



First Aid

Title : *Enviromental Illness
& Injury*

Lec no : 9

Done By : *Reem Mezher*

وَقُلْ رَبِّ زِدْنِي عِلْمًا

-معلش معلش، رجعنا لكم
بتفريغ جديد ومحاضرة
جديدة، بس سهلة للأمانة.





- 1. Heat-Related Illnesses :
 - (heat cramps , heat exhaustion ,
 - heat stroke)

- 2. Cold-Related Illnesses :
 - (Frostbite , Hypothermia)
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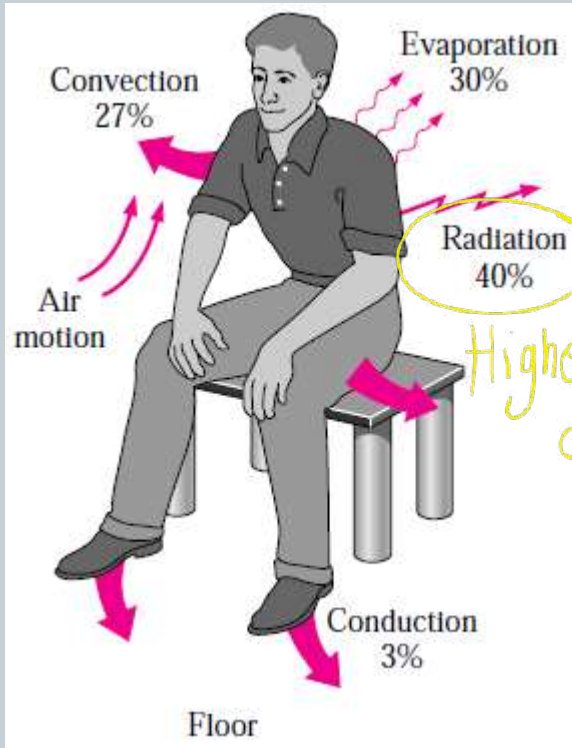
- 3. Decompression sickness

The aim of these ways is to keep our body temperature within a normal level.

WAYS THE BODY LOSES HEAT

- The body loses heat through:
 - 1) **Evaporation** ^{تبخر} of water from your skin (**sweating**).
 - 2) **Radiation** : is a form of heat loss through **infrared rays**. This involves the transfer of heat from one object to another, with no physical contact involved. For example, the sun transfers heat to the earth through radiation .This normal process of heat moving away from the body .
 - 3) **Conduction** : is the process of losing heat through **physical contact** with another object or body such as heat loss from sleeping on the cold ground or sitting on a metal chair.
 - 4) **Convection** : is the process of losing heat through the **movement of air** across the skin similar to sitting in front of a fan or having the wind blow on you.

ال-radiation هي أعلى طريقة ممكن نخسر فيها حرارة *مش ضروري نحفظ النسب *



Convection
Moving air removes radiated heat

Evaporation
Loss of heat by evaporation of water

Radiation
Emission of electromagnetic radiation

Conduction
Direct transfer by contact

HEAT-RELATED ILLNESSES

-Body inability to regulated temperature .

- Heat illness may be viewed as a continuum of illnesses relating to the body's **inability to cope with heat** .
- Body can maintain a constant temperature by balancing heat gain with heat loss. When heat gain overwhelms the body's mechanisms of heat loss, Heat illness occur .
- **Three types of heat-related illnesses :**
 1. **heat cramps** تشنجات حرارية
 2. **heat exhaustion**
 3. **heat stroke**

-درجة الحرارة التي بمتصها جسمك أكثر من التي بتفقدتها فبصير عندي ارتفاع في درجة حرارة الجسم،
-الأطفال والكبار في السن بكون عندهم تنظيم درجة حرارة أجسامهم أقل كفاءة من الشباب .



People with **exposure to high temperatures** that **overwhelm the body's thermoregulatory capacity** are at risk for heat stress (heat-related illnesses) .

Examples : Outdoor working or exercising in hot environments and workers such as firefighters and bakery workers .

①

②

Note : The elderly and the young (younger than 15 years or older than 65 years) , The obese, and individuals whose immune systems may be compromised **are at greater risk** .

③

④

HEAT-RELATED ILLNESSES (HEAT CRAMPS, HEAT EXHAUSTION, HEAT STROKE)

مثلاً جاي على الجامعة ودرجة الحرارة 40 ومشيت كثير وما شربت ماء كفاية هون انت عرضة ليصير معك muscle cramps or spasms .

