

A scenic landscape featuring a range of snow-capped mountains in the background, a dense forest of evergreen trees in the middle ground, and a calm lake in the foreground that perfectly reflects the mountains and trees. The sky is a clear, deep blue.

# Backcountry Medicine

2009

# Backcountry Medicine

- ▣ This is a HUGE topic!
- ▣ Hazards encountered are largely dependent on the outdoor pursuit
  - ▣ Different hazards with kayaking vs. alpine climbing
- ▣ We can't possibly cover all of the topics in one hour

# Purpose of tonight...

1) Common backcountry mishaps

▣ Treatment and Management

2) Introduce some resources

▣ Courses and organizations

3) Practical wilderness

first aid

▣ (time permitting)



# “Name This Peak” #1

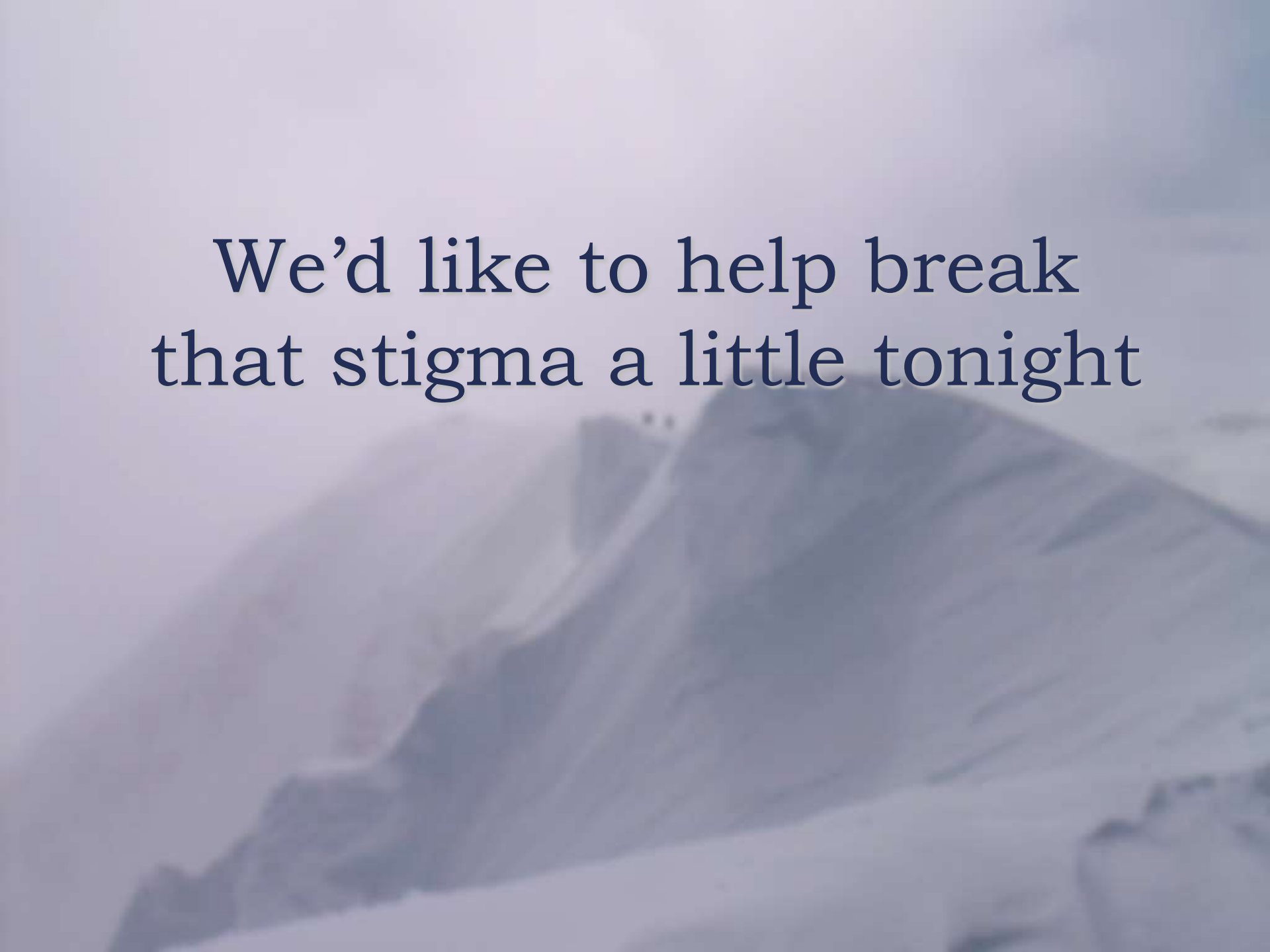


# Typical impression of doctors....



# Typical impression of doctors....





We'd like to help break  
that stigma a little tonight











CONGRATULATIONS  
YOU ARE NOW AT

KIHURU PEAK TANZANIA 5895M AMSL

Ascent for Alzheimer's  
ALZHEIMER SOCIETY OF B.C.  
Presented by Webber Naturals  
2007

Scotiabank  
Leon Blackmore Foundation  
webber naturals.  
CONCERT  
Kestrel





Back to the presentation...

# “Name This Peak” #2



# The outdoors are important to Canadians!

- ▣ 20 million Canadians (84.6 percent of the population aged 15 years and over) take part in one or more nature-related activities in Canada annually
- ▣ 43.7 of Canadians 15 years of age and over participate in specific out-door activities such as sightseeing, camping, and boating
- ▣ The average Canadian makes 13.3 trips into parks and backcountry areas annually



That means there are  
potentially many people  
having medical problems  
outside of the city  
environment!

# Common Backcountry Afflictions

## 6) Other (8.3%)

heat related, frostnip/frostbite, eye conditions

## 5) Dermatologic (2.3%)

Blisters, rash

