



The University Centre in Svalbard



AS-101 Artic Survival And Safety:

FIRST AID

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A blue-tinted photograph of a snowmobile in a snowy, mountainous landscape. The snowmobile is in the foreground, angled towards the left. In the background, there are more snowmobiles and a person on a sled, all set against a backdrop of snow-covered mountains under a clear sky.

PLAN

Safety

Emergency call

Why ABCDE?

ABCDE with exercises

Broken bones

Hypothermia

Frostnip and frostbites

CO-poisoning

Burns

DISCLAIMER:

The following presentation contains images and talk about injuries and blood. If you pass out from blood, talk of blood, talk of injuries etc. it is okey to take a break if you need or let us know

(s) ABCDE

Fixing one letter allows you to move on to the next

...if earlier letter fails you have to return and re-fix it

Goal: ABCD fast and efficient → E (warm up)

(s) = safety

- The safety of rescuers/group is **always** priority one. Take your time to think before acting.
- Use superskills in the group
- Can ABCDE be done where you are – or do you have to move first?
- Can **some of them** be done?





Emergency call



From satellite phone:
Sysselmesteren +47 79021222



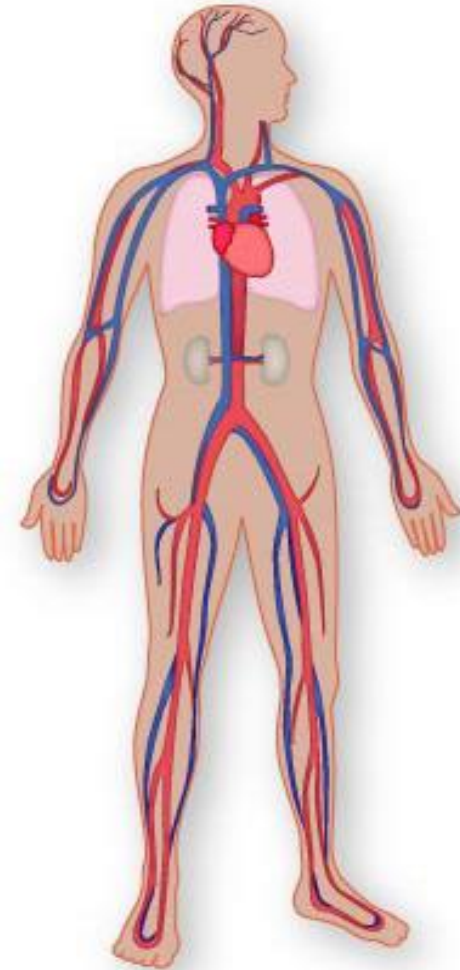
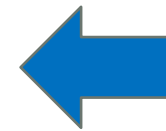
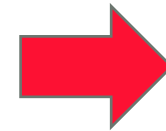
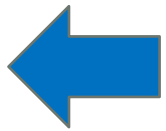
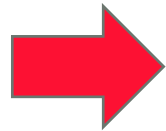
When mobile coverage: 113



Differences between the two calls?



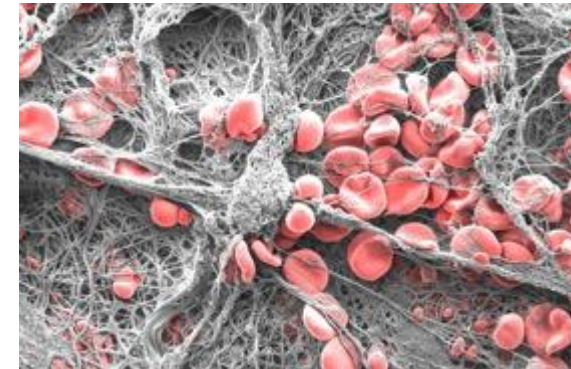
Why priority ABCDE: getting fuel in (O_2) and garbage out (CO_2) of the cells



Why we need to **warm up** patient directly on E after a fast ABCD-scan:



- A patient with big injuries can get deadly cold even in subtropic areas, on Svalbard average temp yearly is -4 C
- Risk of heart arrest as soon as **behaviour is affected** by being cold
- 3 degrees colder = 50% reduction in blood clotting
....also if only a bleeding bodypart is cold!
- Shivering costs 300 – 400% more oxygen



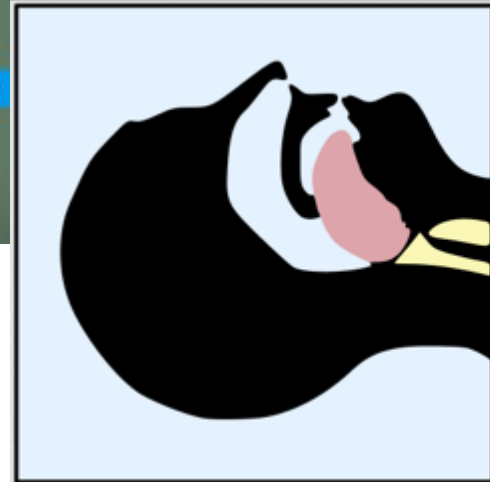
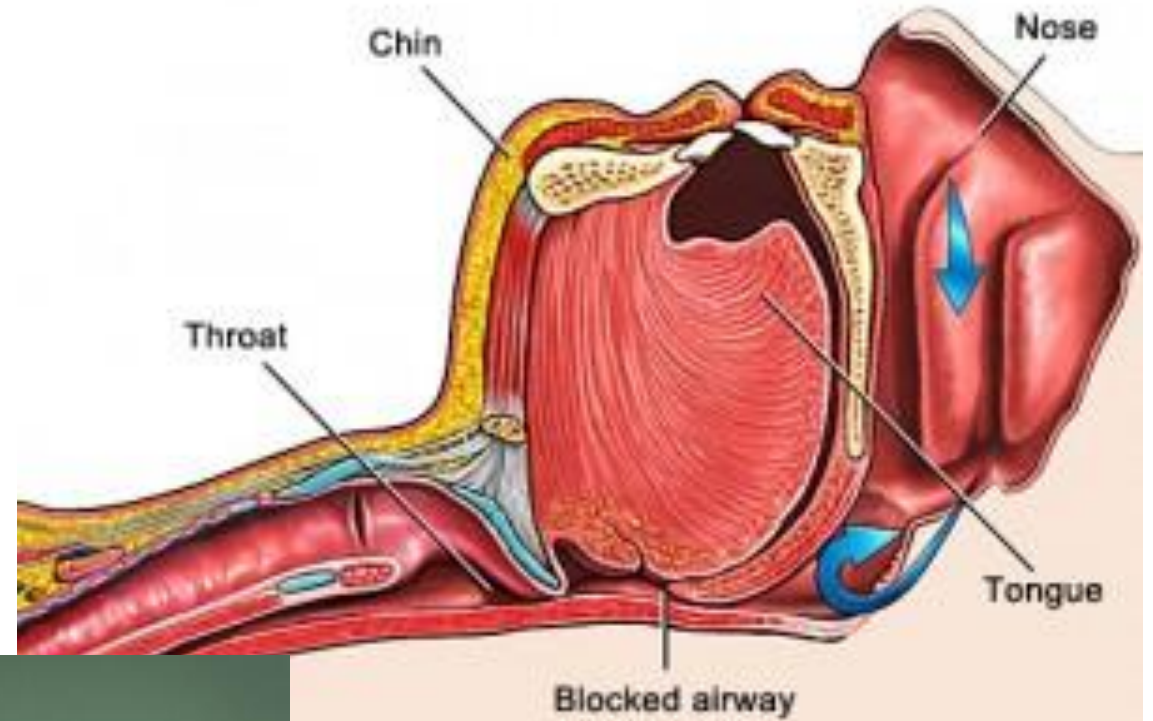
ABCDE

Airways

Talking = A OK 😊

Not responding?

