

SIGMA Tactical
Wellness

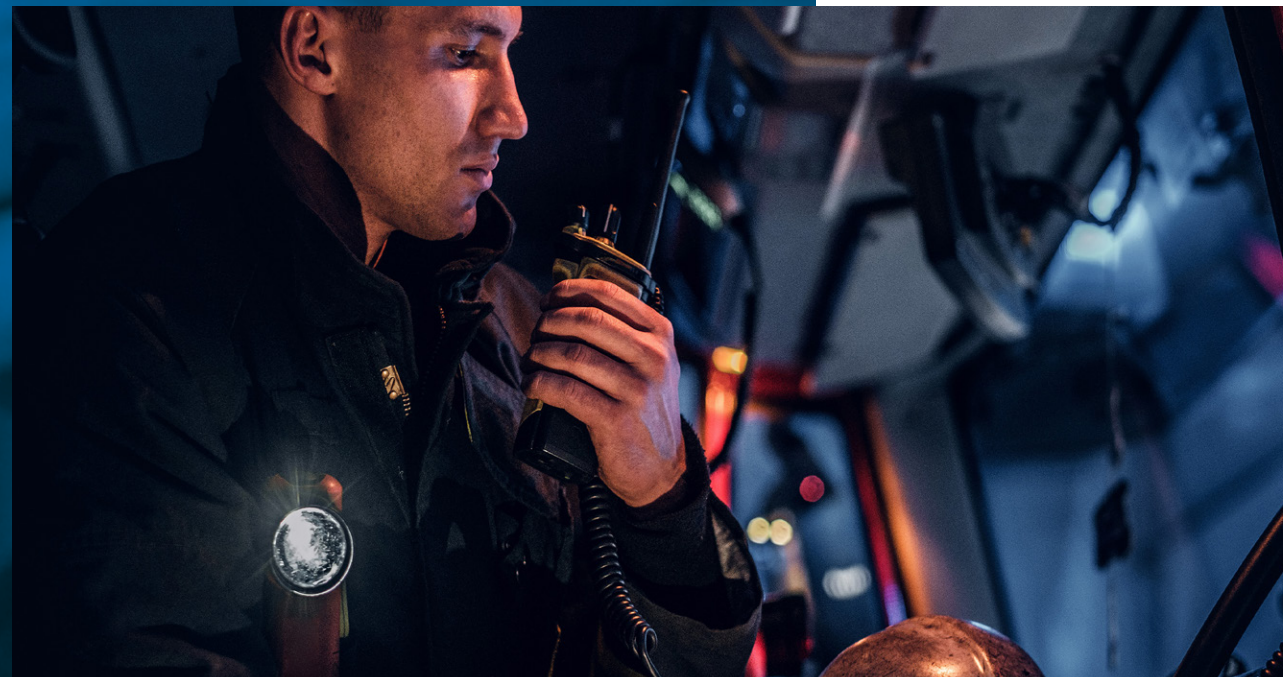


SIGMA HAS
PIONEERED A
SYSTEM OF
CARDIOMETABOLIC
SCREENING
CORRELATING
KNOWN RISK
FACTOR ANALYSIS,
NOVEL BIOMARKER
IDENTIFICATION, AND
CARDIOPULMONARY
EXERCISE TESTING.

There is absolutely no question that the number one killer of active and retired law enforcement officers is heart disease. The average age of a police officer suffering a heart attack is 46 years old and the life expectancy of men and women in uniform is more that 20 years less than the general population. Published data shows that, between the ages of 55 and 59, the chance of a civilian dying from a heart attack is 1.6%. However, within populations of police officers, it is substantially elevated at 56%.

Through our aggressive preventative screening strategies, we have documented that over 50% of officers tested were found to have the early stages of coronary artery disease. Early heart disease markers are often detected in otherwise fit appearing men and women who have no symptoms, as early as age 30. Standard risk analysis (most commonly found in routine wellness programs) inadequately identify those at increased risk. Often, typical risk analysis models use outdated population based standards and can only identify those individuals who have high cholesterol. These outdated and ineffective methods of cardiac risk analysis do not identify individuals have already begun to develop plaque irrespective of their cholesterol levels. Oftentimes, this can result in catastrophic failure to diagnose patients who at elevated levels of risk.

