

First Name: _____

Last Name: _____

SS1020-108 - Hydration

Role of Water in your Body

H₂...OH REALLY?

THIRST

Thirst is a useful indicator of daily fluid requirements. Unfortunately, it's not fully reliable since the body is already mildly dehydrated by the time an average person starts to notice thirst.¹

MENTAL

Dehydration can degrade specific aspects of cognitive performance including visual vigilance, tension, anxiety, fatigue and visual working memory. Dehydration was also linked to negative mood rating, impaired motor performance and short-term memory.⁵

SKIN

Dehydration results in dry skin and wrinkles.²

DEHYDRATION

A 1% loss of body mass due to fluid loss is defined as dehydration.⁷

KIDNEYS

Higher water intake is shown to have a protective impact on the kidneys, and there is initial evidence that CKD (Chronic Kidney Disease) may be inversely related to higher water intake.³

A study by Dai et al found a strong protective effect of fluid intake in preventing kidney stone formation in men.⁴

WEIGHT LOSS

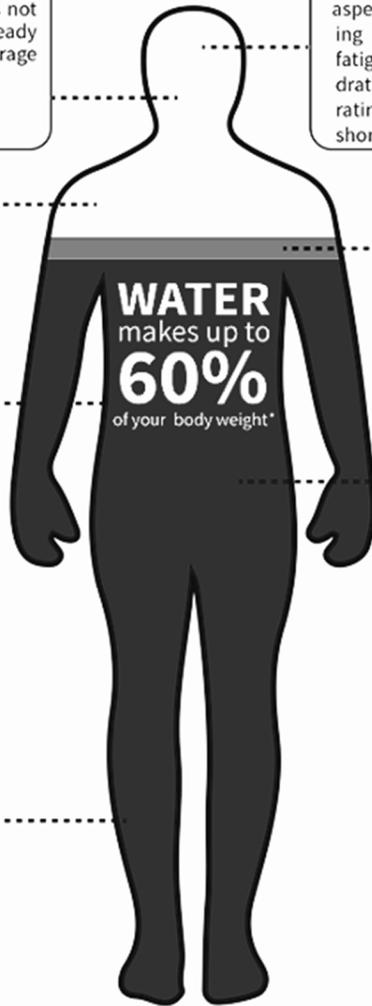
Opting for water instead of sugary drinks can help reduce body weight and fat levels. According to Stookey,⁸ just drinking 500 ml (17 oz) of water increases energy expenditure by 100kJ. Findings in the same study indicate that an absolute increase in drinking water to to $\geq 1l$ (34 oz)/day was associated with ~ 2 kg or 5 lbs weight loss over 12 months.

PHYSICAL

Studies have shown that the modest level of dehydration (2% of body mass) can result in around a 20% decrease in physical performance levels in temperate climates and up to a 40% decrease in hot temperatures.⁵

*WATER

Water plays crucial roles, in transporting nutrients and waste products between our major organs and helping regulate temperature.⁹



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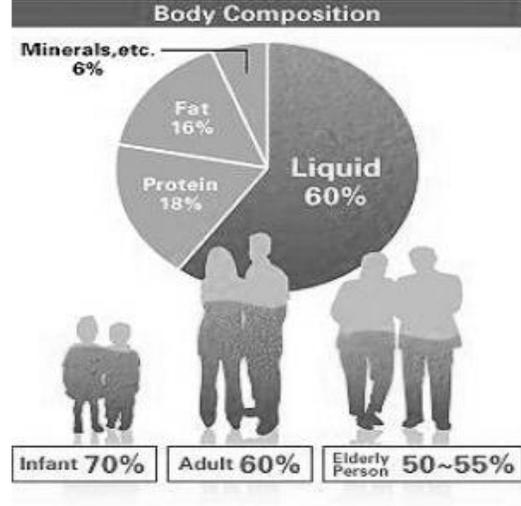
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Function of the Thirst mechanism at Various Ages

Thirst is the craving for fluids, resulting in the basic instinct of animals to drink. It is an essential mechanism involved in fluid balance. It arises from a lack of fluids or an increase in the concentration of certain osmolites, such as salt. If the water volume of the body falls below a certain threshold or the osmolite concentration becomes too high, the brain signals thirst.

In adults over the age of 50 years, the body's thirst sensation reduces and continues diminishing with age, putting this population at increased risk of dehydration. Several studies have demonstrated that elderly persons have lower total water intakes than younger adults, and that women are particularly at risk of too low an intake.



Signs and Symptoms of Dehydration

If you're not sure about your hydration level, look at your urine. If it's clear, you're in good shape. If it's dark, you're probably dehydrated.

Impact of Dehydration on Physical Activity

Fatigue toward the end of a prolonged sporting event may result as much from dehydration as from fuel depletion. Exercise performance is impaired when an individual is dehydrated by as little as 2% of body weight. Losses in excess of 5% of body weight can decrease the capacity for work by about 30%

Sprint athletes are generally less concerned about the effects of dehydration than are endurance athletes. However, the capacity to perform high-intensity exercise, which results in exhaustion within a few minutes, is reduced by as much as 45% by prior dehydration corresponding to a loss of only 2.5% of body weight.

The main reasons dehydration has an adverse effect on exercise performance can be summarized as follows:

- Reduction in blood volume
- Decreased skin blood flow
- Decreased sweat rate
- Decreased heat dissipation
- Increased core temperature
- Increased rate of muscle glycogen use

Steps for Preventing Dehydration During Rest and Physical Activity

- Drink plenty of water.
- Eat foods with high amounts of water, like fruits and vegetables.
- Avoid or limit drinks with caffeine like coffee, teas and soft drinks.
- Avoid or limit drinks with alcohol.