- Call for help (?)
- Look into throat
- Headtilt/chinlift



ABCDE

Airways: Choking

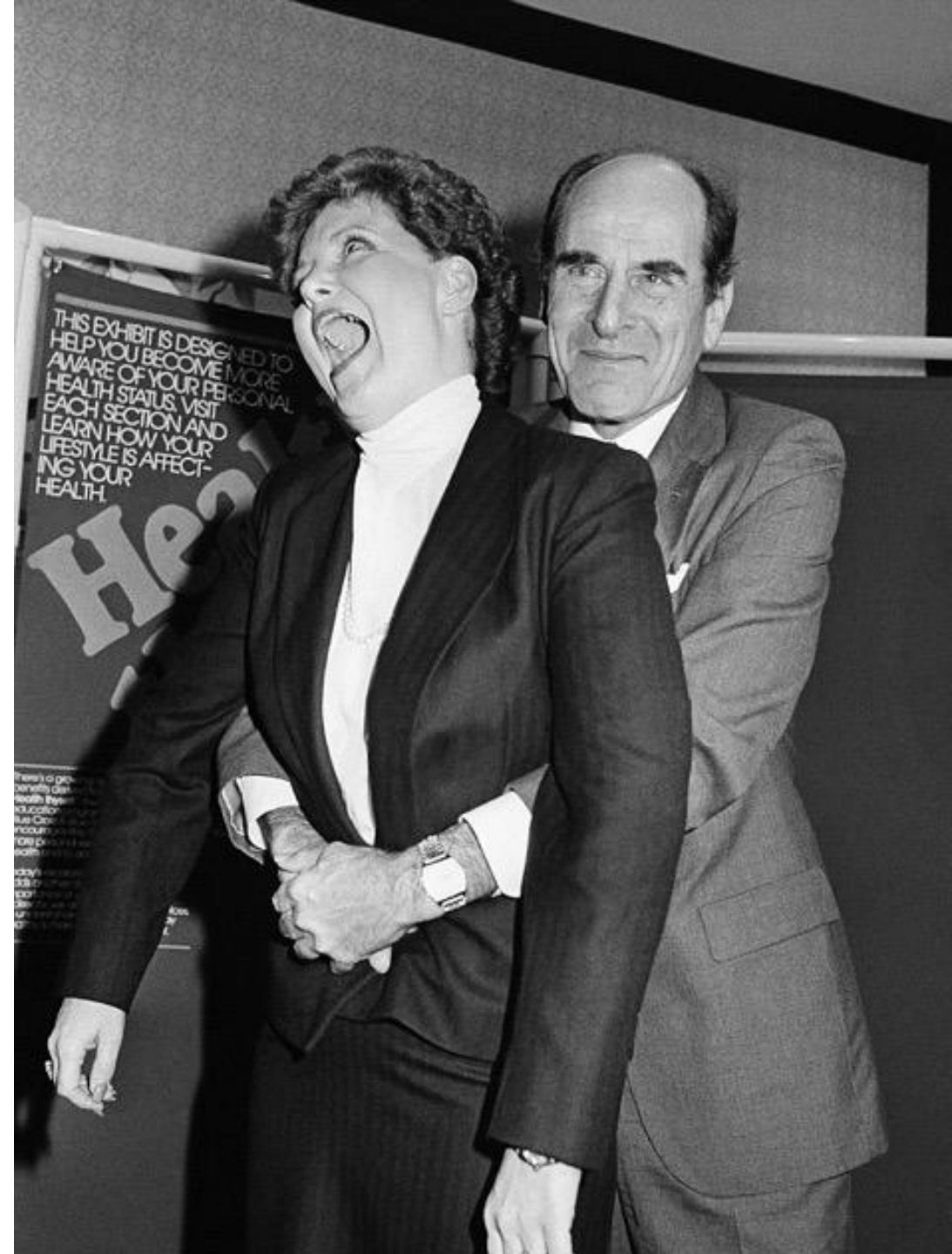
1: Cough!!

2: Stops coughing?

