Interpretation of Blood Tests and Other Medical Investigations

This reference table explains the significance of each blood test on your health status, provides the ideal range for longevity and optimal health, and includes other key medical evaluations such as blood pressure and early detection tests.
Note that all blood tests should be performed after a 12-14 hour fast (water only).

Lipid Screening	Optimal Range	Significance
Total Cholesterol	Below 3.9 mmol/L (150 mg/dL)	High total cholesterol increases risk of heart attack stroke, and other vascular problems. Excess cholesterol narrows arteries, which reduces blood flow to vital tissues (heart muscle, brain cells), promoting atherosclerosis (hardening of the arteries). The Framingham Heart Study (the most notable study of its kind) demonstrates that otherwise healthy people do not suffer heart attacks when blood cholesterol levels are maintained below 150 mg/dL.
HDL-Cholesterol	Men: above 1.17 mmol/L (45 mg/dL) Women: above 1.42 mmol/L (55 mg/dL)	HDL is the good cholesterol that helps remove excess cholesterol from the walls of arteries, reversing narrowed arteries (atherosclerosis). High levels of HDL are associated with reduced risk of heart attack and vascular diseases in general.
LDL-Cholesterol	Less than 2.5 mmol/L (100 mg/dL)	LDL tends to speed up the narrowing of arteries by depositing excess cholesterol in the walls of the arteries. As such, high LDL levels are associated with increased risk of heart attack, stroke and other vascular diseases
Total Cholesterol:HDL Ratio	3:1 or lower	A ratio higher than 3:1 is associated with an increased risk of heart disease, stroke and other vascular diseases
Triglycerides	Less than 1.13 mmol/L (100 mg/dL)	Elevated triglyceride levels increases risk of heart disease, stroke and other vascular diseases, especially in prediabetic and diabetic individuals

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Blood Sugar and Related Tests	Optimal Range	Significance
Glucose (blood sugar)	Less than 5.0 mmol/L (90 mg/dL)	(90 mg/dL) High blood sugar (glucose) promotes the development of diabetes, and by encouraging the sugar coating of body proteins such as fructosamine and glycosylated hemoglobin, elevated blood sugar is also associated with risk of blindness, vascular disease and kidney disease. (see fructosamine and glycosylated hemoglobin)
Fructosamine	205-285 umol/L	Fructosamine is formed when blood sugar levels are too high, in which case glucose begins to sugar coat a number of proteins in the blood. These sugar-coated proteins lodge in blood vessels and internal organs, which is highly correlated with heart disease, stroke and other vascular diseases (atherosclerosis), damage to internal organs, including kidneys, pancreas, intestinal tract and blindness. Fructosamine is considered to be the most sensitive indicator of sugar-coated proteins. Elevated fructosamine levels have been shown to decline within a matter of two to three weeks when appropriate dietary and lifestyle practices are implemented
Hemoglobin AIC	0.040 - 0.060 or 3.9-6.9%	As with fructosamine (above), hemoglobin AIC is a sugar coated protein (often called glycosylated hemoglobin) that occurs when blood glucose (sugar) levels are too high, increasing the propensity for uncontrolled diabetes, vascular disease, damage to internal organs and blindness
Homocysteine	6.3 umol/L or lower (0.85 mg/L)	Elevated homocysteine damages and narrows blood vessels increasing the risk of heart disease, stroke and other vascular diseases. Adequate intake of the B-vitamin folic acid, as well as vitamin B12 and vitamin B6 are the key nutrients that keep homocysteine within the optimal range

