

Hypothermia

What's cooler than being cool?



Medical Rescue Training

- 
- ▶ ATACC Group Trauma and Casualty Care Instructor
 - ▶ RYA First Aid Instructor
 - ▶ BCU First Aid Coach
 - ▶ RLSS Water Safety Trainer
 - ▶ Swiftwater and Flood Rescue Technician
 - ▶ PWC Rescue trained
 - ▶ Powerboat Instructor
 - ▶ Emergency Care Assistant
 - ▶ Really Nerdily Into Hypothermia

Square-Knot.co.uk



Medical Rescue Training

Hypothermia

Hypo - too little



$< 36.8\text{ }^{\circ}\text{C}$

$< 98.2\text{ }^{\circ}\text{F}$

Normothermia

Normal

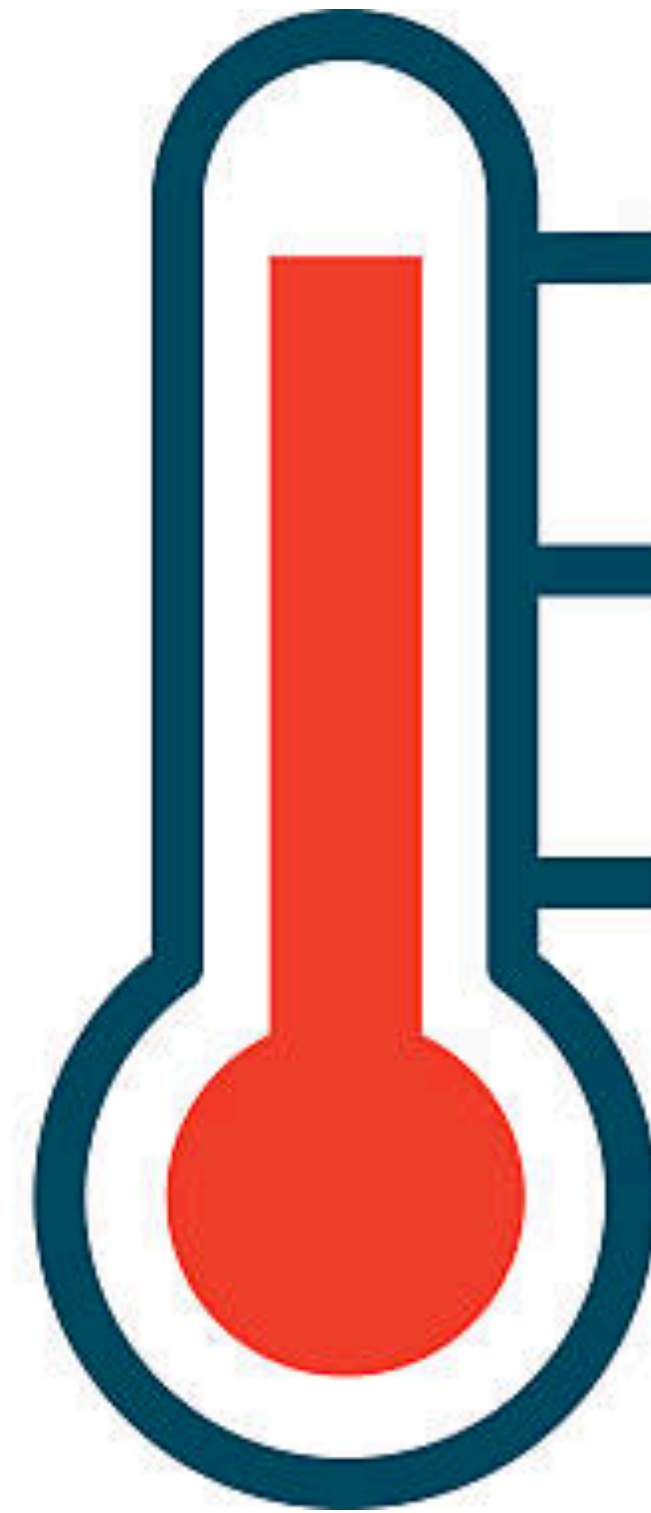


$\approx 36.8\text{ }^{\circ}\text{C}$

$\approx 98.2\text{ }^{\circ}\text{F}$

Hyperthermia

Hyper - too much



$> 36.8\text{ }^{\circ}\text{C}$

$> 98.2\text{ }^{\circ}\text{F}$

Environmental Illnesses such as **Heat Stoke and **Hypothermia**
are entirely preventable.**

Casualties with either of these conditions are usually a result of

- Inappropriate equipment**
- Lack of education**
- Bad planning**

No one in your group should ever be a casualty of environmental illness*.