Call for help,

Backslaps/Heimlich 5 x 5

3: Falls unconscious? Call for help – start CPR 30:2



ABCDE

Breathing

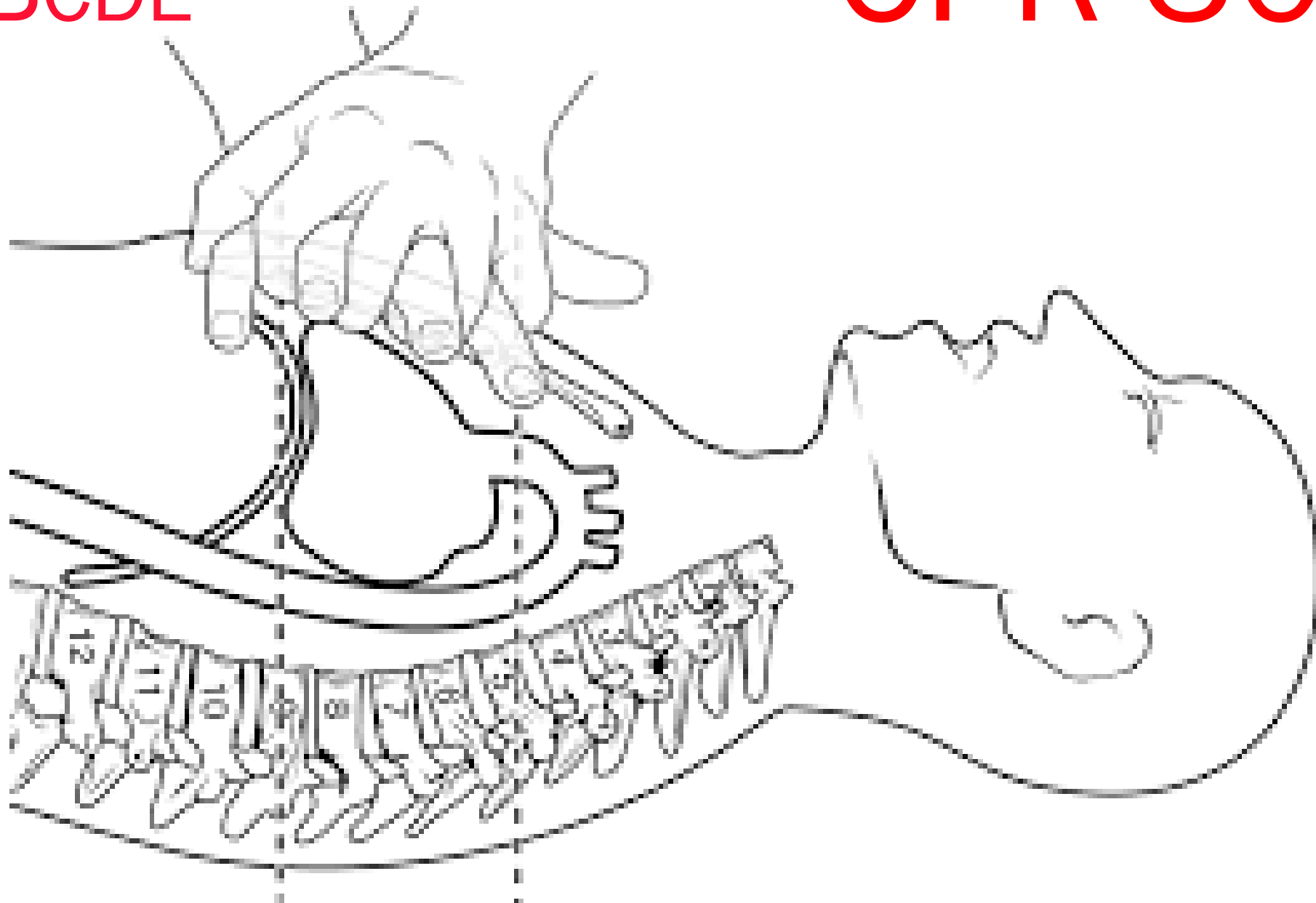


Use 10 seconds to hear, see and feel breaths

 **NO/IN DOUBT: Start CPR 30:2**

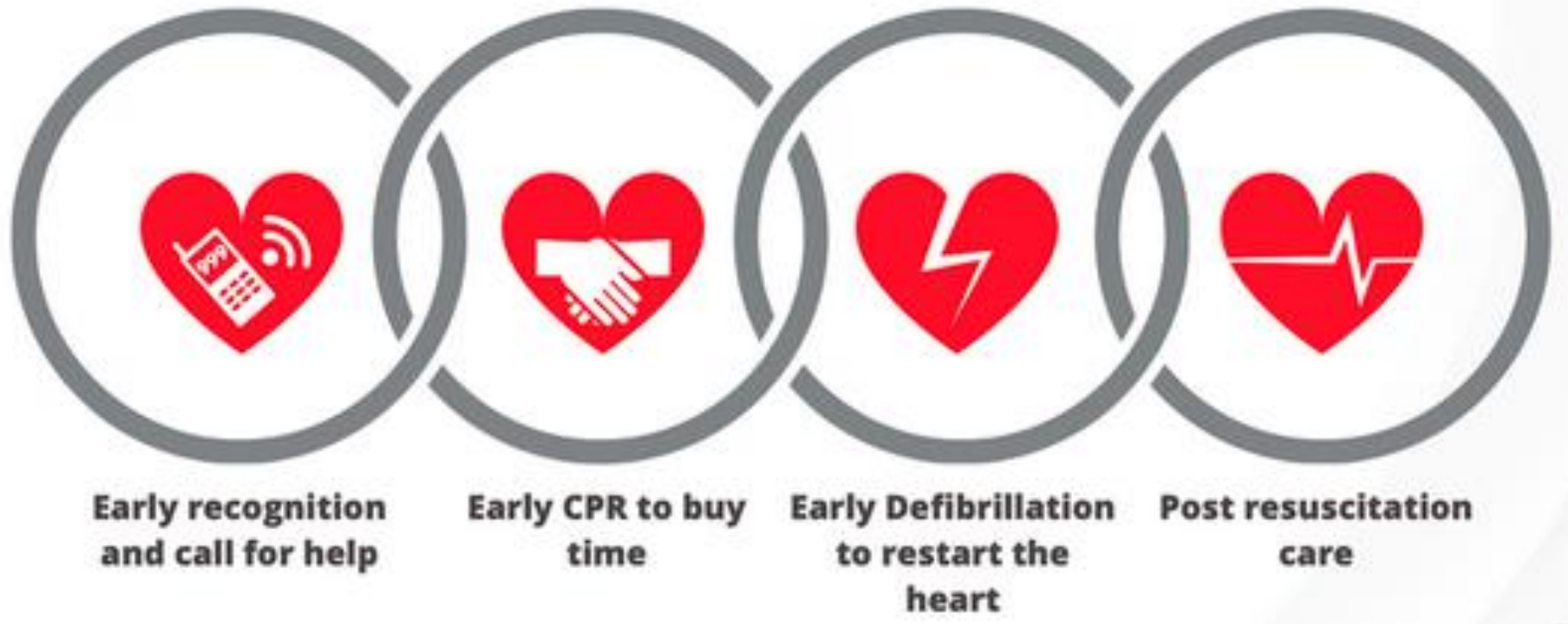
ABCDE

CPR 30:2



ABCDE – CPR 30:2

Heart arrest – chain of survival



ABcDE – CPR 30:2

30 compressions



- Open clothes – handbutt on naked breast
- Knees close to patient, straight arms and back
- 30 compressions 5-6 cm, NO "jumping" NO "leaning"
- Count loud!!

Rhythm «staying alive»

<https://www.youtube.com/watch?v=oQwNN-0AgWc>

ABCDE – CPR 30:2

2 rescue breaths:

- Headtilt/chinlift position
- Close nose, cover mouth with your mouth
- 2 breaths, until chest rises a little (no puking)
- Breathe RIGHT after 30 and “compress the air out” on the 2nd breath!
- 1 second per breath



ABcDE

Exercise AB/CPR



Use 10 seconds to hear, see and feel breaths

➔ NO/IN DOUBT: Start CPR 30:2

30 compressions should take 15-18 sec

ABCDE – CPR 30:2

If the rescue
breaths are difficult
or takes time: **skip them**

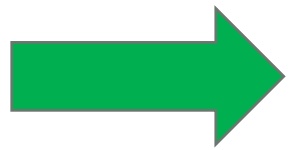
Change "compressor" every 6-9 rounds
= better quality 😊



ABCDE – CPR 30:2

When stop?

- Obvious signs of life: not-spasmic moves, normal breath



side position, keep monitoring breath

- Professionals arrive and **gradually** take over
- If the safety of the group is threatened (s)
- Longest CPR survived: 7 hours (cold patient)

ABCDE – CPR 30:2

Defibrillator arrives



- Self-explaining electrode stickers
- Connect stickers while doing CPR if possible – dry chest/remove hair
- ON – button. As soon as it says “analyzing” do NOT touch
- Shock-button **blinks** if shock is needed, defibrillator-boss **checks that nobody touches the patient** before pushing the button
- As soon as shock is given, continue CPR
- Continue following instructions from machine



