OUTLIVE Book Notes- Peter Attia

Chapter 4: Centenarians

I test all my patients for APOE genotype.
The e2 variant of APOE seems to protect its carriers against dementia– and it also turns out to be very highly associated with longevity.

Chapter 6: The Crisis of Abundance

Metabolic Syndrome, defined in terms of the following five criteria:

1) High BP (>130/85)
2) High triglycerides (>150 mg/dL)
3) Low HDL cholesterol (<40 mg/dL in men or >50mg/dL in women)
4) Central adiposity (waist circumference >40 inches in men or >35 in women)
5) Elevated fasting glucose (>110 mg/dL)

*If you meet 3 or more of these criteria, then you have the metabolic syndrome

Insists my patients undergo a DEXA scan annually– and far more interested in their visceral fat than their total body fat.

I monitor several biomarkers related to metabolism, keeping a watchful eye for things like elevated uric acid, elevated homocysteine, chronic inflammation, and even mildly elevated ALT live enzymes.
Lipoproteins are also important, especially triglycerides; I watch the ratio of triglycerides to HDL cholesterol (it should be less than 2:1 or better yet, less than 1:1), as well as levels of VLDL, a lipoprotein that carries triglycerides

The first thing to look for is elevated insulin.
One test is the oral glucose tolerance test, or OGTT.
We measure the patient's glucose and there insulin, every 30 minutes over the next two hours (after contact 10 oz of Glucola)

A postprandial insulin spike is one of the biggest early warning signs that all is not well.

Chapter 7: The Ticker

I have all my patients tested for apoB regularly; and you should ask for the same test. (only $20)

First time looking at a patient's blood panel, eyes dart to two numbers: apoB and Lp(a). Pg 130

Lipid lowering medications: several statins on the market, tends to start with Crestor and only pivot from that if there is some negative effect from the drug.
Goal is to knock someone's apoB concentration down to 20 to 30 mg/dL

Chapter 10: Thinking Tactically

In Medicine 3.0, we have five tactical domains that we can address: exercise, diet/nutrition, sleep, emotional health, exogenous molecules.

When evaluating new patients; ask three key questions:

A) Are they overnourished or undernourished?
B) Are they undermuscled or adequately muscled?
C) Are they metabolically healthy or not?

Chapter 11: Exercise

Exercise has the greatest power to determine how you will live out the rest of your life. Even a minimal amount of exercise can lengthen your life by several years. It delays the onset of chronic diseases, but it is also amazingly effecting at extending and improving healthspan.

Not only does it reverse physical decline, but it can slow or reverse cognitive decline as well.

The data on exercise tell us that the more we do, the better off we will be.

Peak aerobic cardiorespiratory fitness, measured in terms of VO2 max, is perhaps the single most important marker for longevity.

VO2 max represents the max rate at which a person can utilize oxygen, measured while a person is exercising at essentially their upper limit of effort.

Someone of below-average VO2 max for their age and sex is at double the risk of all-cause mortality compared to someone in the top quartile.

Someone in the bottom quartile for VO2 max for their age group is nearly 4x likelier to die than someone in the top quartile- and 5x likelier to die than a person with elite-level VO2 max.

A 10-year observational study of 4,500 subjects aged 50+ found that those with low muscle mass were at 40-50% greater risk of mortality than controls. The strength, not the mere muscle mass, that matters.

Exercise based interventions performed as well or better than multiple classes of pharmaceutical drugs at reducing mortality from coronary heart disease, prediabetes or diabetes, and stroke.

Chapter 12: Training 101

I often test my own lactate while working out in Zone 2, using a small handheld lactate monitor. The goal is to keep lactate levels constant, ideally between 1.7 and 2.0 millimoles.

It seems that about 3 hours per week of Zone 2 (or 4-45 minute sessions), is the minimum required for most people to derive a benefit and make improvements.

One way to track your progression in zone 2 is to measure your output in watts at this level of intensity. Take your avg wattage output for a session and divide by your weight to get your watts per kilogram. 2 watts/kg is what to expect from a reasonably fit person. Very fit, 3 watts/kg. Improvement over time is what matters.

Side benefit of Zone 2 is that it helps with cognition, by increasing cerebral blood flow and by stimulating the production of BDNF.

Max Aerobic Output: VO2 Max

For patients who are new to exercising, we introduce VO2 max training after about 5-6 months of steady zone 2 work.

I push my patients to train for as high as VO2 max as possible, targeting the “elite” range for their age and sex (roughly top 2%). Then reach elite level for your sex, but two decades younger.

Train for VO2 max by supplementing zone 2 work with 1-2 VO2 max workouts per week. Intervals ranging from 3-8 minutes. Ex- max pace you can sustain for four minutes, recover four minutes, repeat 4-6x.
*In practice, Attia’s ideal VO2 max pace is about 33% more power than zone 2 pace.

You want to make sure that you get as close to fully recovered as possible before beginning the next set.

A single workout per week in this zone will generally suffice.

Strength

Bone mineral density (BMD) demands at least as much attention as muscle mass, and should be checked every few years.

An important measure of strength is how much heavy stuff you can carry.

3-4 days a week, Attia spends an hour rucking around his hood, up and down hills, 3-4 miles. 50-60lb pack.

Grip strength predicts how long you are likely to live.

Can be trained by the farmers carry, walking for a minute with ½ bodyweight in each hand (building up to this).

Can test by dead-hanging from a pull up bar for as long as you can. Like to see men hand for at least two minutes and women for at least ninety seconds at the age of forty.

