

# **METABOLISM IN DIABETES MELLITUS**

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Metabolism in Diabetes Mellitus by Francis G. Benedict & Elliott P. Joslin

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**FRANCIS G. BENEDICT & ELLIOTT P. JOSLIN**

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FRANCIS G. BENEDICT and ELLIOTT P. JOSLIN



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## CONTENTS.

PART I.		Page.
Introduction .....		3
Earlier investigations on gross metabolism in diabetes .....		3
Investigations made by the respiration chamber method .....		3
Investigations made with mouth-breathing appliances .....		12
Apparatus and methods used in the investigations here reported .....		15
Determination of the gaseous exchange with the respiration calorimeter .....		15
Determination of the gaseous exchange with the respiration apparatus, using nosepieces .....		17
Method of determining the transformations of energy .....		18
Heat-production as compared with heat-elimination .....		19
Acetone in the breath .....		21
Supplementary apparatus .....		22
Stethoscope .....		22
Pneumograph .....		22
Significance of pneumograph curves .....		22
Urine analysis .....		24
Determination of total nitrogen .....		24
Determination of ammonia .....		24
Determination of diacetic acid .....		25
Determination of $\beta$ -oxybutyric acid .....		25
Determination of sugar in 1-hour periods .....		26
Determination of sugar in 24-hour periods .....		26
PART II.		
Statistics of experiments on metabolism in diabetes .....		29
Classification of cases .....		29
Diet .....		29
Treatment .....		31
General clinical comparison of cases .....		33
Plan and details of experiments .....		35
Group I—Case A .....		36
Description of the case .....		36
Experiments with Case A .....		43
Metabolism experiments, A-1 to A-16 .....		44
Comparison of experiments with Case A .....		59
Group I—Case B .....		61
Group I—Case C .....		67
Group I—Case D .....		92
Group I—Case E .....		97
Group I—Case F .....		105
Group I—Case G .....		111
Group I—Case H .....		118
Group I—Case I .....		126
Group I—Case J .....		131
Group II—Case K .....		139
Group II—Case L .....		144
Group III—Case M .....		152

	Page.
Discussion of results and general conclusions.....	160
Pulse-rate .....	160
Respiration-rate .....	160
Body-temperature .....	161
Changes in body-weight.....	161
Body-surface .....	163
The gaseous exchange and energy transformations in periods without food.....	164
Significance of the calorific equivalent and the respiratory quotient.....	164
The gaseous exchange and energy transformations of normal individuals .....	166
The gaseous exchange of normal individuals as determined with the Zuntz-Geppert apparatus.....	167
The gaseous exchange of normal individuals during sleep in the respiration calorimeter .....	168
Variations in metabolism during sleep due to variations in physical characteristics .....	169
Comparison of the results obtained with the Zuntz-Geppert apparatus and with the respiration calorimeter during sleep.....	170
Gaseous exchange and energy transformations in recent control experiments on normal individuals.....	171
Comparison of the metabolism of the same individual as determined with three different types of apparatus.....	173
Comparison of metabolism measurements with three different types of apparatus.....	174
The gaseous exchange and energy transformations in diabetes.....	176
Carbon-dioxide elimination .....	176
Comparison with carbon-dioxide elimination in earlier experiments with diabetics .....	179
Oxygen absorption .....	181
Comparison with oxygen absorption in earlier experiments with diabetics .....	183
Comparison of the gaseous exchange of diabetics as determined with three different types of apparatus.....	185
Carbon-dioxide elimination .....	185
Oxygen absorption .....	187
The energy transformations of diabetics .....	188
Indirect calorimetry .....	188
Direct calorimetry .....	189
Comparison of the metabolism in diabetes of different degrees of severity .....	191
Comparison of the metabolism in diabetes with metabolism in health .....	192
The nitrogen and sugar excretion of diabetics in periods without food.....	194
The nitrogen excretion.....	194
The dextrose-nitrogen ratio.....	197
The respiratory quotient in diabetes.....	203
The respiratory quotient as an index of the character of the katabolism .....	205
Vaporization of water from the lungs and skin in diabetes.....	207
Influence of the ingestion of food on metabolism in diabetes.....	208
Influence on the nitrogen and sugar excretion.....	208
Influence on the respiratory exchange and on the total katabolism .....	211
General conclusions regarding the influence of food in diabetes.....	215
Possible influence of the ingestion of coffee.....	216
Influence of muscular work upon metabolism in diabetes.....	217
The calorific equivalents of carbon dioxide and oxygen.....	219
General considerations with regard to the increased metabolism of diabetics .....	223
Practical considerations .....	230
Investigations needed .....	232