## 4) Respiratory conditions (8%)

Asthma, infectious

## 3) Altitude Related (10.7%)

AMS, HAPE, HACE

## 2) Trauma, sprains and breaks (12-31%)

Primarily ankle sprains

## 1) Gastroenteritis/diarrhea (21-46%)

(Hudson et al., 2008)

# Common Mishaps

- ✦ Most are entirely preventable
- ✦ But outdoor enthusiasts should be equipped to deal with emergencies as they occur
- ✦ Therefore important to have good working knowledge of wilderness first aid and have adequately stocked first aid kits



# Diarrhea

# Diarrhea Case

You are out on a weekend canoe-camping trip with your friend, Al. After paddling all day, you get to your campsite and set up your tent. Al cooks dinner, and you filter all of your water from the lake, and a wonderful meal is enjoyed by all.

# Diarrhea Case

At night, after the campfire has been extinguished, Al decides to brush his teeth with the lake water, figuring that the toothpaste will likely kill of anything bad.

The next day, after paddling back to the parking lot, and driving home, he feels a lot like this guy...

# Diarrhea

- Up to 60% of hikers/campers will experience diarrhea.
- Most cases need no treatment
  - Small percent may need antibiotics or Imodium
- Most caused by viruses, some by bacteria (E.coli). Occasionally by *Giardia lamblia* (“Beaver Fever”)

# Diarrhea

- ✔ Prevention is the key!!
- ✔ Hand care extremely important
- ✔ Water filtration
- ✔ “Hygiene is your friend!”
- ✔ “Boil it, cook it, filter it peel it, or forget it!”





# Diarrhea

## When to seek medical attention?

### See GP (>24 hrs)

- Between **4-7 bowel movements a day**
- Bowel movement is watery with bits of food
- Accidental bowel movement during the day or night
- Increased cramping
- **Eating less food and drink, lower appetite**
- Frequent nausea/Frequent vomiting
- Dry mouth and feeling thirsty
- **Less able to urinate**
- Urine colour is dark yellow or orange
- Skin around the anus is sore.

