



INE | INSTITUTE OF
NUTRITIONAL
ENDOCRINOLOGY

Blood Chemistry: Fluids and Electrolytes

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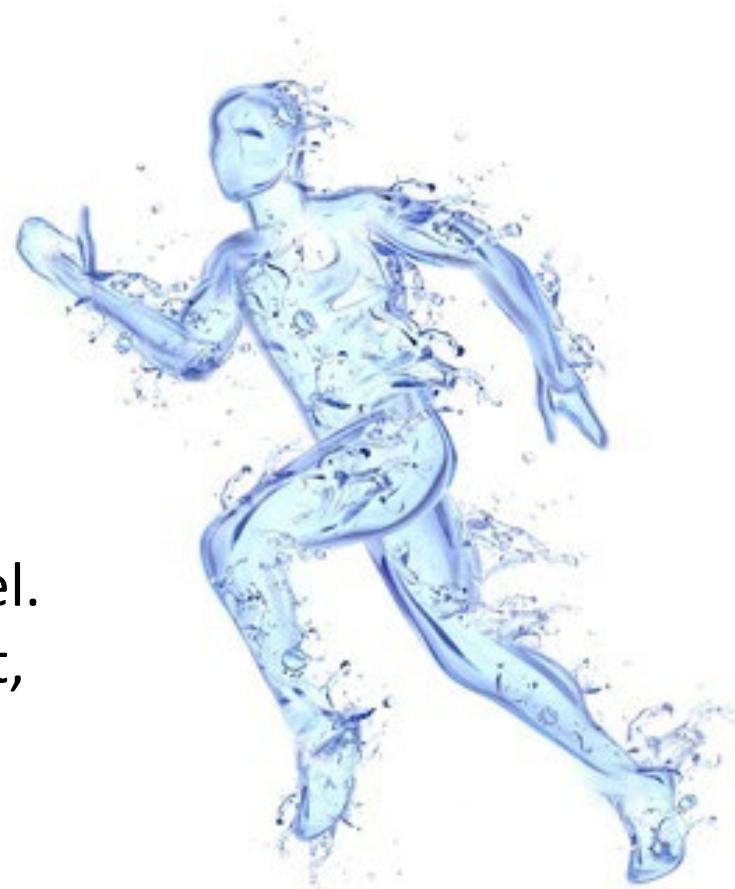


Medical Disclaimer: The information in this presentation is not intended to replace a one-on-one relationship with a qualified health care professional and is not intended as medical advice. It is intended as a sharing of knowledge and information from the research and experience of Dr. Ritamarie Loscalzo, drritamarie.com, and the experts who have contributed. We encourage you to make your own health care decisions based upon your research and in partnership with a qualified health care professional.



Fluids and Electrolytes

- **Sodium:** One of the major salts in the body fluid, sodium is important in the body's water balance and the electrical activity of nerves and muscles.
- **Chloride, Serum:** Similar to sodium, it helps to maintain the body's electrolyte balance.
- **Potassium:** Helps to control the nerves and muscles.
- **Carbon Dioxide (Bicarbonate):** Ordered as part of an electrolyte panel. The electrolyte panel is used to detect, evaluate, and monitor electrolyte imbalances.



