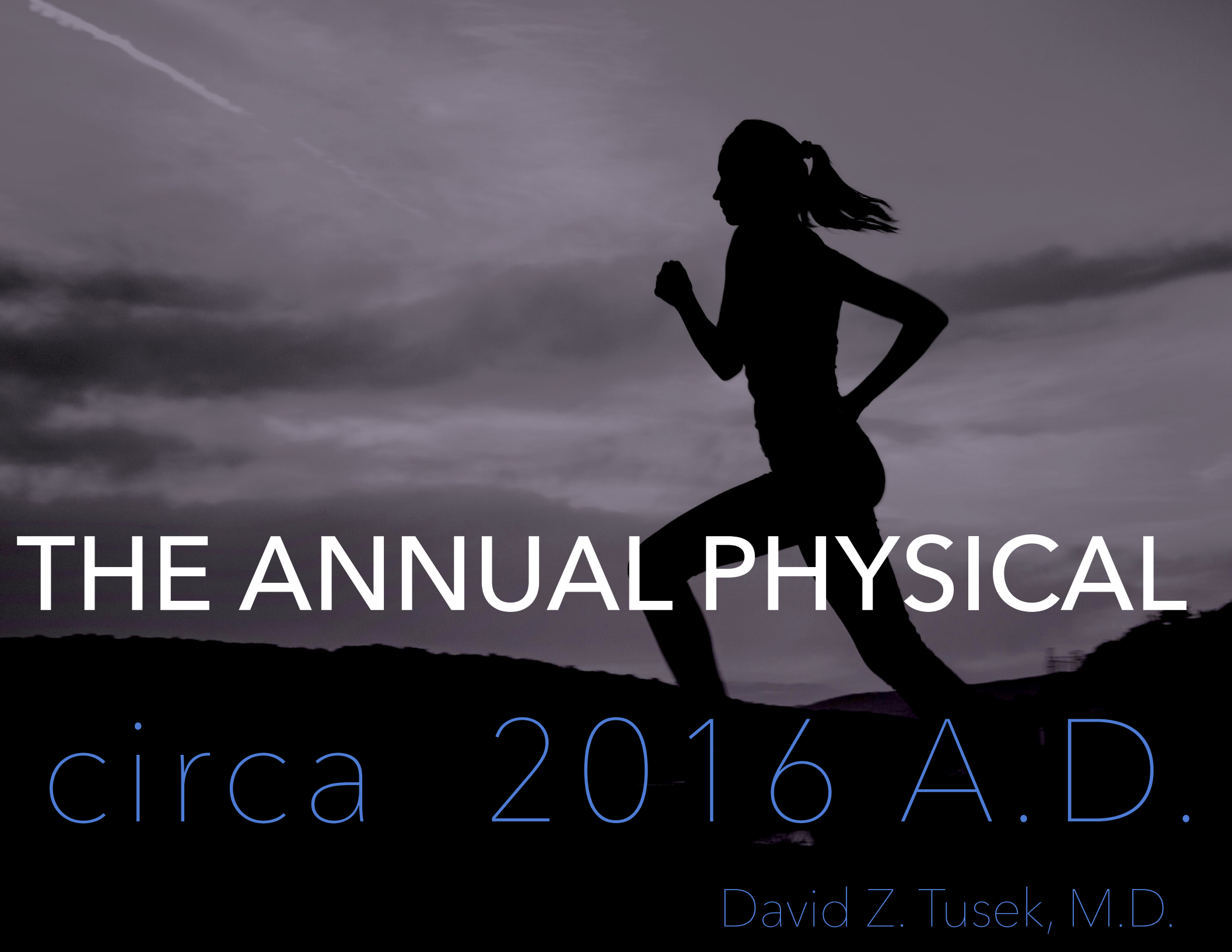

THE ANNUAL PHYSICAL

circa 2016 A.D.

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You arrive for your annual physical exam. You are 45 years old and you feel "OK" overall, but lately you've been feeling more tired. Sleep is so-so, overall motivation and sex drive has been on a downward slide, and your overall vitality seems to slowly be fading. You've gained a bit of weight over the last few years, and you have noticed that your memory doesn't seem to be as crisp as it used to be. Your spouse has mentioned that you seem more cranky lately. You report that your diet is "pretty good" because you don't eat too much fast food, but in reality you're really confused by all of the conflicting information out there about nutrition. You know that a few of your relatives passed away from cancer, but you don't really know the details. You have an uncle who had a heart attack at a fairly young age. You've come to the doctor with an open mind, not really sure what to expect from your 45,000 mile tune-up.

