Insulin may cause a fall of blood sugar in three ways:

a. By its action on the liver (diminished output of sugar).

b. By its action on the muscle (increased intake of sugar).

c. By its combined action on both the liver and the muscle, the former showing diminished output and the latter simultaneously increased intake of sugar.

57 (2289)

Comparative study of the blood sugar concentration in the arterial and venous blood of diabetic patients during insulin action.

By CARL F. CORI, GEORGE W. PUCHER and BYRON D. BOWEN (by invitation).

[*From the State Institute for the Study of Malignant Disease, and The Buffalo General Hospital, Buffalo, N. Y.*]

The conclusions reached in the preceding abstract led to the study of the differences in blood sugar concentrations in arterial and venous blood of normal and diabetic subjects during the action of insulin.

The arterial blood was collected from the finger according to the technique of Foster.[1] Sugar was determined by the Hagedorn and Jensen method.[2]

The difference in the sugar concentration in arterial and venous blood of normal fasting individuals was found to be 5.5 mg. (average of 16 cases). For diabetic patients the difference in sugar content of the artery and vein was very variable ranging from 0-28 mg., the difference being in general higher than for normal persons.

During insulin action 6 out of the 7 diabetics examined showed a larger intake of sugar by the muscle. The highest observed difference was 35 mg. One case showed a diminished intake of sugar by the muscle during insulin action dropping to 0 three hours after the insulin injection. This indicates, as in the case of animals, that diabetic patients may react in several ways tow-

[1] Foster, *J. Biol. Chem.*, 1923, lv, 291.

[2] Hagedorn and Jensen, *Biochem. Z.*, 1923, cxxxv, 46.

ard insulin. No conclusive data have as yet been obtained regarding the behaviour of the muscle of normal subjects during insulin action. In the three cases examined the muscle took up more sugar only during the early period of the insulin action.

58 (2290)

The effect of x-rays on the skin of vitally stained white mice.

By GERTY T. CORI (by invitation).

[*From the State Institute for the Study of Malignant Disease, Buffalo, N. Y.*]

A unit of x-ray energy for the mouse has been established which could be compared with the human erythema dose. The amount of x-ray which caused total spontaneous epilation was called the epilation dose. It was found to be five to six times more than the human erythema dose. The effect of x-rays on the skin of mice stained with Trypan blue has been studied. It was found that the reaction of the radiated skin in stained and control mice is not markedly different, the sensitiveness of the stained mouse being slightly above that of the control mouse. There was, however, a marked difference between the normal and stained mouse in the time at which epilation began after the radiation. Different radiation times, 80, 70, 65, 60 and 50 minutes were applied. The epilation always occurred earlier in the stained than in the control mice.

59 (2291)

Variations in acetone excretion at different times during the day.

By ROGER S. HUBBARD and FLOYD R. WRIGHT.

[*From the Laboratories of the Clifton Springs Sanitarium, Clifton Springs, N. Y.*]

Determinations of the acetone bodies in urine were made every two hours during the day and on a single specimen collected at night in five experiments upon four subjects. In one experiment the diet was normal, in one it contained 1 and in the others