

*May 2022*

# HYDRATION

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# Today's Objectives

- (1) To review water's role and importance for human health.
- (2) To help identify our estimated individual fluid needs.
- (3) To provide individuals awareness and signs of dehydration.
- (4) To recommend fluid choices and considerations.
- (5) To provide tips for intake.



# Water in the Body

- Our bodies contain more water than anything else.
- After oxygen, water is the *most important* ingredient needed for life.
- Cannot survive more than a couple days without water.
- *Why?*



***The body has no way to store water.***

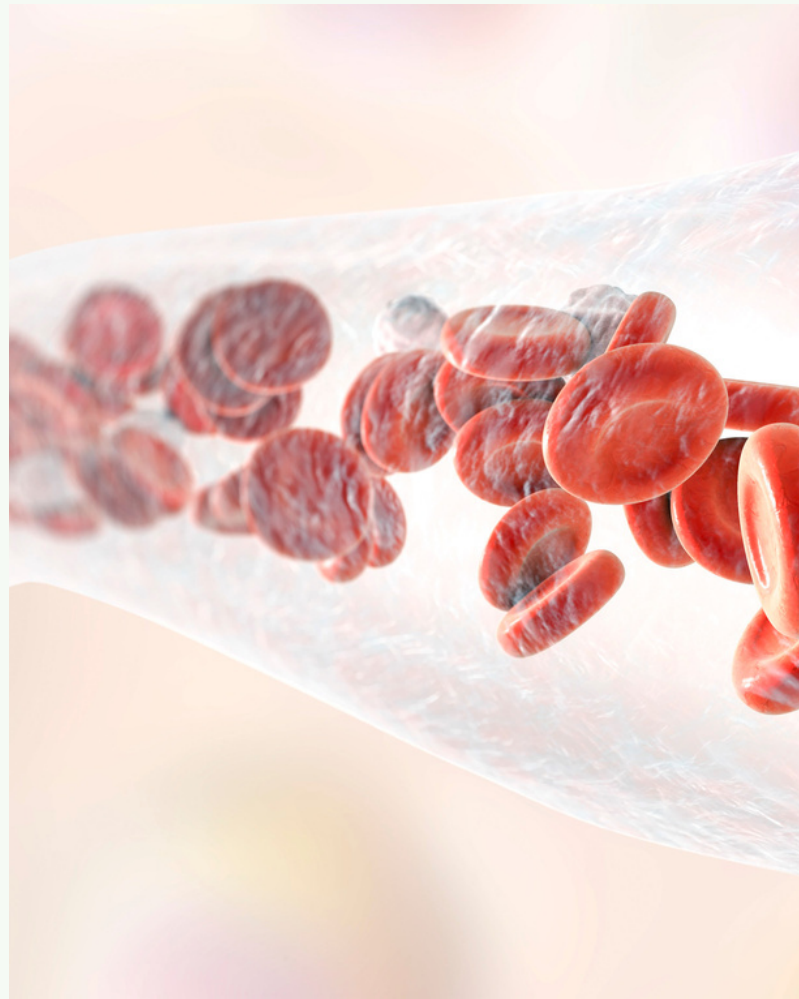
# Largest Component of the Human Body

- 50 - 75% body weight
- Dependent on age and body fat.
  - Highest in infants and children.
  - Declines as we age.
  - Lean individuals have greater body %
    - Lean tissue contains 73% water
    - Adipose (fat) tissue is 20% water





***Our drinking water could contain the same molecules that dinosaurs drank.***



# Functions in the Body

*Key Roles in the Body*

- Maintain blood volume
- Transport nutrients & oxygen
- Basis for saliva, bile, amniotic fluid
- Lubrication around joints
- Metabolic processes and chemical reactions

