Controlling Static Electricity - Stop Getting Shocks

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A major nuisance of static electricity is that many people get unexpected shocks, simply from touching some metal object after walking across the room. There are also some situations where excess static electricity can damage equipment or even pose a danger. It is something you may want to stop or control.

Trying to control static electricity gets you curious. You have some questions you would like answered:

- How can I stop getting shocked?
- How can I stop static cling?
- How can I protect from damage caused by sparks or lightning?

This lesson will answer those questions and explain about stopping static electricity..

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Stop getting shocks

One of the biggest complaints that people have about static electricity is that it causes sparks or gives them mild shocks when they touch things or even other people. Most people experience this problem in the winter, but there are others who are are constantly getting shocks and are actually plagued by the problem.

Some of the letters I have received from people about this problem include:

- Woman lives in Arizona and gets shocks getting in and out of the car.
- Man lives in Kansas and gets shocks all the time during winter, even when in bed.
- Girl gets shocks after jumping on a trampoline.
- Boy constantly gets shocks when walking in the house.

The common factors in all of these cases point to dry air and materials that rub against each other to build up the static electricity. Certain materials--including dry human skin--can especially build up charges. The way to reduce the problem of excess static electricity is to try to get more humidity in the air, change the materials or modify their surface, and ground yourself before touching things, whenever possible.

Increase humidity

Static electricity is more active when the air and materials are dry. The humidity is normally lower in the winter, and heating the house further reduces the humidity. Also, locations with a desert climate usually have very low relative humidity.

One thing you can do is to use a humidifier to raise the humidity in the house. That may help a little.

Change materials

When certain materials rub together, they build up static electricity. Items that commonly rub together to cause static electricity are:

- Clothes rubbing on your skin
- Pajamas rubbing on your skin and the sheets in the bed
- Clothes rubbing on furniture and car seats
- The soles of your shoes rubbing against the rug or floor

Moisturize skin

Some people have very dry skin that may cause the buildup of static charges, especially in the winter. One thing to try is to use moisturizers or lotions on your skin. The only problem with that, of course, is that you might have to put it all over your body.

You can experiment with different types of moisturizers and in different locations. Perhaps just putting lotion on you hands may be sufficient, since shocks and sparks usually come from touching objects with your hands.

Clothes

Some clothing materials cause more static electricity than others. Objects that cling together when you take them out of the clothes dryer have extra static electricity. This is called static cling.

When you slide out of a car or off furniture in the house, you can create static electricity if the combination of materials is right. Try putting a cover on the seat, changing the materials or your clothes, or perhaps spraying things with an anti-static spray, such as is used to prevent static cling. I'm not sure how long the anti-static spray lasts or if continued use can discolor things.

Pajamas

If your pajamas and bed sheets are the type of materials that create static electricity when rubbed together, you can be bothered with shocks all night long on a dry winter night. If you have dry skin, the problem can be amplified.

Try using pajamas and/or sheets made of different materials. Cotton does not seem to develop as much static electricity as some artificial fibers.

Soles of shoes

People get shocks from walking on the rug in the house, jumping on a trampoline, or playing basketball in the gym. Certain synthetic rubber soles on shoes create a lot of static electricity. Experiment with different shoes.

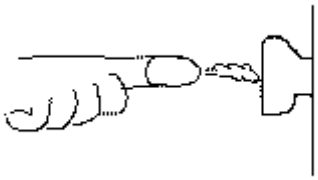
The reason you build up static electricity usually comes from walking on a rug with certain types of shoes, when the weather is very dry. Static electricity is more common in the winter, because the air is often dry.

On a day that you get a lot of sparks, you can experiment walking on the rug with different shoes to see what type of soles create the most (or least) static electricity.

Unless you can change the type of shoes you wear (or not wear shoes at all), it is difficult to stop the problems of sparks. The only other solution is to anticipate the sparks. You can touch some non-conducting material, such as a wooden door, before you touch something metal. This will allow some of the electrical charges to leave your body.

