Table 1. Fatty acids and cholesterol content of extrahepatic and liver in 18 adrenotropic tumor-bearing mice (ATO), 13 adrenalectomized tumor-bearing mice (Adrex-T), and 22 controls.

	Mice	Carcass lipid content			Liver lipid content			
		Fatty acids		Cholesterol (mg)		Fatty acids		Cholesterol (mg)
Type	Wt. (g)	Wt. (g)	(%)		Wt. (g)	Wt. (mg)	(%)	
Controls	27.1±2.9	2.10±0.63	7.78±2.48	54.8± 9.71	1.54±0.04	0.049±0.019	3.80±1.43	4.88±0.94
Adrex-T	27.8±2.86	1.77±0.49	6.21±1.27	52.9±12.40	1.56±0.15	0.063±0.026	4.04±1.18	4.73±1.18
ATO	26.8±2.52	4.25±1.12	17.30±5.16	70.2±10.79	1.82±0.25	0.107±0.069	6.13±2.66	6.72±1.58

diture among the three groups. The ATO mice under study did not show glucosuria, although they showed some polyuria. The fact that weight remained stationary in the ATO mice despite the manifestly positive energy balance can be interpreted when body composition (Table 1) is considered.

Body composition was determined on a total of 54 animals: 18 ATO mice, 14 Adrex-T mice, and 22 controls. The tumors were small—2 to 5 mm in diameter. Cholesterol and fatty acids were determined by standard methods. The cholesterol digitonide precipitation results were checked by Sperry-Webb (5) determination on the acetone-ethanol extract. Results in Table 1 show that the ATO mice, despite their normal weight, were effectively obese because they contained twice as much extrahepatic fat as controls and 3 times as much as the Adrex-T animals. Liver fat is similarly elevated as are both carcass and liver cholesterol. All differences concerning carcass fat and cholesterol are highly significant, with Student's t values between 5 and 10. Differences in liver fat are significant ($p < 0.001$ between ATO and controls, $p < 0.01$ between ATO and Adrex-T). The difference in liver cholesterol between ATO and controls is significant ($p < 0.01$).

In previous studies (reviewed by Mayer, 6), a distinction has been established between "metabolic" and "regulatory" obesities. In metabolic obesity, which is exemplified in mice by the obese-hyperglycemic syndrome, lipogenesis from acetate is increased over the control values even when both obese and control animals are submitted to restricted feeding or fasting. Reduction in weight to the normal figure does not restore normal body composition. Such characteristics are not seen in regulatory obesity, which is exemplified in mice by goldthioglucose and hypothalamic obesities. The ATO animals obviously fulfill one of the criteria of metabolic obesity: considerably elevated fat content even when the body weight is normal. The considerably increased body cholesterol content, which is also seen in the obese hyperglycemic syndrome but not in regulatory forms of obesity, is also suggestive. Studies of C^{14}-carboxy-labeled acetate incorporation show very significantly increased lipogenesis and cholesterologenesis in fasting, as well as nonfasting, conditions and confirm the metabolic nature of this new type of obesity (7).

Mice bearing adrenotropic tumors provide an additional illustration of the difference between *overweight* and *obesity*. They appear to constitute an interesting example of metabolic obesity. Finally, they are a useful tool in the study of the mode of action of corticosteroids.

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References and Notes

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22 August 1955

Summer Jobs for High-School Students

What is the attitude of high-school students toward careers in science? In a recent survey, Melvin Barnes, assistant superintendent of the Oklahoma City public schools, asked 100 high-school juniors why more students did not take courses in science and mathematics. Although I am only a junior in high school, I would like to give a brief account of this survey and then offer my own idea on how to improve the attitude of students.

One of the startling answers to Barnes' questions was "Einstein! Long hair and a sweat shirt." Other students answered by describing scientists as "squares" or "little old men with beards working in musty laboratories." The majority pictured mathematics and science courses as being dull. Also, some students stated that higher education in any scientific field was expensive, while the job opportunities after graduation were poor. Barnes concluded from his survey that there was a need for better vocational counseling and hinted that better teaching methods might make science subjects seem less difficult.

Since I am not a member of the teaching profession, I am unable to comment on Barnes' conclusions. However, I would like to offer a suggestion of my own. My idea is to place the task of encouraging students to choose a scientific career in the hands of all members of the scientific field. In many high schools there are programs by means of which students are permitted to gain "on the job" experience in the commercial fields. Why are not summer jobs offered to interested high-school students as laboratory aides or the like? Such students are just as capable of carrying out laboratory procedures as clerking in a store or stocking shelves. The point that I am trying to bring out is that one summer of actual work in the field of science is a greater encouragement to decide upon a scientific career than a year of constant lecturing on the subject by a teacher. This sort of program also inspires the student to apply for scholarships if he cannot afford higher education. It is certainly beneficial to the student in the way of experience that will be useful to him in college.

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12 January 1956

Magnetic Techniques for in vitro Isolation of Leucocytes

Over a period of time, this laboratory has undertaken studies on various techniques for the isolation, *in vitro*, of leucocytes in blood. Since relatively little has been published concerning the applicability of certain techniques investigated here, a brief preliminary note is presented to summarize our experience with these methods.

The usual approach to the isolation of white cells from human blood has been to increase the sedimentation rate of the erythrocytes by means of the fibrinogen technique (1). However, it has been found that this technique suffers from several shortcomings. First among these was the observation that the white cell fraction so obtained is appreciably contaminated with 30 to 60 percent erythrocytes. Moreover, it was found that the bovine fibrinogen technique is limited in its applicability because it does not produce any observable effect on the sedimentation rate of freshly collected and citrated bovine blood or sheep blood.