# Other Important Functions

- ✔ Keeping body temperature in the proper range

 e.g. Sweat

- ✔ Removal of waste products

 Medications

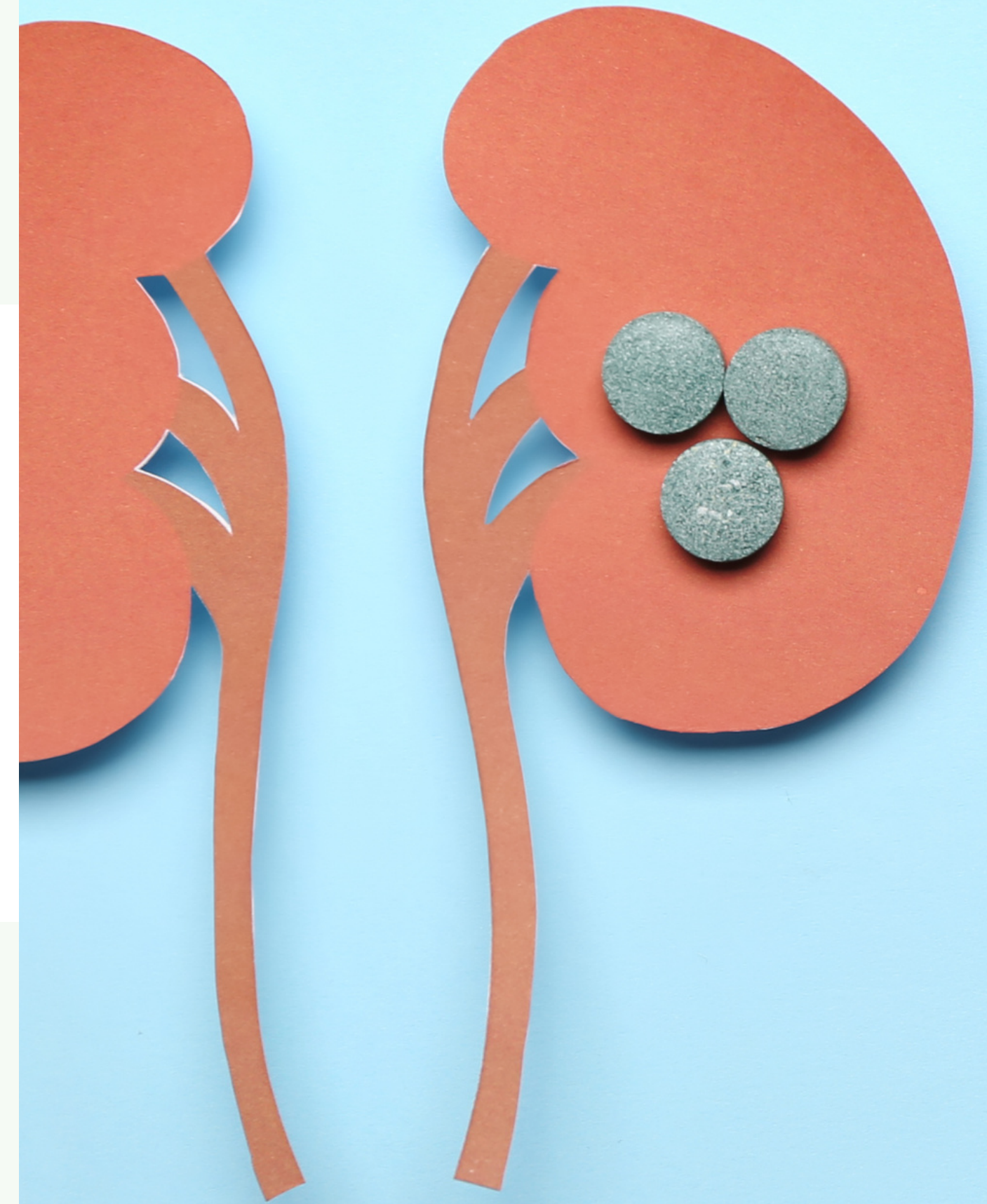
 Cancer-causing substances

 Urea (protein waste product)





**Frequent low urine output  
can increase kidney stone  
formation.**



# Estimate Your Individual Needs

Water needs vary based on:

- Body size
- Physical activity
- Environmental conditions (e.g. heat and humidity)
- Dietary intake