Ground yourself

Another idea is to use a metal object like a key and touch other metal things first with key. This will cause the spark to fly from the key and not your finger. That is much more comfortable. You can also use a ring or even a thimble to move the shock from your finger to the metal object.



Using a thimble to protect finger
from shock before touching doorknob

One more thing to do is to try to ground yourself before touching another person or something metal. You can touch a wall or wooden table or something. Another way is to use a ring or a key and touch something metal. Let the spark fly that way instead of off your finger.

Static electricity nuisance

Static electricity can be a nuisance in your everyday life. Clothes cling together, sparks fly and you get shocks. All sorts of things happen. You can easily control or prevent problems with static electricity.

Let's look at how you can control static electricity.

Static cling

When you take out clothes from the dryer, they often cling together. Also, on dry days some clothes will get an electric charge and cling to your body.

There are solutions can you spray on your clothes to prevent them from holding the electrical charge on their surface. There are also sheets of the material you can put in your dryer that will put a thin coating on your clothes, preventing the collection of electrons or charged atoms on the surface.

Flyaway hair

Just the opposite of static cling is flyaway hair. On a dry day, after you comb your hair it can tend to fly up and separate. That is because the hair strands have the same electrical charge, and you know that like-charges repel.

The solution to this problem is simply to wet your hair or to apply some hair spray. There are also anti-static sprays that eliminate the problem.

Controlling dangers

There are places where static electricity can be a danger or hazard:

- A spark can
  - Ruin your computer
  - Cause an explosion
- Lightning can
  - Damage a building
  - Severely injure a person

There are ways to control these dangers.

Use ground when working on computer

A static electricity spark can damage the internal electronics of a computer.

Normally, when operating a computer, static electricity is not a problem. But if you have been having problems with static electricity causing spark when you touch things, it is wise to take precautions before touching even the computer keyboard. Touch something metal to ground out any charges in you before you touch the computer.

Technicians who work on the inside of computers should have a special pad on the floor and use a grounded strap on their wrist that will suck any charges from their bodies. This is to avoid any chance of damaging the electronics with a static electrical spark. When a person handles computer boards, it doesn't take much of a spark to damage the circuitry.

Filling station safety

When many gallons of gasoline are transferred from a truck into the underground tank at a filling station, there is a lot of friction caused by the gasoline flow. Also, since the fuel is very flammable, a single spark caused by static electricity could cause an explosion.

Thus, the truck uses a grounding device on the hose that draws the electrical charges away from the gasoline, preventing any static sparks from occurring.

People who are filling a gasoline container at the pump are advised to use caution to avoid static sparks. When you slide out of your car, touch something metal to get rid of any excess charges. It is also recommended to place the container on the ground when filling it.

Lightning rods protect buildings

The way to protect a building that is out in the open—such as those on farms—is to attach a lightning rod to the building. It is a sharp pointed metal rod on the top of a house or barn that runs down into the ground.

When lightning strikes near the building, it would hit the highest part of the structure, which is the lightning rod. Since the rod is made of metal, the current would quickly flow through the rod, into the ground, where it would be dissipated. In this way, damage to the house would be minimal.

For a long time people thought that the static electricity was attracted to the pointed end of the rod. Recent studies showed that a larger, rounded surface would be effective than a sharp point. Needless to say, it was a clever and useful invention by Benjamin Franklin.

Protect from lightning

Lighting can also strike people out in the rain. It is not a good idea to stand under a tree during a thunderstorm, in case the tree gets struck with lightning. Also, it is not a good idea to walk out in an open area with an umbrella, because if you are the highest object in the field, you may be a target for the lightning strike.

There are cases where people have been hit by lightning and lived through it. In fact, one man had been struck by lightning 7 different times with no major harm done to him. (But I heard he does glow in the dark!)

But most people who get hit by lightning are seriously injured. Although such lightning strikes are rare, you still should use caution.

In conclusion

Static electricity can cause sparks and other problems. You should try different materials and clothes, as well as to ground yourself often, to prevent personal sparks. Grounding is also used to prevent sparks from damaging computers and houses and causing explosions.