Hyponatremia

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Hyponatremia means more water than salt in our plasma.
Our kidneys balance out
the water we drink
and solute we eat
by diluting or concentrating our urine.
But it is not fool-proof!
For instance, drinking gallons of water
can overcome kidney’s ability to dilute urine, and lead to hyponatremia
What are the symptoms of hyponatremia?
headache
nausea and vomiting
seizures
How would hyponatremia cause a seizure?
Brain cells swell as water is pulled in from extracellular fluid.

Severe hyponatremia
this can disrupt many connections...
http://medicalspeechpathology.wordpress.com/2012/08/16/hyponatremia/
Water intoxication
can happen purely from excessive water intake:
Water drinking contests
Psychogenic polydipsia
Or from excessive water intake with low solute intake:
(when there is not enough solute to excrete all the water)
Beer potomania
Tea and toast diet
Osmosis
is a force that attracts water
Plasma osmolality
is defined by the number of particles able to attract water
ADH helps us maintain plasma osmolality by concentrating urine and retaining water
↑ PLASMA OSMOLALITY

↑ ADH RELEASE  ↓ ADH RELEASE

↑ WATER REABSORPTION  ↓ PLASMA OSMOLALITY
Some conditions combine high water intake with ADH release.
Exercise-associated hyponatremia
MDMA-associated hyponatremia
Conditions which trigger appropriate ADH release
Hypotension
Congestive heart failure
Liver cirrhosis
Syndrome of ADH (SIADH)
S I A D H

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**VASOPRESSIN (ADH)**

**Drugs**
- Carbamazepine
- SSRIs
- Amitrytline
- Morphine
- etc

**Brain Damage**
- Meningitis
- SAH

**Infective**
- Pneumonia
- Lung Abscess
- Brain abscess

**Malignancy**
- Small cell Lung Ca

**Hypothyroidism**

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**Kidneys**

Vasopressin binds to receptors on the kidneys allowing increased water reabsorption from urine.

**Decreased Serum Osmolarity (increased serum volume)**

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**Increased Urine Osmolarity (decreased urine volume)**

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**GeekyMedics.com**
Pass the salt.

Very funny.