Your doctor takes your history and examines your skin for moles, listens to your heart, measures your Body Mass Index and vital signs. Next you are told you are too young for an EKG, but some basic bloodwork is ordered to check your liver and kidney function, electrolyte, serum protein levels, iron, Vitamin D, cholesterol for heart disease screening, glucose for diabetes screening, thyroid, uric acid, and several inflammatory markers.

OK, great. What's next?

For most people, that's the end of it. *"Your tests are fine. See you next year"*.

…But wait! You still haven't had any of your questions answered.

- *How do I know if I am actually eating the right stuff for my body?*
- *Is there anything else I can do to improve energy?*
- *Is my decreasing sex drive just because I'm getting older?*
- *Should I be taking any supplements?*
- *Is there anything I can do to lower my cancer risk?*
- *What can I do to avoid ending up like my uncle with an early heart attack?*
- *Did you really check for everything?*
- *Oh…and what about my memory? Anything I can do to improve that?*

Typical doctor's response:

"Just eat more vegetables and try to exercise more. And since your cholesterol is a few points above range, we should probably go ahead and put you on a medication to lower that."

It doesn't have to be this way. We can do better.

At 45, with a family history of **heart disease**, you need more than a cholesterol check. In fact, a routine lipid panel doesn't really give you much actionable information at all, as it turns out that about *half* the people who have heart attacks actually have *low* cholesterol. So the true value of this test is extremely limited in many cases. What you need is a Lipoprotein particle analysis and a low-radiation heart scan (EBCT) to determine if any plaque has begun to form in your coronary arteries. From there your risk of heart disease can be assessed far more accurately.

Screening for **diabetes** with fasting glucose is also grossly inadequate, and even the HbA1c doesn't provide the full picture. You should also have a fasting insulin test. The fundamental key is to catch this disease early.

Then you should have a **food sensitivity** test to see which "healthy" foods may actually be causing inflammation in your body without you having any idea. Many of us now know that gluten can cause inflammation and "leaky gut" leading to autoimmune disease in a significant percentage of individuals, but gluten is far from the only healthy-sounding food. After all, whole wheat pasta and whole-grain bread *sound* healthy. But lots of foods can cause inflammation and lead to a wide range of symptoms and conditions which can impact our health as individuals. Ideally you should test your "leukocyte degranulation" (a measure of immune activation) in response to all fruits, vegetables, meats, seafood, grains, nuts, and spices in your

diet. Such testing is now readily available and can quickly point you toward your optimal diet—rather than a "diet recommended for an average person in a general population". You are not a population. You are a unique individual with specific and personal needs. Isn't it time your healthcare program treated you as such?

Next, a **comprehensive hormone panel** should be obtained to assess not just your thyroid hormones, but also your pituitary hormones, sex hormones, adrenal hormones, as well an IGF test to screen for growth hormone deficiency. While most women in their 40's are not yet "menopausal", pre-menopausal symptoms due to hormone imbalances often begin in the third decade. And for men it's no different. A large portion of my male patients not only have suboptimal testosterone levels by the time they are 40, they are converting far too much of their testosterone into estrogen. There are many reasons for this, but the good news news is that the "Low T, High E" syndrome can often be corrected without actually using hormones. In some cases hormone replacement is necessary and can be achieved very simply using natural, bio-identical hormones.

I also recommend a complete **micronutrient analysis**. While checking the serum levels of one or two vitamins is great, what about the other dozen? They are critical too. And so are all of the various crucial minerals which—due to the decreasing nutrient density of our food—are prone to subtle deficiencies within our bodies. Concentrations of important antioxidants (among the most potent antidotes to cancer-causing gene mutations) and anti-inflammatory fatty acids should be tested as well. Its important to note that while assessing the serum levels of such micronutrients is good, a far better approach is to check the actual levels *inside* our cells. "Serum" is the soup which our blood cells swim in, but the real action of molecular biochemistry occurs within the walls of the cells, and especially inside the nucleus where our DNA is housed

and where proteins are synthesized. Testing is now available that not only accurately measures our blood levels of the dozens of important micronutrients—it actually measures the *intra-cellular* (inside the cell) concentrations. With such testing we are armed with the precise information that we need to know exactly what kind of supplements to use in order to replace our body's specific deficiencies.

A pharmacogenomic panel can be performed using a simple cheek swab. The DNA from one of your cheek cells is then used to identify the specific genetic variants which you have that control the various cytochrome pathways which in turn determine how you metabolize the vast majority of pharmaceutical drugs. Even if you don't take lots of medications this data is extremely useful (e.g. if you ever need surgery or end up in the ER) because it provides information which will last your entire life.

Following a 45 year old check-up which yields this kind of actionable, practical, usable data, an intelligent health plan can be crafted which actually has a positive impact on your health, how you feel, your quality of life, and prevention of chronic disease.

