

Lesson 3: Alcohol



Funded by:



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How does a person become addicted to alcohol?



Dependence

Structural changes occur in the brain

Cravings

Tolerance

Withdrawal

Loss of Control

Can't quit

Problems in family/school life

Giving up activities

Abuse

Consistent or continued
engagement **despite**
negative consequences

Making a choice to
continue using

Misuse

Sporadic use

Engaging in
risky behavior
with or without
negative
consequences

Experimentation

Trying
something new
(1-3) times

Why do people use or abuse alcohol?

Curiosity



Peer Pressure



Stress



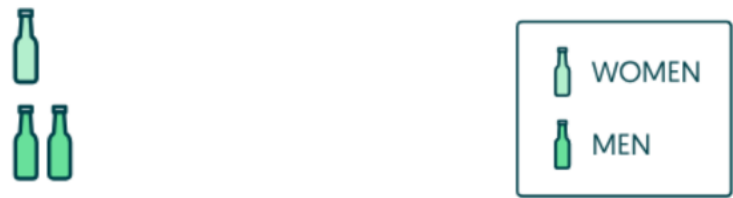
Home Life



Drinking Levels Defined

Moderate

Up to one drink per day for women, up to two drinks per day for men



Binge

4-5 drinks or more in two hours, or enough for a BAC of at least 0.08%



Heavy

Above 3-4 drinks per day, or 7-14 drinks per week, depending on gender



BAC percent	Effects of Increased BAC Levels on a Typical Person
.01 - .03	No apparent effects, slight mood elevation. In California, you will test as legally impaired at .01 percent BAC if you are under 21.
.04 - .06	Feeling of relaxation, sensation of warmth, minor impairment of reasoning and memory
.07 - .09	Mild impairment of balance, speech, vision, and control. In California, you will test as legally impaired at .08 percent BAC if you are over 21.
.10 - .12	Significant impairment of motor coordination and loss of judgment, speech may be slurred
.13 - .15	Gross impairment of motor control, blurred vision and major loss of balance, onset of dysphoria (anxiety, restlessness)
.16 - .20	Dysphoria predominates, nausea may appear, drinker has the appearance of "sloppy drunk"
.25 - .30	Severe intoxication, needs assistance walking, mental confusion, dysphoria with nausea and some vomiting
.35 - .40	Loss of consciousness, brink of coma
.40 & up	Onset of coma, likelihood of death due to respiratory failure

A standard drink



12 fluid oz of beer
at 5% alcohol








5 fluid oz of wine
at 12% alcohol



1.5 fluid oz of liquor
at 40% alcohol



1 oz. of alcohol

BLOOD ALCOHOL CONCENTRATION	NUMBER OF DRINKS	EFFECTS ON DRIVING
0.02% BAC		<ul style="list-style-type: none"> • Decline in visual functions • Inability to perform two tasks at the same time • Loss of judgment • Altered mood
0.05% BAC		<ul style="list-style-type: none"> • Reduced coordination • Reduced ability to track moving objects • Difficulty steering • Slower response to emergency driving situations
0.08% BAC		<ul style="list-style-type: none"> • Reduced ability to concentrate • Short-term memory loss • Lack of speed control • Impaired perception and self-control
0.10% BAC		<ul style="list-style-type: none"> • Clear deterioration of reaction time • Reduced ability to maintain lane position • Reduced ability to brake appropriately • Slurred speech
0.15% BAC		<ul style="list-style-type: none"> • Substantial impairment in vehicle control • Loss of auditory information processing • Major loss of balance • Vomiting may occur

How does Alcohol affect the brain?