# Diarrhea

## When to seek medical attention?

### To ER

- **More than 7** watery bowel movements a day
- No control of bowel movements
- Constant cramping
- Cannot eat or drink, no appetite
- Constant nausea/vomiting
- **Dizziness, lightheaded**
- Difficult to urinate, colour is dark
- **Bloody bowel movements**
- Sudden abdominal bloating
- Severe abdominal pain
- Skin around the anus is bloody
- Skin feels very warm
- **Fever greater than 38° C or 100° F**

# Diarrhea

What to do if on day-3 of five day trip?



# Diarrhea

- ✦ What to do if on day-3 of five day trip?
  - ✦ Anti-diarrhea medication (Imodium)
  - ✦ Antibiotic (Ciprofloxacin)
  - ✦ Antinauseant (Gravol)
- ✦ Always check with your GP before starting any medication or including it in your First Aid kit.

Name This Peak # 3







# Altitude Illness



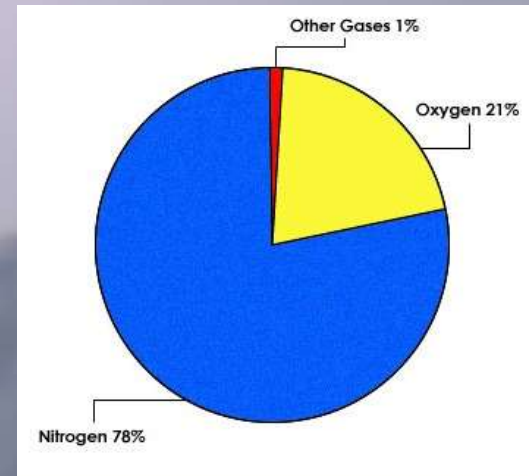
# Altitude Case

- You are with a climbing party that's ascending very quickly. As you approach 11,000 ft (3330 m) on the mountain, one of the members of your party complains to you of a throbbing headache, and he feels like it's going through his whole head.
- When you ask him some more questions, he states that he has been unable to eat for most of the day, and feels "hungover". Though normally very fit, he feels as though every step forward is a burden, and is concerned why this is happening to him.

# Altitude Physiology

What makes up “air”?

- ▣ Nitrogen
- ▣ Oxygen
- ▣ Carbon Dioxide



Percent of oxygen in Chilliwack (sea level)

- ▣ 21%

Percent of oxygen on Everest summit (29035ft)

- ▣ 21%!

# Altitude Physiology

- Problem is not with how much oxygen, but with pressure.



# Altitude Physiology

- Problem is not with percent  $O_2$  but with partial pressure.



# Altitude Physiology

- Your body adapts to this low pressure of oxygen by:
  - ▣ Increasing your breathing rate
  - ▣ Increasing how much blood your heart is pumping
  - ▣ Changing your urine and how much you urinate

# Altitude Illness

When your body does not respond well enough, several illnesses can occur:

- ❑ Acute mountain sickness (AMS)
- ❑ High altitude pulmonary edema (HAPE)
- ❑ High altitude cerebral edema (HACE)

# Acute Mountain Sickness

Most common of altitude illnesses (40-50% of climbers at 15,000ft)

Symptoms include headache, GI symptoms (nausea, vomiting, anorexia), fatigue or weakness, dizziness or lightheadedness, and difficulty sleeping

“Cheyne-Stokes” breathing during non-dreaming sleep

# Acute Mountain Sickness

## Prevention:

- ❑ Slow ascent
  - ❑ Ascend less than 1000 ft sleeping altitude per day
  - ❑ “Climb high, sleep low”
- ❑ Copious hydration
  - ❑ Keep urine “Gin Clear”
- ❑ Acetazolamide (Diamox)
  - ❑ 125-250mg once or twice a day
- ❑ Ginkgo Biloba has shown to be ineffective, though many climbers still use it



# Acute Mountain Sickness

## Treatment:

- ❑ **Do not proceed to higher sleeping elevation for 24 hours**
- ❑ Immediately descend if symptoms worsen
- ❑ Start Diamox, if not taking already
- ❑ Take Tylenol for headaches
- ❑ Avoid sleeping pills
- ❑ Consider descending 500-1000m

Name This Peak #4





Name This Peak #5

# Sprains and Strains



# Trauma Case

You are hiking on the West Coast Trail, and being the fully-prepared and cautious hiker you are, you are walking carefully over the wet logs and bridges, and using your hiking poles correctly.