(*Terms and Conditions apply, see manual for details)

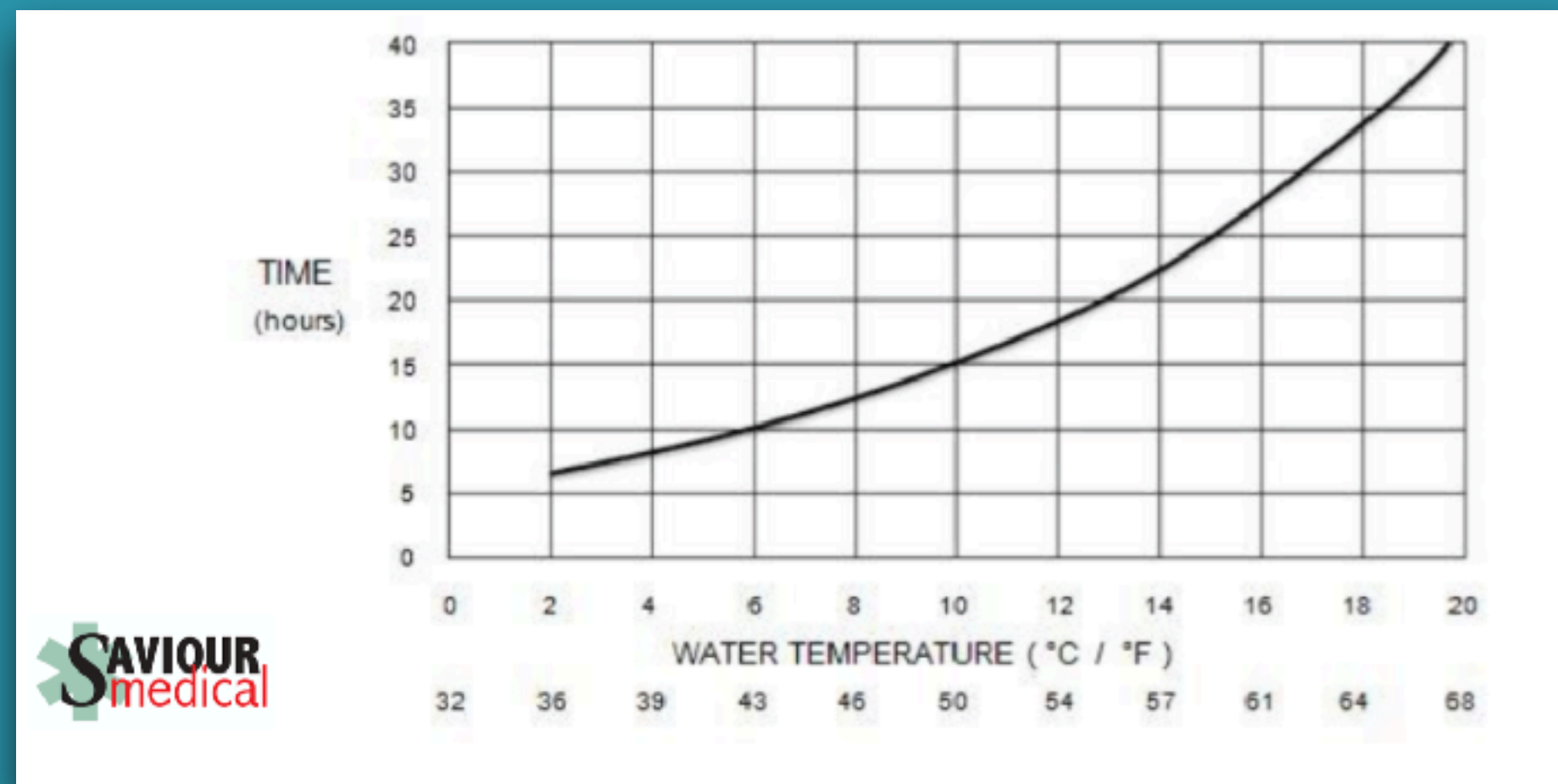


Primary Hypothermia

'When an otherwise healthy individual is exposed to environmental circumstances, such as adverse weather or ~~cold~~ water immersion that causes their core temperature to drop.'

5°C Air
20°C Water

Even in ice-cold water, the possibility of hypothermia does not arise for at least 30 min - Mike Tipton



Secondary Hypothermia

'Low body temperature resulting from a medical illness or trauma.'

Alcohol intoxication

Drug use (recreational or prescription)

Myocardial infarct (fancy pants way of saying Heart Attack)

Stroke

Sepsis

EXHAUSTION

Extreme physical exertion

Malnutrition

Hypoglycemia (low sugar)

TRAUMA

-Blood carries heat

-Neurological injury

-Burns

TRAUMA TRIAD OF DEATH

Hypothermia, Acidosis and Coagulopathy



Medical Rescue Training



Physical Ability



Mental Ability



Shivering

CORE TEMP (°C)

