

Weight watchers: We weigh a bit more

Obesity stands accused in a wide range of medical problems, but there has been no good estimate of its prevalence in the United States. In the midst of the long process of digesting data from a recent health survey of more than 10,000 persons, the National Center for Health Statistics has now released results on obesity in American adults. "The prevalence of adult obesity based on the criteria used is high and is relatively higher for women, particularly for Negro women," the preliminary report states.

The greatest prevalence of obesity (32.4 percent of those sampled) occurs among black women, 45 to 74 years old. Black men of the same age group show the least obesity (7.7 percent). Across ages, income levels and races, a greater percentage of women than men are obese. Among women, income below the poverty level correlates with a higher prevalence of obesity.

Although the Health and Nutrition Examination Survey collected data on heights and weights of the participants, the obesity results are based on measurements of the thickness of a pinch of skin. The major form of overweight in this country is excess fat from excess food intake, the report explains. Since much fat is located just under the skin, fatness may be best estimated by skin thickness. The report defined obesity by the thickness of a pinch of skin at the triceps on the upper arm. In "obese" people that thickness is greater than it is in 85 percent of men or women 20 to 29 years old. This standard is based on the concept that a healthy adult should not become fatter with age.

Patterns of adult weight gain, however, are apparent in the data collected in the

survey. Average weights of men increase most rapidly until 25 to 34 years of age, and eventually peak between 35 and 44 years for tall men and between 45 and 54 years for men shorter than 5 feet 8 inches. Average weights of women increase rapidly until 35 to 44 years, but don't peak until 55 to 64 years. The researchers as yet have no explanation as to why women continue to gain weight longer than men do.

The survey revealed that adults in the United States have, on the average, become a bit more rotund during recent years. In the new survey, adult men were approximately 4 pounds heavier than in a survey conducted between 1960 and 1962. Women younger than 45 also averaged about 4 pounds more than their counterparts of a decade earlier, although the weights of women older than 45 differed much less.

Children, as well as adults, were included in the study. Those of families with incomes above poverty level were heavier and slightly taller than those in the lower income group. White and black youngsters differed little in height and weight, but skinfold differences indicated a greater leanness in black children and youths.

The survey also looked for clinical symptoms that might indicate nutrient deficiencies. It found in general only a low prevalence of risk signs.

This survey is intended as the start of a national nutrition surveillance system, sampling representatives of the civilian, noninstitutionalized population covering a broad range of ages. Besides clinical signs of nutritional problems and various body measurements, the investigators recorded levels of nutrients in blood and urine and reports of the diets of participants. Ultimately they plan to analyze and combine all the data to evaluate the adequacy for good health of the current diet. □

National health: Opinions vary

The majority of the American public favors a national health insurance plan, according to a recently released report from the Department of Health, Education and Welfare. But a significant percentage, particularly from the Midwest and South, opposes such a plan. No majority opinions exist, however, about what changes are needed in health services, benefit programs and reimbursement mechanisms: The opinions are as many as the more than 8,600 oral and written comments gathered for the report.

The comments were solicited by mail and at public hearings from health care providers, insurers, government officials, consumers and special interest and minority groups in every state during October 1977. HEW Secretary Joseph A. Califano Jr. said the results, compiled in "National Health Insurance — A National Outreach Report," will be "of tremendous value" in developing a statement of principles for national health insurance, which President Carter plans to present in March 1978. In six to seven months, the report, with results of other studies, will form the basis for a HEW-sponsored bill to be presented to Congress, a spokesman said.

Out of the confusion of opinions, HEW has gleaned four areas of consensus. According to the American public, a NHI program should: Stress preventive care and health education efforts; be preceded by a cost containment mechanism and develop means to cope with current and anticipated cost pressures; build on the strengths of the existing system, and use the lessons of other countries with similar plans. □

Alcoholics unaffected by Rand report

A year and a half ago, the Rand Corporation quietly reported that it was possible for recovered alcoholics to resume moderate drinking without relapse. Almost instantly, Rand found itself in heated conflict with adherents of the long-held belief — subscribed to almost spiritually by Alcoholics Anonymous devotees — that total abstinence is the only way to avoid alcoholism again. And many of Rand's critics fearfully predicted that the report would spur recovered alcoholics to drinking and ultimate self-destruction.