### Water input

Fluids:  
2000 ml (8 cups)



+

Water content in food:  
500 ml (2 cups)

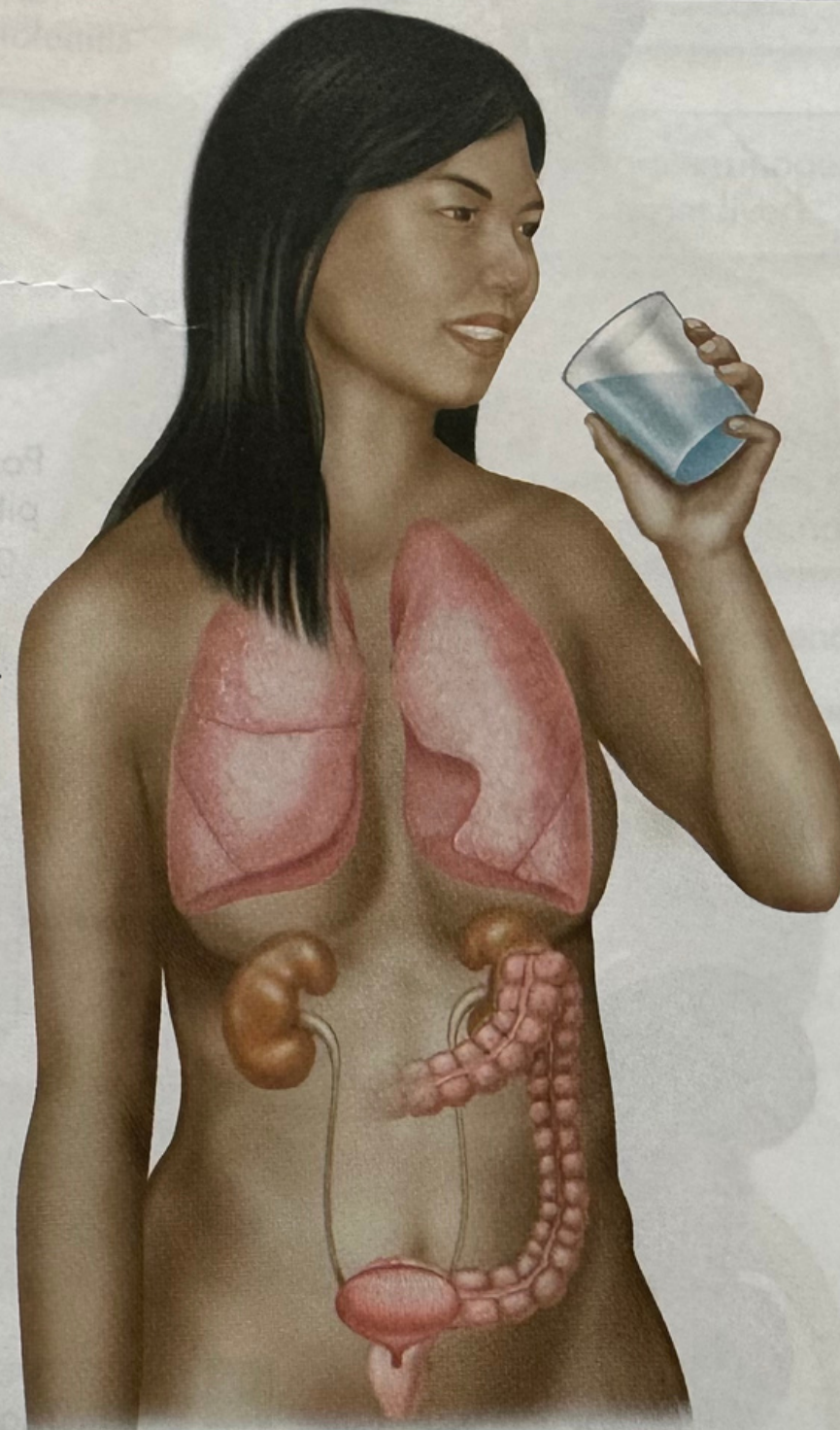


+

Water produced  
from metabolism:  
300 ml (1.25 cups)