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General Health Indicators	Optimal Range		Significance
Hemoglobin	Men:	136-175 g/L (13.6-17.5 g/dL)	Hemoglobin is the protein within red blood cells that binds to and carries oxygen from the lungs to the tissues of the body. A low hemoglobin level occurs in anemia and hemorrhage
	Women:	120-155 g/L (12.0-15.5 g/dL)	
Hematocrit	Men:	0.39 - 0.49 (39 - 49%)	Hematocrit refers to the percentage of blood comprised of red blood cells. A low hematocrit occurs in anemia and hemorrhage. An abnormally high RBC count suggests an underlying genetic disorder or blood cell disorder problem.
	Women:	0.35 - 0.49 (35 -45%)	
Red Blood Cell Count (RBC)	4.2 - 5.6 X 10 to the power of 12 /L		Red blood cells carry oxygen from the lungs to the tissues of the body. Low red blood cell counts occur in anemia, hemorrhage and various blood cell disorders
Platelet Count (thrombocytes)	150-450 X 10 to the power of 9 (150 -450 X 10 to the power of 3 u/L		Platelet cells play a crucial role in the blood's clotting capacity. Platelet count is increased in leukemia and certain other blood disorders, and is decreased in certain anemias, acute leukemias, some chronic leukemias and some other conditions
ESR (erythrocyte sedimentation rate)	Men:	< 10 mm/h	The ESR refers to the rate at which red blood cells settle in non-coagulated blood. The ESR is increased in rheumatoid inflammatory conditions, other inflammatory and infectious conditions, some cancers and several other conditions.
	Women:	< 15 mm/hr	
White Blood Cell Count (WBC) with differential	3.4 - 10 X 10 to the power of 9/L (3,400 - 10,000 per Cu. mm.)		WBC levels usually rise with infection, as they comprise a significant part of the body's immune system. WBC levels also increase in leukemia and certain other blood disorders
Creatinine	50 -100 umol/L (0.6 - 1.2 mg/dL)		Creatinine is formed daily when old proteins are broken down by the liver. Blood creatinine levels are elevated in kidney disease.
Uric Acid	Men:	140 - 440 umol/L (2.4-7.4 mg/dL)	Uric acid is an end product of the breakdown of purines (found in DNA and in certain foods). High levels of uric acid in occur in gout, but not all individuals with high uric acid have gout
	Women:	80 - 350 umol/L (1.4-5.8 mg/dL)	
BUN (blood urea nitrogen)	2.9-7.1 mmol/L (8 - 20 mg/dL)		Urea is produced exclusively in the liver as an end product of protein metabolism. The most common cause of elevated BUN is kidney disease, however, it is also elevated in uncontrolled diabetes, starvation, intestinal bleeding, congestive heart failure and in febrile states. A decrease in BUN occurs in advanced liver disease

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General Health Indicators	Optimal Range	Significance
Total Protein	60.0-82.0 g/L (6.0 -8.0 g/dL)	Like albumin, a reduction in total blood protein usually reflects chronic liver disease. Other causes include advanced malignancy, protein malabsorption, starvation, advanced kidney disease, congestive heart failure, eclampsia of pregnancy. An increase in total protein occurs in dehydration (a relative increase due reduced blood volume)
Albumin	34 - 47 g/L (3.4 - 4.7 g/dL)	Albumin makes up the largest percentage of total blood proteins. A reduction in blood albumin usually reflects chronic liver disease. Other causes include advanced malignancy, protein mal-absorption, starvation, advanced kidney disease, congestive heart failure, eclampsia of pregnancy. An increase in albumin occurs in dehydration (a relative increase due reduced blood volume)
Globulin	14 - 45 g/L (1.4 - 4.5 g/dL)	Globulin proteins are another type of protein found in the blood. A globulin proteins are often elevated in liver disease whereas a decrease signifies serious depletion of the body's immune defence mechanisms. Alpha globulins are often elevated in hepatitis, collagen diseases, advanced malignancies, chronic leukemia and lymphomas. The Bence-Jones globulin protein (an abnormal one) is frequently elevated in multiple myeloma (a type of bone cancer). It also spills into the urine and as is found there in high levels in approximately 50% of multiple myeloma cases.
A:G Ratio (albumin to globulin ratio)	1.30 - 2.60	The A:G ratio is a useful evaluation to ensure that there is a healthy balance between albumin and globulin proteins in the blood
Bilirubin (total)	2 - 21 umol/L (0.1 - 1.2 mg/dL	Bilirubin is the predominant pigment of human bile (yellow in color) and is formed from the breakdown of hemoglobin when worn out red blood cells are destroyed by the liver, spleen, bone marrow and other tissues. Bilirubin is often increased in liver cirrhosis, acute viral hepatitis, conditions that obstruct bile flow (liver tumors, obstructed bile duct from stones etc.), congestive heart failure, hemolytic diseases (red blood cells broken down at an unusually fast pace) and internal hemorrhage.