37

35

32

30

28

*Cold Stressed
(Not Hypothermic)*

*Mild
Hypothermia*

*Moderate
Hypothermia*

*Severe
Hypothermia*





Physical Ability

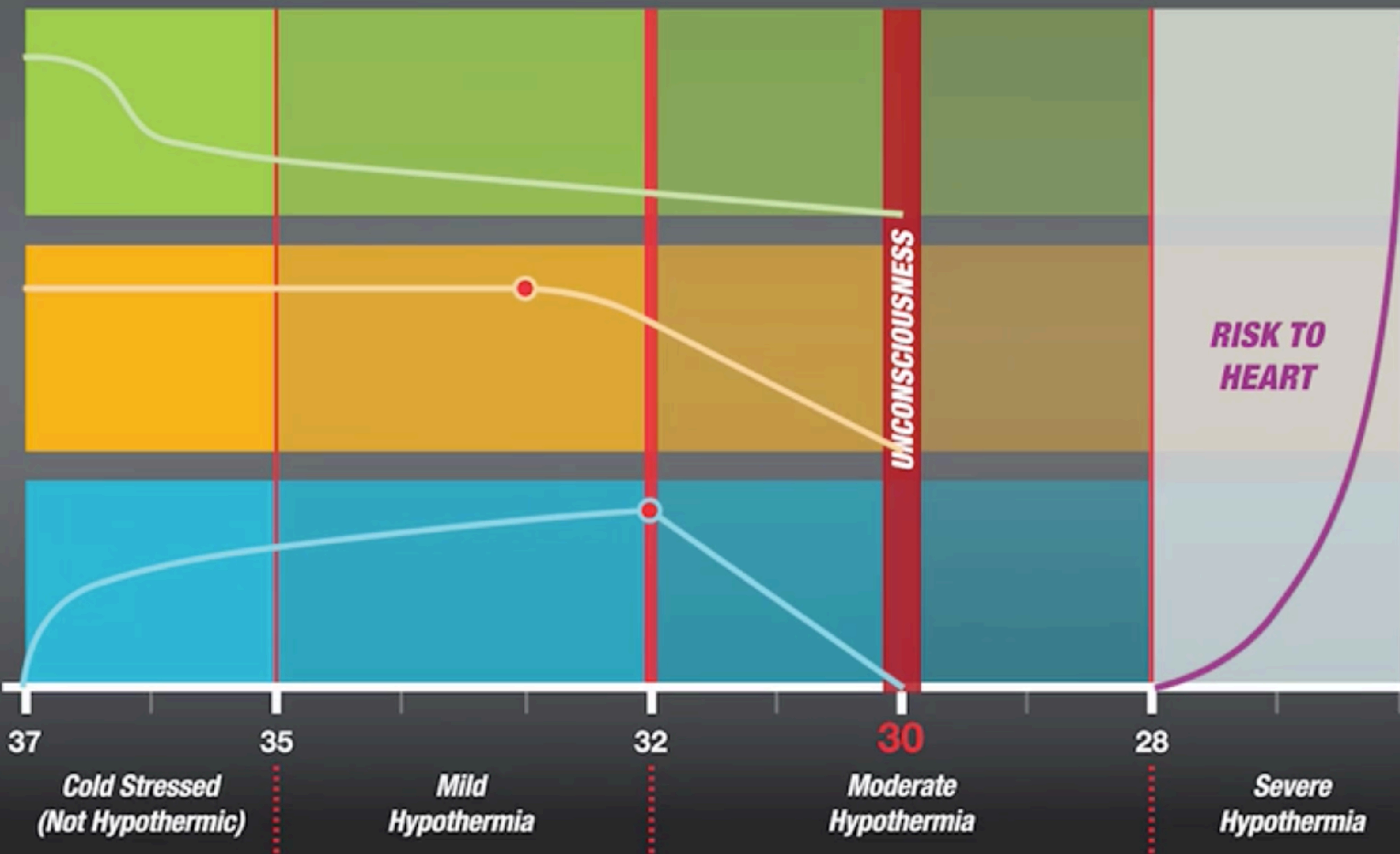


Mental Ability



Shivering

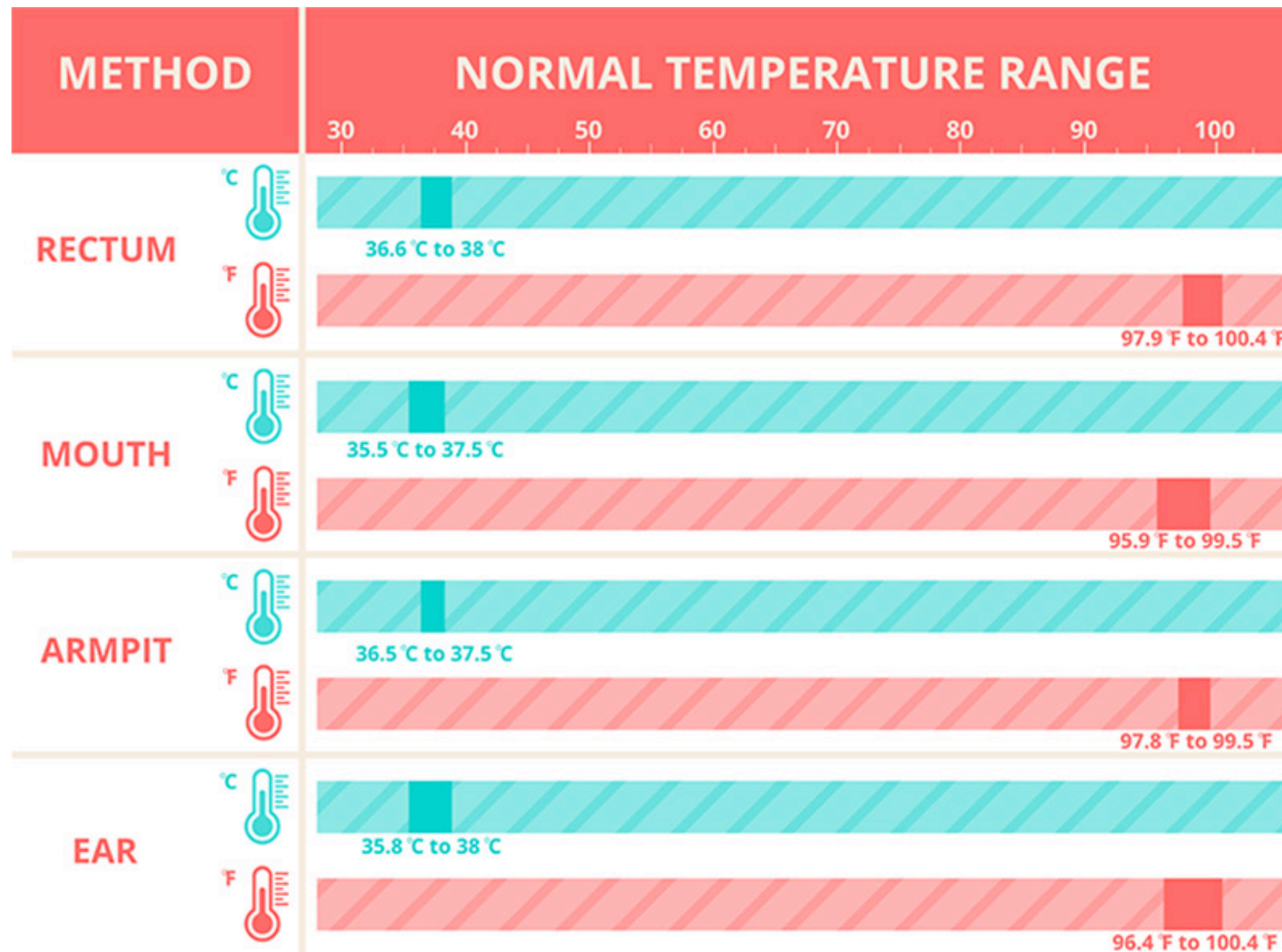
CORE TEMP (°C)



Correlation of Core Temperature and Physiological Changes				
Grade	C		Physiological Changes	
Mild	35		Maximum shivering, impaired judgment, confusion	
	34		Heart speeds up, breathes quicker	
	33		Heart slows down, breathes slower, slurred speech	
Moderate	32		Tired, stops shivering	
	31		Heart slows right down	
	30		Breathing very little	
Severe	29		Consciousness drops - maybe unconscious	
	28		Pulse rate and oxygen consumption decreased by 50%	
	27		Loss of reflexes and voluntary movement	
	26		No response to pain	
	25		Intermittent breathing	
	24		Super low Blood Pressure	
	23		No response from the eyes	
	22		Maximum risk for ventricular fibrillation	
Profound	20		Heart unlikely to restart	
	19		Asystole - Flat line (beeeeeeeeeeeeeeeeeeeeeeeeeeeeeep)	

**29 YoF
Norway 1999
Survived body temp of
13.7°C**





True readings
- Rectum
- Oesophagus

“Treat the person not the numbers”

