

BIOMETRIC BULLETIN

The Biometric Society • Internationale Biometrische Gesellschaft • Société Internationale de Biométrie

VOL. 9, NO. 3

AUGUST 1992

Spanish Region of the Biometric Society Formed

Council has voted overwhelmingly to approve the proposal to establish a new Spanish Region of the Biometric Society. The Spanish National Group came into being in 1985 after encouragement from Pierre Dagnelie (then President of the Society) and through the enthusiasm and initiative of Professor Carmen Santisteban. The Group grew steadily and now numbers over 100. They have a well established biannual pattern of national

group conferences, and I was fortunate to be able to attend the conference in Salamanca last October.

The growth and establishment of the new region has continued to owe a great deal to Carmen Santisteban and also Emilio Carbonell and I am delighted by this continuing sign of the growth of the Society.

Roger Mead

Secretary - Biometric Society

Energy Requirement - Experiences of an Indian Biometrician



S. A. Chiplonkar (RInd)

In the department of Biometry and Nutrition, MACS Research Institute, Pune, India, we are a group of Biometricians, Biochemists, and Nutritionists working on the problems related to nutrient requirements, and metabolism in human beings. We have a well equipped metabolic ward to conduct human trials. For proper understanding of the physiological processes, laboratory experiments are designed to have repeated measurements of many interrelated variables such as nutrient intakes, outputs and certain physiological and biochemical parameters over long periods of time. Each observation of a nutrition parameter therefore is unique in the sense that it cannot be reproduced exactly at any other occasion. This makes it difficult to isolate the experimental error from the observed values of the parameter. Therefore variability of nutrition parameters needs to be studied with a different statistical approach. Yet, not much atten-

tion seems to have been paid to such type of statistical research in nutrition. Statistical issues in dealing with long term energy intake and output series are discussed as an example.

Recently, it has been recommended by the nutritionists that energy needs should be estimated from energy expenditure rather than intake. Basal metabolic rate (BMR) is a major component of total energy expenditure and multiple regression equations have been constructed to predict BMR of an individual of given age, sex, weight and height and engaged in similar type of work. Implicit in both the approaches is the assumption that requirement is constant over time in a given individual. In other words, the within person variability is completely ignored. However, we have observed through our metabolic studies of 28 days duration, on 25 healthy active men and also through cross sectional field trials, that neither intake nor output is constant over time. Experimental designs like repeated measures with single factor are not applicable since there are no treatments involved. To examine the pattern of observations 28 days intake data are not sufficient for application of time series models. For such studies field data were far from adequate as they are available for one week in each of the four rounds of the survey. Therefore analysis of variance was carried out for the data on energy intake using hierarchical model, where component of variation were due to subjects, weeks within subjects, and days within weeks within subjects. Our

analysis demonstrated that the between weeks variance in energy intake was significantly larger than daily variance. If this variation had been random, averaging over p days would reduce the daily variance by $1/p$. However, the ANOVA with mean daily intakes refuted this claim indicating within person variability is not arising due to errors of measurements.

Inserts Readership Survey

This issue contains a questionnaire of four pages, as an insert, regarding the proposal of publishing a second Journal in addition to *Biometrics*. Please take a few moments to complete the questionnaire and return it by November 1, 1992 to Prof. Hanspeter Thoni, on the address given in the insert.

An alternative interpretation of the ANOVA can be provided in terms of the intraclass correlation coefficient, r , calculated from between and within subject variation. Within subject variability can be further partitioned into variability due to weeks and days within weeks.

Intraclass correlation, r , was taken to represent the fraction of phenotypic variability in intake due to genetic and environmental causes. This analysis of the data suggested that intake and expenditure are not fixed in a given individual as it is assumed in literature but both are probabilistic in nature.

(Contd. on Page 2)

In this issue

Letter.....	2
Region and Group News.....	3, 4
1992 IBC.....	5, 6
Abstracts.....	7-17, 20
Meetings.....	20
Advertisements.....	18, 19, 21-23
Announcements.....	23, 24
Obituaries.....	24