**Total water input**  
2800 ml  
(approximately 10 cups)



### Water output

Skin perspiration:  
750 ml (3 cups)



+

Lung respiration:  
300 ml (1.25 cups)



+

Urine:  
1650 ml (6.75 cups)

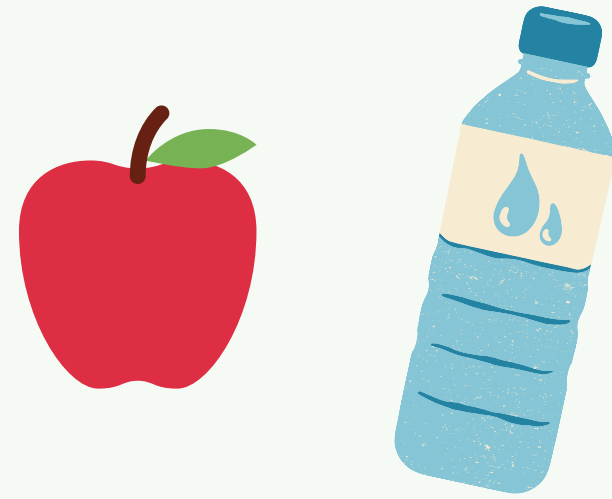


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Feces:  
100 ml (0.4 cup)



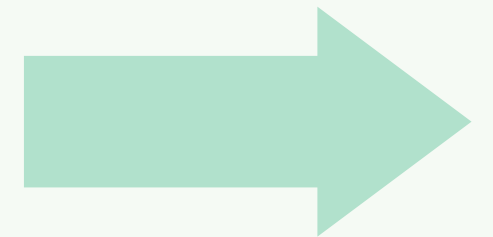
**Total water output**  
2800 ml  
(approximately 10 cups)



## ***Adequate Intake:***

15 cups (3.7 liters) for adult men

11 cups (2.7 liters) for adult women



Food intake accounts for about 20% of fluid intake.



## ***Adequate Intake - Excluding Food:***

13 cups (3 liters) for men

9 cups (2.2 liters) for adult women

# Sources of Fluids



- Water is always the best choice for hydration.



- Coffee & Tea -
  - Caffeine is a mild diuretic
  - Intakes up to 500 mg/day (4.5 cups brewed coffee) do not cause dehydration



- Alcohol -
  - Yes, primarily water, BUT...
  - Ethanol increases urine output

# Dehydration

Can result from diarrhea, vomiting, fever, heavy exercise, hot water, dry environments, and high altitudes.

*Fluid intake does not match fluid loss.*





**First sign of dehydration?**

**First sign of dehydration?**

***Thirst.***

# Signs of Mild to Moderate Dehydration

- Dry mouth & skin
- Fatigue and muscle weakness
- Decreased urine output
- Deep yellow urine
- Headache
- Dizziness

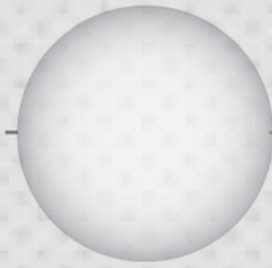
## Skin turgor



Skin with decreased turgor remains elevated after being pulled up and released

 ADAM.

*Only moderately reliable.*



### **NO COLOR. TRANSPARENT.**

You're drinking a lot of water.  
You may want to cut back.



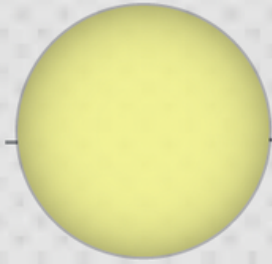
### **PALE STRAW COLOR.**

You're normal, healthy and well-hydrated.



### **TRANSPARENT YELLOW.**

You're normal.



### **DARK YELLOW.**

Normal. But drink some water soon.



### **AMBER OR HONEY.**

Your body isn't getting enough water.  
Drink some now.



