

**THE EXAMINATION OF THE FUNCTION
OF THE INTESTINES BY MEANS OF THE
TEST-DIET: ITS APPLICATION IN
MEDICAL PRACTICE AND ITS
DIAGNOSTIC AND THERAPEUTIC VALUE**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649430093

The Examination of the Function of the Intestines by Means of the Test-Diet: Its Application in Medical Practice and Its Diagnostic and Therapeutic Value by Adolf Schmidt

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ADOLF SCHMIDT

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BY

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AUTHORIZED TRANSLATION FROM THE
LATEST GERMAN EDITION

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PHILADELPHIA

F. A. DAVIS COMPANY, PUBLISHERS

1906

HARVARD UNIVERSITY
SCHOOL OF MEDICINE AND PUBLIC HEALTH
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10. MAY 1929

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Philadelphia, Pa., U. S. A.
Press of F. A. Davis Company,
1914-16 Cherry Street.

PREFACE.

THE following pages owe their origin to a series of lectures, which I delivered in the summer of 1903 at the instance of my colleagues. They sum up for medical purposes the results of my continued investigations and observations for about eight years. The desire to obtain an examination for the function of the intestines, *that could be carried out in practice*, analogous to the usual examinations of the stomach contents, and to advance by means of it the diagnosis and therapeutics of the diffuse intestinal diseases, in the same way as it has already been accomplished in the pathology of the stomach, was the incentive which led me on from the beginning. The great deviations, which my investigations and those of my co-worker, Dr. *Strasburger*, had to make in order to secure a scientifically established basis for our practical methods, have made it impossible to put this goal in the foreground, as I had it in mind to do. For this reason and partly also because our works were scattered in the special literature, our methods for examining the function of the intestine have not yet been able to secure a firm footing in practice. To many they at first seemed too complicated, a fault, which, I hope, has been almost altogether removed. The conviction, that our functional examination, though still having many gaps, can be of service to the practitioner in many respects, even in its present form, and the encouraging approbation of colleagues, have been to me the cause for this comprehensive presentation. At the same time it affords me a desired opportunity for the publication of some recently obtained results.

ADOLF SCHMIDT.

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I. THE EXAMINATION OF THE FUNCTION OF THE INTESTINE.

Functional Diagnosis of the Stomach and of the Intestine.—Experiments in Digestion.—Conditions of a Rational Test of the Function of the Intestine.—The Examination of the Content of the Stomach as Indicator.

TO ANY one who compares the present state of intestinal pathology with that of the pathology of the stomach, there can be no doubt, that in spite of the various advances we have made, especially in the field of local inflammations (appendicitis) of stricture and of obstruction of the intestine, the former has nevertheless remained very far behind the latter. This is especially true for those diffuse diseases of the intestine and its adnexa (the liver and the pancreas) which have no broadly recognizable symptoms. These will form the subject of our consideration primarily; in other words, the lighter grades of inflammation and the numerous other so-called functional diseases, for which it has hitherto proved impossible to find an anatomic substratum. In the pathology of the stomach it is in the knowledge of just *these* forms of diseases that extraordinary progress has been made in the last two decades, and this we owe to the use of the stomach-tube for the purposes of diagnosis (*v. Leube*) and to the introduction of the test-breakfast and the test-meal (*Ewald, Riegel*); in short, to the creation of a functional diagnosis of the diseases of the stomach.

The aim of *functional diagnosis*, which is now being striven for in all branches of internal medicine, is the rec-

ognition of disturbances in the physiologic process (the functions) of organs; even then when objective signs of the disturbances are still wanting, when perhaps only indefinite subjective sensations are present or even no symptoms at all, as happens, for example, in *achylia gastrica*. In order to obtain this, an arbitrarily chosen task is imposed on the particular organ and from the way it discharges this task, its efficiency is inferred. The difficulties in functional diagnosis, which we need absolutely owing to the natural limitation of our anatomic knowledge and of our sense-perceptions, lie in finding suitable criteria that can be introduced into general practice, for testing the general operation or the total work, which is divided up according to the various functions of organs, and in the demarcation of the ranges of physiologic fluctuation in their operation. The latter must naturally be accurately known before we can infer to pathologic conditions. Such a criterion once obtained, we could by means of it advance our diagnostic and therefore our therapeutic knowledge considerably. This is proved by the functional examination of the eye by means of the altogether arbitrary concept of visual acuity; this is proved for internal medicine by the advances in the pathology of the stomach. As a result of investigations with the stomach-tube, we are now in a position to control the work of the stomach in its finest details, and to test separately the part played in it by its three chief functions, motility, secretion, and absorption.

In intestinal pathology we are still far from this ideal. Owing to the inaccessibility of this organ the introduction of tubes and similar instruments to aid in palpation and illumination of the mucous membrane, and the insufflation of air and liquid, from above, are out of question. Such methods can be employed only from the anus and may

give us our bearings as to the condition of the rectum, but less frequently as to the upper sections of the colon. *Hemmeter* (1) and *Kuhn* (2) have repeatedly passed the pylorus by way of the stomach, but there can be no question of the general application of their methods. Similarly the obtaining of duodenal secretion from the empty stomach, to which *Boas* (3) first called attention, is connected with special preliminary conditions, which are found only exceptionally. Disregarding the aids of physical diagnosis, of inspection, palpation, percussion, and auscultation of the abdomen, and of the evidences which are furnished by the examination of the urine and of the other organs in general, we are essentially dependent upon the examination of the feces. But with the examination of the feces peculiar circumstances are connected. In practice it is used entirely too seldom and it is valued too little. I believe I offend no one by asserting that, aside from hospital physicians and specialists on the diseases of the stomach and intestines, scarcely any practitioner proceeds with the investigation of the feces differently than the layman himself: *i.e.*, he inspects it and smells at it, and, at most, stirs it with a stick. How does this happen? Is the prudery of the public and the repulsiveness of the examination of the feces the cause, or does the analysis of the feces in reality promise such slight results as not to be worth the trouble? I believe that both points enter here; for since *Nothnagel's* investigations, dating from 1884 (4)—the valuable results of which have unfortunately found admission only in a limited circle of physicians—to the very present time, the clinical analysis of feces has made scarcely any progress. It cannot be disputed that the method of examining the feces used at present only rarely gives results useful for diagnosis.