ABCDE – CPR 30:2

- Drowning/suffocation:
5 breaths before 30:2



ABCDE

Breathing



Use 10 seconds to hear, see and feel breaths

➡ NO/IN DOUBT: **Start CPR 30:2**

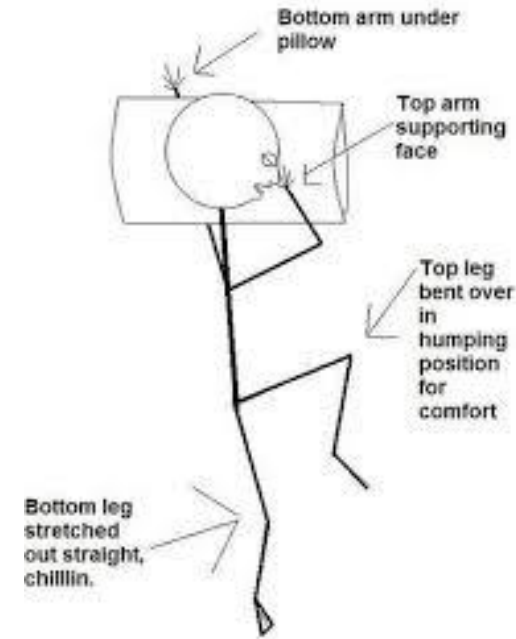
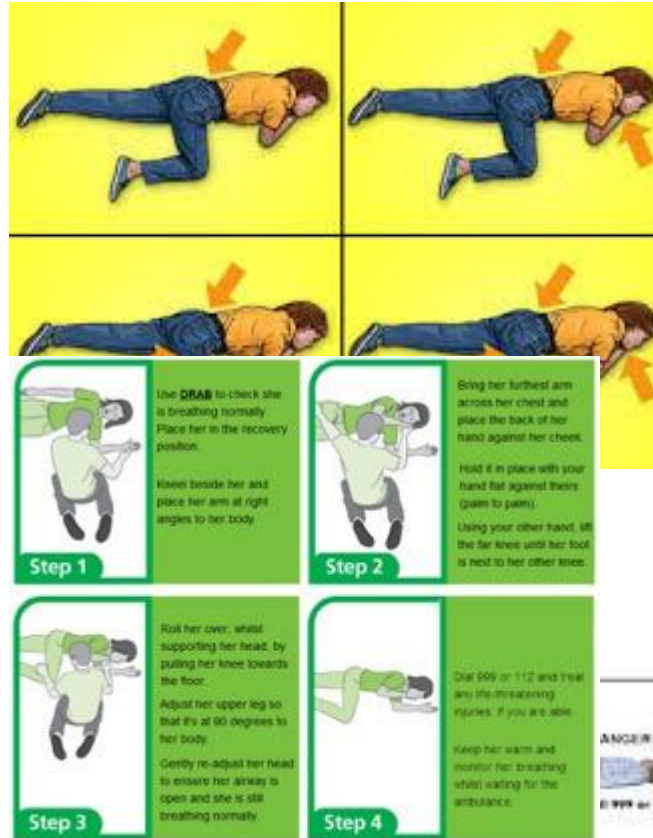
➡ YES - unconscious: **side position**

➡ YES - awake but struggling – **best position (sit)**



Side position: Complicated – or?

1. Check for any injuries. **If they are hurt, don't move them!** Call 911 and ask for an ambulance.
2. Bend arm to stop person rolling over.
3. Gently roll person onto their side.
4. Bend leg to support position.
5. Tilt head back and tuck hand under chin to keep mouth open.
6. Make sure someone is keeping an eye on them.



ABCDE

Exercise AB

Find partner unconscious



Open airway - use 10 seconds to hear, see and feel breaths

➡ YES - unconscious: **side position**

Keep checking breath for 1 minute (patient: stop breathing for a moment!) **do you recognise when breaths stop?**

ABCDE

Circulation

External bleeding = **Blood on the floor:**



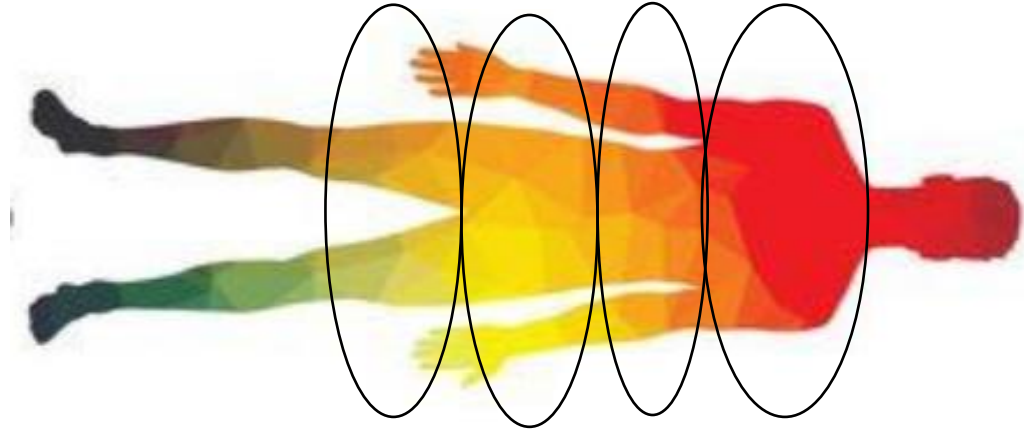
➡ **HARD pressure** - absorbing material under pressure point ASAP

Lifting the absorbing material can open up the bleeding again, no peeking 😊

Pressure bandage when bleeding stops/slows – recheck!

Internal bleeding = **4 more (pain)**

➡ **Horizontal position**



Other signs: Pale, sweaty, fast breathing/pulse

Consider wrapping up patient while pressing



Foreign
object in
wound:
stabilize –
not remove



ABCDE

Exercise C



External bleeding = **Blood on the floor:**

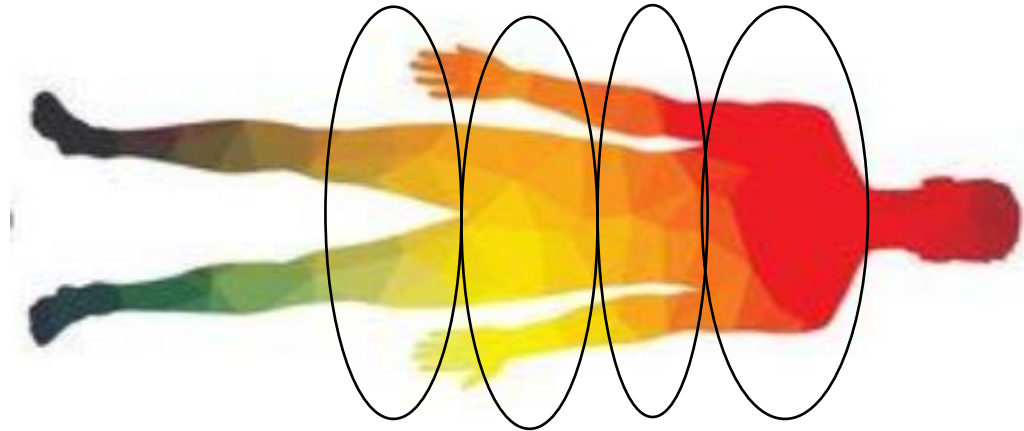
➡ **HARD pressure - absorbing material under pressure point ASAP**

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Pressure bandage when bleeding stops/slows – recheck!

Internal bleeding = **4 more (pain)**

➡ **Horizontal position**



Sum up (s) ABC

- (s) = **Safety for rescuers/injured** – can ABCDE be done where you are?
- A = **Airways** → **Talking = OK 😊** No contact? Call for help(?) look in throat, chinlift/headtilt
- B = **Breathing** → Hear, see, feel 10 sec
NO/IN DOUBT: CPR 30:2
UNCONSCIOUS, YES: side position, keep monitoring
AWAKE, YES BUT DIFFICULT: Best possible position (sit)
- C = **Circulation** →
 - *Blood on the floor => pressure/absorbing material
 - *4 more + pale, sweaty, fast breath/pulse => Horizontal position

ABCDE

**Dumb or numb?
(disability)**



Confused or acting strange?

➡ **Needs wrapping on E, even if ABC is ok**

Paralyzed bodyparts or neck/back pain?

