Editorial

Are the Obese Metabolically Different?

The still unsolved question is: Are fat people metabolically different from those of normal weight? The final answer as applied to man is not yet on hand; however, several interesting reports have recently cast doubt on the concept that the obese have a metabolic system identical in every way with the lean.

Alonzo and Maren,[1] for example, have recently shown that while weight gain can be decreased in genetically obese mice by food restriction, the mice still had body fat concentrations two to four times as great as their lean siblings, who received more food. Under the conditions of the experiment as described, the obese mouse on an unrestricted diet had a normal total amount of protein in his carcass (total animal), but when the mouse was placed on a restricted diet, the body protein was lost in proportion to the restriction of food. In addition, these workers make this provocative statement: "Since increased activity and decreased food intake for several months did not seem to change fundamentally the fat content of the obese mice, it appears reasonable to believe that these animals metabolize their food in such a manner that more fat is deposited per gram of food intake than is the case for the lean mice."[1]

These results confirm a study on the "hypothalamic" hyperphagic rat in which, although pair-fed with *ad libitum* eating controls, these animals were found to have an increased amount of fat in their carcasses.[2] Operating here must be one or more of the "endogenous factors, as yet by no means well understood, which on occasion will enable two individuals of approximately the same size and age, having 'normal metabolic rates,' and indulging in about the same amount of daily activity, to move in different directions in regard to weight, even though their food consumptions be identical."[3]

There are, to be sure, many more questions to be asked and many more details to be filled in, but it seems to this writer that a fundamental metabolic "error" will be found in some obese persons. This disturbance will very likely be found to be an imbalance in enzyme reaction rates modified by various hormones.... There are, indeed, exciting days ahead.

—S. O. WAIFE, M.D.

REFERENCES

1. ALONZO, L. G., and MAREN, T. H.: Effect of food restriction on body composition of hereditary obese mice. *Am. J. Physiol.* 183: 284, 1955.
2. VAN PUTTEN, L. M., VAN BEKKUM, D. W., and QUERIDO, A.: Influence of hypothalamic lesions producing hyperphagia, and of feeding regimens on carcass composition in the rat. *Metabolism* 4: 68, 1955.
3. KINSELL, L. W.: Some thoughts regarding obesity (Edit.). AM. J. CLIN. NUTRITION 2: 350, 1954.

Eutrophy

Quite by accident I came across the word *eutrophy* which, from its Greek derivation—*eu* = well or normal and *trophe* = nourishment — means the state of good nutrition. Why the word (a cousin to atrophy) hasn't been more commonly used is, perhaps, a mystery. Certainly the term "well nourished," that is, eutrophic, is used widely enough.

At times it has been used too widely, or, at least, too loosely. For one must not forget to ask in this age of relativity—eutrophic when and where? The concepts of eutrophy held by Neanderthal man or by the Babylonians or by the Park Avenue gourmet are not similar; and even today the eutrophic male looks different in Bostonian and Bantu eyes.

It is an ancient scourge of the biological sciences that it has rarely, if ever, been possible to set "normal" standards. Countless man-hours of fruitless labor and myriads of machines and monies have only resulted in what are candidly called "arbitrary" standards. Deep within the breast of every scientist there is a voice crying out for support—support in the form of a rigid framework of "facts," from which one could say, for example, "this is hypertension" or "this is obesity." But just as Newton has been superseded by the newer physicists, so nutritional standards, epitomized in nomograms and tables, are being supplanted by the concept of "operational" or "functional" standards.

In short, we will have to change our Victorian faith in absolute quantifiable parameters and admit that eutrophy, for example, has different meanings in different settings.

It seems to me that thought should be given to what we hope to accomplish by establishing standards and definitions. For example, do we want to consider *longevity* as the star by which to steer? If so, then new studies, as well as re-evaluations of older data, will need to consider "optimum" nutrition from the point of view of its effect on the length of life. Here the experience of life insurance companies with mortality rates may come in handy, although such data are based on a highly selected population.

On the other hand, it is just as valid, philosophically, to argue that eutrophy (good nutrition) should be correlated with *health*, that is, maximum functional usefulness, happiness, and absence of disease. If so, our standards may then have to be significantly altered. (It must be remembered that after "minimum" requirements are known, there remains a largely unexplored field of "optimum" requirements. This holds true for all nutrients, from total calories to the lesser minerals.) In fact, it may be a moot point whether a short life but a merry one (full of cholesterol-laden epicurean delights) is necessarily worse than a long, lean, and lonely life of self-denial, based on chi-squared data on unappreciative mice.

This brings us to a dead end, except that the perpetual optimists will want both their cake and a long life in which to eat it. (Longevity and "health," of course, are not mutually exclusive.) But should we not reflect sometime, before we grow too old to do much about our conclusions—should we not reflect on the definition of that nice word *eutrophy*—well nourished for what?

—S. O. WAIFE, M.D.

Nutritional Enigma

"When we study Van Gogh's existence in detail, we cannot fail to be struck by his prodigious vitality. Vincent ate very badly; at Le Borinage, during a glacial winter, he hardly subsisted except by begging, nourished himself on crusts of bread or frozen potatoes picked up out of the rubbish; later, in Arles, it often happened that he lived on absolutely nothing but 23 cups of coffee for four days. One could easily multiply such examples. Although Van Gogh was constantly undernourished, he nonetheless gave himself up to the most intense work one could imagine. That he should not have succumbed fills the mind with astonishment, especially—let us emphasize this—since when Van Gogh killed himself, at the age of 37 years, he was in no way physically impaired."

—Henri Perruchot. *Revue de la Pensee Francaise* 15: 14, 1956.