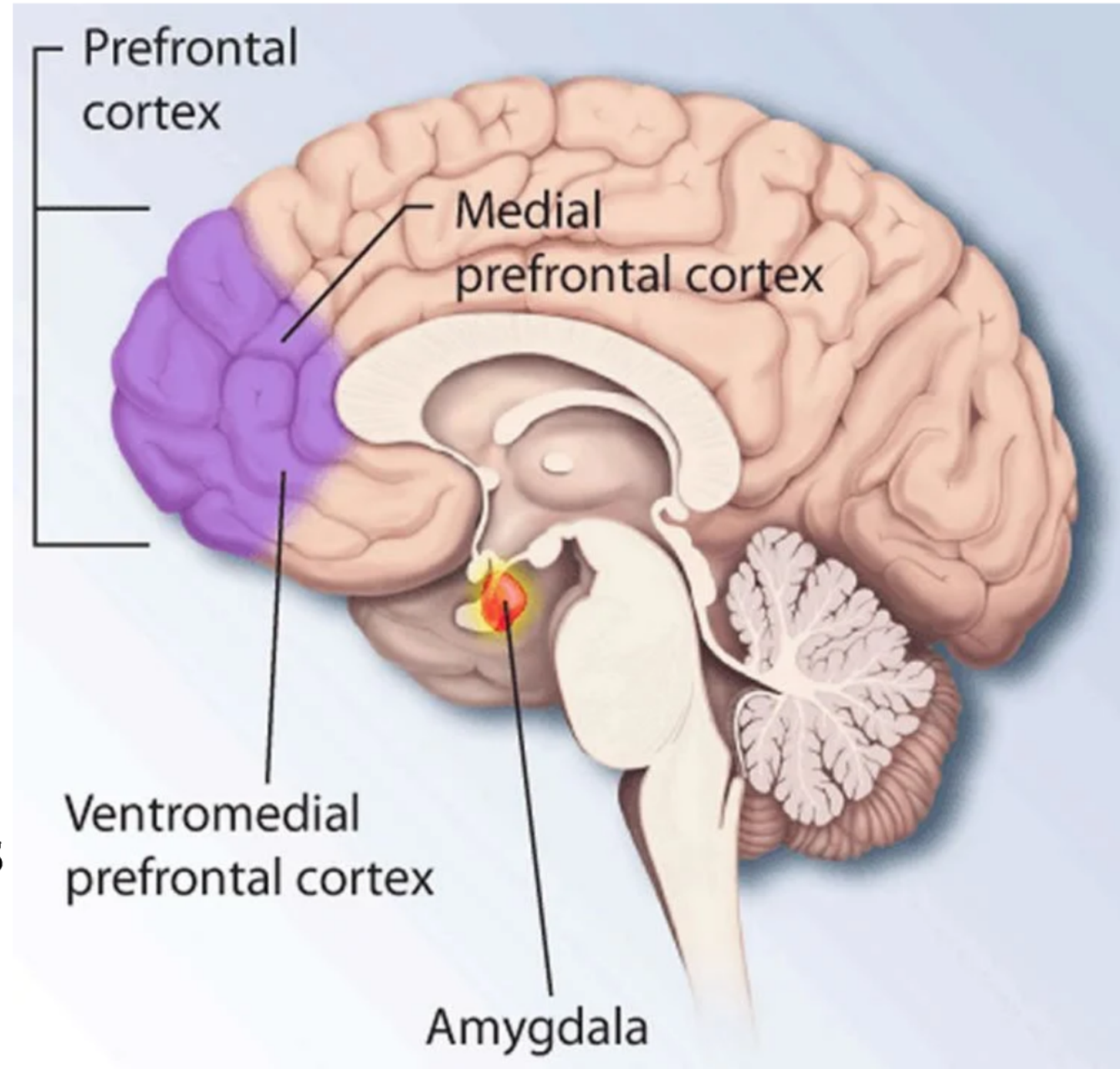
Alcohol interferes with the brain's ability to regulate our neurotransmitters (**dopamine and serotonin**).

As a person drinks more and more alcohol, the brain will start to lose functions.

