

PHYSICAL DIAGNOSIS

HOCHSTEIN and RUBIN

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*A Textbook and Workbook
in Methods of Clinical Examination*

BY

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PHYSICAL DIAGNOSIS

Dedicated to
ROSE AND AMY HOCHSTEIN
and
CAROLYN AND MARC RUBIN

Foreword

In the deluge of new texts, monographs, and periodicals which passes through the hands of students, practicing physicians, and clinical investigators today, one notable omission exists, and it concerns the subject of “physical diagnosis.” It is as if we were in agreement with one of our colleagues in radiology who, on the wall outside his elaborate facility for contrast visualization of the vascular system, has a glass-encased stethoscope side by side with an ancient electron tube—both relegated to the position of antiques in modern diagnosis.

Modern human biology has progressed to the point where the clinical scientist can explain many of the features of disease he observes on a “molecular” basis. It is the physiologic, biochemical, and biophysical understanding which marks the rapid evolution of clinical medicine in the last two decades. Before one can aspire to an understanding of health and disease on these levels, however, one must *observe*. Such observation can take a number of forms: (1) a perceptive account of the history of the subject, (2) the physical manifestations of structure and function, and (3) laboratory evidence of these same parameters. It is in the latter category that most rapid strides have been made in recent years. Although laboratory medicine shows every promise of continued growth in clinical medicine, it remains essentially a means of testing a hypothesis formulated on the basis of a careful history and compulsive physical examination by a careful observer at the side of a patient.

It has been said that clinical medicine consists in making adequate decisions on inadequate evidence. There is some truth in this statement. Even so, the more careful the observations, the more quantitative the estimate of structure and function, the more adequate the evidence will be in support of reasonable, workable formulations of disease and decisions regarding treatment. This is the purpose of this volume. It concerns a modern approach to quantitative anatomic and physiologic methods in clinical diagnosis.

Dr. Elliot Hochstein, who has prepared this book with the assistance of Dr. Albert Rubin, writes from more than 30 years of experience in skilled clinical practice. During the last 10 years he has organized, supervised, and revised repeatedly the interdepartmental course in Methods in Clinical Diagnosis in the second-year curriculum of Cornell University Medical College. It is out of this experience that this work has been written. It has served well in his hands, and it should be a significant contribution to contemporary learning of this important subject.

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Acknowledgments

Throughout the years of teaching the course in physical diagnosis at the Cornell University Medical College and of preparing this book, we have acquired many obligations. None of these can be adequately acknowledged in words. It is our hope, however, that those who have helped us will accept our gratitude and, in addition, will find themselves rewarded by an improvement in medical education that may accrue from our joint efforts.

Dr. David Preswick Barr, Emeritus Professor of Medicine at Cornell and for many years Physician-in-Chief to The New York Hospital, organized the course on which this work is based and inspired us to write the mimeographed manual which was later developed and revised until it took its present form.

Dr. E. Hugh Luckey, who succeeded to Dr. Barr's posts after a period as Dean of the College, kindly wrote the Foreword and along with Dr. John E. Deitrick, the present Dean, provided constant critical encouragement.

Drs. Claude E. Forkner, Sr., and Aaron Kellner, colleagues and friends, were constant sources not only of medical information but also of valuable philosophical background.

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The teaching qualities of the book were put to practical tests by the tutors participating in the course: Drs. Lucian I. Ardit, Norman Brachfeld, John L. Brown, J. Robert Buchanan, Susan T. Carver, Denton S. Cox, Albert J. Erdman, Jr., Martin Gardy, William Geller, George W. Gorham, Richard A. Herrmann, Herbert I. Horowitz, Eugene L. Horger, Donald W. Hoskins, Abraham S. Jacobson, W. P. Laird Myers, R. A. Rees Pritchett, David M. Roseman, Isadore Rosenfeld, Richard T. Silver, Gerald M. Silverman, James C. Strickler, Louis J. Vorhaus, II, and Lila A. Wallis. Many of their suggested improvements have been incorporated in the book.

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Milton L. Zisowitz, Lecturer in Medical Writing at Cornell, helped to evolve the pedagogic approach employed in the book and was largely responsible for the preliminary editing.