Leverett, J. 2020

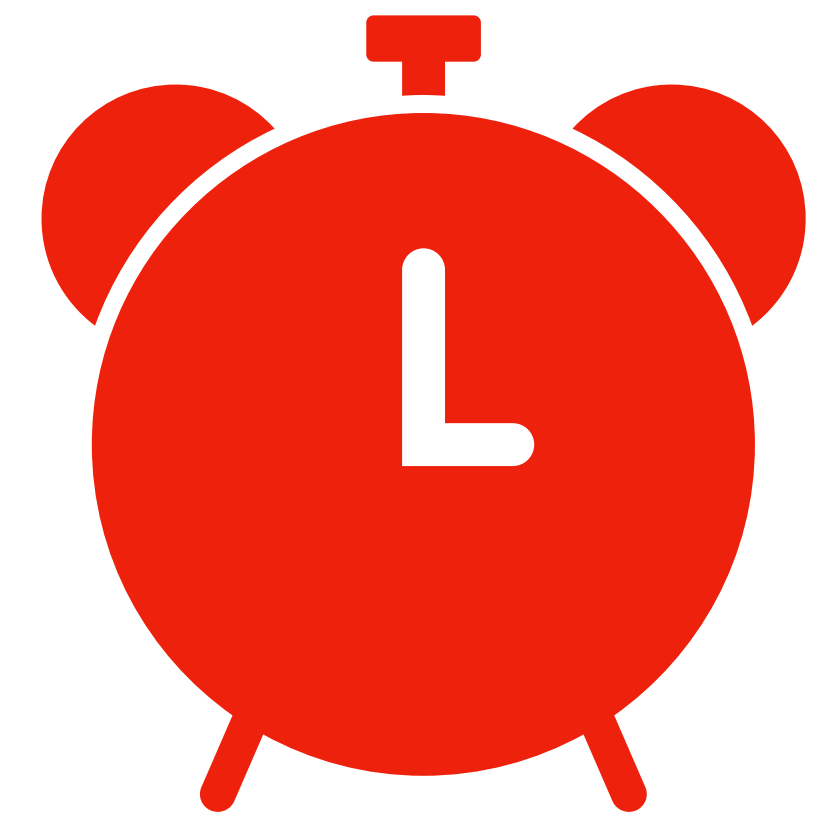
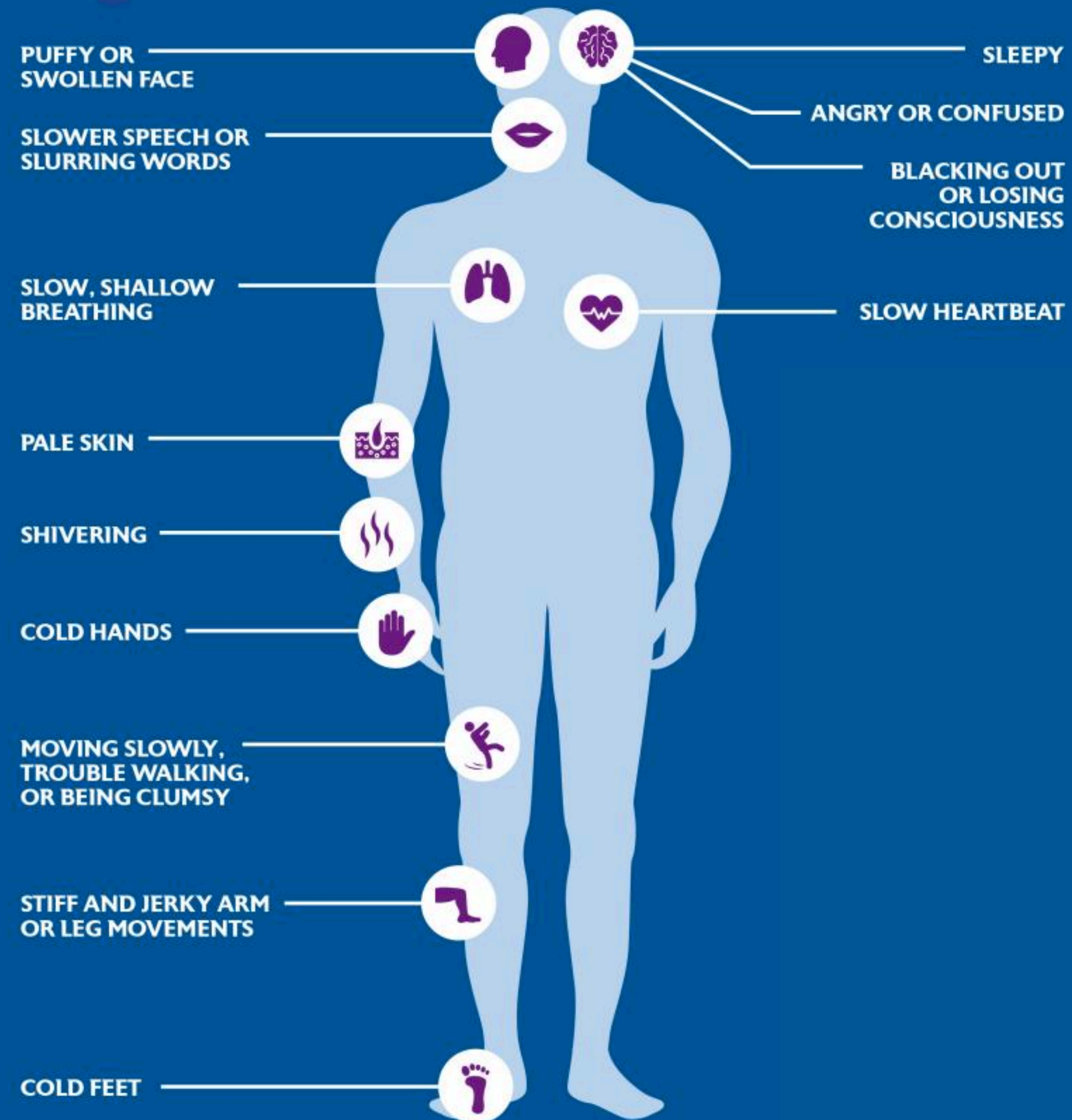


“The assessment of Hypothermia has to be based on clinical parameters rather than the core temperature”

MREW. 2016



HYPOTHERMIA WARNING SIGNS



IT TAKES TIME!

- **The “umbles”**
stumbles, mumbles, fumbles and grumbles
- **Misjudgements**
- **Paradoxical undressing**
- **Digging**
- **Slow, lumpy blood**

Stay and play

Scoop and Run

Kit
Environment
Distance/time to help
Seriousness
Other injuries
Other team members
SOPs