Suddenly, you are passed by some hikers in their tennis shoes and cotton T-shirts (despite the rain) who are chatting away and approaching each log bridge with what might best be described as a “cavalier” attitude.

# Trauma Case

After taking a break to eat some GORP (with good hand hygiene all around), you round a corner and see one of the hikers who recently passed you lying off to the side of the trail, 5 feet below the log bridge he has obviously just fallen off, and writhing in pain. He is clutching his left ankle...

# Sprains and Strains

## ▣ First Principle:

- ▣ Assess the scene and ensure that you will be safe!!
- ▣ Try to anticipate the likely injuries
- ▣ Treat the most serious injuries first
  - ▣ Don't worry about the sprained ankle if you suspect an injury to the hiker's neck

# Sprains and Strains

- ▣ Very common!
- ▣ Fractures, sprains and strains account for the overwhelming majority of all emergency backcountry evacuations
- ▣ Most are easily preventable!



# Sprains and Strains

Definitions:

- ▣ **Sprain:** a stretching or tearing of ligaments that attach bones to one another
- ▣ **Strain:** an injury to a muscle or tendon

# Sprains and Strains

- ✍ Ankle sprains make up the bulk of injuries.
- ✍ Can often be prevented by wearing good footwear, using hiking poles, and exercising appropriate caution.
- ✍ Depending on the degree of sprain, you may be able walk out, but may require evacuation

# Sprains and Strains

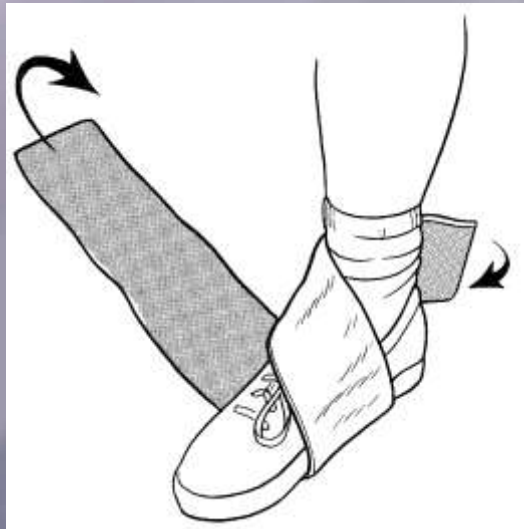
- ✍ If ankle is **sprained**, you can usually weight bear and walk with a limp
- ✍ If ankle is **broken**, you can usually not put any weight on it, or the bones around the ankle may be very tender to touch

# Ankle Treatment

## ☑ R.I.C.E

☑ Rest, Ice, Compression, Elevation

☑ If the victim is able to walk, then tape or splint the ankle for support



# Sprains and Strains

- ✓ Have an evacuation plan for every trip you do.
- ✓ Carry appropriate splinting devices in your first aid kit, or know how to make one from scratch
- ✓ Be prepared!!
  - ✓ Take a wilderness first aid course
  - ✓ Get a good first aid manual

Name This Peak #6



# Extra Resources

## ▣ Wilderness Medical Society

▣ [www.wms.org](http://www.wms.org)

▣ Amazing conferences in cool locations

▣ Able to join if not a medical person

## ▣ Wilderness First Aid courses

▣ Many providers (too many to list here)

▣ Range from basic to advanced for professionals

## ▣ Books

▣ “Field Guide to Wilderness Medicine” by Auerbach, Donner, and Weiss

# Questions?