We owe a great debt to our secretaries and technicians for their work on the manuscript: Marguerite Fatinna, Fay Green, Michele Jarmak, Jacqueline Karasik, Mary Jo McArthur, Janet Moore, Fredlyn Noble. We owe special thanks to Carol Fawcett Smith who was responsible for the preparation and editing of the final manuscript.

Elliot Hochstein, M.D.
Albert L. Rubin, M.D.

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Introduction

This book introduces the second-year medical student to clinical medicine. The basic approach of the text is heuristic rather than didactic, and its purpose is fourfold:

1. To guide and assist the student, at the outset of his clinical studies, in developing systematic and analytic methods of examining a patient and of recording clearly the resulting data.
2. To aid the student in interpreting clinical signs and symptoms and in correlating them with his recently acquired knowledge of anatomy, physiology, and pathology.
3. To impress the student with the value of collateral reading in medical journals and textbooks.
4. To suggest teaching and learning techniques that are useful in achieving the first three aims.

The text, instructions, specific exercises, suggested supplementary activities, and guiding questions constitute the framework of this book. Space is reserved for the student's notes, observations, and answers. When appropriate, diagrams and tables for labeling and completion are provided. In effect, then, each student writes his own supplementary textbook of physical diagnosis, guided by this book, his observations and collateral reading, and the suggestions and corrections of his tutor.

The first third of the course in physical diagnosis is devoted to lectures, demonstrations, and examinations of normal persons and of patients. The first part of each session consists of a lecture and demonstration dealing with the particular problem under study. Patients are presented as subjects, and various audio-visual aids are used. For the remainder of the session, the class meets in groups of four, under the supervision of tutors. During this period the students work in pairs, examining each other according to directions in the textbook and recording in the spaces provided their notes, observations, and answers to the questions posed in the text. Repeated examination of classmates helps to familiarize the student with methods of physical diagnosis, enables the tutor to demonstrate appropriate techniques, reveals the wide variation in observations that may be considered normal, and establishes a base line which makes it possible to recognize conditions that are deviations from the normal. By acting as a subject, the student gains the additional benefit of experiencing the typical sensations a patient experiences during a physical examination. The session usually concludes with a visit by the group and its tutor to the bedside of a patient. Under the tutor's supervision, the students examine the patient, particularly directing their attention to the problem under consideration and evaluating both the normal and abnormal findings.

During his personal study time the student reviews the exercise, answers the supplementary questions, and completes any other requirements. This plan of study necessitates reference to classroom notes and reading in selected journals and textbooks of anatomy, physiology, pathology, medicine, and physical diagnosis. The completed exercise is reviewed and corrected by the tutor and discussed in individual conference with the student.

The second two-thirds of the course is spent on the pavilions or wards of the hospital. Work-

Schedule for Course in Physical Diagnosis for Third Trimester, Second Year (11 Weeks)

Hours	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
9-10	Neurology (9-12)	Neurology (9-12)	Neurology (9-12)	Neurology (9-12)	Psychiatry	Elective
10-11	Group A	Group B	Group C	Group D		
11-12	Elective groups B, C, D	Elective groups A, C, D	Elective groups A, B, D	Elective groups A, B, C	Neurology lecture	
12-1						
1-2						
2-3	Physical diagnosis	Physical diagnosis	Physical diagnosis	Elective	Physical diagnosis	
3-4						
4-5						

ing in groups of four, and in pairs within each group, the students examine a patient for about an hour, and their observations and techniques are checked by a tutor.

As an integral part of the course in physical diagnosis, lectures on selected medical subjects and basic instruction in the diagnostic techniques involved in pediatrics, general surgery, dermatology, dentistry, gynecology, orthopedics, ophthalmology, and otorhinolaryngology, as well as in the fundamentals of radiologic diagnosis are given to the student.

Through separate courses taught concurrently with the course in physical diagnosis, the student is introduced to neurologic and psychiatric diagnosis under the guidance of those in the department concerned with the subject. (Laboratory methods of diagnosis are taught concurrently with the course in pathology, which precedes the study of physical diagnosis.)