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General Health Indicators	Optimal Range	Significance
Alkaline Phosphatase	41-133 IU/L or 0.7-2.2 ukat/L	Alkaline Phosphatase is an enzyme associated with bone metabolism and liver function. An increase in alkaline phosphatase often indicates bone cancer or metastasis of cancer to bone. It can also indicate liver disease, hyperparathyroidism or pulmonary infarct. It may also be elevated during healing of a broken bone.
HIV 1 and 2	No antibodies detected	This test is used to assess the presence of HIV infection
Serum Ferritin	Men: 20 - 300 ng/mL (44.94 - 674 pmol/L) Women: 20 - 150 ng/mL (44.94 - 337 pmol/L)	Blood levels of ferritin reflect the body's stores of iron. A low reading is associated with weakness, fatigue, lowered immune function and eventually anemia, if it levels fall excessively low. This can occur from inadequate intake, the presence of chronic infection, cirrhosis, autoimmune diseases, and cancer. High levels of iron occur in iron storage diseases (hemochromatosis), from iron overload (requiring more than 35-40 mg of iron per day from a supplement), in hemolytic anemias liver disease, and sometimes in response to the use of oral contraceptives

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Other Inflammatory Markers Associated with Heart Disease	Optimal Range	Significance
C-Reactive Protein	Less than 5 g/L (0.5 mg/L)	Elevated levels of C-Reactive Protein indicate that inflammation is present somewhere in the body. This can be related to arthritis, inflammation of the blood vessel wall, which increases risk of heart disease and stroke, widespread cancer or lupus. Elevated C-Reactive Protein is now considered a risk factor for heart attack and related vascular diseases. Levels above 3 mg/L are associated with an increased risk of stroke and cardiovascular disease (approximately a 300% increase in risk of cardiovascular disease). Some natural anti-inflammatory agents such as curcumin, boswellia, white willow extract and ginger can help lower C-Reactive Protein in many cases. Reducing excess body fat, smoking cessation, endurance exercise and omega-3 fats (minimum of 1 gram per day), can also help to reduce C-Reactive Protein blood levels.
Fibrinogen	Less than 30 g/L (300 mg/dL)	Fibrinogen is a protein produced in the liver that is used in blood clotting. High levels of fibrinogen are associated with inflammation of blood vessel walls and, like C-Reactive Protein, is associated with increased risk of heart attack and related vascular diseases
The INR (International Normalized Ratio)	0.8–1.2	The INR is a measure of the clotting behaviour of the blood. If you cut yourself it is important that your blood clots in time to prevent excessive blood loss. At the same time if your blood is too sticky (it clots excessively) it puts you at risk for blood clots within the body that can lead to deep vein thromobosis (phlebitis) or a life-threatening embolism (a clot that breaks loose and travels to the lungs or brain where it lodges and suddenly blocks blood flow). The normal INR range for a healthy person is between 0.8 –1.2. In patients who are prescribed anti-coagulant drugs (e.g. warfarin) doctors often target an INR of 2.0–3.0, although the target INR may be higher in particular situations, such as for those with a mechanical heart valve. In these cases doctors are trying to prevent blood clots from forming in high risk patients. The higher the INR, the greater the risk of internal bleeding or hemorrhage, while a low INR suggests a higher risk of developing a blood clot.

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Antioxidants and Key Vitamins	Optimal Range	Significance
Vitamin E	Above 27.5 umol/L (above 1.18 mg/dL)	Observational studies suggest that blood levels in the optimal range are associated with decreased risk of heart attack and other vascular diseases
Vitamin C	Above 50 umol/L (above 0.88 mg/dL)	Observational studies suggest that blood levels in the optimal range are associated with decreased risk of heart attack and other vascular diseases
Selenium	Above 120 ug/L	Blood levels in the optimal range are associated with a significant decreased risk of colon cancer.
Vitamin D (25-hydroxy cholecalciferol)	85 - 120 nmol/L (0.68 - 1.43 mg/dL)	Vitamin D levels in the optimal range are associated with a decreased risk of osteoporosis, colon, breast and prostate cancers, and multiple sclerosis.
Vitamin B12	Above 300 pg/mL	Low levels of vitamin B12 are associated with an increase risk of cancer. This may be especially true for breast cancer where a low level of vitamin B12 has been linked to a 2.5-4.0 times greater risk for breast cancer. (Plant AS, Tisman G - Nutr and Cancer; 56,2:143-8)
Holotranscobalamin II	Range: 70-130 pg/mL	This is the most active form of vitamin B12 in the human body. Low levels are associated with an increase risk of cancer. (Plant AS, Tisman G - Nutr and Cancer; 56,2:143-8)
Folic Acid	Above 4 ng/mL (10 nmol/L)	In conjunction with vitamin B12, folic acid, a B-vitamin, is required to make the DNA in our cells as our cells replace themselves from one generation to the next. A folic acid level below 4 ng/mL (10 nmol/L) is the level at which chromosomes break within our DNA allowing cancerous mutations to occur more easily. Low levels of folic acid are strongly associated with colon and cervical cancers, and likely other cancers as well (Ames B. 1995, JAMA, 273, 14: 1077-8)
Coenzyme Q10	At or above 2.0 mcg/ml	Low blood levels of coenzyme Q10 are associated with an increased risk of congestive heart failure and a decline in immune function. Maintaining a minimum blood level of 2.0 mcg/ml is associated with reducing mild to moderate high blood pressure, and improving early stage congestive heart failure in studies when coenzyme Q10 has been administered via supplementation (120-350 mg per day). A coenzyme Q10 deficiency is also a primary underlying cause of Parkinson's disease and supplementation with 300-1200 mg per day has been shown to slow the progression of Parkinson's disease. The body makes coenzyme Q10, which is required for energy production within our cells. By age 40-45 there is a significant decline in coenzyme Q10 synthesis, which creates a need for coenzyme Q10 supplementation to compensate for what the body no longer produces for itself. The combination of coenzyme Q10 in conjunction hawthorn (an herb) supplementation is an important means to optimize cellular energy production after age 40-45.