1. Heat Cramps

Heat cramps are the **mildest** form of heat injury and consist of **painful muscle cramps** and **spasms** especially in the **legs** .

هي فقط عبارة عن شعور سيء بإنك تعبان وهلكان من الشوب وهاي الأعراض هي أقل درجات ال heat illness .

Treating heat cramps is very simple, do the following:

- **Remove** the victim **from the hot** environment to a shady area .
- **Stretch the calf and thigh** muscles gently through the cramp. This usually results in immediate relief.
- **Hydrate the victim**
- Have the victim **rest** .

إذا الشخص ما أخذ rest وما قعد في shady area رح تتطور حالته ويدخل في النوع الثاني واللي هو ال heat exhaustion.



2. Heat Exhaustion

Heat exhaustion is more severe than heat cramps that can develop after several days of exposure to high temperatures .

-بضل حاس حاله دا يخ ومدروخ ومش مركز كثير وبكون ال level of conscious شوي أقل من الطبيعي لكن لساته صاحي وبحكي معك بس تعبان .

TREATMENT OF HEAT EXHAUSTION



ال- treatment نفس ال heat cramps .

- Loosen the clothing.
- Move the victim to a cool an air-conditioned area or use a fan .

The treatment priority for heat exhaustion is to cool the victim. Heat exhaustion is not life-threatening (unlike heat stroke), so EMS is not needed unless the victim's condition worsens to the point of entering heat stroke. If the victim's level of consciousness is affected, that is heat stroke.

بلش يغيّب وبطل يحكي ويرد عليك .

3. HEAT STROKE

-ممكن يصير معاه vomiting.

3. Heat stroke

also known as **sun stroke** , is the **most severe** heat-related illness and is defined as a body temperature higher than $\uparrow 40^{\circ}\text{C}$ associated with **neurologic dysfunction**. It is a serious, life-threatening problem that can cause death in minutes.

The treatment priority with heat stroke is to **call EMS** and **cool the victim down**.

When you provide first aid for heatstroke, remember that this is a true life and- death emergency. The longer the victim remains overheated, the higher the chances of irreversible body damage or even death occurring.

TREATMENT OF HEATSTROKE

- **Notify EMS.**
- **Cool** the victim's body immediately by dousing the body with cold water.
 - Apply wet, cold towels to the whole body.
 - Pack ice into the victim's **underarms, groin, neck** .
فخذ
- (**Do not let ice contact the victim's bare skin as this may cause frostbite!**)
- Wetting and Evaporating measures work best.
(Think, artificial sweating.)

-مروحة أو مكيف ولو كان بيبي بنغسل رأسه وبنعمله shower وحتى لما ننقله للسيارة بدنا نضل محافظين على درجة الحرارة إذا شفت ال conscious تحسن بنشربه ماء أو شيء بارد يشربه أما إذا لسا المريض مش conscious وبتسألها وما برد عليك هون ما بنشربه إشي بلاش يصير معاه respiratory complications وينخفق.



- Move the victim to the coolest possible place and remove as much clothing as possible (ensure privacy). (Not freezer)
- Expose the victim to a fan or air-conditioner to promote cooling.
 - Immersing the victim in a cold water bath is also effective.
- Give the victim (if conscious) cool water to drink.
 - Do not give any hot drinks or stimulants.
 - Never give an unconscious victim something to drink as it may obstruct the airway or cause vomiting.
- Get the victim to a medical facility as soon as possible.
Cooling measures must be continued while the victim is being transported.

HEAT STRESS INJURIES

HEAT CRAMPS

- Muscle cramps, pain or spasms in the abdomen, arms or legs

HEAT EXHAUSTION

- Moist, clammy skin
- Dilated pupils
- Normal or subnormal temperature

- Weak pulse
- Rapid breathing

HEAT STROKE

- Dry, red, hot skin
- Pupils constricted
- Very high body temperature
- Dizziness, confusion and/or nausea
- Pulse rapid
- Unconsciousness
- Coma
- Death

2.COLD-RELATED ILLNESSES : (FROSTBITE , HYPOTHERMIA)

-بتصير أكثر إشي في البلدان اللي دائماً فيها ثلج ودرجات الحرارة في ال (-40 , -60) minus، في كندا وروسيا ، وممكن تصير عنا لما تثلج على خير وسلامة .

1.Frostbite : is an injury caused by **freezing** of the skin and underlying tissues.

↪ Skin discoloration

-) **Frostbite** is most common on the **fingers, toes, nose** and **ears**.

