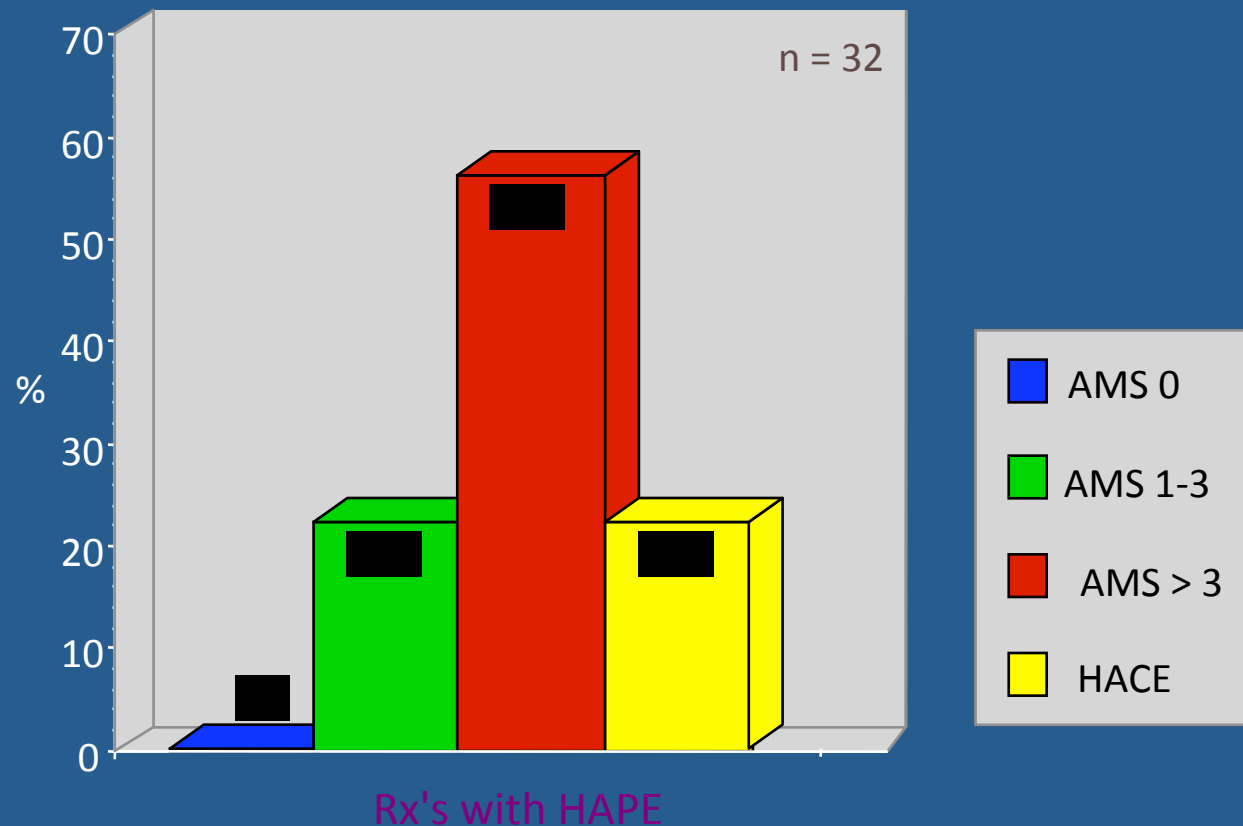


# Severity of acute mountain sickness in persons with HAPE



(Data were obtained from 60 subjects studied during 3 consecutive days at the altitude of 4559 m)

## NEWS

Real news, real entertainment . . . in real time

Robbie Savage rushed to hospital after falling ill on Mount Kilimanjaro  
14 Oct 2013 00:00

The Daily Mirror columnist, 38, went down with altitude sickness after scaling 12,000ft of the peak in Tanzania



# Typical HAPE

- "I thought my head was going to explode, I felt dizzy and couldn't breathe.
- "There were no problems until we got to 3,000m (9,800ft), when I was sick and got a crunching headache.
- "I didn't want to give up, so I pushed on to the next camp at 3,600m – but I crashed out with a headache and sickness.
- "Yesterday I tried to push on to the next camp at 4,300m, but I got worse, and couldn't breathe
- "I had to be rushed down to a safe altitude."
- "I was told if I had pushed on, I could have been seriously ill and died."
- It took eight hours to evacuate the former Strictly star.
- Doctors diagnosed the former Premier League star with fluid on the lung and critical levels of oxygen in the blood.

# Wind Rivers Case

- 22 year old male
- Backpacking trip Wind River Mountains
- Day 1: SLC to 9,000 ft., backpacked 10 miles, camped at 10,000 ft.
- Day 2 to 3: worsening weakness, dyspnea, cough productive of white and yellow sputum, confusion, gurgling in chest
- Day 4: SpO<sub>2</sub> 60% on room air

Atypical HAPE –  
very dangerous

No respiratory  
symptoms!  
No hypoxic drive to  
breathe  
No dyspnea  
Just gets weak, quiet  
and blue... And dies