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Hormone Profile	Optimal Range	Significance
DHEA	Men: 250-450 mcg/dL Women: 150-350 mcg/dL	DHEA is a hormone made in the adrenal glands. It is the raw material from which the body makes many other steroid hormones (e.g. estrogen, testosterone, progesterone, cortisol). However, DHEA on its own helps maintain bone density, slows skin aging by maintaining collagen levels, improves fat burning, enhances mood, sexual virility and responsiveness, boosts immune function, and helps to combat the undesirable effects of high cortisone levels (which accompany chronic or acute stress). Chronic stress tends to depress DHEA levels. Some experts suggest taking DHEA supplements if your DHEA blood levels are low or the DHEA/Cortisol ratio is not within the optimal range. For men 25-50 mg per day is the typical dosage, and for women, they should start with 5-10 mg per day and slowly increase the dosage (up to maximum of 50 mg/day) if necessary until reaching optimal blood levels. Men with a history of prostate cancer and women with any previous reproductive cancer should not take DHEA supplements. DHEA supplementation requires semi-annual PSA blood testing in men.
Cortisol	9 - 14 mcg/dL	Cortisol is a hormone made in the adrenal glands from DHEA. Stress and aging increase the synthesis and secretion of cortisol into the blood stream. High levels of cortisol promote heart disease, diabetes and obesity by raising blood sugar and insulin, which increases and aggravates diabetic tendencies. This also leads to increased blood triglycerides, fat storage and weight gain - all of which increase heart disease risk. Chronic high cortisol levels weaken the immune system and decreases cognitive performance by the brain, adversely affecting memory, reaction time, problem solving etc.). If your cortisol levels are higher than the optimal range you should consider learning meditation and performing regular aerobic exercise, which can help to decrease your body's stress response; including reduced cortisol secretion. As well, supplementation with DHEA has been shown to combat many of the adverse affects of high cortisol levels (see DHEA/Cortisol ratio below)
DHEA:Cortisol Ratio	15 - 25	As we age the body makes more cortisol and less DHEA. The same is true in regards to chronic stress. As such, stress can speed up aging by creating an imbalance in the DHEA/Cortisol ratio. Some experts suggest taking DHEA supplements when the DHEA/Cortisol ratio is not within the optimal range, as a means to slow and/or reverse aging and reduce risk of certain chronic degenerative diseases. DHEA supplements should not be taken by men with a history of prostate cancer, or by women with a history of any reproductive cancer. In men, semi-annual testing of PSA should accompany the use of DHEA supplementation