Now, a study of 244 patients at six alcoholism treatment centers and residences in the Boston area concludes that the Rand report has had almost no effect on recovering alcoholics. "Our findings suggest that the Rand report may have influenced the drinking behavior of only a

Sex and height	Age group in years					
	18-24	25-34	35-44	45-54	55-64	65-74
Men						
Weight in pounds						
62 inches-----	130	141	143	147	143	143
63 inches-----	135	145	148	152	147	147
64 inches-----	140	150	153	156	153	151
65 inches-----	145	156	158	160	158	156
66 inches-----	150	160	163	164	163	160
67 inches-----	154	165	169	169	168	164
68 inches-----	159	170	174	173	173	169
69 inches-----	164	174	179	177	178	173
70 inches-----	168	179	184	182	183	177
71 inches-----	173	184	190	187	189	182
72 inches-----	178	189	194	191	193	186
73 inches-----	183	194	200	196	197	190
74 inches-----	188	199	205	200	203	194
Women						
57 inches-----	114	118	125	129	132	130
58 inches-----	117	121	129	133	136	134
59 inches-----	120	125	133	136	140	137
60 inches-----	123	128	137	140	143	140
61 inches-----	126	132	141	143	147	144
62 inches-----	129	136	144	147	150	147
63 inches-----	132	139	148	150	153	151
64 inches-----	135	142	152	154	157	154
65 inches-----	138	146	156	158	160	158
66 inches-----	141	150	159	161	164	161
67 inches-----	144	153	163	165	167	165
68 inches-----	147	157	167	168	171	169

The averages: "... not presumed to indicate 'ideal' or 'desirable' weight."

National Center for Health Statistics

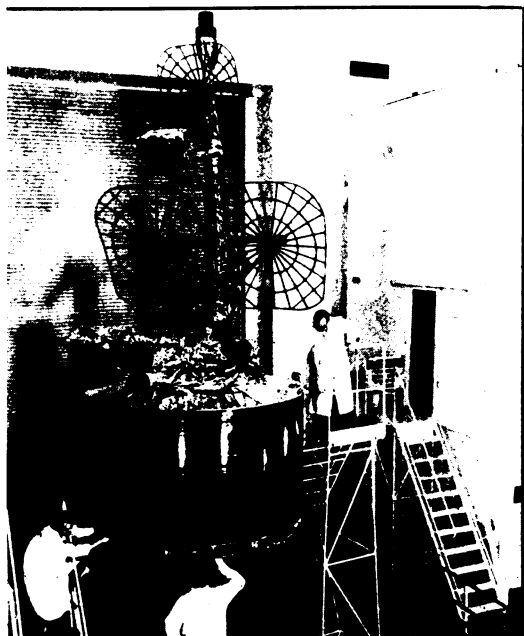
tiny fraction of people in treatment and in the general population," report Ralph Hingson, Norman Scotch and Eli Goldman of the Boston University School of Medicine in the *JOURNAL OF STUDIES ON ALCOHOL* (Vol. 38, No. 11). Of the persons interviewed, only four said they had suffered a relapse, and acknowledged the Rand findings as an influence only when asked about it. "In only one instance," say the BU researchers, "did the report appear to play a primary role in the decision about drinking." □

Intelsat replacement launched

The first Intelsat IV-A communications satellite to be stationed over the Indian Ocean was launched successfully on Jan. 6, replacing an identical satellite that was destroyed when its Atlas-Centaur rocket blew up seconds after launch on Sept. 29. The newcomer will be stationed at 63°E to serve the Indian Ocean region, which, according to the International Telecommunications Satellite Organization, is the world's most rapidly growing area in the use of satellite communications, with a 20 percent increase in circuit use between December 1976 and December 1977.

Following last September's explosion (SN: 10/8/77, p. 228), NASA investigators examined telemetry signals as well as spent rocket hardware recovered from the Atlantic Ocean floor, in working out the scenario of the mishap. Apparently, they have concluded, a flexible coupling for the rocket was exposed to excess carbon during a brazing process, which rendered the coupling sensitive to corrosion along the grain boundaries in its otherwise stainless steel. Delay in using the coupling allowed two years' exposure to Florida's salt air, and the corroded device blew out in flight, letting propellant gases back to the engine compartment where they exploded. □

Intelsat IV-A being prepared for flight.



