

MEDICINE

Fat Injected into Veins

Vein feeding with fat is a quick way of restoring lost weight in patients who are ill or recovering from sickness because it gives calories quickly.

➤ A QUICK WAY of getting fat, designed for very thin, sick people who cannot eat much, has been developed by Dr. Frederick J. Stare, professor of nutrition at Harvard School of Public Health.

It is done by injecting fat into the veins. The fat, which may be butter, coconut oil or corn oil, is first broken into very tiny particles in a "souped-up" dairy homogenizer. Unless they are extremely small, the fat particles can cause dangerous and even fatal embolism.

Advantage of using fat instead of sugar for the vein feeding to fatten sick persons is that with fat 15 times as many calories can be given in the same amount of fluid.

The body uses the fat very rapidly, Dr. Stare told members of the American Public Health Association at their meeting in Boston. Within six to seven hours it has reached the fat depots in the body. When fat made with radioactive carbon 14 was injected into the veins of rats, the animals were exhaling the radioactive carbon on their breath within less than the 10 minutes it took to get them into a machine for collecting the breath.

Patients will not be getting fat-by-vein

feedings just yet because a satisfactory stabilizer for the emulsified fat has not been found. The one first used was all right for rats and dogs but gave a fever to the first patients who got it. The stabilizer first used, however, may become useful to patients with high blood pressure. Along with the fever, it caused a drop in pressure. When given to cats, this drop was both considerable and prolonged, lasting for five or six hours. Dr. Stare and associates plan as soon as they have time to try combining it with protamine zinc, used for slow action insulin, to see whether they can get a long acting blood pressure lowering agent.

The fat-by-vein feeding method may make possible the giving of fat-soluble chemical remedies and may also lead to new knowledge of cancer. The latter, already under study, would come through injection of cancer-causing chemicals into a rat's vein. Information about the possible cancer-causing ability of chemicals could be gained faster this way than through the tedious one of painting the chemical on the animal's skin.

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SUPERSONIC PARACHUTE—Expelled from V-2 rockets at altitudes up to 100 miles, the parachute, containing delicate research instruments, reaches supersonic speeds before its vanes spread out and gradually slow the device to about 27 miles per hour. I. B. Bensen, General Electric engineer and test pilot, inventor of the device, is pictured at the left.

AERONAUTICS

Device Lowers Instruments Safely from Rocket

➤ A SPINNING device resembling a giant dart which brings safely to the earth delicate instruments from a speeding rocket was revealed by General Electric. It is called a supersonic parachute, or rotochute, but it bears no resemblance to ordinary parachutes.

It has a bomb-shaped body, to hold the instruments, with a pair of rotator blades, a pointed nose, and a tail piece with fins. It is about four feet long and eight inches wide. The rotator blades, when open, extend about eight feet. It can carry a load of instruments weighing from 20 to 30 pounds.

The rotochute, with instruments enclosed, is carried to the upper atmosphere inside a rocket. At the peak of the rocket's flight, it is expelled. As it falls and the air becomes denser, its blades begin to revolve and are gradually forced into a horizontal position. This acts as a brake, and the device is slowed from supersonic speed to about 27 miles an hour.

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The Pacific coast has now one of the country's largest and fastest cold reduction steel mills; it can roll strip at a speed of 4,000 feet per minute.

ENGINEERING-CHEMISTRY

Damage from Antifreezes

➤ SALT-BASE antifreezes in the radiator of your car can ruin its cooling and ignition systems, National Bureau of Standards scientists have found in new tests.

A complete series of engine tests by Bureau scientists, Donald B. Brooks and Ronald E. Streets, revealed that salt-base anti-freezes are likely to corrode engines, necessitating replacements of radiators, water pumps, and cylinder heads. Products of the corrosion will clog up water passages in the radiator, causing overheating and boiling. No known inhibitor can prevent their corrosive action, the scientists state in a newly-published Bureau circular.

Recommended for automotive antifreeze use are the alcohols and the glycols. Petroleum-base antifreezes should be used only if your car is equipped with certain types of synthetic radiator hose. These antifreezes will attack natural or reclaimed rubber.

The safest antifreezes, simple alcohols and glycols, will not corrode engine parts. Tap water with which they are mixed does have a corrosive effect, however. For

this reason most antifreezes contain a corrosion inhibitor which lasts during one season's use.

The alcohol—methyl, ethyl, and isopropyl—are largely alike in possessing low boiling points in comparison to water. They must be replaced from time to time, especially during mild weather.

Ethylene glycol and a newcomer, propylene glycol, boil at higher temperatures than water, and are therefore "permanent" anti-freezes, remaining in the radiator when the water boils off.

Harmful salt-base antifreezes have practically no fire hazard; the glycols are also considered safe in that respect. Simple alcohol and petroleum-base antifreezes may ignite in case of a spark reaching them, but, the scientists add, the problem of automobile fires is a secondary one.

The new Bureau of Standards Circular, Automotive Antifreezes, No. 474, can be obtained for 15 cents from the Superintendent of Documents, Government Printing Office, Washington 25, D. C.

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