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Hormone Profile	Optimal Range	Significance
Thyroid Stimulating Hormone (TSH)	1.0 - 2.0 mU/L (1-2 uU/mL)	TSH is a hormone released from the pituitary gland that instructs the thyroid gland to secrete more thyroid hormone into the blood stream. Thyroid hormone (T3 and T4) sets the metabolic rate for virtually all tissues of the body. High TSH levels indicate low thyroid function, whereas low TSH levels indicate an overactive thyroid. A TSH level between 0.2 mU/L and 1.0 mU/L indicates thyroid dysfunction, which often occurs as an aspect of the aging process (between age 40-50), usually responds to supplementation with thyroid support nutrients, whereas levels below 0.2 uM/L require a prescription of thyroid hormone. Low thyroid function slows metabolism and results in weight gain, cold hands and feet, physical and mental lethargy and weakened immune function.
Free T4 (Thyroid hormone - Thyroxine)	1.2 - 1.4 ng/dL (15.4-18.0 pmol/L)	Most of the thyroid hormone (thyroxine) made in the thyroid gland is in the form of T4 (4 atoms of iodine attached to each molecule of thyroxine. However, before thyroxine can be used by the tissues of the body it has to be converted to T3. If Free T3 levels are below 2.6 pg/mL or the T4 level is below 0.70ng/dL, then thyroid hormone replacement therapy may be required.
Free T3 (Thyroid hormone - Thyroxine)	Men: 2.90 - 3.20 Women: 2.80 -3.20 pg/mL	T3 is the most active form of thyroxine hormone. Some individuals have a difficult time converting T4 into T3. In these cases supplementation with thyroid support nutrients can be beneficial. If Free T3 levels are below 2.6 pg/mL or the T4 level is below 0.70ng/dL, then thyroid hormone replacement therapy may be required.
Total Estrogens	Men: Less than 100 pg/ mL Women: <u>Under 50 yrs old</u> 180 - 200 pg/mL <u>50 yrs and older</u> 60 - 120 pg/mL	Estrogen is a dominant female hormone that contributes to many physical female characteristics. It also affects mood, brain function, bone density, skin, cholesterol levels and other functions. High levels of estrogen contribute to increased risk of breast cancer, and possibly prostate cancer in men. To lower estrogen levels it is advisable to eat a low fat animal diet, increase fiber intake, cruciferous vegetables (e.g. broccoli, cauliflower), perform aerobic exercise and have two tablespoons of ground flaxseed per day. If estrogen levels are due to menopause then supplementation with a combination of black cohosh, soy extract and gamma-oryzanol can be very useful in reversing hot flashes, slowing aging and maintaining normal secretions of the vaginal tract. The addition of natural progesterone cream of tablets may also be beneficial to supporting female well being during and after menopause.

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Hormone Profile	Optimal Range	Significance
Total Progesterone	Men: 1500 - 2500 pg/mL	Progesterone is a dominant female hormone, which supports brain function, bone density, skin and female reproductive tissues. In premenopausal women with low progesterone levels supplementation with black cohosh can raise progesterone levels, helping to balance the estrogen/progesterone ratio. In menopausal women, ingestion of natural micronized progesterone or the use of natural progesterone cream can help support bone density, improve mood, libido and overall well being. In menopausal women it often works with best with a combination of black cohosh, soy isoflavones and gamma-oryzanol supplementation
	Women: <u>Under 50 yrs old</u> 2000 - 14,000 pg/mL <u>50 yrs and older</u> 2000 - 8000 pg/mL	
Total Testosterone	Men: 6000 - 9000 pg/mL	Testosterone is a dominant male hormone. It helps to maintain lean mass, metabolic rate, strength, sexual virility, bone density and other functions. Men and women with low levels may benefit from testosterone replacement therapy or DHEA supplementation. However, testosterone replacement therapy may increase risk of prostate cancer in men. Men with a history of prostate cancer and women with a history of any reproductive cancer should not supplement with DHEA. In men, DHEA supplementation requires semi-annual testing of PSA.
	Women: 120 - 900 pg/mL	
Progesterone: Estrogen Ratio	Men: 15 - 20:1	This ratio represents the optimal ratio for these two hormones with respect to longevity and total well being
	Women: 10 - 20:1	
Total Testosterone: Estrogen Ratio	Men: 80 - 120:1	This ratio represents the optimal ratio for these two hormones with respect to longevity and total well being
	Women: 2 - 5:1	
IGF-1 (after age 40)	Above 250 mcg/L (above 250 ng/mL)	IGF-1 provides an indicator for levels of growth hormone. As we age, growth hormone levels decline, which hasten many aspects of the aging process. The ingestion of natural growth hormone releasing agents can often increase IGF-1 to more youthful levels and provide significant anti-aging benefits if your IGF-1 levels have dropped below 250 g/L (250 ng/mL). Individuals with a history of cancer are not advised to supplement with growth hormone releasing agents.