➡ **Careful when wrapping on E**



ABCDE

E

Environment

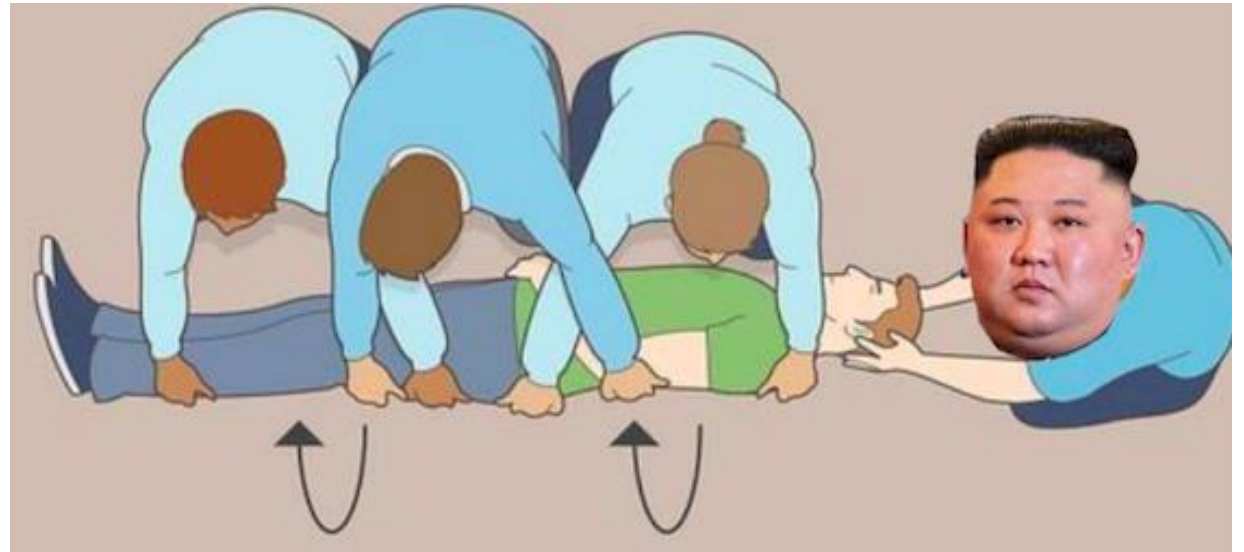
Wrap up the burrito

Hat, gloves ++

Big injuries:

cloth lift/roll gently

«Head holder» leads!



Sum up (s) ABCDE

- (s) = **Safety for rescuers/injured** – can ABCDE be done where you are?
- **A = Airways** → **Talking = OK 😊** No contact? Call for help (?) Look in mouth, chinlift/headtilt
- **B = Breathing** → Hear, see, feel 10 sec
 NO/DOUBT: CPR 30:2
 UNCONSCIOUS, YES: side position – **keep monitoring**
 AWAKE, YES BUT DIFFICULT: Best possible position (sit)
- **C = Circulation** →
 *Blood on the floor => pressure/absorbing material
 *4 more + pale, clammy, fast breath/pulse, dizzy, thirsty => lie flat
- **D = Dumb or numb/disability** →
 *Confused or acting strange? => keep body flat and warm
 *Paralyzed bodyparts or neck/back pain? => keep head still, careful when wrapping on E
- **E = Environment** → **Wrap the burrito!** Big injuries: cloth lift/log roll – «head holder» leads



Exercise

After ABCDE: «Load and go» or «stay and play»

Stay and play

- Emergency camp?
- A secondary, more detailed full-body-check
- Splint broken bones, stop smaller bleedings etc
- Gather/note other relevant info from patient: symptoms, medications, diseases
- Give sugar if strange behavior and suspected diabetes

Load and go

- Pack up all burritos and go – ideally one helper per head
- Constant monitoring of breath on the unconscious, also during transport

Broken
bones







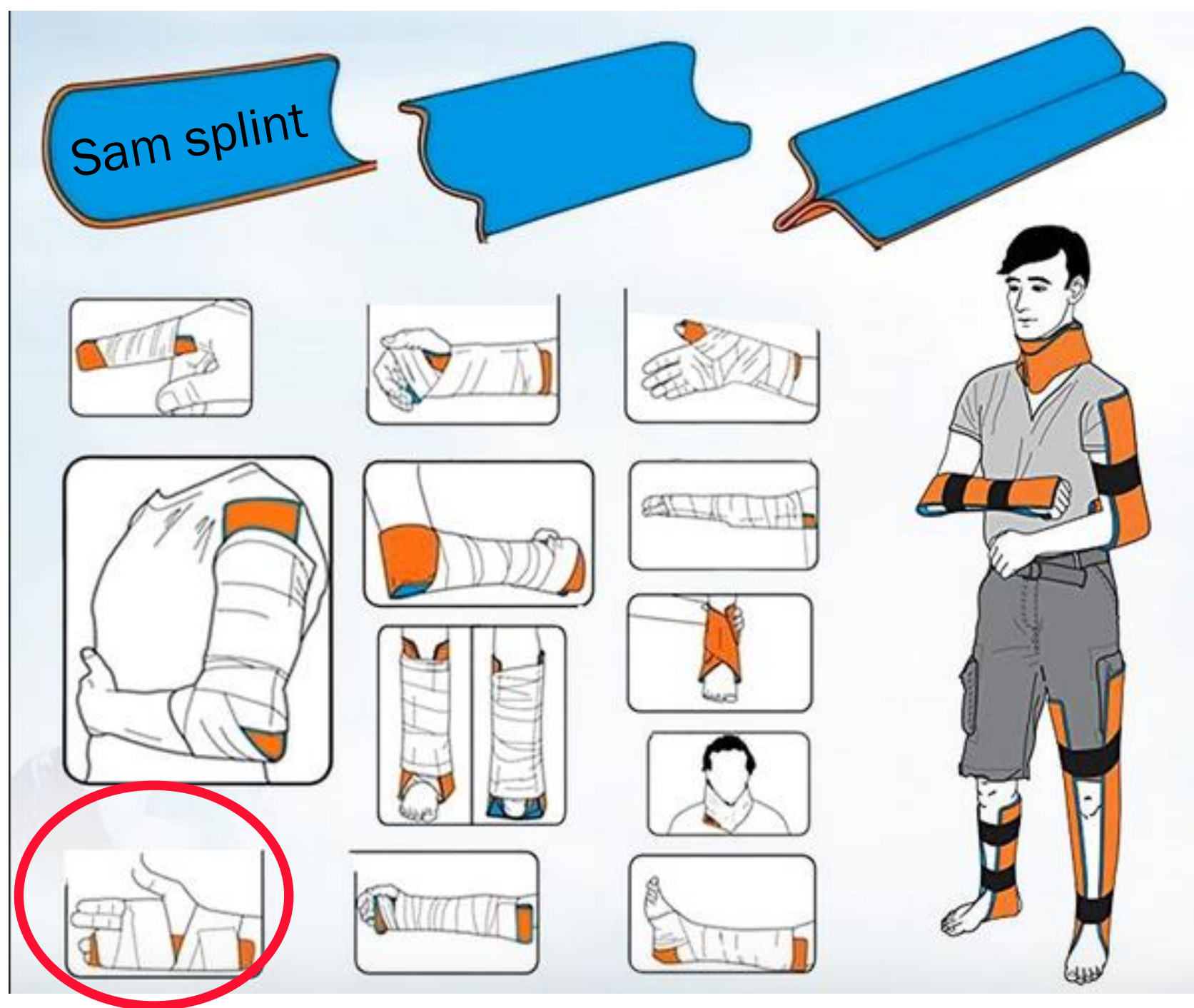
Broken bones in legs/arms

- Pain, swollen, red/blue
- Compare limbs – strange angle?
- Visible bones (can be hard to spot outdoors)
- Signs of cut-off circulation? (risk of losing limb)
- Sometimes ignored initially due to adrenaline level
- Often impossible to know if broken or sprained
- **What you can do:**
- RICE (rest, ice, compression, elevation)
- Splint = often BIG pain relief. Think simple!
- Cover visible bones. Gladpack/sterile bandage
- A pull can help when pain is enormous. Reduction?



