



Just the Facts...

Chiggers



General

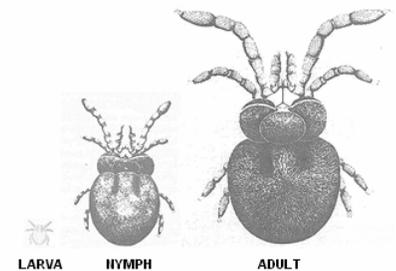
Common chiggers (a.k.a. “jiggers” and “redbugs”), are tiny pests which belie their size in the amount of torment they cause humans. Chiggers attach themselves to tender skin areas to feed. The bites cause intense itching and small reddish welts. Because chiggers are so small, they are hard to avoid. The average person cannot see them without a magnifying glass. Bites may be the only indication that chiggers have infested a certain area. There are many different types of chigger mites, but in the United States only 2 species are annoying to humans. One species prefers to live in areas like grassy and weedy fields, wild berry patches and forest underbrush. The other chigger species lives in moist areas like swamps, bogs, rotten logs and stumps.

Biology

Chigger mites are not insects. They are close relatives of ticks and spiders, and belong to a specific family of mites, called the Trombiculids. Their development goes through four stages: egg, larva, nymph and adult. Adult chiggers pass the winter in protected places and become active in the spring. The young chigger or larva, which hatches from eggs deposited earlier in the spring, is the real troublemaker. It is a parasite that feeds on man. After feeding for several days, the larva detaches and finds a protected place on the ground where it develops through the nymphal stage into an adult. Under favorable conditions, most chigger species complete their development in 40 to 70 days, and in the southern United States, up to four generations can occur each year.

Identification

Chiggers are barely visible to the naked eye. The larvae are orange, yellow or light red in color and about 1/150 to 1/120 inch in diameter. Their bodies are hairy. The larval stage has three pairs of legs whereas the nymph and adult stages have four pairs of legs. The nymphs and adults are hairy, about 1/20 of an inch long and usually brilliant red. The front part of their bodies is noticeably smaller than the back.



Habits

Chiggers are active from spring to late fall. Nymphs and adults feed on insect eggs, small insects and other organisms found on or near decaying wood. Larval chiggers congregate in shaded niches near the tips of grass leaves, weeds, sticks and other objects close to the ground. They are activated upon the approach of people, probably by odor, carbon dioxide output and other stimulating factors, and crawl onto people for feeding. Their preferred feeding locations on people are parts of the body where clothing fits tightly over the skin such as around the belt line, waistline, undergarments and under socks, or where the flesh is thin, tender or wrinkled such as the ankles, in the armpits, back of the knees, in front of the elbow, or in the groin region.

Bites



REACTION TO CHIGGER BITE

Chigger larvae do not burrow into the skin, nor do they suck blood. The reason the bite itches so intensely and for such a long time is because the chigger injects saliva into its victim after attacking the skin. This saliva contains a powerful digestive enzyme that literally dissolves the skin cells it contacts. Also, this digestive fluid causes surrounding tissues to harden, forming a straw-like feeding tube of hardened skin cells from which further, partially-digested skin cells may be sucked out. The itching probably results from the digestive action of the enzymes injected by the larva into the skin. Affected skin tissue becomes red and swollen. It may completely envelop the feeding chigger, making the chigger appear to be burrowing into the skin. Chigger bites have a more severe effect on some persons than others. The bite itches intensely and may continue itching for several days after the chigger is killed or drops off. Any welts, swelling, itching, or fever will usually develop three to six hours after exposure and may continue a week or longer. If nothing is done to relieve itching, symptoms may continue a week or more. Scratching a bite may break the skin, resulting in secondary infections. Chiggers are not known to transmit any disease in the United States.

After Bite Skin Care

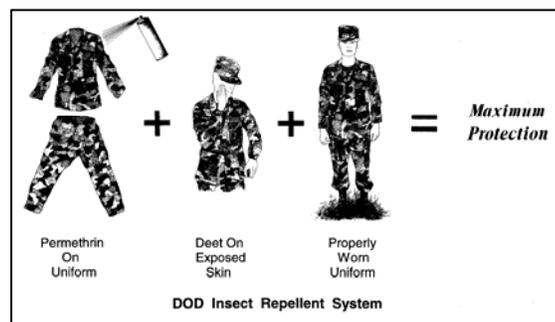
Immediately after exposure to chigger-infested areas, take a hot bath to kill and remove chigger larvae. Launder field clothes in soapy, hot water (125°F.) for about half an hour. Infested clothes should not be worn again until they are properly laundered and/or exposed to hot sunshine. Unlaundered clothes or those laundered in cool water will contain the biting chiggers to again reinfest your skin. For temporary relief of itching, apply ointments of benzocaine, hydrocortisone, calamine lotion or others recommended by your pharmacist or doctor. The sooner the treatment, the better the results. Never apply household products such as kerosene, turpentine, ammonia, alcohol, gasoline, salt or dry cleaning fluid on affected skin.