As different labs provide information using different units, the chart on the following page will help you convert one unit to another. For additional help converting one unit to another go the website: http://www.globalrph.com/conv_si.htm

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Prefixes Denoting Decimal Factors		
Prefix	**Symbol**	**Factor**
mega	M	10^{6}
klo	k	10^{3}
hecto	h	10^{2}
deca	da	10^{1}
deci	d	10^{-1}
cent	c	10^{-2}
milli	m	10^{-3}
micro	mu	10^{-6}
nano	n	10^{-9}
pico	P	10^{-12}
femto	f	10^{-15}

Other Tests of Importance	
Test	**Significance & Explanation**
Urinalysis	This is a standard assessment of urine to screen for a variety of health and disease indicators.
Blood Pressure	High blood pressure is a critical risk factor for heart disease and stroke (along with high cholesterol and smoking). Your blood pressure should remain below 140/90. The upper reading is a measure of the force of contraction of the heart muscle (measured in mm of mercury pressure), and the second reading indicates the pressure resistance to blood flow created by the muscle tension of the artery wall (arterioles).
ECG/EKG	The electrocardiogram provides details about the heart's performance. Abnormal electrocardiogram readings can indicate insufficient blood flow to the heart muscle, impaired conduction of nerve impulses throughout the heart, or asynchronous contraction patterns called fibrillations
PSA (Prostate Specific Antigen)	This is a blood test recommended for all men over 50 years of age, at regular intervals, to screen for the presence of prostate cancer. A reading higher than 0.4 ug/L (4 ng/mL) is cause for concern. It may also indicate prostate inflammation. Note that a rapid rise in PSA within the normal range also requires assessment for the presence of prostate cancer, according to some experts. Picking up prostate cancer in the early stages enables doctors to prevent it from spreading outside the prostate and becoming a lethal disease. Presently, one in eight men in most developed countries develop prostate cancer and it is the second leading cause of cancer death in men after lung cancer.
Pap Smear and Internal Exam	This is common testing used routinely to screen for cervical cancer and cervical dysplasia (precancerous condition) in women, as well as to screen for other uterine abnormalities.
Colonoscopy/ Sigmoidoscopy	These procedures are recommended for individuals over fifty years of age to screen for early detection of colon cancer. Colon cancer affects one in 16 adults over their lifetime in most developed countries. As such, these procedures can catch it early, before it spreads and becomes a lethal disease.

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Other Tests of Importance	
Test	**Significance & Explanation**
Urinalysis	This is a standard assessment of urine to screen for a variety of health and disease indicators.
Blood Pressure	High blood pressure is a critical risk factor for heart disease and stroke (along with high cholesterol and smoking). Your blood pressure should remain below 140/90. The upper reading is a measure of the force of contraction of the heart muscle (measured in mm of mercury pressure), and the second reading indicates the pressure resistance to blood flow created by the muscle tension of the artery wall (arterioles).
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Other Tests of Importance

Test	Significance & Explanation
Bone Mineral Density	This test is used to screen for osteoporosis, which is estimated to affect one in four women and one in eight men by age 50. The consequences of hip fractures from osteoporosis result in more deaths each year than the combined mortality rate for breast and ovarian cancer, in women. Osteoporosis problems are on the increase as society age, therefore, individuals answering yes to any of the following risk-related questions should be screened for osteoporosis by use of a bone mineral density test: • Are you a woman over the age of 50? • Are you a woman, who entered into early menopause (40-45), or premature menopause (before 40)? • Are you a woman who has had both ovaries surgically removed before normal menopause (45-55)? • Are you a woman under 45 years of age who routinely misses menstrual cycles or has greatly diminished menstrual flow due to estrogen and/or progesterone deficiency? • Have you ever suffered from anorexia nervosa or bulimia? • Are you a woman who at some time in your life exercised excessively or competitively to the point where your body fat was very low? • Have you undergone treatment with oral glucocorticosteroid (prednisone, cortisone etc.) drugs for more than 3 months at any time in your life? • Have you ever been diagnosed with hyperparathyroidism? • If you are a woman, did your mother or a sister develop osteoporosis? • Are you a man over 65 years of age? • Are you older than 45 and your doctor has told you that you are underweight? • In general, do you have poor muscular development and strength? • Have you ever taken anticonvulsant medication for more than 2 years?

Tests not Paid for by Insurance Plans

Note that certain tests mentioned above are not commonly covered by government or private health insurance plans. This is most often the case for homocysteine, vitamin E, vitamin C, selenium, vitamin D, PSA, fructosamine and IGF-1, vitamin B12, Folic Acid, Coenzyme Q10, Holotranscobalamin II..Nevertheless, it is worth the small investment in your health to know your blood levels of these important health indicators.

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