Judgement, Mood, Behavior

Vision, Balance, Motor Control

Respiration, Digestion, Homeostasis



Stage 1: Judgment, Mood, Behavior

JUDGEMENT

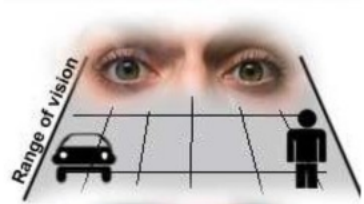


~~Brain storm solutions
Consider consequences
Weigh pros and cons~~

Mood swings, Depression, Anger, Bipolar Disorder, Risky Behaviors



Stage 2: Vision, Balance, Motor Control



No alcohol, clear field of vision



Field of vision becoming narrow and blurry



Tunnel vision, night blindness, lack of depth perception

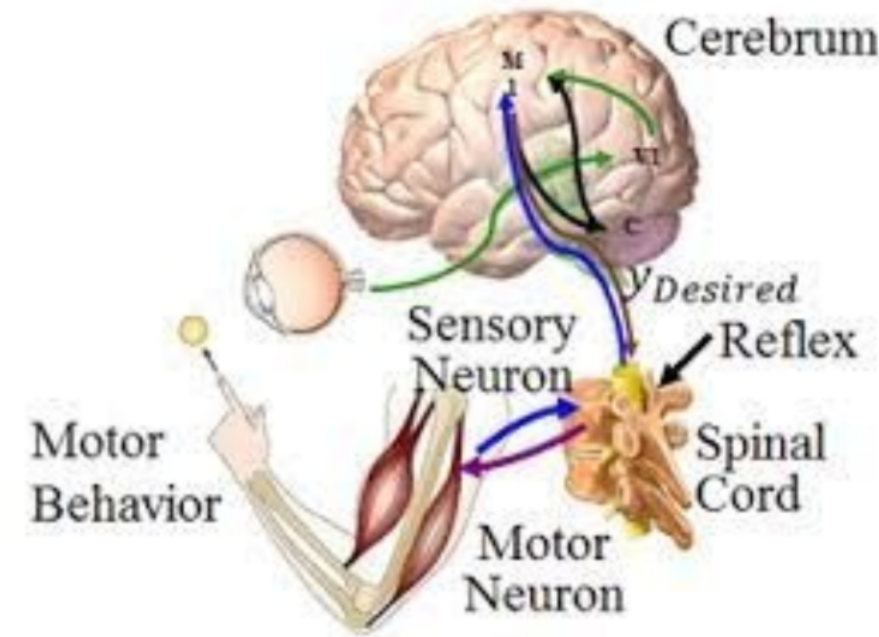


Recognize task/object

Decide on action

Execute action

Make Corrections



Alcohol related Organ Damage

Remove alcohol and other poisonous substances

Produce proteins for blood plasma

Regulate amino acids, building blocks of protein

Store iron for later use

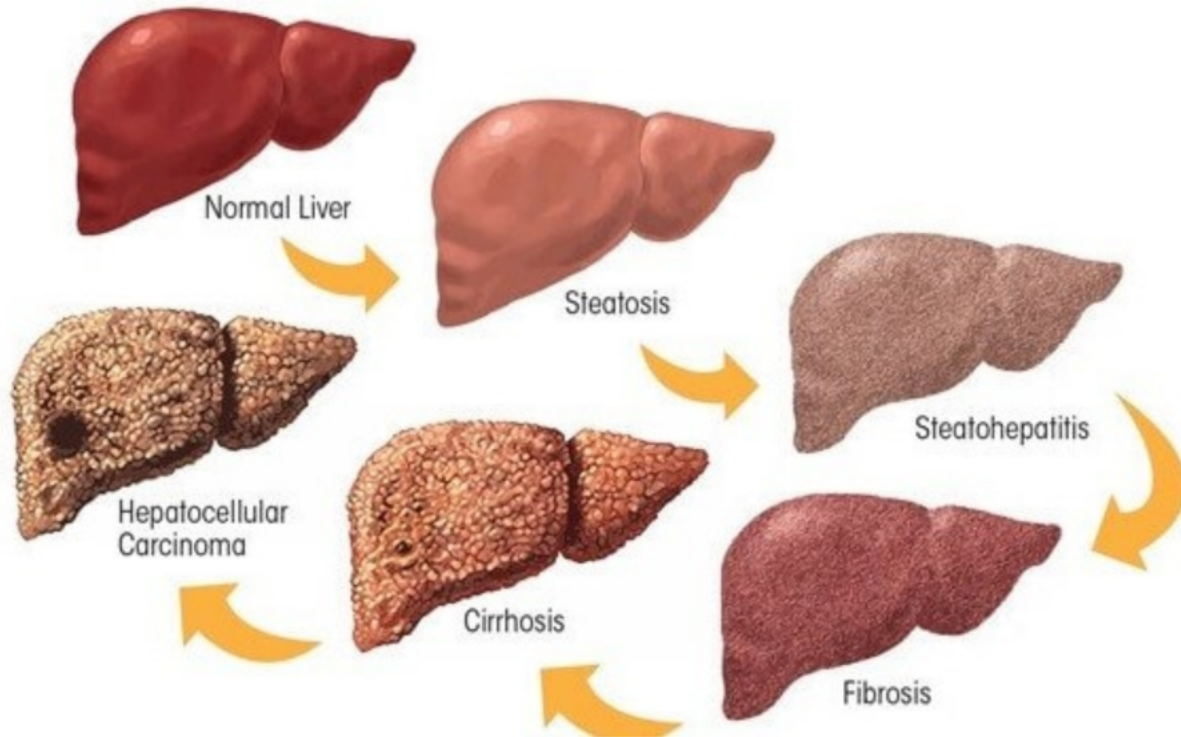
Convert ammonia into urea, end of protein metabolism

Regulate blood clotting

Produce bile to remove waste

Detect, capture, clear bacteria

Remove bilirubin, Prevents Jaundice



Stage 3: Blackout

Due to the large amount of alcohol in the body, memory receptors in the brain have trouble working or will stop working at all.

