Static Electricity & Grounding
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SerenaGroup Monthly HBO Education

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SerenaGroup
Building the Nation's Leading Wound Care Team

inspira HEALTH NETWORK

Static Charge & the Human Body

- In certain situations a static discharge can lead to disaster.
- We all have experienced a snap or a pop of static.
- Electrons accumulate on the surfaces of objects including our body and can result in significant voltage potential.

Static Sparks

- When oxygen concentration increases the risk of fire increase.
- Static electricity has been implicated as an ignition source in fires and explosions.
- Static sparks do generate enough charge to be dangerous in an oxygen rich environment.

Grounding in a Hyperbaric Chamber

- Grounds are a conductive pathway that static sparks flow through. This reduces charge to eliminate risk of fires in the chamber.
- Examples of grounding include elevated relative humidity levels, cables, chains, and conductive footwear.
- It is extremely rare to see the discharge of more than a single spark if the patient is properly grounded.

Humidity in the Chamber Room

- Increasing relative humidity can help to safely treat patients in a high oxygen environment.
- We must pay close attention to static control.

Daily Safety Inspections

01

Inspect the chamber's cable that is attached to the grounding plate.

02

Check the grounding chain on the gurney to assure contact with the floor.

03

Ensure patient's grounding wristband or ECG pad and wire is attached to the chamber and making appropriate contact with the patient.

Safety Manual

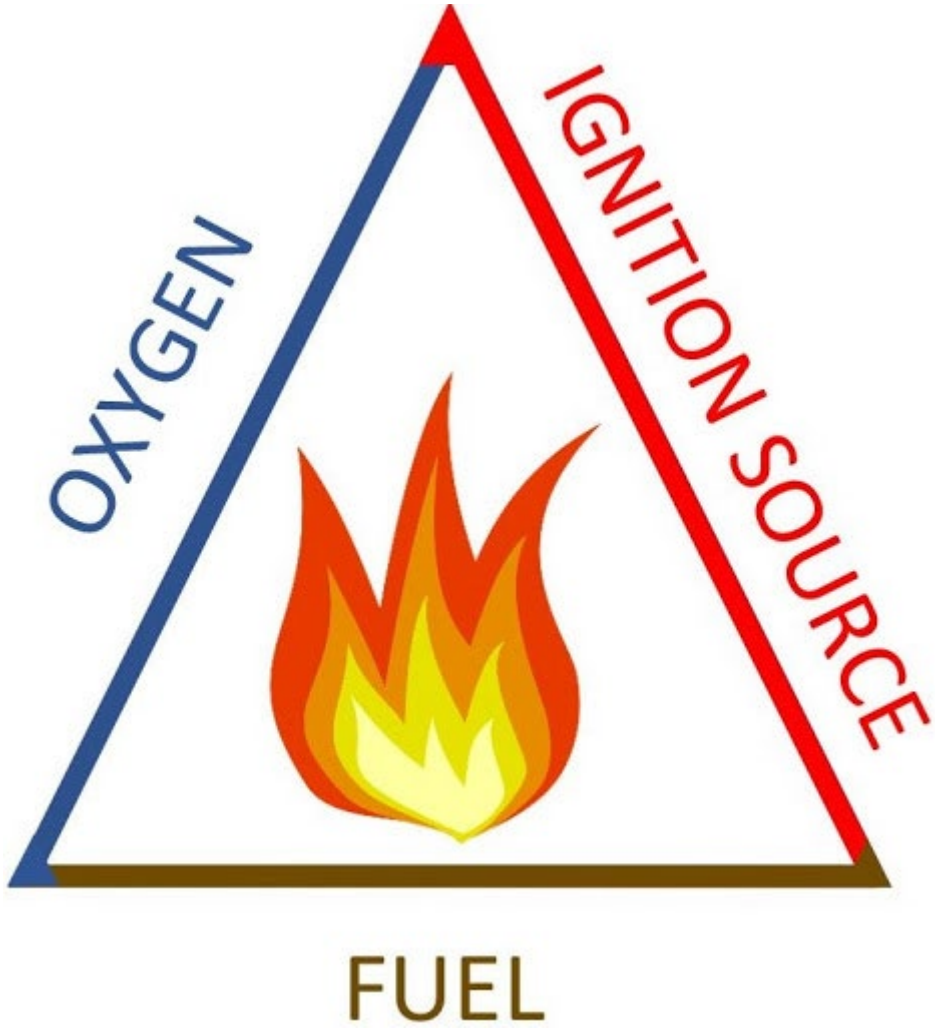
- The safety manual gives you specific requirements regarding grounding areas to inspect and the procedure for how to inspect them.
- The manual follows the guidelines of the NFPA Chapter 19, NFPA 99 Chapter 20, and NFPA 02.
- Don’t forget to perform fire drills ;)

HBO Chamber Fires

- Majority of fires in hyperbaric chambers have been caused by the introduction of an ignition source such as:
  - Hand warmers
  - Cigarette lighters
  - Matches
  - Metal objects
  - Keys
  - Electronics

Understanding & Preventing Fires

- The 3 legs of the fire triangle are…
  - Fuel
  - Ignition Source
  - Oxygen
- Fire prevention in an HBO environment focuses on reducing the amount of available fuel and eliminating the source of ignition.



Conclusion

- Daily inspections of your HBO chambers grounding areas, patient wrist band or ECG patches can help prevent fires in the chambers due to static electricity.
- The National Fire Prevention Agency guidelines can give more in-depth details on static electricity and proper grounding.
- Always follow the specific grounding requirements for Hyperbaric Chambers and occupants as defined in the (NFPA)

STATIC ELECTRICITY
&
GROUNDING QUIZ!

1. A static spark does not generate enough charge to be dangerous in an oxygen-rich environment.

TRUE or FALSE?

FALSE

2. Give two types of grounding used in the HBO department.

_____ & _____

Wrist band/ECG patch attached to patient and grounding chain on the gurney.

3. To decrease static electricity you may need to lower the humidity in the chamber room.

TRUE or FALSE?

FALSE, we are INCREASING relative humidity.

4. This grounding area is inspected prior to treating your first patient of the day.

Grounding wire attached at the rear of the chamber

5. The _____ manual gives you specific grounding requirements.

National Fire Prevention Agency Manual (NFPA) Chapter 19, NFPA 99 or Chapter 20, NFPA O2

6. If your patient is grounded, it is extremely rare to have a static spark.

TRUE or FALSE?

TRUE

7. The human body is capable of producing significant voltage potential under the certain conditions.

True or False?

TRUE

8. The majority of fires in HBO chambers have been caused by _____ source.

The introduction of an ignition source

9. The 3 legs of the fire triangle are: _____, _____ and _____.

FUEL, IGNITION SOURCE, OXYGEN

10. When the concentration of oxygen is increased so does the risk of fire.

True or False?

TRUE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QUESTIONS
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