

## How is Hormone Imbalance associated with Heart Disease?

Hormones are powerful chemical messengers that play a role in virtually all major bodily systems and functions including your cardiovascular system



## Hormone Imbalance and Cardiovascular Risk

**Insulin Resistance** - cells don't "open" normally and, in response, the pancreas creates too much insulin.

When too much glucose remains in the bloodstream, you can develop **type 2 diabetes** and **cardiovascular problems**, including **unhealthy cholesterol levels, high blood pressure and heart disease.**

### Sex Hormones

In women the connections between these hormones and heart health is the protective role that estrogen plays within the cardiovascular system, working to keep blood vessels flexible to support efficient blood circulation.

In men low testosterone levels have been shown to increase risk of coronary artery disease and have been associated with increased risk of developing other major cardiovascular risk factors including diabetes, metabolic syndrome, obesity and hypertension.

### Stress Hormones

Chronic stress can lead to chronically high levels of stress hormones including cortisol and adrenalin within the body. If you have elevated levels of these hormones over a prolonged period of time it can disrupt the function of vital organs and processes. This has been linked to an increased risk of cardiovascular disease.



### Cardiometabolic Risk Factors

**High Blood Pressure (Hypertension)** is a main cause of heart and blood vessel (cardiovascular) disease.

**Unhealthy Cholesterol (Hyperlipidemia)** occurs when low density lipoprotein (LDL) or bad cholesterol is too high and/or high density lipoprotein (HDL) or good cholesterol is too low. Either or both of these changes may lead to plaque accumulation on the inner walls of the arteries.

**High Triglycerides (Hypertriglyceridemia)** in combination with unhealthy cholesterol may add to plaque formation on the walls of arteries.

**Metabolic Syndrome** is a cluster of risk factors (high blood pressure, high blood triglycerides, low HDL, increased abdominal fat) that increase the chances of developing heart disease, stroke and diabetes.

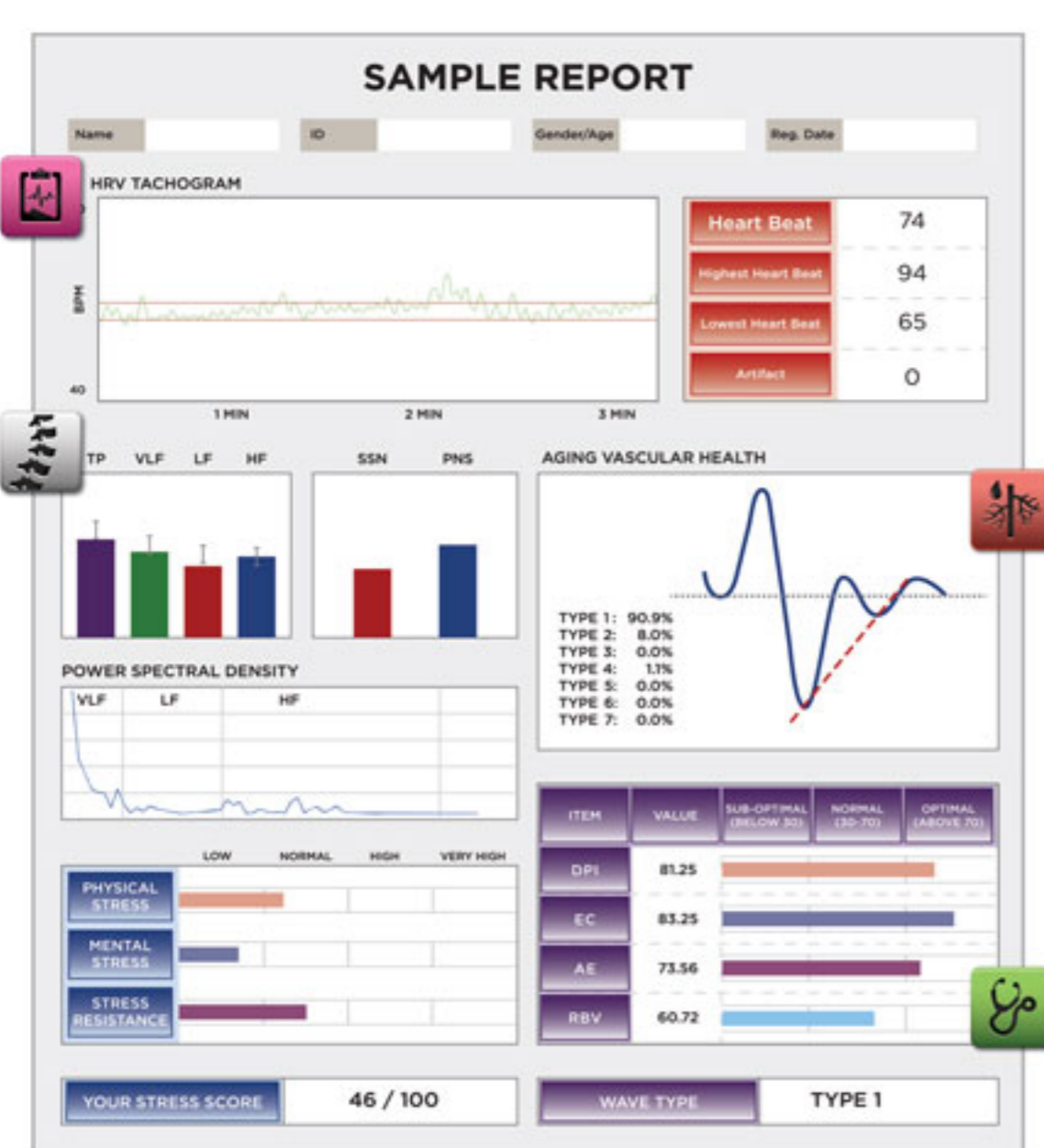
### Thyroid Hormones

Imbalances in thyroid hormones T3 and T4 can increase your risk of heart disease. Your thyroid gland makes and releases these hormones into the bloodstream to aid in regulating your metabolism.

