ASSIUT UNIVERSITY
DRUG INFORMATION BULLETIN

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كليـــة الصيدلـــة

Burns

Types of burns

Heat burns (thermal burns) are caused by fire, steam, hot objects, or hot liquids. Scald burns from hot liquids are the most common burns to children and older adults.
Cold temperature burns are caused by skin exposure to wet, windy, or cold conditions.
Electrical burns are caused by contact with electrical sources or by lightning.
Chemical burns are caused by contact with household or industrial chemicals in a liquid, solid, or gas form. Natural foods such as chili peppers
Radiation burns are caused by the sun, tanning booths, sunlamps, X-rays, or radiation therapy for cancer treatment.
Friction burns are caused by contact with any hard surface such as roads ("road rash"), carpets, or gym floor surfaces. They are usually both a scrape (abrasion) and a heat burn. Motorcycle or bicycle riders who have road accidents, while not wearing protective clothing also may get friction burns.
Burns injure the skin layers and can also injure other parts of the body, such as muscles, blood vessels, nerves, lungs, and eyes. Burns are defined as first-, second-, third-, or fourth-degree, depending on how many layers of skin and tissue are burned.
First-degree burns are burns of the first layer of skin.
Second-degree burns: There are two types of second-degree burns
- Superficial partial-thickness burns injure the first and second layers of skin.
- Deep partial-thickness burns injure deeper skin layers.

Third-degree burns (full-thickness burns) injure all the skin layers and tissue under the skin. These burns always require medical treatment.
Fourth-degree burns extend through the skin to injure muscle, ligaments, tendons, nerves, blood vessels, and bones. These burns always require medical treatment.
The seriousness of a burn is determined by several things, including:

- The depth, size, cause, affected body area, age, and health of the burn victim.

In This Issue

Burns…….	**1**
Terminology……	**4**
Food-drug interaction…...	**5**
Ask the Expert……	**5**
Medical News……..	**6**
Test Your Knowledge.....	**7**
Real Enquiries……..	**7**
Medicines derived from plants……	**8**

- Any other injuries that occurred and the need for follow-up care.

Burns in children

Babies and young children may have a more severe reaction from a burn than an adult. A burn in an adult may cause a minor loss of fluids from the body, but in a baby or young child, the same size and depth of a burn may cause a severe fluid loss.

A child's age determines how safe his or her environment needs to be, as well as how much the child needs to be supervised. At each stage of a child's life, look for burn hazards and use appropriate safety measures. Since most burns happen in the home, simple safety measures decrease the chance of anyone getting burned.

Home Treatment

Immediate first aid for burns

First, stop the burning to prevent a more severe burn.

Heat burns (thermal burns): Smother any flames by covering them with a blanket or water. If your clothing catches fire, do not run: **stop, drop, and roll** on the ground to smother the flames.

Cold temperature burns: Try first aid measures to warm the areas. Small areas of your body (ears, face, nose, fingers, toes) that are really cold or frozen can be warmed by blowing warm air on them, tucking them inside your clothing or putting them in warm water.

Liquid scald burns (thermal burns): Run cool tap water over the burn for 10 to 20 minutes. Do not use ice.

Electrical burns: After the person has been separated from the electrical source, check for breathing and a heartbeat.

Tar or hot plastic burns: Immediately run cold water over the hot tar or hot plastic to cool the tar or plastic. Next, look for other injuries. The burn may not be the only injury.

Remove any jewelry or clothing at the site of the burn. If clothing is stuck to the burn, do not remove it. Carefully cut around the stuck fabric to remove loose fabric. Remove all jewelry because it may be hard to remove it later if swelling occurs. Find out what chemical caused the burn

Prepare for an evaluation by a doctor

If you are going to see your doctor soon:

- Cover the burn with a clean, dry cloth to reduce the risk of infection.
- Do not put any salve or medicine on the burned area, so your doctor can properly assess your burn.
- Do not put ice or butter on the burned area, because these measures do not help and can damage the skin tissue.

