



**CALIFORNIA STATE SCIENCE FAIR
2006 PROJECT SUMMARY**

Name(s) Ankita Dhar	Project Number S1411
Project Title The Effect of the Early Introduction of Nutritional Saturated Fats in Chicken Embryos and Young Chicks on the Lipid Prof	
Abstract Objectives/Goals The fetal and early life nutritional programming has important non-implications on evolution of disease states in later life. Dietary fat and disease states is well established particularly for cardiovascular disease including hypertension and coronary heart disease. This study proposed to study the effect of the early introduction of nutritional saturated fats in chicken embryos and young chicks on the lipid profile of the chicken (<i>Gallus Domesticus</i>). Methods/Materials Eighteen fertile eggs were incubated in a series of three sets of trials. The incubation period was carried on for twenty one days which is the normal hatching cycle for chicken. In the last week of incubation, half of the developing embryos were injected with 0.5 ml of saturated fat in the form of butter for a period of 5 consecutive days. These days corresponds to the last trimester of human pregnancy. After hatching, the intervention group of newborn chicks, was continued to be fed on a high fatty diet for another period of 5 days. The control chicks were given normal diet. Lipid profiles were evaluated by measuring cholesterol levels in both the groups. Results Of the 9 eggs in the control group (3 per trial) only 7 eggs hatched and grew into healthy chicks. These 7 hatched chicks included, 3 chicks from Group A, 2 chicks from the 3 eggs of Group B, and lastly 2 chicks from the 3 eggs of Group C. Of the 9 eggs in the intervention group (3 per trial) only 4 hatched and grew into healthy chicks. The four hatched chicks included two from Group A, 1 from Group B, and 2 from Group C. The mean cholesterol result for the control group of chicken was 91.0 mg/dl with an average deviation of 8.00 and % deviation of 8.79 %. The mean cholesterol level for the intervention group was 191 mg/dl with an average deviation of 13.0 and % deviation of 6.81 %. The data showed that the mean cholesterol of the interventional chicks higher than that of the control chicks. Conclusions/Discussion These observations may have important implications in the nutritional programming of fetus#s and young children which may condition future metabolism as to have a strong influence on the manifestations of disease later on in life. This process may have an important role in the development of disease conditions in later life, particularly of the cardiovascular system.	
Summary Statement The project was designed to validate Barker's hypothesis describing the fetal and early childhood programming for the origin of adult disease.	
Help Received Father helped gather materials and give injections; Jugdeish Hemberjani helped print report; Margaret helped provide eggs and give clear instructions on hatching technique	