm area of Spain, thereby avoiding the vagaries of the British winter. Tens of thousands of elderly people die from the cold during winter in the UK.³¹

2/ *Retain the ability to cope with variation* by purposely injecting ‘extremes’ and variation in life, not shy away from them.

Aging means the body cannot cope with the variation it once took in its stride; walking or running up the stairs, getting out of a chair, picking up a sack of potatoes, getting over things, under things; sneezing without breaking a rib. The body becomes ‘fossilised’, a systemic petrification leading to fragility. The elderly have a problem with *all* types of variation – even a landscape of non-flat walking surfaces (that you and I, *literally*, take in our stride) is a problem. The ultimate absence of variability is death.

THE BEST PREDICTOR OF YOUR FUTURE HEALTH IS YOUR CURRENT HEALTH.

It seems intuitively true, that if you are fit and healthy now, you should be so tomorrow. And the reverse, if you have health problems now, unless something can be done about it, you will have health problems tomorrow.

Today’s state says something about the trajectory of your health. If you’re healthy, you retain it - if you’re unhealthy, it will get worse. However, if we view aging as a gradual diminution of systemic health, the trajectory can only ever be one way; notwithstanding there is *healthy* aging and *unhealthy* (or accelerated) aging.

Out of interest, I asked a friend if, ‘*our health status today has a bearing on our health status tomorrow*’, is a Markov or Martingale process. He replied, “Martingale. Markov just means that whatever happens next only depends on what happens now

(not whatever happened before), it doesn't mean it will be like now - that is martingale”.

My simple understanding is that a martingale has a *conserved* quality, its ‘value’ (your health) can change but the expectation remains the same. A markov means that tomorrow’s starting point is dependent on where you are today, not that tomorrow will be like today.

- Markov means where you go next depends on where you are now
- Martingale means we have an expectation that the future value will be the current value

What has this got to do with health? Well, it describes the idea that we can steer a ship in the ocean, but the state of the ocean may change – a hurricane, an attack by a gigantic radioactive octopus or being boarded by pirates. Even so, *in all likelihood*, if we steer correctly, we *should* reach the destination we set out for.

In reality, your present good health cannot tell you, with 100% certainty, that you will have good health tomorrow, as there is biological uncertainty. There can only be an expectation.

Good health status is, no doubt, the best *single* predictor of good health status in the near future, but there may be conditions progressing that we are unaware of. The best thing we can do is *proactively* work for health. Good health doesn’t stay around on its own because we are not in an environment where health takes care of itself.

Health uncertainty is asymmetric (skewed one-way), in that any sudden unforeseen health events are generally negative. You don't suddenly have an 'anti-stroke' or 'anti-heart attack'. Therefore, you *must* actively retain health - it resists the trajectory of aging and reduces the silent risk of uncertainty. If you do nothing, it’s only a matter of time before something unhappy strikes.

The Anna Karenina Principle

The Anna Karenina principle states that a ‘deficiency in any one of a number of factors dooms an endeavor to failure’. The principle derives from the opening sentence of Leo Tolstoy’s, *Anna Karenina*:

‘All happy families are alike; each unhappy family is unhappy in its own way.’

This neatly applies to the aging process.

Youth is the grand functioning of the body's systems. Aging is increasing fragility (downside risk) due to the greater likelihood of any one system failing. Physiologically speaking, our lives are doomed to failure. 'Switch off' the heart, nothing works. Switch off the lungs, nothing works. Switch off the gut, nothing works. The common belief is that the brain is the central controller – if the brain stops working, nothing will work. You die. But the interdependence of the body means that only *one* system needs to stop working for you to die. If both your kidneys stop working, you will die (without urgent healthcare) - if your kidneys are fine but your liver packs up, you die.

Good health is the functioning of all systems; ill health only needs *one* thing to go wrong - hence our lives are inevitably 'doomed to failure' (Note: This is why humans could never be immortal - outside factors and fatal accidents would eventually kill us. Favourable factors for life have to exist outside of us as well).

My first outdoor race as a 40yr old was at the UK Masters National Athletics Championships. I came 4th in the 400m final. The guy in 3rd place was a very robust looking man; a good six inches taller than me, with a bolt-upright, muscular physique. A 'picture of health'. I was very sad that within three years he had died of cancer.

My friend, eight years older than me, whom I first met when I was in my early 30's, was one of the UK's top over-40yrs 400m runners. He had a physique like Michelangelo's, *David*. I thought, 'I want to be like him when I'm 40'. He carried on competing into his 50's. One day, on arriving back to his front door, after finishing his usual weekly long run, he had a stroke – it came without any warning. Luckily his partner was in; he could have died. Now in his mid-60's his brain has not returned to normal. He can't remember details of events in his life prior to his stroke. I saw him the other day - he looked eighty. No muscle mass, hollow cheeked and stooped over.

For a body to be healthy everything has to work, but it can be unhealthy in many ways. '*A chain is only as strong as its weakest link*'. No matter how developed one metric is, a problem somewhere else can degrade the entire organism, it has a limiting effect.

Youth is health more so than strength. The strong 50yr old is 'healthy' in one metric but *silent risk* is increasing. This is why big powerlifters can die instantly or suffer a debilitating condition 'out of the blue'. *Of course*, it is good to retain strength and muscle mass in older age - I have spent thousands of hours weight training with that

prime aim [and strength training is good for many of the body's systems not just muscle].

What can be done?

- Realise that the *condition of youth is the prime expression of health*
- Do things to recreate youth. It isn't a single metric
- Don't mistake one marker of health for a decisive marker against disease. What does the deadlift tell us materially about diabetes?
- Adopt systemic 'self-preservation' methods – calorie restriction, fasting, (don't constantly eat), daily activity, robust challenges, resistance training
- Ditch ultra-processed foods, sugars, seed oils and refined carbohydrates
- Use the advances of *modernity* to protect you from acute harm, accidents and disease
- Adopt the processes of the *wild* for robust health
- Youth is plasticity, redundancy, variation and potential. An adaptive capability which has diminished in older people. The joke is that you may be fitter than a twenty old, but their potential outweighs yours. Keep in touch with youth!

[It would be valid to ask, is it even possible for one system to go wrong without anything else being out of whack. Diseases can strike any organ or system independently, but chronic conditions caused by poor diet and lack of physical exercise would have system wide negative effects. The reason why upstream conditions which preserve health are important]

So, the best predictor of your future health is your current health. However, this is sprinkled with biological uncertainty. This uncertainty tends to manifest negatively (I'm sorry, I didn't invent it). The health or survival of a system requires proper functioning of all systems – it takes only one part of that system to ruin the whole system. I'm not asking you to be paranoid. OK, be a *little* paranoid.