Home treatment for minor burns

For home treatment of first-degree burns and sunburns:

- Use cool cloths on burned areas.
- Take frequent cool showers or baths.
- Apply soothing lotions that contain Aloe Vera to burned areas to relieve pain and swelling. Applying 0.5% hydrocortisone cream to the burned area also may help. **Note**: Do not use the cream on children younger than age 2 unless your doctor

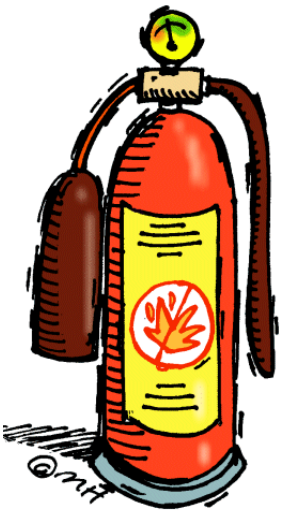
tells you to. Do not use in the rectal or vaginal area of children younger than age 12 unless your doctor tells you to.

- There isn't much you can do to stop skin from peeling after a sunburn-it is part of the healing process. Lotion may help relieve the itching.
- Other home treatment measures, such as chamomile, may help relieve sunburn symptoms.
- First-degree burns and minor second-degree burns can be painful. Try the following to help relieve your pain:

Medicine you can buy without a prescription
Try a nonprescription medicine to help treat your fever or pain:
Acetaminophen Nonsteroidal anti-inflammatory drugs (NSAIDs): Ibuprofen Naproxen Aspirin Talk to your child's doctor before switching back and forth between doses of acetaminophen and ibuprofen. When you switch between two medicines, there is a chance your child will get too much medicine.
Safety tips
Be sure to follow these safety tips when you use a nonprescription medicine:
If you are or could be pregnant, do not take any medicine other than acetaminophen unless your doctor has told you to. Do not give aspirin to anyone younger than age 20 unless your doctor tells you to.

Lotions

Some doctors suggest using skin lotions, such as Vaseline Intensive Care or similar lotions, on first-degree burns or second-degree burns that have unbroken healing skin. These skin lotions can be used to relieve itching but should not be used if the burns have fluid weeping from them or have fresh scabs. An antihistamine can also help stop the itching. Read and follow any warning on the label.



When a first-degree burn or minor second-degree burn is 2 to 3 days old, using the juice from an aloe leaf can help the burn heal and feel better. Applying the aloe juice may sting at first contact. It is important to protect a burn while it is healing.

Newly healed burns can be sensitive to temperature. Healing burns need to be protected from the cold, because the burned area is more likely to develop frostbite.

A newly burned area can sunburn easily. Sunscreen with a high sun protective factor (SPF at least 30) should be used for the first year after a burn to protect the new skin.

Do not smoke. Smoking slows healing because it decreases blood supply and delays tissue repair

Burns - Prevention

Home safety measures

- Do not smoke in bed.
- Place smoke alarms and other fire safety devices in strategic locations in your home, such as in the kitchen and bedrooms and near fireplaces or stoves.
- Make a fire escape plan, and make sure the family knows it
- Keep a fire extinguisher near the kitchen and have it checked yearly. Learn how to use it.
- Put out food or grease fires in a pan with a lid or another pot.
- Set your water heater at 120°F (50°C) or lower.
- Store cleaning solutions and paints in containers in well-ventilated areas.
- Use proper fuses in electrical boxes, do not overload outlets, and use insulated and grounded electrical cords.
- Be careful with any flammable substances used to start fires, such as lighter fluid.
- Avoid fireworks. Think of safety first when dealing with fireworks.

Child safety

- Teach children safety rules for matches, fires, electrical outlets, electrical cords, stoves, and chemicals. Keep in mind child safety considerations.

Reference: **WebMD**

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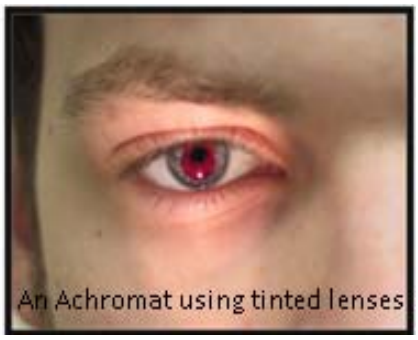
Terminology

Achromatopsia



A hereditary disorder of sight due to a lack of cone vision - that type of vision provided by the cone photoreceptors in the retina. In the normal eye, there are about 6 million cone photoreceptors; they are located largely in the center of the retina. Lacking cones, persons with achromatopsia have to rely on their rod photoreceptors. There are about 100 million rod photoreceptors which are located mainly around the periphery of the retina. Rods saturate at higher levels of illumination and do not provide color vision or good detail vision.