NOTE : If the frozen tissue is **more than skin deep**, this is considered **Deep (severe) frostbite**.

recognize symptoms

Skin numbness

Redness or pain

Affected skin looks white or grayish-yellow color

Skin may feel unusually firm or waxy





-هاي الصور خارجية بس عشان نشوف كيف
بتصير ال deep frostbite



- نعتذر عن قساوة المشهد والحمد لله
الذي عافانا والحمد لله على نعمة
الصحة وادعوا بالشفاء لكل مريض .



• Treatment for frostbite is as follows:

Notify EMS as soon as possible or be prepared to transport victim to a medical facility, even after treatment of frostbite.

• Remove victim from cold environment, ensure there is **no possibility of hypothermia**.

Gently rewarm frostbitten areas.

-بدي أرفع درجة حرارته بالتدريج .

Soak the frostbitten areas in **warm water** — (37 to 39 C). If a thermometer isn't available, test the water by placing an uninjured hand in it — it should feel very warm — not hot.

• Rewarming takes about 30 minutes. Repeat the above step by refreshing the water as it cools . Stop the soaking when the skin becomes its normal color or loses its numbness.

Protect your skin from further damage. If there's any chance the affected areas will freeze again. wrap them up so that they don't refreeze.

Consider pain medicine

-بقعده مقابل صوبة بدقيه كاملاً مش بس الإيد وبنفس الوقت بدقي الإيد المصابة بزيادة وبحطها في ماء دافي مثلاً ، ولو عنده ألم بنعطيه medication يخففه، وبنضل نراقب منطقة الإصابة لو رجع لونها طبيعي وبحس فيها وبحركها فهو المطلوب أما إذا زادت سوء وبلش يصير لونها أسود هان نغري على المستشفى .

اللي بصير معه frostbite لأنه ما بحس في إيديه لو حطيتهم على نار، ما رح يحس بالوجع وهاد نفس الشيء بصير مع مرضى السكري ممكن ينحرقوا وهم مش منتبهين ومش كثير حاسين بوجع لأنه عندهم biological defect ، ف لازم تراقبه مش تخليه على راحته وعلى كيفه وهو مش منتبه .

Frostbite caution

Since skin may be numb,
victims of frostbite can harm themselves further.
Use caution when treating frostbite.



do not walk
on feet or toes
with frostbite



do not use a fireplase,
heat lamp, radiator or stove
for warming



do not rub or massage
areas with frostbite

ما تحط درجة حرارة دافية
عليها مباشرة بدنا بالتدريج
وما بنعمل مساج عشان ما

يصير damage of

tissue .



do not use
alcohol for warming

لأنها بترفع درجة
الحرارة بسرعة



do not use a
heating pad or
electric blanket for warming

معلومة من الدكتور أنا

شخصياً ما بعرف الحمد لله

ال-frostbite بتكون localized غالباً أما ال hypothermia بتكون general .



2. Hypothermia: زي واحد بشتغل في فتح الطرق من الثلوج والدنيا برد

-) Hypothermia is defined as a body core temperature **below 35 °C** .
-) Hypothermia is often caused by exposure to cold weather .
-) Symptoms **depend on the body core temperature** .

-يعني واحد درجة حرارته صفر مش زي درجة حرارته 35 °C .



Hypothermia

Mild Hypothermia
Body core temperature:

32°C - 35°C

• **Shivering (mild)**

من البرد

• **Increased heart and respiratory rates**

Moderate Hypothermia
Body core temperature:

28°C - 32°C

• **Uncontrollable shivering**

• **Increased heart and respiratory rates**

Severe Hypothermia
Body core temperature

Less than 28°C

• **shivering stops**
• **muscle rigidity**
• **unconsciousness**

• **Slowed breathing and heart rate (may not be able to find a pulse)**



Treatment for victims of hypothermia is as follows: (methods to **warm** the body back to a normal temperature)

- Remove the victim from the cold environment.
- For cases of severe hypothermia, notify EMS. **unconscious** في حالة ال
- Remove wet clothing from the victim and **replace with dry** clothing. (A dry hat is recommended to be worn.)
- Wrap victim in blankets.
- Use heat packs to warm the patient. **Do not allow the packs to touch naked skin.**
- Victims who are Alert (conscious) may **drink warm liquids.**(Non-alcoholic and not hot.)

-في الأماكن التي فيها diving وألعاب مائية .

DECOMPRESSION SICKNESS

-ما بتصير عنا لأنه ما عنا لا بحر ولا بطيخ يا دوب نلاقي ماء نتحمم فيه .