The schedules for the complete course in physical diagnosis and for the third trimester of the second year of the course at Cornell University Medical College are printed above.

This book is concerned primarily with physical methods of examination, but throughout the course in physical diagnosis emphasis is placed on the principles of formulating a diagnosis based on correlated history, physical examination, and laboratory procedures. For this reason, the course begins with instructions in the elements of taking a history. Early familiarity with an organized system of interrogation eases the student's task in collecting data pertaining to the patient's condition. Additional and continual instruction in taking and interpreting a history is provided as the student progresses in his clinical training.

PLAN FOR USING THE TEXT

1. Prepare Exercise 1 prior to the session scheduled for history taking. Frequent references by the student to the review of systems in the history-taking exercise will be helpful in learning the symptoms in each system.

2. Prepare the sections on anatomy, physiology, and method of procedure of each exercise before each scheduled period.

3. Carry out the Method of Procedure of each exercise during the scheduled period. Repeat the technique of examination at every available opportunity.

4. Complete the Supplementary Study and other requirements in personal study time, answering all questions in a notebook devoted to physical diagnosis.

The list of general and exercise references in the Bibliography should be consulted in conjunction with the study of anatomy and physiology and the answering of the questions in the Supplementary Study of each exercise.

EXERCISE

1

History Taking and Recording

A medical history is a record of an individual's present and past conditions of health, his manner of living, and his family background. The process of taking this history usually is the physician's introduction to his patient. This first contact is of critical importance because it may predetermine the success or failure of the doctor-patient relationship.

A complete and accurate medical history combined with a careful physical examination and appropriate laboratory studies provides the physician with the vital information that is essential in making a diagnosis and formulating a plan of management.

Of these three techniques employed in appraising a clinical problem, the eliciting of the history is usually the most fruitful one. Sometimes a complete diagnosis can be made from the history alone, and frequently the possibilities may be reduced to two or three. The history also indicates the areas of the body which are to be examined in detail and often suggests the laboratory tests most useful for the case under study.

A good medical history and a clear concise report of the interview require a knowledge of what to ask. This can be accomplished even at the onset of a medical student's clinical training by learning: (1) a methodical scheme of securing and recording historical data, i.e., the mechanics of history taking and recording, (2) a method of analyzing a symptom, and (3) a method of organizing a review of systems.

Although the above methods will enable the student to collect a multiplicity of facts, a good history further demands of the examiner a wide background of pathology and physiology, correlated with a knowledge of symptoms and natural history of illnesses. This correlation enables the examiner to appreciate the possible pathologic meaning of what the patient tells him and suggests to him a further train of relevant inquiry. These aspects of history taking are gradually learned by the student as he adds his actual personal experience with patients to the information acquired in medical textbooks and articles.

Finally, the securing of the facts in practice is an art because it involves mastering a technique in obtaining and analyzing data from persons of different intellectual levels and emotional attitudes. The student must learn the art of dealing gently and wisely with his fellow men, recognizing the fears and anxieties often felt by a patient as he consults a physician. Sympathy and patience on the part of the examiner allow the patient to express his complaints in a full and detailed manner with the result that important information, which otherwise would not have been volunteered, is obtained.

MECHANICS OF HISTORY TAKING AND RECORDING

A method of history taking and recording is presented below to enable the student to gather and record in a concise manner all relevant data pertaining to the history of the patient under study. After gaining experience with this method, he may then abridge or expand it depending on his personal inclination and the nature of the patient's problem.

The sequence for eliciting the history and recording the data obtained is as follows:

- I. Introductory data including source and reliability of history, number of previous admissions to this hospital, and summary of each admission
- II. Chief complaint
- III. Present illness (includes analysis of a symptom)
- IV. Review of systems
- V. Past history
- VI. Family history
- VII. Personal history

The taking of the history and the recording of the data obtained should be a coordinated process.