### **SYRUP OR BROWN ALE.**

You could have liver disease.  
Or severe dehydration. Drink water and  
see your doctor if it persists.



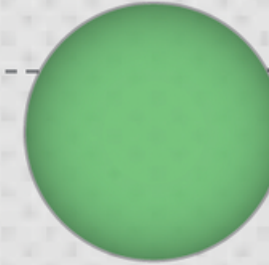
### **PINK TO REDDISH.**

Have you eaten beets, blueberries or rhubarb recently? If not, you may have blood in your urine. It could be nothing. Or it could be a sign of kidney disease, tumors, urinary tract infections, prostate problems or something else. Maybe even lead or mercury poisoning. Contact your doctor.



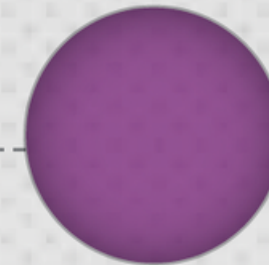
### **ORANGE.**

You may not be drinking enough water.  
Or you could have a liver or bile duct condition. Or it could be food dye.  
Contact your doctor.



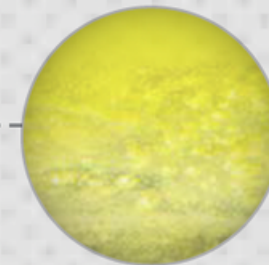
### **BLUE OR GREEN.**

Okay, this is different. There is a rare genetic disease that can turn your urine blue or green. Also certain bacteria can infect the urinary tract. But it's probably a food dye in something you ate. Or a medication. You won't die from it, but see your doctor if it persists.



### **PURPLE.**

There's no such thing as purple urine.



### **FOAMING OR FIZZING.**

A harmless hydraulic effect, if occasional.  
But could indicate excess protein in your diet or a kidney problem. See a doctor if foaming happens all the time.

# Calculating Your Losses

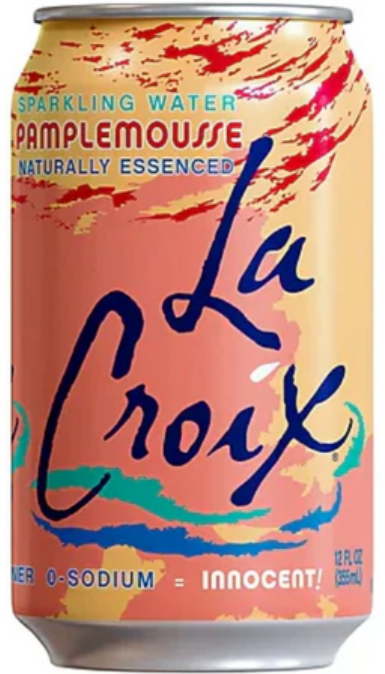
- May be advisable to weigh before or after practicing/work to determine rate of weight loss and water replacement needs.
- About 2.5 - 3 cups (750 mL) per pound (0.5 kg) of weight loss.



NHL goalies can lose up to 10 pounds during a game.



# Types of Fluids to Consider





# Moving On From Today...

- Start with your Adequate Intake (AI):
  - Men - 13 cups (104 ounces)
  - Women - 9 cups (72 ounces)
- Adjust +/- based on urine color

# Exercise

- **Before:** Water or Electrolyte Water
- **During:** Water, Electrolyte Water, or 1/2 sports drink 1/2 water
- **After:** Water, Electrolyte Water, 1/2 sports drink 1/2 water

# Tips for Intake



- Track & adjust.
- A water bottle you love!
- Easy-to-carry
- Fit in your car console?
- Water rich foods - fruits & veggies!
- Flavor it. (lemons, limes, oranges)
- Tie it into routine.
- Set an alarm.
- Rubber band method.
- Alternate drinks.
- Right when you wake up.

# Today's Key Takeaways



## THINGS TO WORK ON

- Understand your individual fluid needs.
- Needs likely will change day-to-day.
- Monitor your urine color & listen to your body.
- Be creative of how you increase intake.





*Thank You*

Q&A OPPORTUNITY

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