- **Decompression sickness (DCS; also known as divers' disease, the bends or aerobullosis) is a disorder in which nitrogen dissolved in the tissue of the lung forms bubbles in the blood stream because of rapid decrease in the surrounding pressure .**

(The condition is called the bends because the joint and bone pains can be so severe they cause you to "bend" at the waist !)

بسبب فرق الضغط ،بصير عندي bubbles لأنه النيتروجين بكون dissolved وهاي ال shoulder, muscle and joints bubbles بتضل تمشي مع الدم لبين ما توصل لل severe pain على شكل نخزات sharp pain .

ال- decompression sickness ما بتصير بس للي بعملوا diving ممكن تصير للي
بطلعوا بالطيارة كمان .

The Bends

0 metres
Pressure = 1 atm



A slow return to the surface lets the nitrogen return to the lungs where it is
breathed out



10 metres
Pressure = 2 atm



Nitrogen moves from high pressure in the lungs into the blood (low pressure)

Swimming up too quickly doesn't give the nitrogen enough time to leave the blood - instead it can form painful bubbles

RECOGNITION



Bubbles can form anywhere in the body, but **symptomatic sensation** is most frequently observed in the **shoulders, elbows, knees, and ankles.**

- The “bends” (the joint and bone pains) accounts for about 60 to 70 percent of all DCS cases, with the shoulder being the **most common site.**

Brain and spinal cord

- **Neurological symptoms** are present in 10 to 15 percent of all DCS cases with headache and visual disturbances the most common.

- **Skin manifestations** are present in about 10 to 15 percent of all DCS cases.


-) The chances of these symptoms occurring is reduced by diving for shorter periods of time at shallower depths (resulting in less nitrogen dissolving into the blood) as well as by ascending more **slowly** (allowing the lungs more time to remove the gas).

TREATMENT

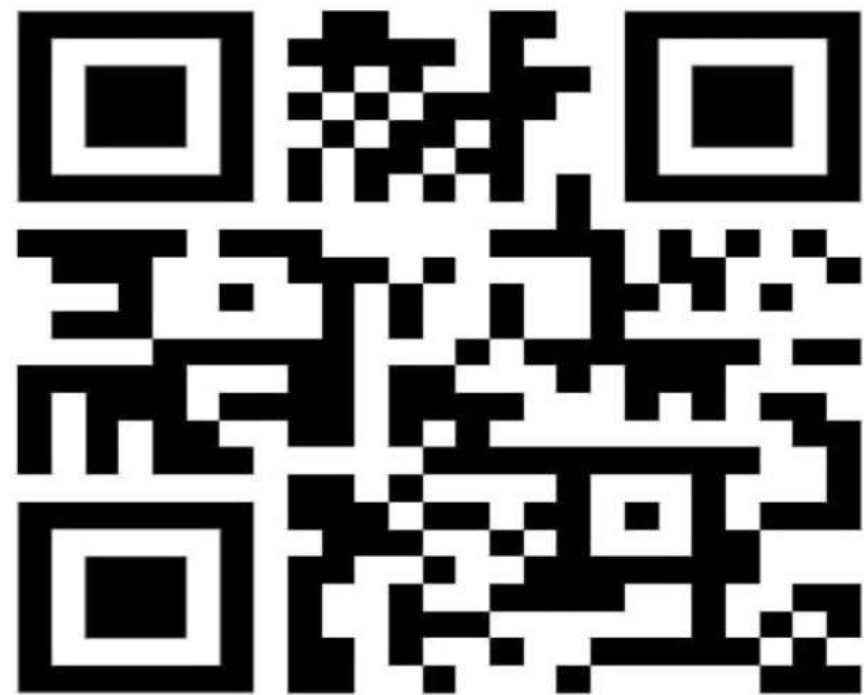
- Call EMS
- Monitor ABCs and vitals
- People are treated with high-pressure / hyperbaric, oxygen (100% oxygen therapy.)
(Decreasing the concentration of nitrogen)

لأنه ممكن يتأثر ال lung بسبب ال neurological system لأنه
ممكن ال bubbles تسكّر major arteries في ال heart or
. lung

بنزوده بكمية أكسجين عن طريق ال face mask عمل blood oxygenation عشان ال
nitrogen bubbles تروح.

ادعولي كثير 
ويعطيكم العافية
#النادي_الطبي
#معكم_خطوة_بخطوة





ستجدون في هذا الرابط قناة التلغرام للنادي الطبي الذي
سيتم تحميل جميع اعمال الفريق العلمي واخبار الكلية وكل
شيء مهم حتى تتمكنوا من معرفة كل شيء عن طريق تلجرام