# Carotid body response

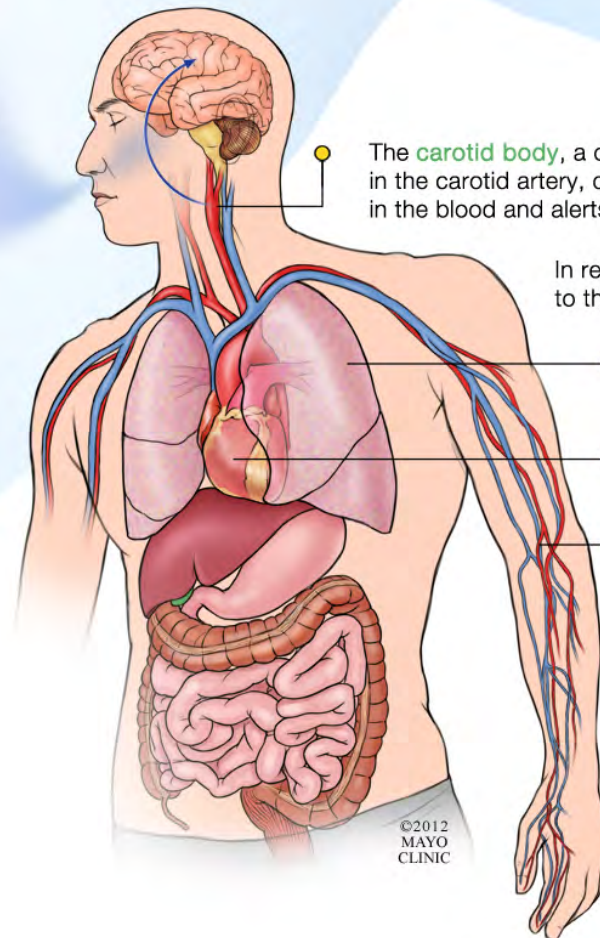
Senses low oxygen and signals the brain to stimulate breathing

## Effects of Hypoxia

(hi-pok'se-ah)

: a condition in which the body as a whole or a region of the body is deprived of adequate oxygen supply.  
/hy-pox-ia/ - noun

Low oxygen pressure at high altitude



The **carotid body**, a cluster of specialized cells in the carotid artery, detects low oxygen levels in the blood and alerts the brain.

In response, the **brain** sends signals to the rest of the body to...

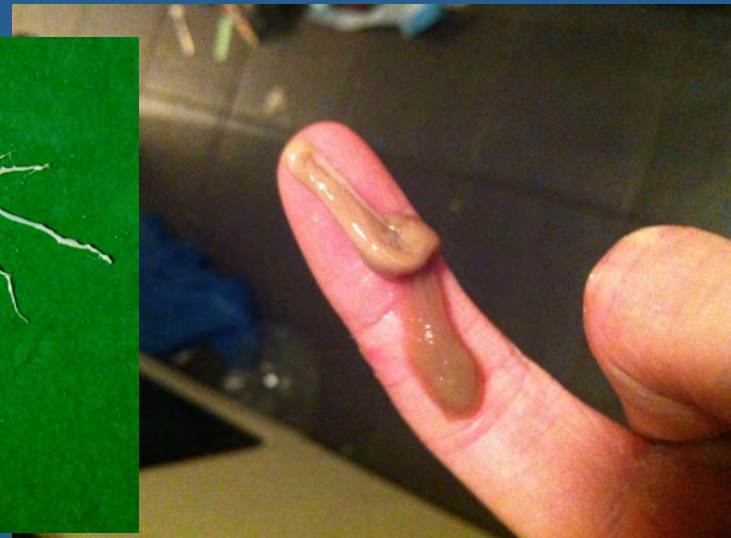
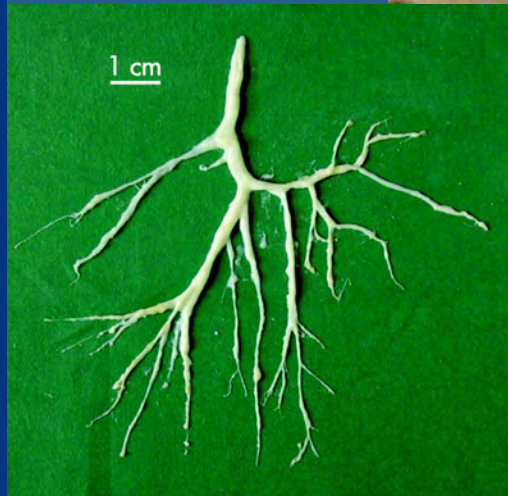
- increase breathing rate and constrict vessels in the **lung**
- increase **heart** rate
- dilate **peripheral blood vessels** in arms, legs, hands, and feet

# Other problems that look like HAPE

- Infection: pneumonia, bronchitis
- Mucus plugging
- Heart attack, heart failure
- Blood clot in the lung (pulmonary embolus)
- Asthma attack
- Hyperventilation syndrome

# Mucus plugging

- Described by Somerville in 30's on Everest
- Fairly common
- Dyspnea, cough, can be severe
  - Airway obstruction





# Somerville, 1924

- *Somewhere about 25,000 feet [7620 m] high [on the descent], when darkness was gathering, I had one of my fits of coughing and dislodged something in my throat which stuck so that I could breathe neither in nor out. I could not, of course, make a sign to Norton, or stop him, for the rope was off now; so I sat in the snow to die whilst he walked on, little knowing that his companion was awaiting the end only a few yards behind him. I made one or two attempts to breathe, but nothing happened. Finally, I pressed my chest with both hands, gave one last almighty push—and the obstruction came up. What a relief! Coughing up a little blood, I once more breathed really freely—more freely than I had done for some days*

# HAPE vs...

- Infection: fever, green sputum, SpO2 not too bad
- Heart attack: SpO2 OK
- Mucus plug: SpO2 low if large plug, might feel like obstruction
- Blood clot: sometimes pain in chest, or calves
- Asthma: history of asthma, lots of wheezes
- Hyperventilation: SpO2 is **high**