Advice/gut



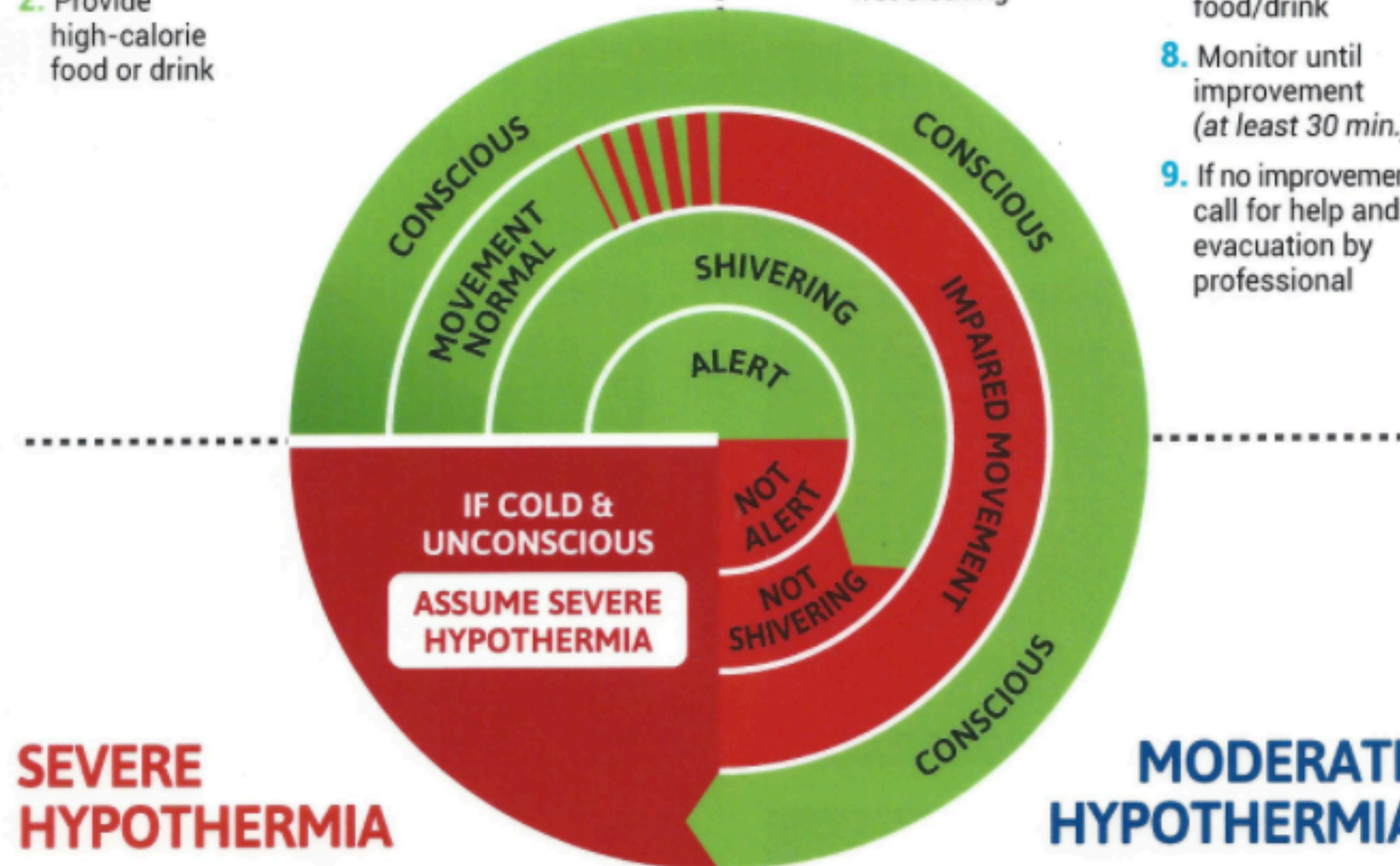
Medical Rescue Training

COLD STRESSED, NOT HYPOTHERMIC

1. Reduce heat loss (e.g., remove wet clothing, add dry clothing)
2. Provide high-calorie food or drink
3. Increase heat production (e.g., exercise)

MILD HYPOTHERMIA

1. Handle gently
2. Keep horizontal
3. No standing/walking for at least 30 min.
4. If sheltered, remove wet clothing
5. Insulate/vapour barrier (if applicable)
6. Heat applied to chest and armpits (if available)
7. High-calorie food/drink
8. Monitor until improvement (at least 30 min.)
9. If no improvement, call for help and evacuation by professional



SEVERE HYPOTHERMIA

1. Treat as Moderate Hypothermia, and
 - a) IF no obvious vital signs, **THEN** 60-second breathing / pulse check
 - b) IF no breathing / pulse, **THEN** Start CPR
2. Call for help and evacuation by professional