## PREFACE.

In establishing the Nutrition Laboratory in Boston, the design was not only to continue the researches begun at Wesleyan University on the metabolism of normal individuals, but to still further extend these researches so as to include studies of pathological metabolism. The metabolism in diabetes mellitus was first selected for such investigation and the experiments here reported represent the progress thus far made in this study.

In collaboration with Dozent Dr. Falta of Vienna, we began experiments upon the metabolism of diabetes mellitus in October, 1908. The chief point of the investigations was to determine whether the metabolism of severe diabetics at rest was increased above the normal. The investigations thus performed in common are represented by experiments Nos. A 1 and A 2 and A 10 to A 13 with Case A, experiments Nos. E 1 to E 4 with Case E, and experiments Nos. F 1 and F 2 with Case F. Since it is difficult (by correspondence) to arrive at an understanding about details of explanation and description of the experiments, we all have agreed, in order not to delay still further the publication of the work, to publish separately the experiments which were jointly carried out. Dozent Falta, in the *Zeitschrift für klinische Medizin*, will shortly present and discuss in detail the experiments mentioned above. Obviously these experiments form but a relatively small proportion of the material we present in this report, and, as is to be expected, the larger amount of data has materially influenced our view-point. Consequently, in individual details, our opinions may differ, but upon the chief point, the increase in the metabolism at rest of severe diabetics, we are agreed.

In the experimental part of this research and the computation and the preparation of the material for publication, we have enjoyed the active cooperation of a large number of associates. The experiments were for the most part under the direct supervision of Mr. T. M. Carpenter, of the Nutrition Laboratory staff. In this experimental work he was ably assisted by Messrs. L. E. Emmes and J. A. Riche. The determinations of ammonia and  $\beta$ -oxybutyric acid, and the determinations of the sugar by polarization were made either by Miss Elsie Newman in a private laboratory (E. P. J.) or by Dr. F. A. Stanwood in the Laboratory of Biological Chemistry of the Harvard Medical School. The total nitrogen deter-

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<sup>1</sup>In a preliminary publication (not previously submitted to us) which Dozent Falta personally made at the Congress for Internal Medicine in Wiesbaden, 1908, by a misunderstanding upon his part, incorrect figures were used for the metabolism at rest of normal individuals. In the more extensive publication of Dozent Falta, correct figures will be given.

minations and the sugar by the Citron test were made by Miss Alice Johnson and Miss Hope Sherman in the Nutrition Laboratory.

The intelligent dietetic handling of the patients was secured through the active cooperation of Miss Zilla McLaughlin, of the New England Deaconess Hospital.

The histories and notes upon three of the patients before and after the period they were under our observation were most kindly put at our disposal by Dr. Harry W. Goodall, Dr. Theodore C. Janeway, and Dr. George Carroll Smith.

The report has received the helpful editorial criticism of Miss A. N. Darling, and the computations and tabulations have been for the most part under the direction of Mr. W. H. Leslie, who was assisted in this work by Messrs. H. L. Higgins and A. G. Emery and Miss F. E. Kallen, Miss P. H. Colbeth, and Miss K. E. Murphy.

To all of these co-workers in this investigation we wish to express our thanks and deepest appreciation of their sincere interest and untiring assistance.

NUTRITION LABORATORY, CARNEGIE INSTITUTION OF WASHINGTON,  
*Boston, Mass., April 15, 1910.*

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