Prevention

- Wear proper clothing as a physical barrier against chiggers – long pants tucked into boots or tightly-woven socks; long sleeve shirt; shirt tucked into pants; and light-colored clothing so as to more easily spot chiggers.
- Mowing down briars, weeds, and thick vegetation, and keeping lawns closely clipped, will reduce chigger populations.
- Chiggers are affected by temperature. They are most active in the afternoon when the ground is warm.
- Keep moving, since the worst chigger infestations occur when sitting or laying down in a sunny spot at midday with temperatures above 60°F. If possible, stick to roads and trails.
- Use both skin and clothing repellents that have been approved by the United States Environmental Protection Agency (USEPA).
- For your skin, use a product that contains 20-50% **DEET** (N,N-diethyl-meta-toluamide). **DEET** in higher concentrations is no more effective.
- Use **DEET** sparingly on children, and don't apply to their hands, which they often place in their eyes and mouths.
- Apply **DEET** lightly and evenly to exposed skin; do not use underneath clothing. Avoid contact with eyes, lips, and broken or irritated skin.
- To apply to your face, first dispense a small amount of **DEET** onto your hands and then carefully spread a thin layer.
- Wash **DEET** off when your exposure to chiggers, ticks, mosquitoes, and other arthropods ceases.
- For your clothing, use a product that contains **permethrin**. **Permethrin** is available commercially as 0.5% spray formulations.
- **Permethrin** should only be used on clothing, never on skin.
- Pay special attention to treating the outside of the socks, and openings in the clothing such as the pant cuffs, shirt cuffs, collar and waist band.
- When using any insect repellent, always FOLLOW LABEL DIRECTIONS.
- Do not inhale aerosol formulations.

For optimum protection, soldiers should utilize the **DOD INSECT REPELLENT SYSTEM**. In addition to proper wear of the battle dress uniform (BDUs) (pants tucked into boots, sleeves down, undershirt tucked into pants), this system includes the concurrent use of both skin and clothing repellents:

- Standard military skin repellent: 33% **DEET** lotion, long-acting formulation, one application lasts up to 12 hours, **NSN 6840-01-284-3982**.
- Standard military clothing repellents: either aerosol spray, 0.5% **permethrin**, one application lasts through 5-6 washes, **NSN 6840-01-278-1336**; or impregnation kit, 40% **permethrin**, one application lasts the combat life of the uniform (at least 50 washes), **NSN 6840-01-345-0237**.



Control

Treating known chigger trouble spots is quicker and less expensive than treating an entire area. Place six-inch squares of black cardboard on edge in the grass and observe for a few minutes. Any small, yellowish or pinkish chiggers present will climb rapidly to the top of the square and congregate there. Make tests in 10 to 12 different spots such as grass, dead leaves, briars, weeds, etc. Unless the entire area is infested, treat only the spots where control is desired such as grass around picnic tables, lawn chairs, or recreational equipment. Chiggers tend to concentrate in "mite islands" while nearby spots are free of them. Whenever possible, control of chiggers should be conducted by Installation Pest Control personnel. Effective control of chiggers can be achieved by using one of the following four products selected from the Armed Forces Pest Management Board, Standard Pesticide List:

- Carbaryl 4L **NSN: 6840-01-104-0887**
- Demon WP, **NSN: 6840-01-390-4822**
- Demand CS, **NSN: 6840-01-428-6646**
- Tempo SC Ultra, **NSN: 6840-01-313-7359**

Contact the DoD Pesticide Hotline for additional guidance and assistance at: (410) 436-3773 or by email at:

Pesticide.Hotline@apg.amedd.army.mil

Remember, before using any pesticide, always read the label and follow directions and safety precautions.

References:

- Lyon, W. 1998. "Chiggers". Ohio State University Fact Sheet (HYG-2100-98), Columbus, OH 43210
- Bicknese, N. 2004. "Chiggers". Missouri Dept. of Conservation, Jefferson City, MO 6665109
- Hamman, P.J., 2002. "Chiggers". Texas Agricultural Extension Service, The Texas A&M University System.