Achromats (people with achromatopsia) are therefore completely colorblind or nearly so and have very poor visual acuity. Their eyes do not adapt normally to higher levels of illumination and are very light sensitive (photophobic). There are many degrees of severity of symptoms among achromats. Of all achromats, those who are complete rod monochromats have the most severely impaired vision. There are also incomplete rod monochromats and blue cone monochromats who are less severely affected.

At high levels of illumination, the vision of achromats decreases unless they make use of tinted lenses. In moderately bright indoor spaces or outdoors just after dawn or just before dusk some achromats adapt to their reduced level of visual functioning without resorting to tinted lenses by using visual strategies such as blinking, squinting, or positioning themselves in relation to the light source. Others routinely wear medium tinted lenses in such settings. In full sunlight outdoors or in very bright indoor spaces, almost all

achromats need to use very dark tinted lenses to have a reasonable amount of vision, since their retinas do not possess the photoreceptors needed for seeing well in such settings.

Reference: medterms.com

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Food Drug Interaction

Caffeine is not good for asthmas sufferers. If you are taking bronchodilators you should avoid caffeine as much as possible. This includes hot drinks such as teas and coffees and any carbonated caffeine drinks.

Caffeine containing beverages can raise serum theophylline levels; caffeine can decrease the clearance of theophylline by 29%, prolong its half life by up to 44% and increase its average serum levels by as much as 23%

The probable mechanism is that the 2 drugs compete for the same metabolic pathway resulting in reduction in metabolism and accumulation.

Reference: **Karen Baxter: Stockely's Drug Interactions, 8th edition, p: 932. London, Pharmaceutical Press, 2008**

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Ask the expert

Q: How does diabetes mellitus affect muscles?

A: Diabetes mellitus can affect the muscle in several ways.

Patients with diabetes mellitus can develop contracture of digits and limbs as a result of soft tissue thickening in these areas. This can lead to wasting of the muscle from disuse. This is referred to as atrophy.

Diabetes mellitus promotes atherosclerosis which impairs the circulation to many tissues of the body. When the muscles of the limbs are affected, the decreased blood flow can lead to cramping and to painful walking (peripheral vascular disease resulting in claudication). In the worst case scenario - this can lead to death (infarction) of the localized areas of muscle. This is characterized by local pain in the involved area. Blood testing can demonstrate elevated muscle enzymes (CPK, aldolase). When the heart muscle is affected by such atherosclerosis, it can lead to heart attack.

Diabetes mellitus can also damage the nerves that supply the hands and feet. This can lead to inadequate nerve supply and further muscle wasting. Persons with longstanding diabetes mellitus can develop pain, and muscle twitching, in addition to muscle wasting of the muscles around the shoulders and hips (limb girdle wasting). This condition is referred to as diabetic amyotrophy.

In the majority of people with diabetes, muscle strength is preserved well enough to allow for modest physical activity under a doctor's supervision, this is not an excuse for someone with diabetes to refrain from physical activity!

Reference: medicinenet.com

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Medical news

Eating Fish with Omega 3 Fatty Acids Could Reduce Heart Disease Risk in Young Women

Young women may reduce their risk of developing cardiovascular disease simply by eating more fish rich in omega-3 fatty acids, researchers reported in Hypertension: Journal of the American Heart Association.

In the first population-based study in women of childbearing age, those who rarely or never ate fish had 50 % more cardiovascular problems over eight years than those who ate fish regularly.

Compared to women who ate fish high in omega-3 weekly, the risk was 90 % higher for those who rarely or never ate fish.
Researchers used a Danish nationwide population based pregnancy cohort to examine whether or not eating more fish might reduce cardiovascular disease risk in the young women.

About 49,000 women, 15-49 years old, median age of just under 30 years in early pregnancy - were interviewed by telephone or answered food frequency questionnaires about how much, what types and how often they ate fish, as well as lifestyle and family history questions.

Researchers recorded 577 cardiovascular events during the eight-year period, including five cardiovascular deaths in women without any prior diagnosis of the disease. In all, 328 events were due to hypertensive disease, 146 from cerebrovascular disease, and 103 from ischemic heart disease.