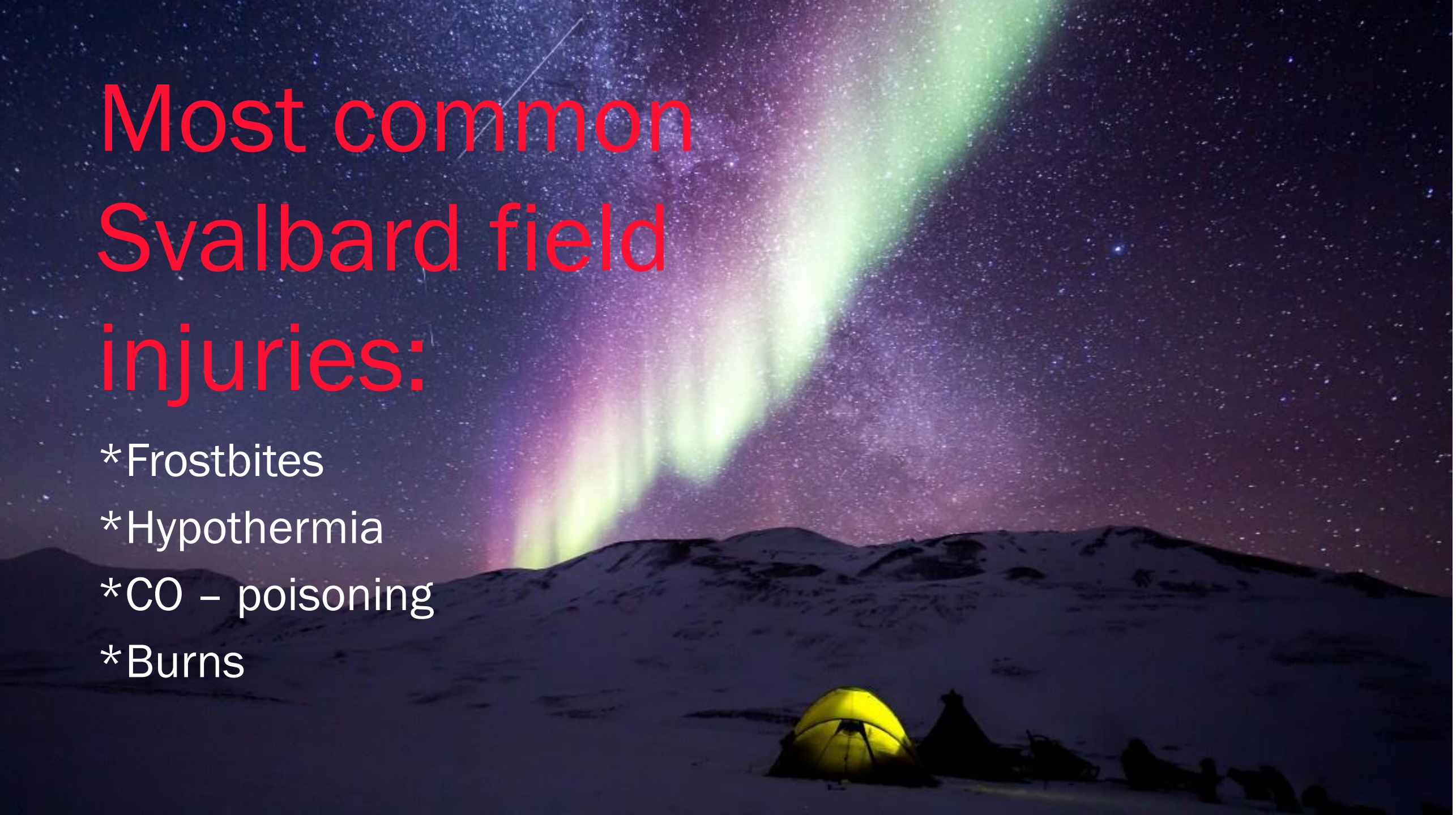
Splinting:

- Simple (time/chill)
- Avoid cold metal on skin
- Neutral position



Most common Svalbard field injuries:

- *Frostbites
- *Hypothermia
- *CO – poisoning
- *Burns



Frostbites





Frostnip





Body warmth until
normal colour...



..cover up,
continue the
adventure 😊

Frostbites

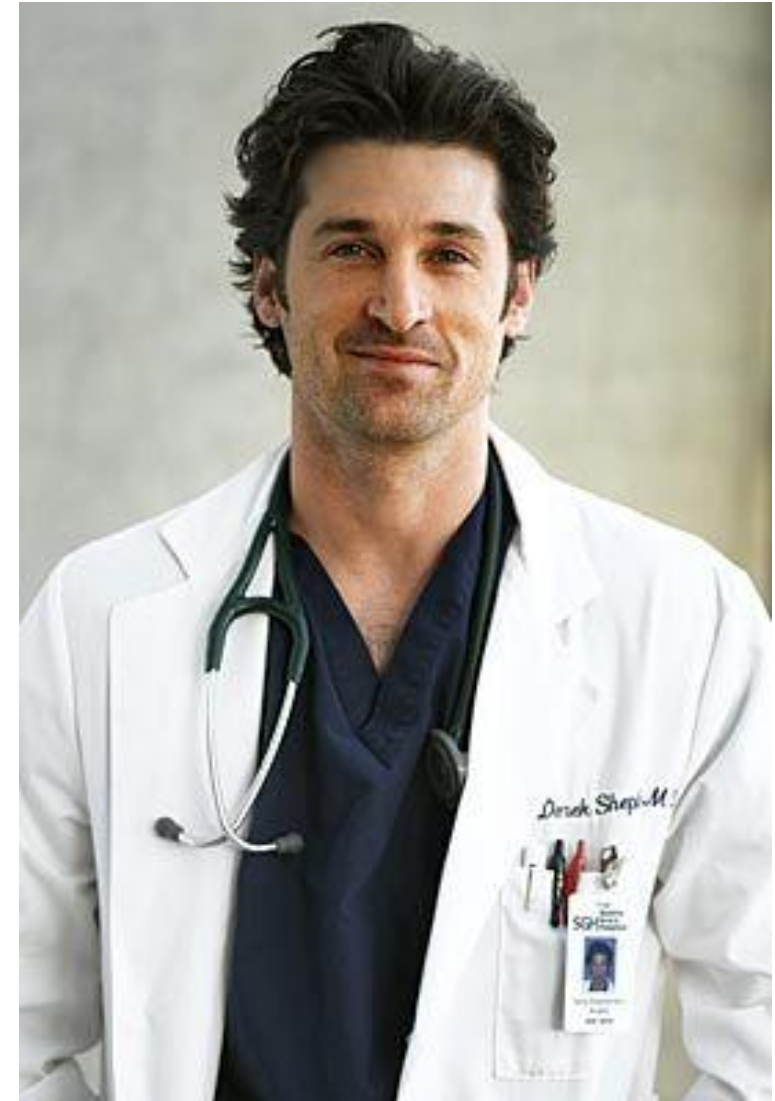
- A result of temperature x time. Long time in chill - but no frost - can still give frostbites
- Wind chill/moist = more risk
- Often ears, face, toes and fingers
- Pale, cold, stiff skin – deeper stiffness means bigger injury
- Stinging pain, numb or paralyzed
- First red, blisters after 1-2 days





Treatment deep frostbites

- Remove tight clothes/rings
- Cover and protect against mechanical injury/squeezing (shoes etc)
- Do not heat up if risk of re-freezing
- If heating: on body, **not over bodytemp**
- Go directly to the hospital for professional heating with painkillers
- Needs follow-up by doctor
- **Irreversible damage possible ☹**



Prevention of frostbites:

- Wind chill awareness
- Buddy system
- “Cant feel the toe”? No control, stop and warm it
- Eat, drink, pee and poop
- Space sheep 😊
- Use gloves when handling metal gasoline bottles



Hypothermia



A hypotherm body:

Mild:

Conscious and can communicate, often shiver
«Mumbles, fumbles, stumbles». Pale skin

Moderate to severe:

Strange behaviour: confused, aggressive, apatic,
"Paradoxical undressing"

Feels cold when touching chest/back

Unconscious (seems dead):

Pulse down to **10** per minute

Breath down to **2-3** per minute



BIG heart arrest risk!