Police officers also suffer from obesity, diabetes and hypertension at rates that are much higher than their civilian counterparts. National statistical data shows that the obesity rate for police officers is 48% which is 20% higher than what is seen in the civilian sector. The rampant obesity epidemic creates concomitant diabetes, high blood pressure, sleep disorders, and significant musculoskeletal issues such as chronic back, knee, and hip pain.



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THE FACETS OF OUR PROGRAM

ADVANCED LIPIDOLOGY AND BIOMARKER SCREENING/CORONARY CALCIUM SCORING

Sigma has developed a comprehensive cardiac laboratory screening evaluation along with an individualized nutritional and exercise prescription. The screening consists of non-invasive imaging as well as advanced lipid panel testing to evaluate the early stages coronary disease and the risk of heart attack. A cardiopulmonary exercise stress test on a stationary bicycle is then performed. This test measures functional capacity, identifies the presence of any ischemia (lack of blood flow to the heart muscle) and allows for the determination of indirect calorimetry to develop a personalized diet and exercise prescription.



METABOLIC ANALYSIS

Sigma's unique approach uses Advanced Metabolic Testing to assess precise nutritional status of each individual and prescribe key nutritional changes based on that person's individual goals. For law enforcement officers, nutritional and functional status greatly impacts on-duty performance. This is especially apparent during high stress situations such as in the use of force or a pursuit. Sigma's unique methodology gives each officer a direct understanding of how to fuel themselves for on and off duty performance leading to an increase in focus, alertness, and in general, a higher competency to perform the daily activities both in and out of uniform.

MEDICAL EVALUATION

Along with the nutritional consultation and review of the metabolic data, a comprehensive analysis of advanced lipid and biomarker testing will be analyzed and reviewed by a physician or licensed medical practitioner. During this consultation, each officer will be given the results of his or her testing, assessment of cardiovascular risk and specific treatment strategies to modify that risk.

The officer will finish the screening program with a complete understanding of his or her current metabolic standing and cardiovascular risk. Each participant will receive a written summary of his or her findings as well as a customized treatment plan delineating the correct diet and exercise regimen to help that individual achieve their goals. Additionally, a customized recommendation of potential medical and nutritional therapy will be provided, allowing each officer to develop a specific framework and starting point to engage with their private physician.

Because over 48% of law-enforcement officers in the United States are obese, a strong emphasis on weight optimization will be included within the consultation.

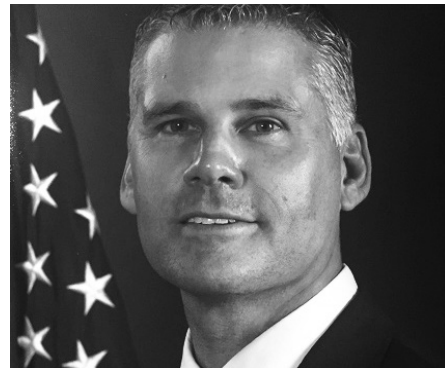
ESTIMATED COST SAVINGS COMPONENT

For an estimated screening population of 2000 police officers, our observed findings (publication pending), approximately 50% have evidence of coronary artery disease, 800-1600 will be clinically obese and approximately 600 will have evidence of undiagnosed or undertreated hypertension and or diabetes.

Currently, according to the Commission on the Accreditation of Law Enforcement Agencies, of the costs of an on- or off-duty heart attack range from \$400,000 to \$750,000. If assuming only 10% of the 2000 officers with detected blockages will progress to the development of a heart attack within 5 years (low estimate) total cost to the agency and ultimately the tax-payers ranges between \$90 million to \$150 million.

Aside from the obvious cost-savings inherent in cardiovascular prevention, we have documented a 5.8% reduction in body fat percentage in overweight individuals, and a 7.51% reduction in body fat percentage in obese individuals (as much as 40lbs weight loss in some cases within compliant individuals) within the first 12 months of program adherence. Based upon calculations from the 2019 Society of Actuaries, that is a potential cost savings of \$565,000 (pop. size = 200). Assuming only 10% of documented average loss in body weight for a following 4 years would result in \$1.43 million reduced cardiac and body weight-based health care expenditures.

