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Graduate Studies Solve Research Questions

Marjorie Clampitt
Iowa State College

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Feeding special diets to white rats is a method used by graduate students doing research in nutrition.



Graduate Studies

Solve Research Questions

Marjorie Clampitt tells how a research fellow works for a master's degree.

UNENDING problems lie waiting to be solved in the fields of home economics. Young graduate women are needed to go into this research; each new discovery provides several avenues for further study.

Bachelor of science graduates may obtain 9- or 10-month part-time graduate appointments; they may receive a fellowship, generally for research in foods and nutrition. These fellowships, carrying a stipend of about \$800 for the school year, require that the students help with the departmental research program.

First of all, how are thesis research problems selected? Often this same departmental research problem offers good thesis material. One of the common sources is from questions left unanswered in regular college course material. So the graduate student's first job is to select the problem in which she is most interested.

After the selection comes hours of reading and study on that subject and related subjects. A suitable background of information must be absorbed so that the graduate can strike out on an unsolved problem with considerable understanding of the total subject. This much, preliminary to the actual experimental work, is equivalent to about one-third of the entire amount of work on the project.

Miss Helen Walker, who came to Iowa State from Mary Hardin-Baylor College, Belton, Texas, is one of about 30 graduate women in foods and nutrition. Appointed to a research fellowship, Miss Walker is doing her work on riboflavin. As an assistant under Dr. Gladys Everson, of the Department of Foods and Nutrition, she is working on the department project and for her thesis is separately studying a section of the problem.

The next step in the research procedure for her thesis is working out a method for analyzing riboflavin as the relationship between intake and excretion is a vital factor in studying its availability. Using different methods of analysis, many tests were made on identical samples to find the most accurate method for determining the amount of riboflavin in foods and the best methods for determining the amount excreted in the urine. Analyses are checked and rechecked until 100 percent of the riboflavin can be recovered and the results compare closely. From 1 to 3 months may

be spent in judging the techniques of such analyses.

All the groundwork is now laid for actual experimentation. Miss Walker's study required that healthy women eat a specially planned diet for a period of 12 days. Two women in addition to Miss Walker followed this diet for her problem. All food was analyzed for riboflavin and all urine was collected and analyzed to obtain the relationship between intake and excretion of riboflavin.

The menu had to meet many qualifications. The food had to be of a type that would remain uniform for the total time. For example, at breakfasts canned orange juice was used instead of fresh. All the cans were opened, mixed and recanned so that the composition would be the same throughout the entire period. Several packages of cornflakes were mixed to obtain uniform servings. Since milk contributes a large proportion of riboflavin it had to be carefully handled and well protected from light. It was obtained from the large quantities pasteurized in the college dairy and was frozen until ready for use in this experiment. The bread was taken from one baking of a large bakery and frozen until use. For meat many pounds of round steak were ground thoroughly, mixed and then frozen in small 100 gram patties. By freezing or recanning the food, it was possible to maintain the uniform diets of utmost importance in this experiment. On the first and last days of each study, portions of the diet were weighed out and analyzed for riboflavin content.

Because this was her problem, Miss Walker was responsible for the planning of the diet and the preparation and serving of the food. She also had the work of analyzing the food eaten and the urine excreted.

The excretion of riboflavin during the period when this diet was consumed was next compared with that resulting from additions of purified sources of carbohydrate, protein or fat. A change in excretion of riboflavin was found especially when increased amounts of fat were added to the diet. This influence on riboflavin excretion indicated that any technique used in measuring availability in the future would require the ingestion of a constant quantity of fat, carbohydrate and protein.

The last one-third of a research problem similar to this is the thesis. It must not be written for scientists only, but so that the average intelligent person can readily understand the aim and trend of the problem.