A person who is blacked out can still do many normal things like talk and walk but they will often have no memory of things they did or what happened to them during a blackout.

Young people are much more likely to experience a blackout due to:

Body not fully developed

Low tolerance

Don't understand how much they're drinking

Binge drinking



Stage 3: Passout

Blood alcohol concentration

0.05%

0.10%

0.15%

0.20%

0.30%

0.40 – 0.60%

Frontal lobe sedation – reasoning and judgement impaired

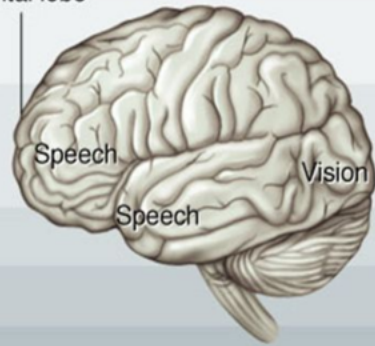
Speech and vision center sedation – impaired coordination, vision, driving

Voluntary muscle control impaired – staggering gait, slurred speech, blurred vision

Inability to walk

Stupor, confusion

Unconsciousness, cardiac or respiratory failure



Blood alcohol level has gotten so high that the brain is starting to shut down



RISK

SPINAL CORD

Cervical spine vertebrae

Thoracic spine vertebrae

Lumber spine vertebrae

Sacrum

Coccyx

Cervical nerves

- C1 Head and neck
- C2 Diaphragm
- C3 Deltoids, Biceps
- C4 Wrist Extenders
- C5 Triceps
- C6 Hand