TESTIMONIAL



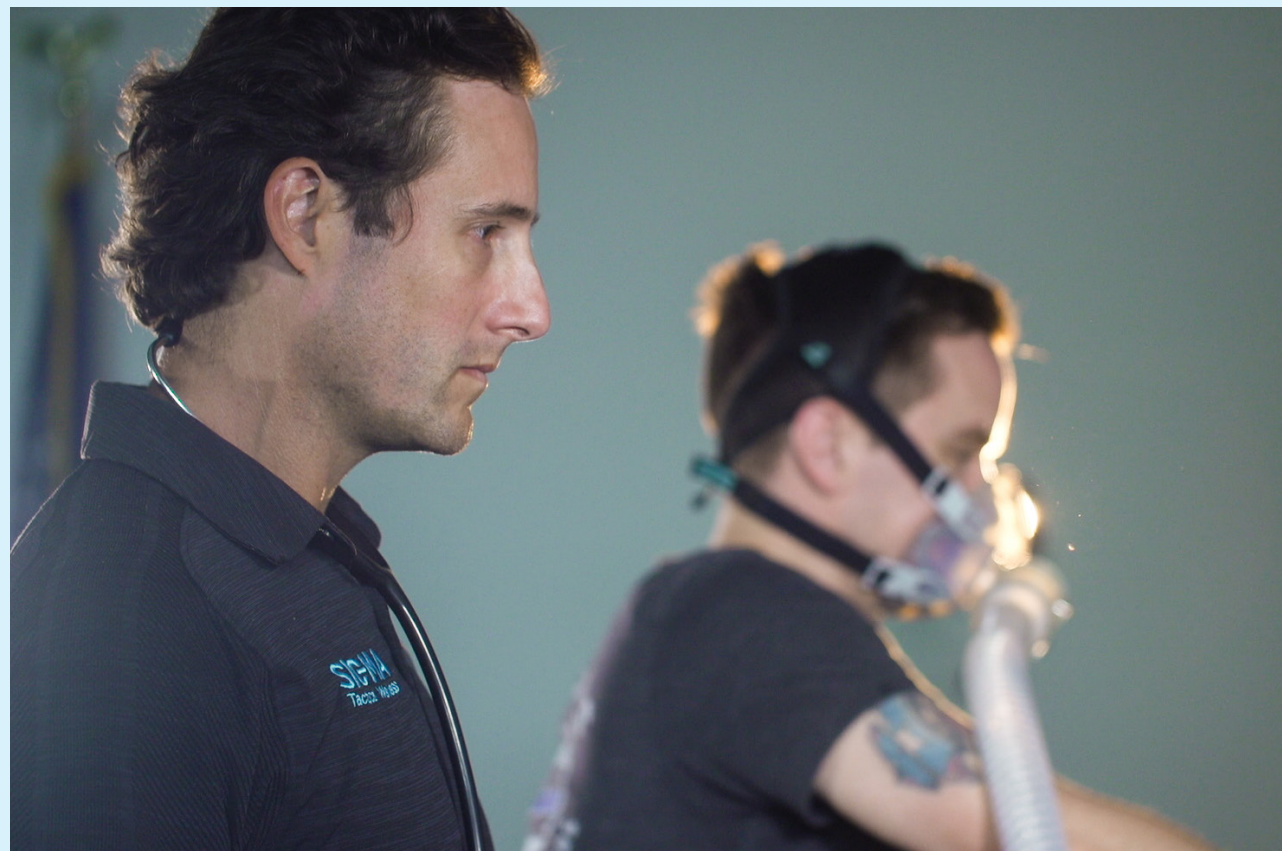
When I went through the screening, I expected to hear what I'd always heard from docs – that I was in perfect health and to keep doing what I was doing. I never expected to hear I had heart disease. While my numbers were low in comparison to more severe cases they told me about, I was still in a risk category that I would have never known had it not been for their cutting edge screening methodologies.

VINCE PALLOZZI
Special Agent In Charge (SAC)
Charlotte, ATF

These changes in basic health will certainly have a positive effect on performance, productivity, and community interaction. While it is difficult to put a dollar value on these items, we have noted other substantial benefits and health savings. In conjunction with reduced health insurance-related expense, we have documented a reduction in worker's compensation claims over the course of the last 5 yrs (Colorado Inter-Governmental Risk Sharing Agency [CIRSA] – Denver CO). This can be attributed directly to improvements in situational awareness, reductions in fatigue (specifically between day/night shift transition), and reduction in need for over-counter stimulants to maintain focus.