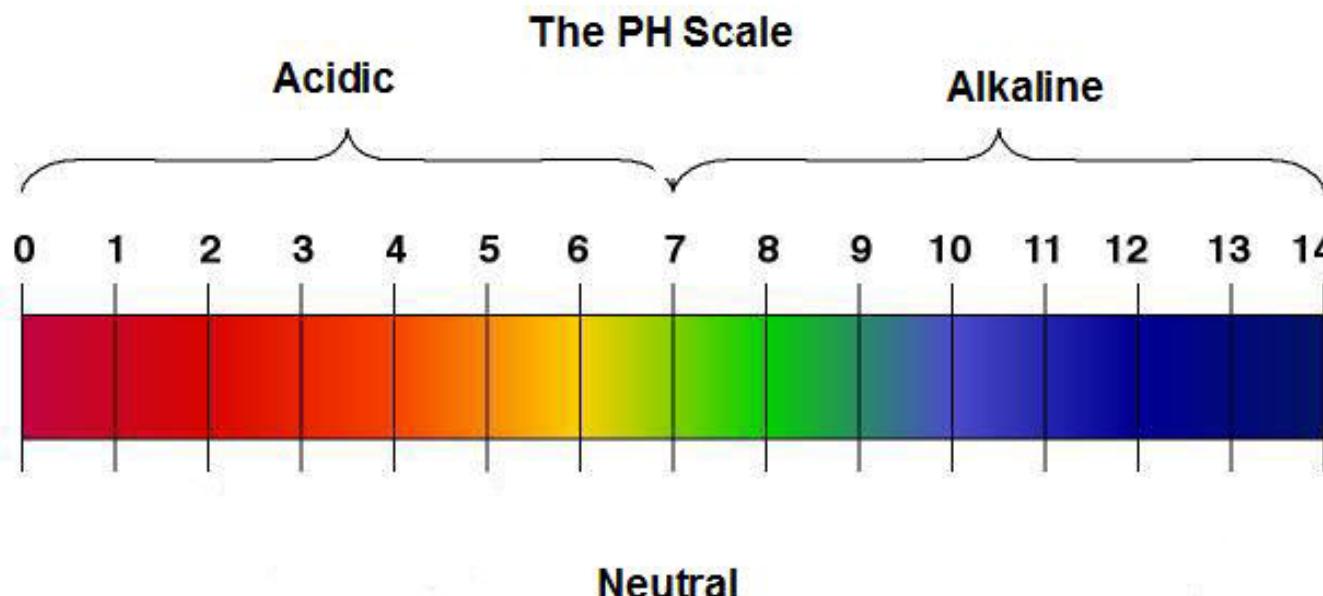
Acid Alkaline

Acidosis

- ✓ Chloride +
- ✓ Potassium +
- ✓ Carbon Dioxide -

Alkalosis

- ✓ Chloride -
- ✓ Potassium -
- ✓ Carbon Dioxide +



Electrolytes and Adrenals

Adrenal Fatigue

- ✓ Potassium +
- ✓ Sodium -
- ✓ Glucose -

Hyper Adrenal

- ✓ Potassium -
- ✓ Sodium +
- ✓ Glucose +
- ✓ Triglycerides +

3	4	CATEGORIES	Units	PATHOLOGICAL RANGE		FUNCTIONAL RANGE		CURRENT 01/24/10
				Min	Max	Min	Max	
14	Sodium, serum		mmol/L	135.0	148.0	135.0	140.0	133
15	Potassium, serum		mmol/L	3.5	5.5	4.0	4.5	4.7

Hypo
Adrenal

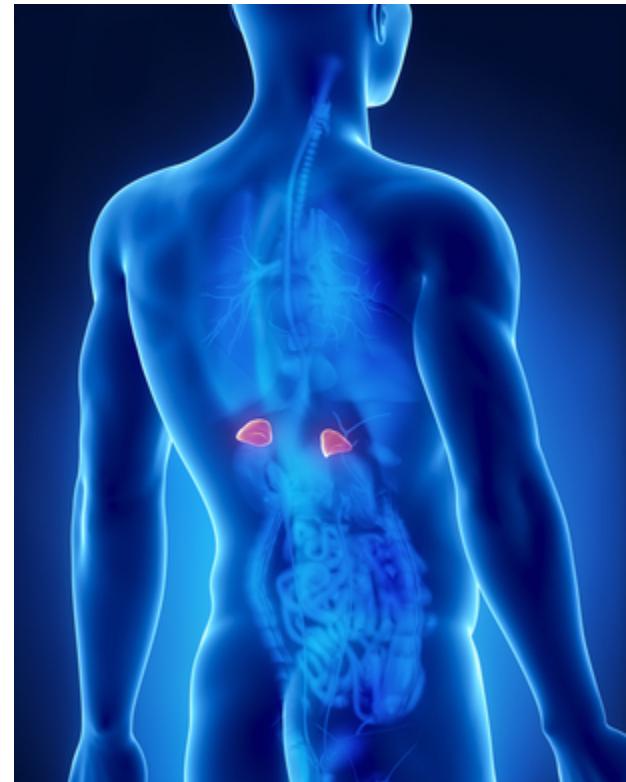
3	4	CATEGORIES	Units	PATHOLOGICAL RANGE		FUNCTIONAL RANGE		10/06/09	06/26/08	11/20/06
				Min	Max	Min	Max			
14	Sodium, serum		mmol/L	135.0	148.0	135.0	140.0	139	139	143
15	Potassium, serum		mmol/L	3.5	5.5	4.0	4.5	3.6	4.1	3.9

Hyper
Adrenal



Adrenal Fatigue Actions

- ✓ Stress management: meditation, yoga, HeartMath™, appreciation
- ✓ High green, vitamin and mineral rich diet
- ✓ Vitamin C rich foods or supplements: goji, acai, pomegranate, camu concentrates, greens, colorful fruits and veggies
- ✓ Activated forms of B vitamins, i.e. Premier Research Living source liquids
- ✓ Antioxidants
- ✓ Adaptogenic herbs – more later
- ✓ Zinc



Fluids and Electrolytes Case Analysis

3	CATEGORIES	Units	PATHOLOGICAL RANGE		FUNCTIONAL RANGE		10/06/09
4		Units	Min	Max	Min	Max	
14	Sodium, serum	mmol/L	135.0	148.0	135.0	140.0	142
15	Potassium, serum	mmol/L	3.5	5.5	4.0	4.5	3.5
16	Chloride, serum	mmol/L	99.0	111.0	100.0	106.0	105
17	Carbon Dioxide, total	mmol/L	19.0	31.0	25.0	30.0	23
18	Calcium, serum	mg/dL	8.7	10.5	9.2	10.1	10
19	Phosphorus, serum	mg/dL	2.3	4.8	3.5	4.0	3.9



- ❖ High sodium, low potassium seen in hyperactive adrenals
- ❖ Low carbon dioxide seen in metabolic acidosis
- ❖ Follow-up: address stress issues
- ❖ Adrenal Stress Test
- ❖ Alkaline diet high in fresh whole fruits and vegetables

