

More Than Skin Deep

Directions:

Work through all of the topics in the lesson guide, then continue to the activity and posttest.

Skin Hazards

Another way that toxic substances can enter your body is through the **skin** or **integument**. Harmful environmental substances that enter our bodies mainly through the skin are numerous. You should know that infant's and small children's skin is thinner than adults and therefore more susceptible to the hazards described in this lesson.

Some of the most common are pesticides/herbicides, parasites and even the sun.

Follow the lesson guides to learn more.

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Pesticides and Herbicides

Pesticides and herbicides were created to help us manage pests such as harmful insects, arachnids (e.g., spiders, ticks and lice), rodents (e.g., rats and mice) and weeds.

While many insects, arachnids and rodents are an important part of the environment, some are responsible for heavy destruction of farm produce. These pests also harm people with their bites or stings. Still other pests are carriers of serious diseases.

Many pesticides and herbicides have been formulated to be absorbed on contact. Pesticides and herbicides can also be harmful if breathed or eaten. Unfortunately, whatever is lethal to a pest or a weed will usually cause illness in human adults and even more severe symptoms in children and pets.

Insecticides	Routes of toxicity	Signs and Symptoms	Common Brands
Organophosphate	Absorbed by inhalation, ingestion, and dermal exposure	Headache, excess salivation, muscle twitching, nausea, diarrhea, seizures, loss of consciousness	Supracide, Dursban, Duratox, Rampart
N-Methyl Carbamate	Absorbed by inhalation and ingestion	Muscle weakness, dizziness, sweating, headache, salivation, nausea, vomiting	Landrin, Temik, Sevin, Famid, Fernos
Organochlorine	Absorbed by inhalation, ingestion, and	Sensory disturbances, headache,	DDT, Kepone, Strobone, Pentac

	dermal exposure	dizziness, nausea, hyper excitable state, convulsions	
Biological insecticides	Absorbed by inhalation, ingestion, and dermal exposure	Several cause gastrointestinal infections. Can have central nervous system (CNS) effects as well as cardiovascular effects.	Nicotine, Align, Rotacide, Dipel, Bactur,
Herbicides			
Chlorophenoxy	Absorbed by inhalation, ingestion, and dermal exposure	Irritating to skin and mucous membranes. Causes vomiting, diarrhea, headache, confusion, bizarre or aggressive behavior, peculiar odor on breath. Metabolic acidosis, renal failure, irregular heartbeat	Banvel, Diamba, MCPA, MCPB
Pentachlorophenol	Absorbed by inhalation, ingestion, and dermal exposure	Irritation of the nose, throat, and eyes. Hyperthermia, muscle spasm,	PCP, Chlorophen, Pentacon

		tremor, labored breathing, and chest tightness indicating serious poisoning	
Nitrophenolic	Absorbed by inhalation, ingestion, and dermal exposure	Sweating, thirst, fever, headache, confusion, restlessness. Characteristic bright yellow staining of the skin and hair often present with topical exposure	Nitrader, Talan, Triforce, Caldor, Basanite
Pesticides			
Arsenic containing	Absorbed by inhalation, ingestion, and dermal exposure	Garlic odor of breath and feces, metallic taste in mouth, adverse GI symptoms, chronic muscle weakness, fatigue, weight loss.	Zoltox, Salvo, Jones Ant Killer
Fungicides	Absorbed by inhalation and ingestion. Absorbed through skin when product contains mercury.	Variable	Terraneb SP, Bravo, Clortran, HCB, Earthcide

Fumigants	Absorbed by inhalation, ingestion, and dermal exposure	Highly variable, many are irritants, can have serious CNS effects, can cause pulmonary edema, can cause severe hypoxia	Chloroform, Lavacide, Meth-O-Gas, Sanifume
Rodenticides	Absorbed by ingestion	Highly variable, can cause bleeding, pulmonary edema, cardiovascular, GI, and CNS effects	Havoc, Liqua-Tox, Rocol, Tomcat

Federal regulations require that all pesticides and herbicides carry the following label:

KEEP OUT OF REACH OF CHILDREN

The Environmental Protection Agency has a list of safety tips to follow when pesticides or herbicides are used in or around your home.

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Parasites

Parasites are organisms that are adapted to living in or in close proximity to another organism, or *host*. While parasites rarely kill the host they feed on, they do produce varying degrees of ill effects.

The following is a list of parasites that enter the body through the food we eat and by piercing the skin. There are many parasites that afflict humans by bites, such as mosquitoes, ticks, lice, mites, fleas and hookworms, but other parasites are sometimes found in the food we eat. Lesson two discussed how to minimize our risk to parasites in food; mainly by cleaning and cooking our food thoroughly. Protection from parasites that enter through the skin is mainly a matter of proper control of insect pests. Click on the Lesson Guide for pesticides to learn more about that topic.

Parasites	Habitat	Disease	Symptoms
Lice	Humans, clothing, bedding	Epidemics such as Typhus fever	Fever, headache, muscle ache, jaundice, etc.
Ticks	Found in woodlands, fields and shrubbery	Carries encephalitis, tick paralysis, typhus, and Lyme disease	Fever, headache, muscle pains, stiff neck, vomiting,
Mosquitoes	Near shallow pools of water	Malaria, Typhus, West Nile fever	Fever, headache, rashes, muscle aches, joint aches, anemia, coma
Fleas	Rats	Bubonic plague	High fever, chills, muscular pains, severe headache, painful

			swellings, swollen lymph glands
Horse Flies	Meadows and open grasslands; near marshy areas or slow streams	Transmits diseases from species to species	Depends on the disease
Toxoplasma gondii	Cat litter and raw meat	Meningitis/ pneumonia	Sensitivity to light, fever, headache, stiff neck, cough, fever, chest pain, fatigue
Cryptosporidium parvum	Contaminated food	Cryptosporidiosis	Watery diarrhea, cramps, nausea and anorexia, lasting ten to fifteen days
Cyclospora	Food/water contaminated by infected fecal matter	Cayetanensis	Watery diarrhea, with frequent sometimes explosive bowel movements
Giardia lamblia	Passed in the feces of infected persons	Giardiasis	May cause severe chronic diarrhea
Trichinella spiralis	Undercooked meat	Trichinosis	Fever, muscle soreness, pain and swelling of the muscles and eyes: failure to treat could be fatal

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Sunlight

Although sunlight is the source of energy for sustaining life on our planet, ultraviolet radiation (UVR) from the sun can be harmful. UVR can cause various types of skin cancers (including deadly melanomas) and skin aging; contributes to eye-related problems such as cataracts and cancer of the eye; and suppresses the effectiveness of the body's immune system.

While fairer skinned people are more susceptible to hazardous effects from UVR, everyone should take the following precautions:

- Avoid exposure of infants under 6 months of age to direct sunlight
- Wear light-colored, long-sleeved shirts and pants and brimmed hats
- Use a sunscreen if prolonged exposure is unavoidable
- Wear sunglasses that block 99% to 100% of the sun's rays
- Avoid UVR exposure in highly reflective environments such as snow, sand, water and concrete
- Avoid UVR exposure at high altitudes and at times when UVR levels are high such as summer and midday
- Avoid sunlamps and tanning beds