Lastly, it is critical to note that one indirect result of Sigma Wellness participation, which still permeates through populations of participants is the rate of successful tobacco and alcohol cessation. According to Sigma Wellness data, 91% of smokers and nearly 98% of over-consumers of alcohol significantly reduced their usage or quit altogether. Because “compliance” is determined from reduction in cardiovascular risk factor, BMI, and body composition, it may not adequately reflect the reduction in risk-stratification resulting from these types of behavioral modifications, but should be considered when evaluating overall program effectiveness.

**TOTAL COST SAVINGS
OVER 4 YEARS EQUALS
\$54.3 MILLION FOR
2000 OFFICERS**



SCOPE OF SERVICES

ACTIVE 12-LEAD ELECTROCARDIOGRAM (EKG)

Conducted on-site, elucidates any abnormal electrical activity in cardiac tissue which could be specific to heart disease:

CARDIOMETABOLIC TEST

Includes report, follow-up clinician consult, and dietary companion:

COMPREHENSIVE PHYSICIAN CONSULT

20min final consult that ties together 12-Lead EKG, optional cardiac calcium score, and advanced lipid profile:

ADVANCED LIPID PROFILE

Comprehensive panel including immunology, complete blood count, cardio-inflammatory markers, and lipid NMR.



OUR SERVICE EXPERIENCE

PRE-SCREENING REQUIREMENTS

To be completed in the weeks prior to Sigma arrival

STEP 01

On-site phlebotomy

Our team of professional phlebotomists will conduct all blood draws in a safe, comfortable, and professional environment to ensure the highest in quality and patient confidentiality.

STEP 02

Cardiac Calcium Score (CCS)

The CCS is a low-dose, non-invasive image designed to identify areas of calcium in and around coronary vessels. This information is crucial in adequately determining a patient's CVD risk

ON-SITE SCREENING (EACH STEP IS 20MIN)

Each step will require 20 minutes to complete.

STEP 01

Intake

Includes review of patient vitals and preparation for electrocardiogram (EKG)

STEP 02

Cardio-Metabolic Stress Test

This will be a sub-max exercise test and will be conducted on a stationary bicycle.

