

if the solution is strong, cause shedding of the horny layers. Examples are photographic developers, tar, phenols and naphthols, aromatic and aliphatic hydrocarbons, salts of titanium and hydroquinone, resorcinol, formalin, paraldehyde, and salicylic, formic, and oxalic acids.

Mechanical causes of skin irritation include friction, pressure, and trauma, which produce cuts, which may become infected with either bacteria or fungi, and callosities. If the horny layers of the skin become softened by high temperatures and excessive perspiration, the development of friction (for example, between the buttocks) then leads to dermatitis. Other examples of mechanical causes are abrasions.

Physical agents which lead to occupational dermatitis include heat, cold, water, sunlight, X rays, ionizing radiation, and electricity. Hot water softens the skin so that substances more readily attack it, as typified by dermatoses occurring among laundry workers and dish washers. X rays and other ionizing radiation may cause dermatitis, severe burns, and even cancer. Prolonged exposure to sunlight produces skin changes which may cause dangerous body alterations. Frostbite produces chilblains.

Plant poisons which can cause dermatitis are produced by several hundred plants. The best known are poison ivy, poison oak, and poison sumac. Dermatitis from these three sources may result from bodily contact with any part of the plant, exposure of any part of the body to smoke from the burning plant, or contact with clothing or other objects which have previously been exposed to the poison.

Biological agents which cause dermatitis may be bacterial, fungal, or parasitic. Anthrax from handling hides, tularemia from handling skins, erysipeloid from handling animal products, boils and folliculitis caused by staphylococci and streptococci, and general infection from occupational wounds are probably best known among the skin infections resulting from bacteria. Skin infections also occur among butchers and persons who must handle cadavers.

Fungi cause athlete's foot and dermatitis among kitchen workers, bakers and fruit handlers, fur, hide, wool handlers, and sorters, barbers, and horticulturists. Parasites cause grain itch and ground itch and often occur among handlers of grains and straws, and particularly among farmers, laborers, and miners, fruit handlers, and horticulturists.

Physical examinations

Preplacement examinations will help identify those people who may be especially susceptible to skin irritations. The physician in charge of the examination should be given detailed information on the type of work for which the applicant is being considered. If the work involves exposure to skin irritants, the physician should determine if the prospective employee has deficiencies or characteristics which are likely to predispose him to dermatitis.

Routine use of pre-employment patch tests to determine sensitivity to various materials is not recommended. Patch tests will not reveal whether new workers will become sensitized to certain materials and develop dermatitis, but only whether people who have previously worked on similar jobs are or are not sensitized to the chemicals with which they worked. Patch tests, moreover, are potentially harmful because they may induce sensitivity in persons who have never handled the materials.

When dermatitis suddenly develops among individuals on a job or an operation in which persons have previously worked for some time without skin irritation, they should be sent immediately to the medical department or the company physician for examination and tests to determine whether they have acquired a sensitivity to the substance or substances they are handling. If a sensitivity has developed, the doctor may decide that the affected workers should be transferred to other jobs until the hazard can be eliminated. A study of the particular processes and materials should then be made to determine the offending substances, and after they have been located, appropriate preventive steps should be taken.

Eliminating contact with irritants

Before new processes are introduced and prior to the adoption of new or different