- T1
- T2
- T3
- T4

Thoracic nerves

- T5 Chest muscles
- T6 Abdominal muscles
- T7
- T8
- T9
- T10
- T11
- T12

Lumber nerves

- L1 Leg muscles
- L2
- L3
- L4
- L5

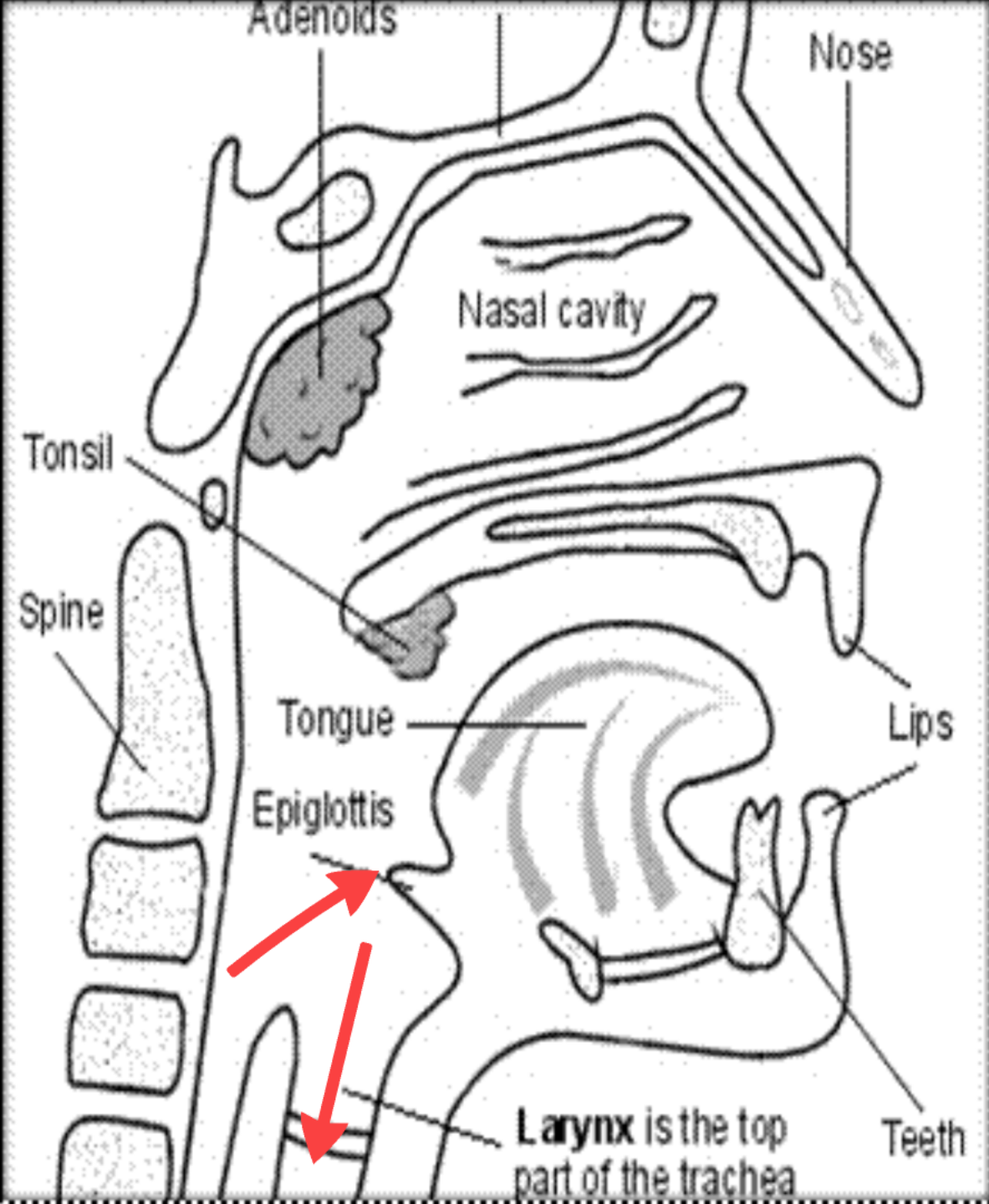
Sacral nerves

- S1 Bowel, bladder
- S2 Sexual functions
- S3
- S4
- S5

Brain stops communicating with the rest of the body

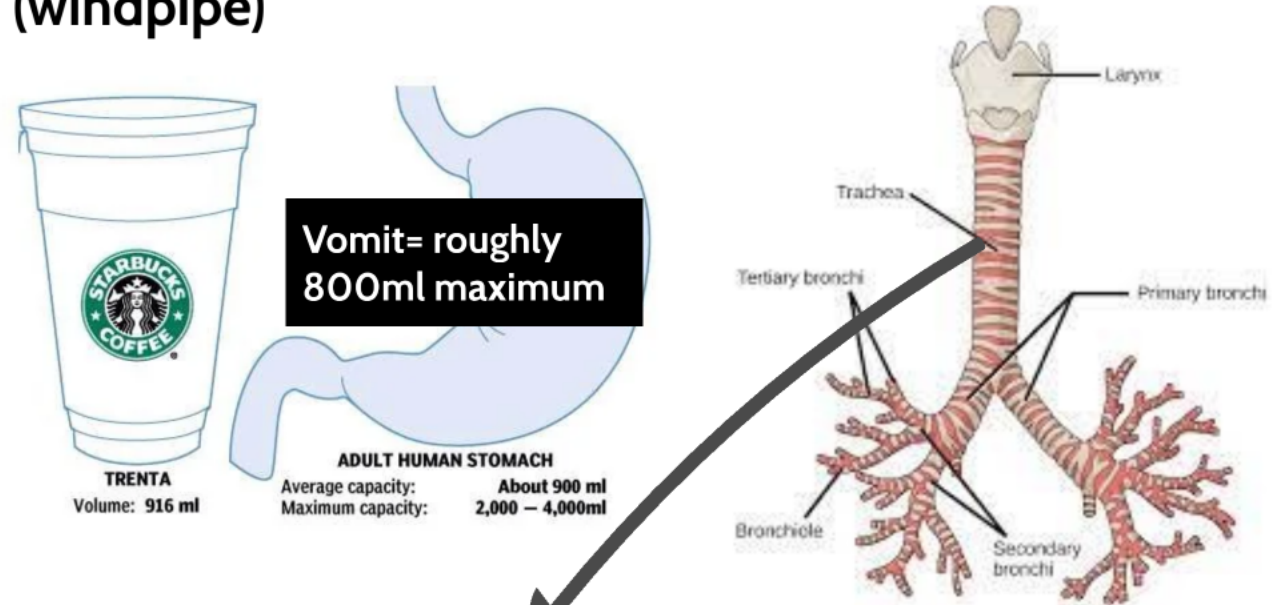
Lungs and heart rely on reflex to continue breathing

High chance for vomit to clog airway



Brain is no longer receiving signals from the stomach
 Brain is not sending signals to the epiglottis

High chance that vomit will enter the trachea
 (windpipe)



Trachea diameter= 1 in.

As little as 1 tablespoon
 can create a potentially
 fatal block