STEP 03

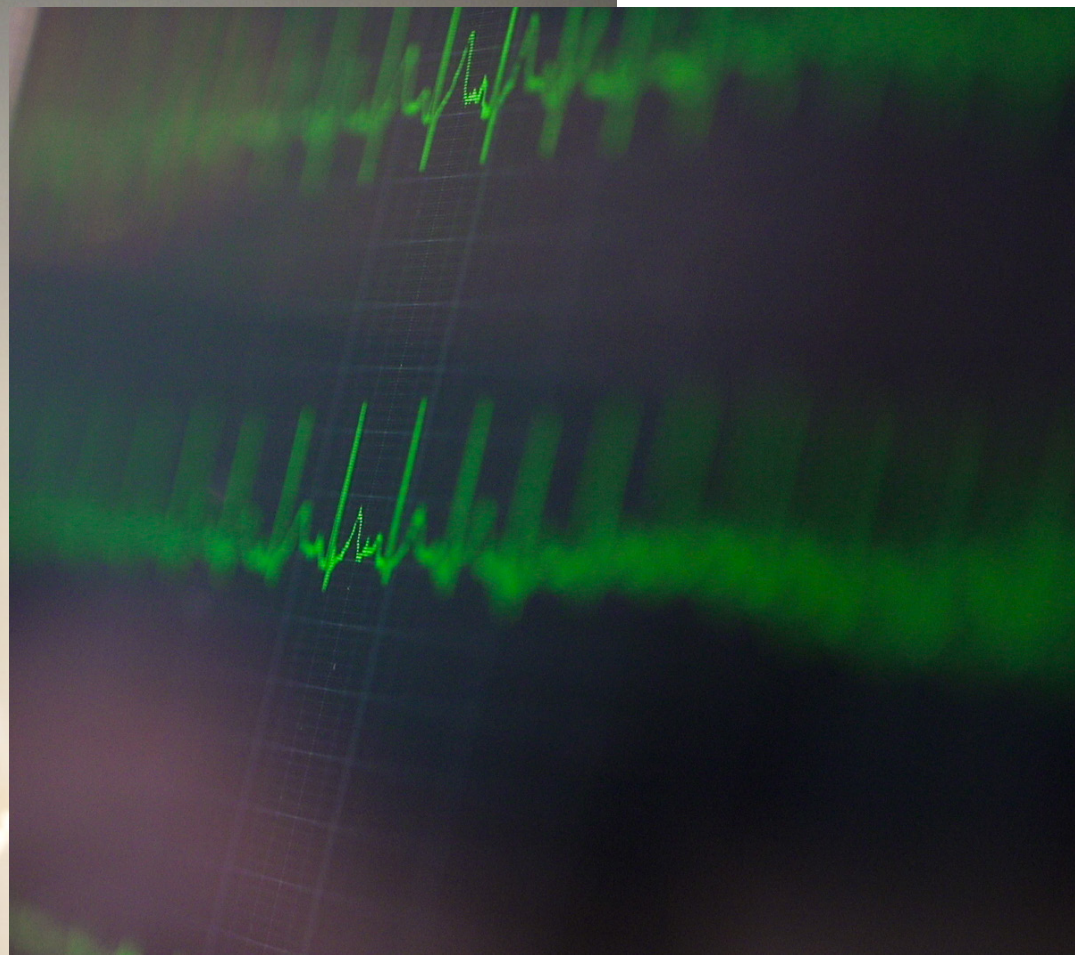
Exercise/Dietary Consultation

Includes a discussion of exercise zones and nutritional strategies required to achieve patient goals.

STEP 04

Medical Consultation

This consult will tie together all the lab data, EKG interpretation, and evaluation of CCS.



THE SCIENCE BEHIND WHAT WE DO

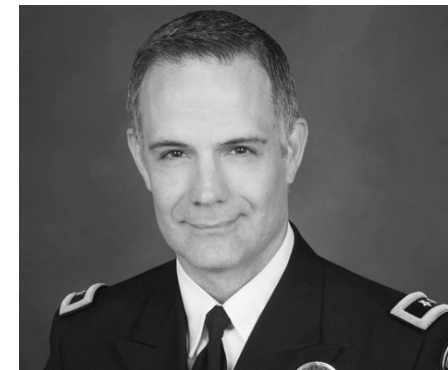
Sigma has developed a comprehensive cardiac laboratory screening evaluation along with an individualized nutritional and exercise prescription. The screening consists of non-invasive imaging (available to the patient via partnership with local imaging facility) as well as advanced lipid panel testing to evaluate the early stages of the development of coronary disease and the inflammatory markers (PLA2) that can be used to predict the development of a heart attack. We then perform a cardiopulmonary/EKG exercise stress test on a stationary bicycle. This test measures functional capacity, the presence of any ischemia (lack of blood flow to the heart muscle) and allows us to use indirect calorimetry to develop a personalized diet and exercise component given to the individual at the time of physician consultation.

Over the last 3 years, we have evaluated more than 4500 asymptomatic police officers and found the prevalence of pre-clinical coronary artery disease approached 60% of the tested population. However, when coronary inflammatory marker lipoprotein phospholipase A2 (Lp-PLA2) is added to the screening, an entire additional group of at-risk individuals are identified. The disparity in PLA2 concentrations between

the law enforcement cohort and the civilian cohort is statistically significant and seen in police officers as young as 26 years of age (Violanti et al, 2013). Interestingly, there are very little concomitant abnormal findings in both PLA2 and coronary calcification with an overlap percentage that is below 8%. Therefore, in order to detect the development of coronary plaque in this group of high-risk individuals, both Lp-PLA2 as well as coronary calcification needs to be evaluated.

It is extremely important to note that standard risk analysis (most commonly found in current Insurance-based wellness programs) *does not* identify those at increased risk as it only identifies those with high cholesterol, not those who have already begun to develop plaque. Oftentimes this can result in catastrophic misdiagnosis of patients at elevated levels of risk.

TESTIMONIAL



In 2014, I met Dr. Sheinberg's team and expected the usual clean bill of health I had become accustomed to receiving at my annual physicals with my primary care doctors. After 20 years in law enforcement, I considered myself an exception to the rule - I exercised regularly, maintained a healthy weight, and managed my stress.

Instead, I was diagnosed with a rare genetic cardiac condition linked to high incidences of sudden cardiac death in otherwise healthy people, usually after the age of 40 (I was 44 at the time). The abnormal EKG pattern had been with me my whole life but dismissed as a benign anomaly. After a confirmation via genetic testing, I had an ICD implanted - the only therapy for this condition. This diagnosis brought insight to the sudden deaths of several family members dating back years. More importantly, this diagnosis saved my life, the lives of extended family members who would find they also had the condition, as well as my own children.

CHRIS MCILVAIN
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