An increase in the proportion of neutrophils and a decrease in the proportion of lymphocytes have been reported among the white blood cells of monkeys showing pathological symptoms after some time on a B_6-free regimen (*4*). In work on humans there are reports of rather rapid increases in neutrophils after the daily intravenous administration of 50–200 mg of pyridoxin hydrochloride in some cases of pernicious anemia showing a low leucocyte count (*5*) and in cases of agranulocytic angina (*1*). This is particularly interesting with regard to our observation. Much more experimental work must be done, however, before any physiological relationship between vitamin B_6 and the human white blood-cell picture can be postulated.

Our experiment revealed that on a purified diet, over a period of about two months without vitamin B_6, no changes occurred which could unequivocally be considered as resulting from a lack of those compounds. There is the possibility, however, of albuminuria, of mental symptoms, and of white blood-cell changes.

A longer experimental period would have been desirable. In the case of monkeys on essentially the same regimen, months have been required to produce B_6-deficiency symptoms (*4*).

There is a strong possibility that human intestinal bacteria synthesize vitamin B_6-active compounds (*2*). In human experimentation of this nature an intestinal antiseptic might be used to advantage. A more attractive possibility is the use of the antivitamin desoxypyridoxin when more is known of its toxic properties.

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The Utilization of Carbon Dioxide by the Mature Rat in the Formation of Fatty Acids[1]

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This report is concerned with the incorporation of C^{14} from carbon dioxide in the saturated and unsaturated fatty acids of the rat. The fatty acids were derived from previous experiments (*1*) in which two unfasted rats weighing 624 gm (Rat I) and 473 gm (Rat II) were given $Na_2C^*O_3$ or CaC^*O_3, respectively, by intraperitoneal administration. The purified total fatty acids were separated into saturated and unsaturated fractions (*4, 5*). The fatty acids were decarboxylated in a stream of nitrogen (*2*), and the evolved CO_2 was collected in saturated barium hydroxide. The unsaturated fatty acids were converted to the solid calcium salts before counting. Tracer experiments ruled out the possibility that C^{14} could have been incorporated chemically or mechanically in the samples.

TABLE 1

RELATIVE SPECIFIC ACTIVITIES OF THE C^{14} IN THE FATTY ACIDS OF MATURE RATS ADMINISTERED C^{14}-LABELED CARBONATE*†

Sample	Rat I	Rat II
Total fatty acids	1.00 ± 0.1	1.00 ± 0.03
Carboxyl carbon of total fatty acids	.....	2.04 ± 0.3
Saturated fatty acids	1.47 ± 0.08	1.47 ± 0.05
Carboxyl carbon of saturated fatty acids	2.74 ± 0.3	2.66 ± 0.3
Unsaturated fatty acids	0.63 ± 0.08	0.80 ± 0.04

* The actual specific activity (specific activity = % of total administered dose/mg of carbon) of the total fatty acids of Rat I is 0.56×10^{-6} and of Rat II, 1.06×10^{-6}.

† The deviation of the results shown in the table is derived from the statistical error of the radioactivity measurements and was taken as equal to the square root of the sum of the squares of the standard deviation of the sample and background counts.

The data given in Table 1 show that (a) a very small fraction in the carbon of administered CO_2 is incorporated in the saturated fatty acids and, to a lesser extent, in the unsaturated fatty acids; and (b) the C^{14} content of the carboxyl carbon atoms of the saturated and total fatty acids is approximately twice as high as the average of all the carbon atoms in the respective fatty acids. It is of interest to note that the specific activities of the C^{14} in the glycerol portions of the fat molecules were about 10 times greater than those of the corresponding mixed fatty acids (*1*).

Similar results were found by Rittenberg and Bloch (*3*) following the administration to rats and mice of acetic acid labeled at the carboxyl carbon atom with C^{13}. They suggested that the C^{13} was present at alternate carbon atoms of the fatty acid chain, *i.e.* on the odd-numbered carbon atoms. Our results would indicate that the C^{14} activity derived from labeled CO_2 is also present on the odd carbon atoms of the fatty acids. The mechanisms through which this incorporation could take place can be derived from the interrelationships of the tricarboxylic acid cycle (*6*). Further evidence, particularly of the incorporation of the carbon of CO_2 into acetic acid, is needed to lend certitude to any one mechanism.

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