

Ca/Mg Blood Sugar/ Pancreas _____	Ratio > 13 = May be overeating carbs, emotional defensiveness/conflict, defending a lifestyle imbalance that is not in their best interest, cognitive dissonance 13 – 18 = Moderate > 18 = Extreme Ratio 10 – 13 = Overeating carbs, tendency towards Insulin Resistance High Ca = Protection, defended, defensive, lowered cell permeability, calcium shell Ca > 150 = Mild >200=Moderate >250 Extreme Ideal ratio = 6.67 Good range = 3.3 - 10 Ratio < 3.3 = Magnesium loss, may also have blood sugar issues, hidden Na/K inversion 2.5 – 3.3 = Moderate < 2.5 = Extreme	
Ca/K Thyroid (Defines Oxidation Rate) _____	High ratio = Decreased thyroid effect (at the cellular level) 8 - 50 = Moderate > 50 = Extreme High Ca = Protection, defended, defensive, lowered cell permeability, calcium shell Ca > 150 = Mild >200=Moderate >250 Extreme Low K (<4) = Body exhausted but mind keeps pushing, "running on fumes," and Cu toxicity regardless of Cu level if Ca is >50 Ideal ratio = 4 Good range = 3 - 8 Low ratio = Increased thyroid effect (at the cellular level) and/or toxicity 1 - 3 = Moderate <1 = Extreme Low Ca = hypersensitivity, hyperkinetic, anxiety, nervousness, muscle cramps, increased cell permeability, unprotected psychologically, tendency to Ca deficiency, lead toxicity (replaces Ca)	
Na/Mg Adrenal (Defines Oxidation Rate) _____	High ratio = excessive adrenal effect (at the cellular level), alarm reaction, acute stress, and/or toxins (which can push Na up), tendency for Mg deficiency 7 - 20 = Moderate > 20 = Extreme Ideal ratio = 4.17 Good range = 3 - 6 Low ratio = decreased adrenal effect (at the cellular level), chronic stress, exhaustion reaction 1- 2.5 = Moderate <1 = Extreme	
Na/K Adrenal, Vitality, Immunity, Overall energy, Anabolic/Catabolic _____	~ ~ ~ MOST IMPORTANT RATIO ~ ~ ~ <u>To correct this ratio often requires dealing with the underlying emotions.</u> High ratio = Alarm reaction, acute stress, inflammation, anger, (toxins can also elevate Na) 5 – 12 = Moderate > 12 = Extreme Ideal ratio = 2.5 Good range = 2.3 - 5 Low ratio (inversion) = decreased adrenal effect (exhaustion), chronic stress, lowered energy & energy reserves, decreased immunity, protein catabolism, poor digestion, allergic tendencies, carbohydrate intolerance, diabetic tendency, liver & kidney stress, cardiovascular stress, tendency toward degenerative disease, frustration, resentment, hostility 2 – 2.3 = Moderate 1 – 2 = Severe <1 = Extreme – (in addition to above possibilities) delusional, out of touch, decreased awareness of signs & symptoms, feels like you are "beating your head against the wall," possible serious illness Na is a rough indication of mineralocorticoid effect (aldosterone), pro-inflammatory K is a rough indication of glucocorticoid effect (cortisol), anti-inflammatory	
Zn/Cu Female / Male Hormones and Cardiovascular System _____	High ratio = CAUTION: the high ratio can be deceiving because of hidden Cu* (see below) 10 – 15 = Moderate > 15 = Extreme Female or male hormone imbalance, cardiovascular stress, tendency toward atherosclerosis, Zn loss, look for hidden Cu.* (See below) Ideal ratio = 8 Good range = 6.5 - 10 Low ratio = below 6.5 - Cu toxicity (*see below) Estrogen Dominance, female or male hormone imbalance, emotional problems, PMS, volatile, depressed, detached, cardiovascular stress, tendency to bruise, tendency for blood vessel weakening 3 – 6.5 = Moderate < 3 = Extreme Zn roughly correlates with progesterone effect in women, testosterone effect in men. Cu roughly correlates with estrogen effect in both sexes. *Hidden Cu Toxicity in slow oxidizers occurs when ANY of the following are present: Cu <1, Ca >50, Hg >.06, Na/K ratio < 2.5, K < 4 Fast oxidizers usually have a true low Cu & Zn. NOTE: With hidden Cu, the symptoms of a low Zn/Cu ratio will be present.	
Ca/P Sympathetic/Parasympathetic and Protein Usage _____	High ratio = > 2.7 - parasympathetic state 2.7 – 8 = Moderate > 8 = Extreme Ideal ratio = 2.5 Good range = 2.3 – 2.7 Low ratio = < 2.3 - sympathetic state 1.5 – 2.3 = Moderate < 1.5 = Extreme	<p style="text-align: center;"><u>PROTEIN USAGE</u></p> PHOSPHORUS (P) LEVELS INDICATE PROTEIN USAGE, PROTEIN RESERVES, & TISSUE BREAKDOWN. WHEN P IS HIGH OR LOW ASK THE FOLLOWING QUESTIONS: Eating enough protein? Good protein sources? Digesting protein (HCl)? Low P could be protein deficiency, excessive tissue breakdown, impaired digestion, poor source of protein, (low P is worse than high), impaired protein synthesis (tends to be worse with low Zn) High P could be a pubic hair sample or excessive tissue breakdown, impaired digestion

*See www.restorativeendocrinology.com for more on Copper Toxicity, Estrogen Dominance, and other Hormone Information. Also see www.drlwilson.com for more on Copper Toxicity and Hair Analysis.