Inpatient and outpatient admission for cardiovascular disease was much more common among women who reported eating little or no fish. In three different assessments over a 30-week period, women who never ate fish had a three-fold higher disease risk compared to women who ate fish every week.

Fish oil contains long chain omega-3 polyunsaturated fatty acids, which are believed to protect against heart and vascular disease. Few women in the study took fish oil supplements, so these were excluded from the analyses and the results were based on the dietary intake of omega-3 fatty acids, not intake from supplements.

Most previous studies that found cardiovascular benefits of omega-3 fatty acids have focused on men.

Men and women share many cardiovascular risk factors, but some studies have shown that there might also be gender differences. For example, inflammation, cholesterol, and triglyceride levels may have a more negative influence among women.

Even women who ate fish only a couple of times a month benefited. Women who eat fish should find the results encouraging, but it is important to emphasize that to obtain the greatest benefit from fish and fish oils, women should follow the dietary recommendations to eat fish as a main meal at least twice a week.

The most common fish consumed by women in the study were cod, salmon, herring, and mackerel. The study shows that for younger women, eating fish is very important for overall health, and even though we found cardio-protective effects at relatively modest dietary levels, higher levels may yield additional benefits.
Reference: medicalnewstoday.com

Test Your Knowledge

1- Therapeutically, Vitamin B1 has been used most successfully in the treatment of

A. microcytic anemia
B. pellagra
C. scurvy
D. beriberi
E. macrocytic anemia

2- A class of plant alkaloids widely used to treat migraine is

A. vinca alkaloids
B. digitalis glycosides
C. stramonium alkaloids
D. ergot alkaloids
E. belladonna alkaloids

3- Which of the following agents can be safely used during pregnancy?

A. Atorvastatin
B. Fluvastatin
C. Pravastatin
D. All of the above
E. None of the above

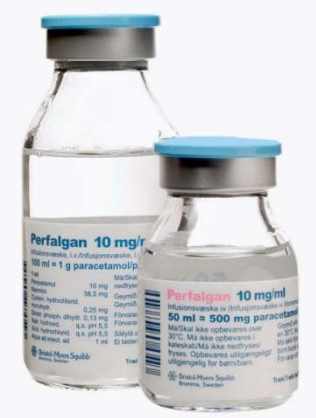
4- Phenobarbital is a known enzyme inducer. This means

A. That phenobarbital is able to inactivate other drugs in a method similar to hepatic enzymes
B. That Phenobarbital increases the synthesis of certain enzymes in the liver
C. That adding Phenobarbital to a patient's drug regimen will increase plasma drug concentrations
D. All of the above
E. None of the above

Real Enquiries

At the "Drug Information Center", we respond to enquiries from the professional health team as well as from others. Here's one of the enquiries received at the center!
Enquiry received from: **Ph. HebatoAllah Belal**, ***Pharmacist at Assiut University's Pediatric Hospital***

Enquiry: What should be done with the unused (residual) amounts of a Perfalgan® vial?



Summary of Answer:

Perfalgan of 50ml vial can be diluted in a 0.9% sodium chloride solution or 5% glucose solution up to one tenth. In this case, use the diluted solution within the hour following its preparation (infusion time included). The diluted solution should be visually inspected and should not be used in presence of opalescence, visible particulate matters or precipitate.
The vial is for single use only. Any unused solution should be discarded.

Answers:

(D) A deficiency of vitamin B1produces beriberi.
(D) Many of the migraine drugs are ergot derivatives.
(E) All of these products are in FDA pregnancy category X.
(B) Enzyme induction increases the amount of enzyme in the liver, thereby increasing the rate of drug metabolism.

Did you know that some of our medicines are derived from plants and trees?

Drug Name	Plant/Tree
Digitalis (heart drug)	Foxglove plant
Paclitaxel (cancer drug)	Pacific yew tree
Aspirin	Willow tree
Quinine (malaria drug)	Cinchona tree
Morphine	Opium poppy
Galantamine (Alzheimer's drug)	Daffodil bulbs
Vincristine (cancer drug)	Rosy periwinkle
Reserpine (blood pressure drug)	Indian snakeroot plant

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