Hughes Aircraft Co.

Catch an imp and find a quark

The masses of subatomic particles are a property that theory has always had great difficulty explaining or predicting. Each known particle has a particular rest mass, but why the values for the different particles are what they are (and the meaning of the differences that exist) remain a subject for future elucidation.

Especially puzzling has been the mass or masses of the quarks, the elementary sub-particles out of which the overwhelming majority of particles are supposed to be built. Theorists generally agree that the quarks are very heavy, much heavier than any known particle in most estimates. But the criteria are elastic, and theory gives no way of exactly figuring out what the mass of a quark should be. The various figures that have been suggested depend on adding other considerations to the basic theory.

Until now, however, every particle has had a definite rest mass assigned even if it could be determined only by experiment. Now comes a suggestion that quarks may not. B. M. McCoy of the State University of New York at Stony Brook and T. T. Wu of the CERN laboratory in Geneva propose that quarks are indeterminate mass particles, or imps, objects with no well-defined rest mass. If the proposal is correct, it would be the first irruption of imps into reality.

Writing in CERN publication TH.2405, McCoy and Wu point out that the possible

existence of imps is calculable from the usual principles of particle-physics theory, and state that they intend to take it seriously and to explore the consequences of quarks being imps. One of the first things to come up is an explanation of why all searches for free quarks have failed to find them. Imps have the property that their size increases rapidly with age. This means that very soon after quarks are produced they get too large to interact effectively with electrons and ionize atoms. In most quark searches detectors that depend on ionization have been used (bubble chambers, wire chambers, etc.), and the detectors have been placed at some distance from the place where the quarks were supposed to be made. This means, McCoy and Wu say, that by the time any quarks got to the detection chambers they had lost their powers of ionization, and were masquerading effectively as neutral particles, which make no impression in these chambers. Two ways quarks might be found if they are imps, are to use nuclear emulsions, a type of experiment in which the quarks would be made inside the emulsion and make small tracks in it while they are still capable of ionizing, or to use electric and magnetic fields to bring the quarks to a place where they can be distinguished from neutral particles and where their interactions or radioactive decays might be seen. □

Pacific weather study is model for future

The vast research effort known as GATE — the Atlantic Tropical Experiment of the Global Atmospheric Research Program — sent about 4,000 people from six dozen countries into the equatorial Atlantic in 1974 to learn how the tropics affect the world's weather systems. One lesson from the experience was that it is difficult, if not impossible, to generalize from even a huge Atlantic data bank to the rest of the planet, or even the rest of the tropics.

Since last November, U.S. researchers have been working to collect similar kinds of information about the warm portions of the Pacific, using aircraft, ships, buoys and bottom sounders in what is known as the Equatorial Shuttle Experiment. Even as the shuttle experiment winds up this month, its participants are already organizing its methodologies and results into guidelines for a larger, and this time international, effort to begin in the fall and last a full year.

The "shuttle" experiment is so called because its data-gathering resources are marshalled both north and south of the equator, but along a single meridian of longitude. This is in contrast to GATE, in which the observers covered a swath from 40°E to 90°W, spreading from 20° north of the equator to 20° below it. The shuttle

teams cover the same 40° of latitude, but only along the 150°W meridian, with occasional checks at 158°W to be sure that the main store of data is a representative one.

Besides the National Oceanic and Atmospheric Administration, the study has involved the Office of Naval Research, the University of Hawaii and the Scripps Institution of Oceanography. Every third day, a NOAA WP-3D "flying laboratory" makes the 3,400-kilometer run from Honolulu to Papeete, Tahiti, sampling air conditions and dropping bathythermographs about every 15 minutes to record water temperatures at depth (ONR provided nearly 2,000 bathythermographs for the purpose). Nearly two dozen free-floating buoys have been deployed in the area, along with 10 others at fixed locations. Some of the fixed buoys are instrumented along their tethers to collect data from as many as 20 different depths, while others, current meters and pressure sensors from the University of Hawaii, are actually moored near the sea floor. Meanwhile, the university's research vessel, *Kana-Keoki*, sails the 150°W meridian to take "sea-truth" readings at the surface as calibrations for the tethered and air-dropped instruments. □