Treatment of hypothermia

**YOU WILL NEVER MANAGE TO "OVERWARM" IN FIELD –
WARM UP!**

..burrito wrap, body contact, warm bottles, tent, stove+



FULLY CONCIOUS (mild): Food, warm **sweet** drink – up and dance
if the person can stand up without support



**STRANGE BEHAVIOUR OR UNCONSCIOUS
(moderate-severe):** Horizontal (side)
position, no raising of arms and legs



ABCDE - unconscious and hypothermic

You get **1 minute**, not only 10 seconds to see, hear and feel breaths

➡ **NO/IN DOUBT:** CPR – better survival rate 😊 "Not dead until warm and dead"

➡ **YES:** Side position very-very carefully



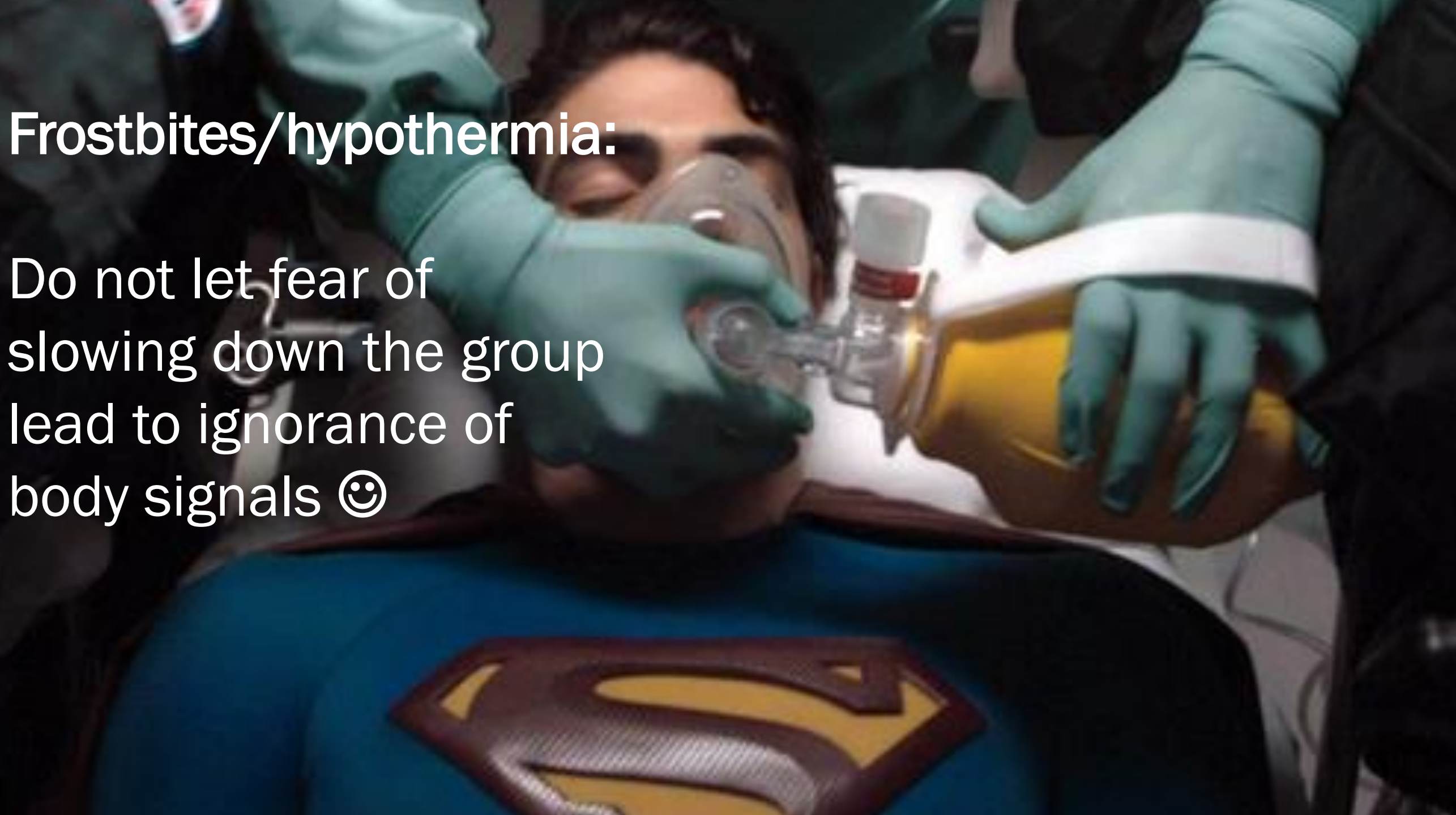
Prevention of hypothermia:

- A little cold? Dance!
- Buddy system
- Layers of wool&windproof
- Eat, drink, pee and poop
- Rest well