As a general rule, all aspects of the history, except for the present illness and some parts of the personal history, may be directly recorded as the patient reports them. However, the present illness cannot be recorded in its final form as the patient relates it, since the technique for eliciting this phase of the history does not usually correspond to the chronologic order in which it is written. Patients are not trained to give the history in a precise chronologic order, nor should they be expected to do so. Consequently, while eliciting the history, it is advisable to take brief notes during this part of the interview and to organize the final form after the other phases of the history are completed. This method provides an opportunity for the examiner to obtain additional facts relevant to the present illness or to reemphasize the significance of previously obtained information.

HISTORY TAKING**I. Introductory data**

The eliciting of the introductory data is prefaced by the usual opening amenities, which include a handshake and the clear announcement of the examiner's name.

The following data are then obtained and recorded:

A. Date history taken

B. Name	Sex	Age	Marital status
Address	Race	Birthplace	
Occupation			
Source of referral			

C. Source and reliability of the history

Although the statement as to the reliability of the history is made in the introductory paragraph, the basis for this evaluation can be made only after the history has been completed. This statement should give a reader an idea of the value of the history and should include a short explanatory reason for any unreliability. Check the questionable details with a close friend or relative of the patient.

D. Number of previous admissions to this hospital

E. Summary of previous admissions to this hospital

Record in outline form each hospitalization as to the date of admission and discharge, the list of diagnoses, associated conditions, operations, complications, result, and disposition. Also state whether the patient attends the outpatient department of the hospital.

II. Chief complaint (abbreviated C.C.)

The chief complaint is the patient's primary reason for seeking medical care. "What brings you to the hospital?" or "What seems to be the trouble?" are appropriate questions with which to start the interview.

Record the patient's chief complaint (only a single symptom) in a brief statement, using as nearly as possible his own words. Always include the duration of the symptom. Typical chief complaints are: "chest pain for 2 days," "loss of appetite for 6 days," "loss of weight for 1 year," and "fever for 2 days."

The chief complaint should not be recorded by a statement such as "vague complaints." The patient's complaints are concrete, and the responsibility of the physician is to elicit them as accurately as possible. Also, the chief complaint should not include diagnostic terms or names of diseases. The chief complaint serves only as a guide to the more detailed history which follows and is a measure of the patient's estimate of his illness.

III. Present illness

A. Introduction

The term "present illness" covers chronologically all symptoms and events from the onset of the illness to the first interview by the physician. Also included within this definition are events or symptoms which have disappeared but which are, in the light of the development of the history, significant in the present illness. Examples of these are acute rheumatic fever or tuberculosis of the lymph nodes during childhood.

Since the present illness is developed largely in terms of symptoms reported by the patient, a method of analyzing a symptom is introduced at this time. The method presented below of dissecting a symptom is a basic technique for eliciting a present illness.

B. Analysis of a symptom

Each symptom should be evaluated with respect to (1) total duration, (2) onset, (3) characteristics, and (4) course (see Chart 1-1).

1. Total duration

2. Onset

The onset refers not only to the time of the first occurrence of the symptom (or the time of the onset of an attack) but also to the manner of onset and circumstances related to the onset.

a. Date of onset

The date of onset should be ascertained accurately. "When did you, for the very first time, experience this complaint?" is frequently a helpful question in fixing the date of the first occurrence of the symptom.

The time of the first occurrence should be recorded, if possible, by a specific date or, if this cannot be ascertained, by the number of days, weeks, months, or years before the first visit (either at the hospital, home, or office). In acute attacks, a record of the hour of the onset may be important. The age of the patient at the onset of the symptom should also be recorded.

Chart 1-1. ANALYSIS OF A SYMPTOM

1. Total duration
2. Onset
 - a. Date of onset (also determines total duration)
 - b. Manner of onset (gradual or sudden)
 - c. Precipitating and predisposing factors related to onset (emotional disturbance, physical exertion, fatigue, bodily function, pregnancy, environment, injury, infection, toxins and allergies, therapeutic agents)
3. Characteristics at onset (or any other time)
 - a. Character (quality)
 - b. Location and radiation (for pain)
 - c. Intensity or severity
 - d. Temporal character (continuous, intermittent, rhythmic, and duration of each such episode)
 - e. Aggravating and relieving factors
 - f. Associated symptoms
4. Course since onset
 - a. Incidence
 - (1) Single acute attack
 - (2) Recurrent acute attacks
 - (3) Daily occurrences
 - (4) Periodic occurrences
 - (5) Continuous chronic episode
 - b. Progress (better, worse, unchanged)
 - c. Effect of therapy