A condition called hypothyroidism can occur when you have low levels of these hormones within the bloodstream. This can lead to elevated cholesterol levels with an increased risk of arteriosclerosis and hypertension.

A three minute cardiovascular assessment will provide valuable information to determine your risk for cardiovascular related disease. Make an appointment with your doctor today.

## CARDIOVASCULAR ASSESSMENT



### HEART RATE VARIABILITY (HRV)

Measures the degree of fluctuation in the length of intervals between heart beats. For healthy people, HRV shows a fluctuation in heart rate while unhealthy people have a simple and consistent heart rate.

HRV measures the adaptability of the cardiovascular system and autonomic nervous system, which is composed of the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS). Your SNS plays the role of the accelerator, also known as flight or fight. Your PNS functions as the brake, also known as rest and repair. A healthy person has a balanced autonomic nervous system.

### DEFINITIONS

**DPI - Differential Pulse Wave Index:** Represents the overall health of the cardiovascular system. DPI is the main indicator that represents the aging of arteries.

**EC - Eccentric Constriction:** Represents the contraction power of vessels from the left ventricle.

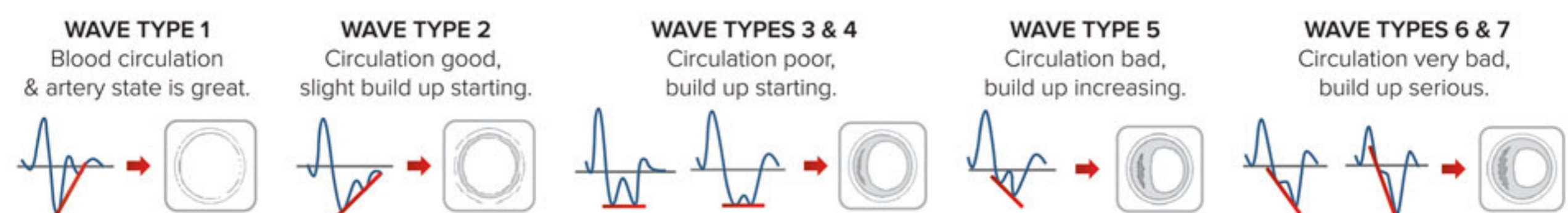
**AE - Arterial Elasticity:** Analyzes the blood circulation, the vascular elasticity and resistance of the vessels. It detects early cardiovascular disease like atherosclerosis and peripheral circulation dysfunction.

**RBV - Remaining Blood Volume:** The remaining blood volume in the vessels after systolic contraction on the heart. If the blood vessels are healthy, there is little remaining blood volume.

### ARTERIOSCLEROSIS

Arteriosclerosis occurs when the blood vessels that carry oxygen and nutrients from your heart to the rest of your body (arteries) become thick and stiff — sometimes restricting blood flow to your organs and tissues. Healthy arteries are flexible and elastic, but over time, the walls of your arteries can harden.

### WAVEFORM PATTERNS & WHAT THEY MEAN FOR YOU



### AUTONOMIC NERVOUS SYSTEM:

- Involuntary responses
- Pathways go to the endocrine glands, blood vessels and organs

### THE MAJOR ENDOCRINE GLANDS ARE:

- Adrenal Glands:** produce androgens and cortisol; gives your body odor and pubic hair, helps in how we respond to stress; regulates blood pressure and more.
- Hypothalamus:** produces hormones that regulate body temperature, appetite and weight, mood, sex drive, sleep, and thirst.
- Ovaries:** female reproductive glands that produce eggs and sex hormones – including estrogen, testosterone and progesterone – which are vital to reproductive organ development, breast development, bone health, pregnancy and fertility.
- Pancreas:** produces insulin, glucagon and other hormones but primarily responsible for controlling blood sugar levels.
- Parathyroid:** controls the amount of calcium in our bones and blood.
- Pineal Gland:** produces melatonin, which is important for sleep cycles.
- Pituitary Gland:** the "master control gland" makes hormones that control growth, reproduction, lactation, and the activity of other glands.
- Testes:** male reproductive glands produce sperm and secrete testosterone.
- Thymus:** active until puberty, produces cells crucial to the immune system that protect the body from threats such as viruses and infections.
- Thyroid:** produces hormones that control the rate at which the body burns calories and how fast the heart beats.

## Pellet Therapy Hormone Optimization

Pellet therapy contains a natural plant source of estrogen and testosterone that have the same chemical structure as the hormones created naturally in the body. Unlike typical oral and transdermal forms of therapy – which produce "roller coaster" hormone levels, resulting in mood and energy fluctuations for the patient – BioTE® Medical Hormone Pellet Therapy is the only method of hormone therapy that provides sustained hormone levels throughout the day for up to three to five months without the "roller coaster" effect.

### Precision is Key

Proper hormone levels are determined by the BioTE® comprehensive bloodwork analysis. Unique dosing is generated for each individual patient, so dosing is customized for what your body needs. Pellets deliver pure, bio-identical hormones directly into the bloodstream 24 hours a day, 7 days a week for up to 5 months. Pills, patches, creams and shots cannot provide a steady delivery of hormones 24/7. Pellets provide a constant supply of hormones that your body recognizes as its own, which will significantly reduce the chance of adverse side effects.