

PHYSIOLOGY

Evaluate Body's Salt Needs

Warn about taking care in amount of extra salt consumed during hot spells, as body adjusts to high temperatures after a few days.

► IF YOU take extra salt during hot weather, be careful not to overdo it. It is easy to take too much.

Dr. Sid Robinson, professor of physiology at Indiana University, Bloomington, who has for several years studied the loss of salt through perspiration, finds that exhaustion from loss of salt is possible for only a few days after the beginning of exposure to high temperatures. After that, the body becomes acclimatized, and the amount of salt in sweat is automatically lowered.

This reduction is brought about by a hormone produced by the adrenal cortex gland, when the gland gets the signal that the salt in the body is getting low. Thus, in the first heat of summer, you'll lose a lot of salt for a few days, then your body automatically cuts down on salt excretion through the sweat glands and kidneys.

Dr. Robinson says the average person should drink a salt solution, made by putting one-fourth teaspoon of salt in a glass of water, every day for the first three or four days of a heat wave. Taper this off for the next six or seven days, then forget it.

The stomach disturbances some people get from salt tablets can usually be avoided,

he says, by crushing the tablets and dissolving them in water. He emphasizes that a water deficiency is just as debilitating as a salt deficiency.

Dr. Robinson's studies show that skin temperature affects the amount of salt in sweat—the higher the temperature, the greater the salt content. He therefore believes that workers in very high temperatures, such as are found around boilers and blast furnaces, should take extra salt regularly.

In his research, financed by the U. S. Public Health Service, Dr. Robinson has conducted hundreds of tests on Indiana University medical student volunteers. They have sweated long hours walking and running on a treadmill, which was tilted so that they were actually toiling uphill.

The treadmill is installed in a room in which air movement, temperature and humidity can be held constant. Elaborate precautions are taken to assure accurate measurement of all salt lost by the men during the experiments, and of the salt they consume. Detailed records are made of the subjects' heart rates, circulation, blood chemistry, respiration and body temperatures.

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CHEMISTRY

Coal Yields Chemicals

► THE HYDROGENATION process of making synthetic liquid fuels from coal may be applied during the years while petroleum is plentiful principally to the production of coal chemicals, not gasoline. The process originated in Germany but was highly improved in America during the postwar years.

Until now, the principal chemicals obtained from coal, such as naphthalene, aniline, quinoline, benzene, phenol, toluene, xylene and their derivatives, have been obtained from coal as by-products in coke-making for the steel and other industries. Enough to meet present demands is not available from this source; additional quantities are essential.

The rapid growth of the synthetic rubber and the plastic industries is largely responsible for the greatly increased demand for these chemicals from coal. Insecticides and explosives are also heavy users. Besides direct applications of these basic chemicals, they are the sources of perfumes and drugs and many widely used other products.

The market for coal chemicals has been expanding at a rate of about 30% each year during the past decade or so, while the coke oven yield has increased only about five percent. Part of the increased demands is being met by similar chemicals from petroleum.

At Institute, near Charleston, W. Va., an \$11,000,000 plant is now producing coal chemicals from coal by the hydrogenation process. It was built and is operated by the Union Carbide and Carbon Corporation and is said to be the first plant in the world for producing chemicals that uses coal as a direct raw material.

Pittsburgh Consolidation Coal Company may soon have a somewhat similar plant to get chemicals from coal, but one of the principal products planned is a residue known as char. This solid fuel is entirely suitable for fuel in industrial plants and has a heating value of about 70% of the coal from which it is made.

In the process proposed each ton of high-volatile coal processed would yield from 30

to 40 gallons of liquid and about 1,000 cubic feet of good quality heating gas. The liquid and gas can be converted into synthetic fuels instead of being used as a source of chemicals if a shortage of petroleum warranted the change.

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PUBLIC HEALTH

Rule to Beat Heat— Do Not Talk About It

► FOR BEATING the heat during very hot weather:

1. Wear loose fitting clothing of porous or mesh weave. This lets the heat of your body escape, lets any cool air through.

2. Eat your normal, nourishing diet. Cold foods and beverages are more tempting. Be sure you get the protein, from meat, poultry, fish, eggs, milk or cheese, and the calories your body needs regularly.

3. Rest, even if you cannot sleep, a full eight hours at night. See that the children get a mid-day rest even if they do not sleep.

4. Bathe or sponge-bathe the babies, children and yourself more often for extra comfort.

5. Stop talking about the heat and watching the thermometer. You will feel cooler if you keep normally busy and forget about keeping cool.

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ENTOMOLOGY

Locust Plague Controlled For First Time in History

► "FOR THE first time in history a locust plague is being kept under control," Kenneth C. Smith of the Department of State's Technical Cooperation Administration told SCIENCE SERVICE.

Cooperation of many countries, including the United States through Point Four, is making the powerful and so far successful attack on the swarming insect pests possible. Operations in Iraq are now complete and battle lines have now moved to Iran, where the infestation is very severe, a recent cable from Baghdad states.

There has been no damage from locusts on winter crops in Iraq and only a negligible amount on summer crops and no further infestation or damage is expected.

In Iran, as in Iraq, local authorities direct the overall attack, basing it on the usual method of scattering poisoned food bait by ground crews, motor equipment and airplane. Other nations cooperate by loaning equipment and trained personnel.

Object is to attack the locusts wherever they breed, thus preventing swarms of the next generation from reaching cultivated areas. The locust lays its eggs in the ground in pods containing about 70 eggs. After two or three weeks, the eggs hatch and the hoppers emerge. These grow rapidly and feed voraciously, causing very severe damage to crops.

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