Chapter 13: Stability

*lots of good stuff but not a ton of highlights

Put two tennis balls in an athletic sock about 4-6 inches apart. Then breathe fully enough to feel the tennis balls on both sides.

Toe Yoga
Controlled cat/cow (spinal cars)
Scapular CARS (can do with resistance band under foot to add weight)

Hip Hinging:Step Up
Place one foot on box, making sure the big toe and pinky toe mounds and the entire heel are connected firmly to the surface (barefoot good). Hip flexed, spine tall, chest heavy, arms relaxed, eyes forward.
Slightly shift your head, ribs, and pelvis forward at the same time as you quietly inhale through your nose. Pressure in center of front foot, toward heel, keeping toes connected. Glide femur back slightly, stretch in hamstring and glute max. Lead w/ glutes and hamstrings, not pelvis or ribs. Keep knee behind toes, pelvis/ribs in alignment, and load front foot evenly.

On descent, load front of stationary foot, toes actively flexed into the box. Feel weight shift from forefoot into midfoot, and finally to heel in a smooth fashion controlled by the hamstring.
Keep tempo slow and even as possible; 3 seconds.

Chapter 14: Nutrition 3.0

It's currently easy for a non-diabetic to obtain a CGM from one of several metabolic health startups.
Typically only need to use for a month or two to understand what foods are spiking their glucose.
Can approximate your own CGM with a simple drugstore glucose monitor.

Interesting to see CGM readings overnight. A glucose ramp usually means you are dealing with psychological stress.

Focusing on a handful of important amino acids, such as leucine, lycine, and methionine. Focus on absolute amounts of these amino acids found in each meal, and be sure to get about 3-4g of leucine and lycine and at least 1g per day of methionine.

If trying to increase lean mass, need more lycine, closer to 2-3g, 4x day

Fat

We titrate the level of EPA and DHA in our patients diets by measuring the amount of each found in the membranes of their RBC, using a blood test.

For most patients the range we look for is between 8-12% of RBC membrane composed of EPA and DHA.

If there is one type of food that I would eliminate from everyone's diet if I could, it would be fructose-sweetened drinks, including both sodas and fruit juices.

STARTED A "Longevity" article

APOE Genotype and Association with Longevity

The APOE genotype refers to genetic variations in the apolipoprotein E (APOE) gene. There are three common variants of the APOE gene: e2, e3, and e4. These variants determine the structure of the APOE protein, which plays a crucial role in the metabolism of lipids and cholesterol in the body.

Research has shown that the e2 variant of the APOE gene is associated with both protection against dementia and higher longevity. Individuals who carry the e2 variant tend to have a lower risk of developing dementia, such as Alzheimer's disease, compared to those with the more common e3 variant. Additionally, the e2 variant has been found to be highly associated with increased lifespan.

The specific mechanisms underlying the protective effects of the e2 variant and its association with longevity are still being investigated. It is believed that the e2 variant may have a positive impact on cardiovascular health and lipid metabolism, contributing to improved overall health and longevity.

Testing for APOE genotype can be done through a simple genetic test, typically using a sample of saliva or blood. This test analyzes the DNA to identify the specific APOE variant an individual carries.

The APOE genotype is expressed as a combination of two letters, representing the two copies of the gene inherited from both parents. The possible combinations are:

APOE e2/e2: This genotype carries two copies of the e2 variant.
APOE e2/e3: This genotype carries one copy of the e2 variant and one copy of the e3 variant.
APOE e2/e4: This genotype carries one copy of the e2 variant and one copy of the e4 variant.
APOE e3/e3: This genotype carries two copies of the e3 variant.
APOE e3/e4: This genotype carries one copy of the e3 variant and one copy of the e4 variant.
APOE e4/e4: This genotype carries two copies of the e4 variant.

It's important to note that APOE e3/e3 is the most common genotype in the general population, while APOE e4/e4 is associated with an increased risk of developing certain age-related diseases, including Alzheimer's disease.

If you are considering getting tested for APOE genotype, it's advisable to consult with a healthcare professional or a genetic counselor who can provide personalized guidance and help interpret the results in the context of your overall health and family history.

I. Introduction
A. Briefly introduce the significance of longevity in today's world.
B. Mention the book "Outlive" by Peter Attia and its focus on forward-thinking longevity practices.

II. Genetic Factors and Metabolic Health
A. Discuss the APOE genotype and its association with longevity and protection against dementia.
B. Highlight the importance of metabolic health and monitoring biomarkers related to metabolism.

III. Cardiovascular Health and Longevity
A. Explain the relevance of lipoproteins, particularly apoB and Lp(a), in assessing cardiovascular health.
B. Discuss lipid-lowering medications and their role in reducing apoB concentration.

IV. Exercise and Physical Fitness
A. Emphasize the power of exercise in determining overall quality and length of life.
B. Discuss the benefits of exercise in physical and cognitive health.
C. Highlight the significance of peak aerobic cardiorespiratory fitness, VO2 max, and strength training.

V. Nutrition and Blood Glucose Regulation
A. Discuss the use of continuous glucose monitoring (CGM) or glucose monitors to understand individual responses to food.

B. Highlight the importance of essential amino acids and their specific quantities in meals.
C. Emphasize the significance of balancing omega-3 fatty acids and reducing fructose-sweetened drinks.

VI. Conclusion
A. Summarize the key takeaways from the highlights and emphasize the importance of implementing these practices.
B. Encourage readers to prioritize their longevity through personalized approaches based on the principles discussed in "Outlive."