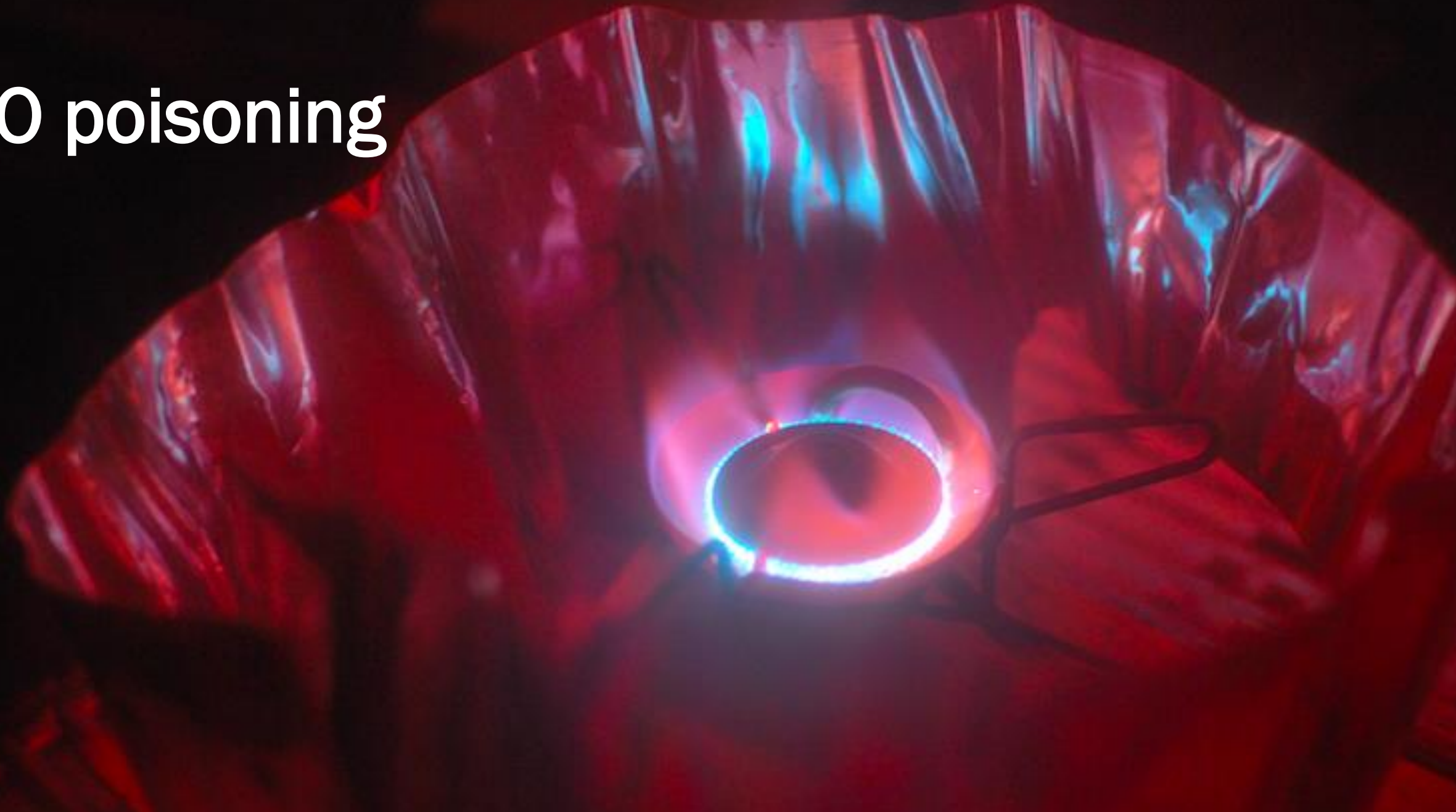


Frostbites/hypothermia:

Do not let fear of
slowing down the group
lead to ignorance of
body signals 😊



CO poisoning

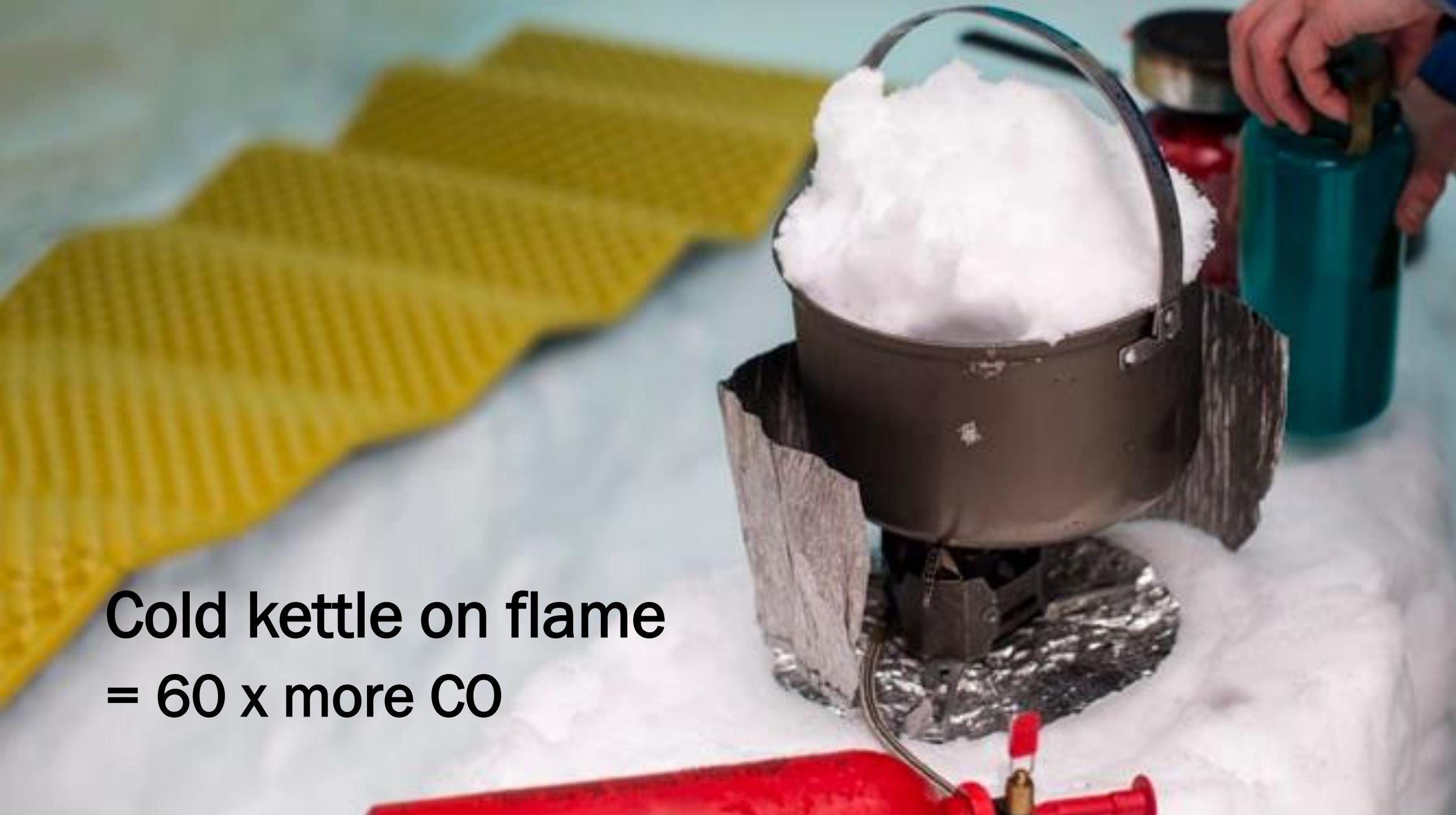


CO - carbonmonoxide

- Invisible, non-smelly gas from incomplete combustion of all kinds of stoves (gas, kerosene, gasoline, wood etc)
- Easily replaces oxygen in blood + slows cell «engine»
= «inner suffocation»
- Ventilation of fresh air removes gas
- Closed tent door, non-windy days and snow-blocked vents can reduce ventilation



**Cold kettle on flame
= 60 x more CO**



A close-up photograph of a blue, cylindrical outdoor cooking kettle. The kettle has a textured surface and a small, dark, cylindrical vent on the left side. It is sitting on a metal stand over a gas stove burner, which is lit with a blue flame. The background is a blurred green, suggesting an outdoor setting. The text "Cold heat-exchange kettle" and "= 500-1000 x more CO!!!!" is overlaid in white on the kettle's body.

Cold heat-exchange kettle
= 500-1000 x more CO!!!!

CO – symptoms of poisoning

- Tired, headache, dizzy
- Vomit, diarrhea
- Red skin
- Confused
- Unconscious
- Death or irreversible brain damage
- Symptoms can come slow OR fast – **and worsen day to day (needs 25 hours to leave body)**



Treatment of CO - poisoning

- FRESH AIR
- Evacuation and see doctor ASAP – even light symptoms can get worse



Prevention of CO-poisoning

- FRESH AIR, cook outside or with open door
- Carefully choose stove - **and kettle**
- Keep vents snow-free



Burns



- **Cool down immediately:** 20 C water for 20 minutes - running water or wet towels
- **Avoid hypothermia** – burrito?
- Elevate bodypart, remove rings, jewelry etc.
- Remove loose but not stuck clothes
- Cover with gladpack (not circular!) or burn dressing – keep blisters closed if possible.
- Pain killers – paracetamol/ibuprofen
- Big burns: drink a lot!
- Doctor check all 2 and 3 degree burns



Preventing burns

- Light up stove outside tent
- **Always** watch the stove
- Use gloves when pouring boiling water – close bottles
- Have a knife close when cooking in tent



Stay safe and **Enjoy Svalbard** 😊