The total duration of a symptom refers to the time interval from its first occurrence until the interview with the physician and includes any symptom-free periods which may occur with a recurrent or periodic illness.

b. Manner of onset

Manner of onset, gradual or sudden, may provide a clue as to the tempo of the pathologic process responsible for the symptom, e.g., the acute pain of myocardial infarction or a perforated viscus; or the gradual development of a headache related to a slow-growing brain tumor.

c. Circumstances related to the onset (precipitating and predisposing factors)

A knowledge of factors and events which precede or coincide with the onset is important in determining the significance of a symptom. They are:

- (1) Emotional disturbances, e.g., what is going on in the patient's life (school, family, job, etc.) at the time of the onset of the symptom.
- (2) Physical exertion.
- (3) Fatigue.
- (4) Bodily functions such as sleeping, breathing, eating, bowel movements, urination, menstruation, and musculoskeletal movements.
- (5) Pregnancy.
- (6) Environmental factors, e.g., condition of working and living quarters, climatic changes, etc.
- (7) Injury or strain. Describe the trauma in terms of when, where, how, and why the injury occurred.
- (8) Infection or epidemiologic events such as influenza, communal streptococcus infections, amebiasis, hepatitis.
- (9) (a) Industrial and household toxins
(b) Allergens, e.g., seasonal pollens
- (10) Therapeutic measures: drugs such as digitalis, nitroglycerin, antibiotics; diet; etc.

3. Characteristics of the symptom at the onset (or at any other time in the course of the disease).

Inquiry should be directed to: (a) character of the symptom, (b) location and radiation (if pain is present), (c) intensity or severity, (d) temporal factors, (e) aggravating and relieving factors, and (f) associated symptoms.

a. Character of the symptom

The character or quality of a symptom refers to a patient's subjective description of his complaint. For example, a patient may describe his pain as burning, aching, cramplike, squeezing, knifelike, or pressing.

b. Location and radiation (only applicable to the symptom of pain)

These two characteristics refer to the symptom of pain and are usually coupled with the character of the pain. For example, a patient who has angina pectoris may describe his pain as squeezing in quality, located over the middle of the chest, and radiating to his left arm.

It is suggested that the patient designate the location and radiation of pain with his finger (the pointing sign). In this manner, the examiner obtains an accurate localization of this most important component of pain.

c. Intensity or severity

The intensity of a symptom relates to its severity as expressed by the patient (mild, moderate, severe). It is not an accurate quantitative measure of the degree of disturbed function because individuals differ in their threshold for reaction to stimuli. Therefore, the patient's description of the severity of a symptom should be interpreted with consideration for his personality, age, race, and social background.

d. Temporal character

The temporal character refers to the continuous, intermittent, recurrent, or rhythmic nature of a symptom and the duration of each such episode.

A continuous symptom, as inherent in the meaning of the word, is not interrupted by any symptom-free period and may last from minutes to hours to days. The intensity of the continuous symptom may wax and wane. Examples: pain of angina pectoris, migraine, myocardial infarction, biliary colic, renal colic.

An intermittent symptom alternately ceases and recurs. The symptom occurs intermittently in volleys or paroxysms for seconds to minutes, and the whole episode may last for minutes or hours. Examples: pain of tic douloureux, uterine colic (premenstrual cramps or labor pains), intestinal colic.

A recurrent symptom is one in which the total episode repeats itself at various intervals of time (hours or days).

A rhythmic symptom occurs in a definite time relationship to a bodily function. Rhythmic symptoms tend to recur several times a day. When patients present rhythmic symptoms, it is important to evaluate a typical 24-hour period. Example: epigastric distress of a peptic ulcer.

e. Aggravating and relieving factors

The origin and significance of the symptom under study may be partially determined by inquiry directed to factors that may aggravate or relieve the symptom. These factors have been enumerated under Circumstances Related to the Onset (page 6). For example, retrosternal pain radiating to the inner side of the left