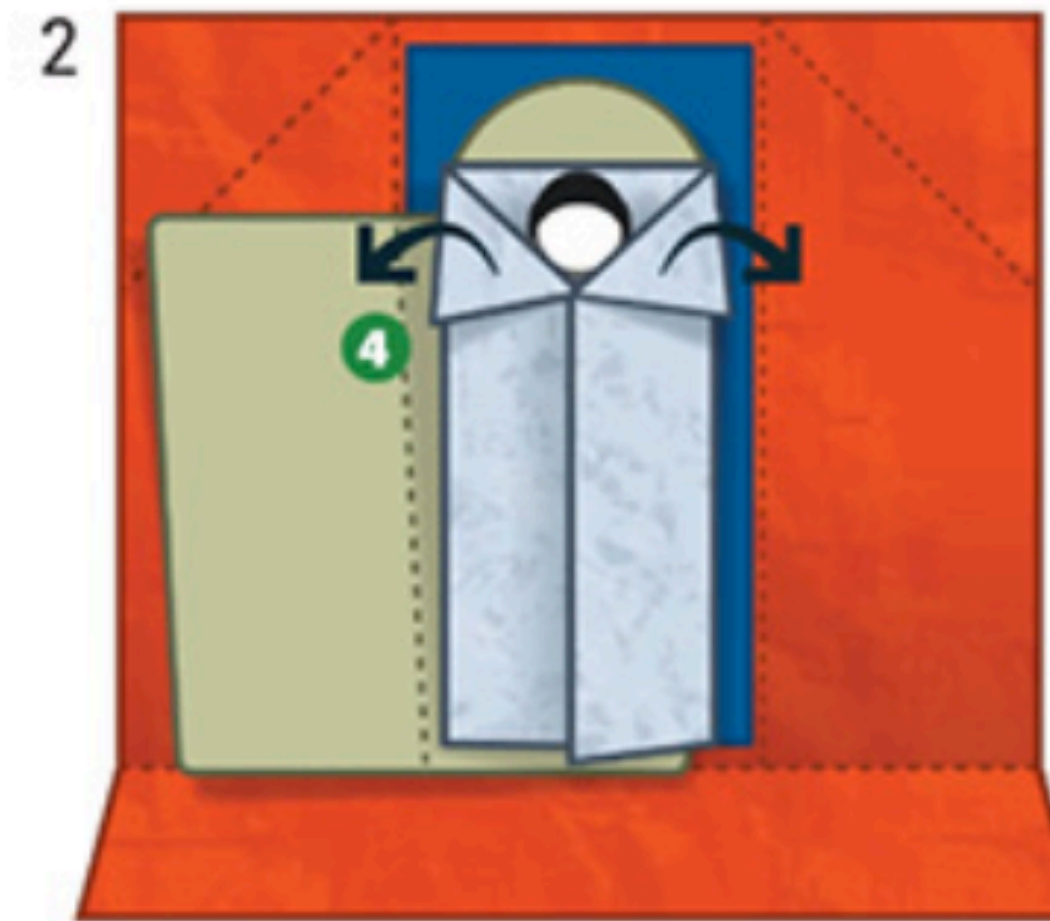
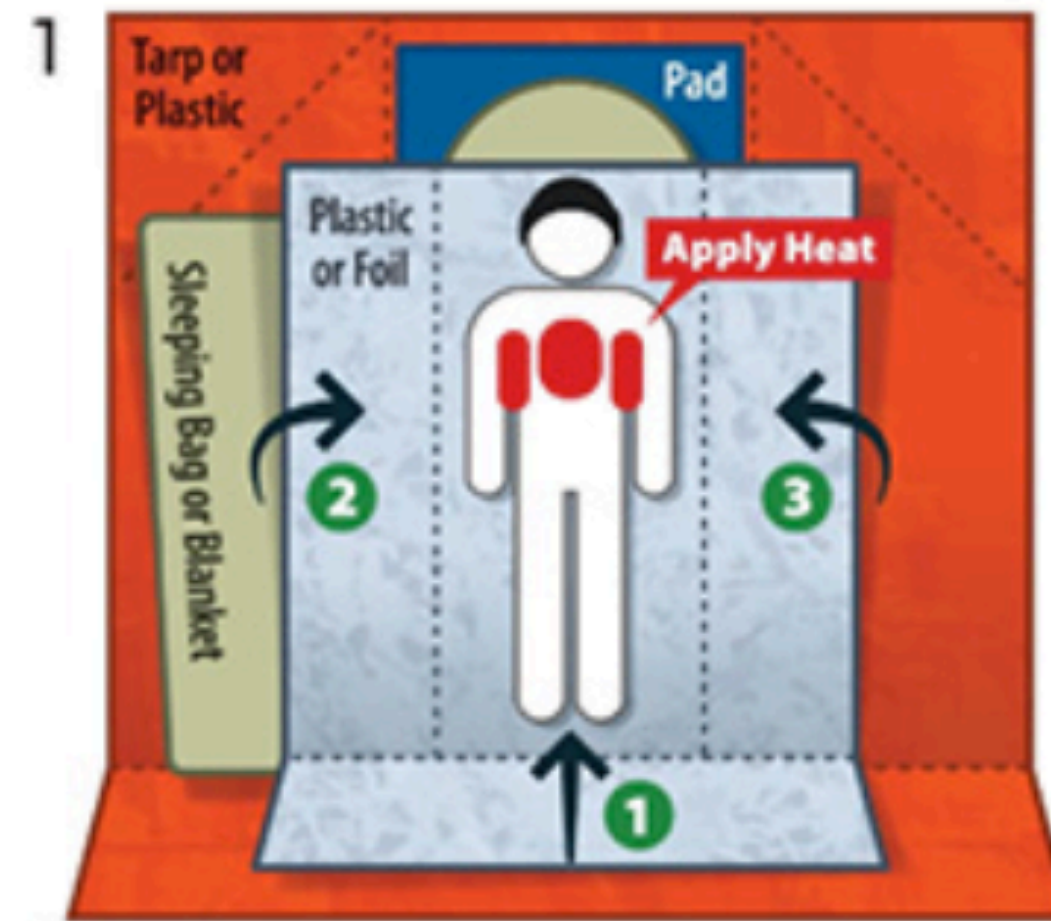
MODERATE HYPOTHERMIA