Most patients would be unlikely to say, "Nah. I'm not really interested in knowing any of this kind of stuff about my health. Just do the basics and give me the cholesterol pill." Most of us are eager to know that such testing is now available. And yet such a small minority of us receive this deeper dive into our overall metabolism and health—fewer still have their test results carefully reviewed and expertly interpreted for them.

Before you schedule your next physical, you may want to check ahead to see if you will be getting the right tests. While this detailed work-up can be extremely expensive, there are now ways to obtain this level of testing far more affordably—even without insurance. If you'd like to discover the right questions to ask, just download the E-book "The New Rules of Healthcare".

But there is another important topic that we should review before you do, and that is:

how to properly interpret diagnostic lab tests—to not just normalize, but to ***optimize***

INTERPRETING THE DATA:

As all of these test results are gathered, organized, and reviewed, they should be interpreted using the "functional medicine" lens. This means that the vastly broad spectrums of "normal ranges" of each blood test should be viewed from the perspective of "optimal" and "ideal".

For example, although the "normal" Vitamin D range is (30 – 100), having a level of 31 is far from optimal, and you may feel quite differently at 31 than at 91. Similarly, while a "normal" thyroid test (TSH) is considered to be (0.45 – 5.0), this range represents more than an *order of magnitude* (a ten-fold span). Usually, a TSH above 3 represents decreased thyroid function and many patients feel significantly "hypothyroid" (have symptoms of low thyroid function) if they get close to 4—never mind 5. The *optimal* range of TSH is (0.45 – 1.5). It turns out that there are optimal ranges for each blood test, but many practitioners ignore this and tell their patients that "all is well" if they fall within the reference range.

If your goal is to prevent rickets, then keep your vitamin D level above 30. But if your goal is to ***optimize*** your health I'd recommend a level of 80-100.

Abnormal blood levels in one area are commonly affected by suboptimal levels in others. Just because you discover that you have a hormone imbalance, for instance, does not *necessarily* mean you need to begin replacing the low-level hormones. This imbalance may in fact be due to a deficiency in an important vitamin or mineral.

There is ample evidence about the importance of maintaining "optimal" levels of micronutrients in particular. For example, compelling data exists which shows that women with low vitamin D tend to have more breast cancer than those with vitamin D levels in the optimal range. Yet replacing this vitamin (which may soon actually be reclassified as a hormone) is still somehow considered controversial and much press has been devoted to pointing out that this is merely an *association* and does not prove *causality*. This logic is used to dissuade patients from using vitamin supplements. I personally find this reasoning incomprehensible because, just like with every single other question in medicine, I apply what I call the "R&B litmus" test.

R&B in this case refers not to Motown, but to what I feel is hands down most sacred concept in healthcare, which, in my opinion, is not adequately discussed: The Risk -vs- Benefit ratio.

Let's apply it to the case of Vitamin D optimization:

While it may be true that conclusive evidence does not yet exist that bringing a low range vitamin D up toward the optimal range using supplementation will decrease the likelihood of breast cancer, the data shows that those patients with high-normal levels have less of this devastating (and all too common) disease than those with low or low-normal levels. The salient question is therefore:

"What is the likely ***risk*** of supplementing vitamin D to the optimal range, and what is the potential ***benefit***?"

I would argue that the risk is about as close to zero as anything can be. Provided that you are not over-dosing and causing toxic levels, optimizing vitamin D has no possible down-side. In fact, in my experience those patients who optimize their vitamin D levels report having more energy and less joint pain (not a bad side-effect). So even if it turns out, in the end, that the connection between cancer and vitamin D is disproven, your "worst case scenario" is less fatigue and more supple joints. But what I suspect from the substantial albeit inconclusive data which exists at this time, is that there is a reasonable likelihood that optimal Vitamin D levels may indeed turn out to be protective against cancer—and you will be glad that you took your vitamins!

By somewhat of a stroke of chance, the conventional medical establishment and most insurance companies now consider a vitamin D level to be a common if not standard part of the "annual check up" in adults. Vitamin D is indeed a very important nutrient and suboptimal levels are frequently seen in our population, however, are we to suggest that having optimum vitamin A levels is not important for our health? And what about **vitamins B1, B2, B3, B5, B6, Biotin, B12, Folate…etc…** Do these not play vital roles in our metabolism?

My practice is full of patients who have seen many other doctors and had their "bloodwork" come back all within the normal range, yet they still feel terrible. They may have fatigue, brain fog, insomnia, mood lability, decreasing sex drive, weight gain, digestive problems, and various other complaints. How is it possible that after going to various other physicians and undergoing thorough diagnostic evaluations they came up empty handed and frustrated with no reasonable explanation to what may actually be *causing* their symptoms or what to do about it. The answer is of course that "thorough diagnostic evaluations" are not—by any stretch of the imagination—a typical part of our healthcare experience.