1. Handle gently
2. Keep horizontal
3. No standing/walking
4. No drink or food
5. If sheltered, remove wet clothing
6. Insulate/vapour barrier (if applicable)
7. Heat applied to chest and armpits (if available)
8. Call for help and evacuation by professional

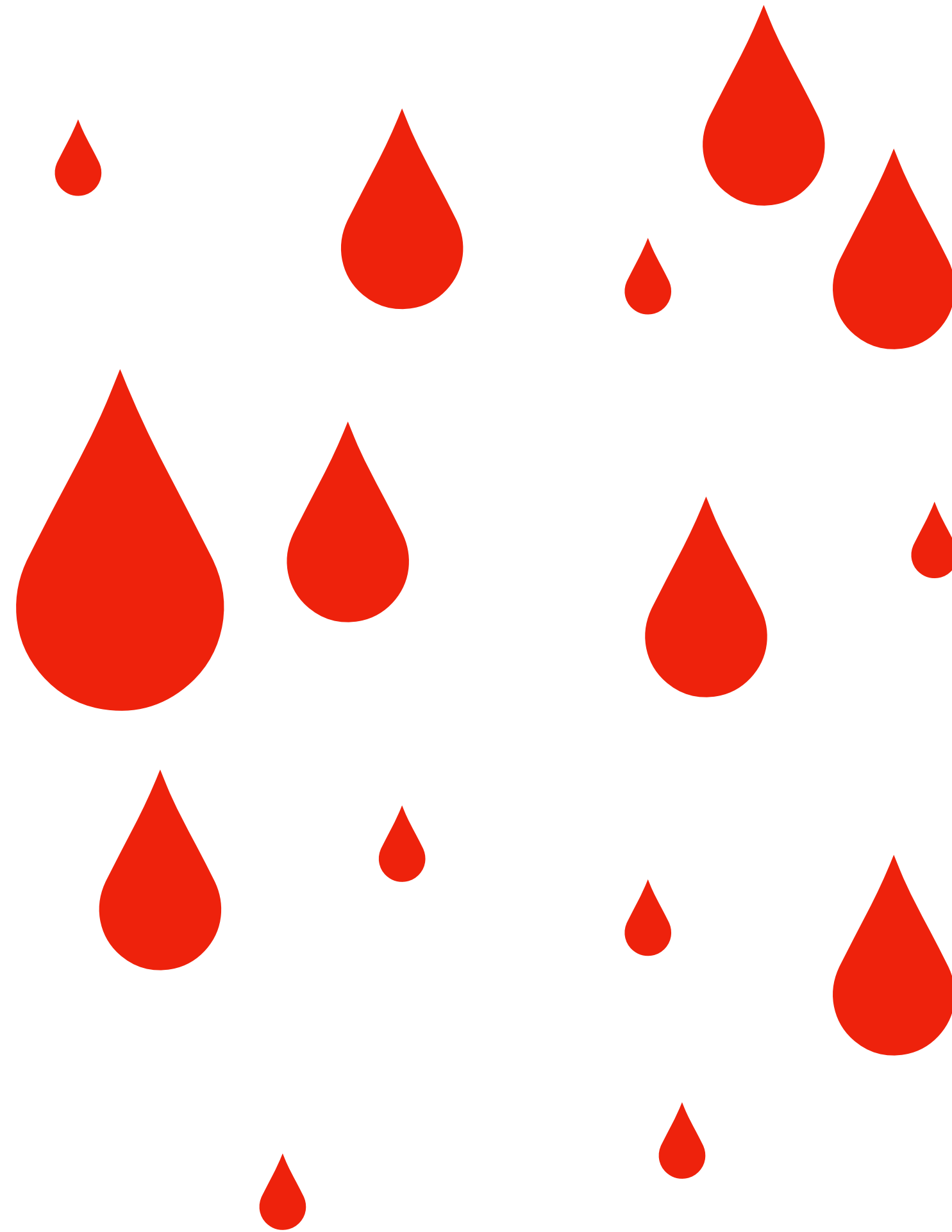


INSTRUCTIONS FOR HYPOTHERMIA WRAP "The Burrito"

1. Dry or damp clothing: *Leave clothing on*
IF Shelter / Transport is less than 30 minutes away, THEN Wrap immediately
2. Very wet clothing: *IF Shelter / Transport is more than 30 minutes away, THEN Protect patient from environment, remove wet clothing and wrap*
3. Avoid burns: follow product instructions; place thin material between heat and skin; check hourly for excess redness



Warm blood starts to flow



“After Drop”

**A result of aggressive rewarming.
Leads to peripheral vasodilation.
Hypovolemic shock.
Rapid core cooling.**

If the casualty has vital signs and is insulated there is no rush to actively warm them.



**Not dead
until they're
warm and dead**

References / Research / Links

www.bicorescue.com

www.casualtycarebook.com

www.rcemlearning.co.uk/reference/hypothermia

www.realfirstaid.co.uk/hypothermia

www.realfirstaid.co.uk/packaging

www.theresusroom.co.uk/hypothermia-2

www.theadventuremedic.com/features/cold-card