

4

The Physical Examination

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Definition

Physical examination is the process of evaluating objective anatomic findings through the use of observation, palpation, percussion, and auscultation. The information obtained must be thoughtfully integrated with the patient's history and pathophysiology. Moreover, it is a unique situation in which both patient and physician understand that the interaction is intended to be diagnostic and therapeutic. The physical examination, thoughtfully performed, should yield 20% of the data necessary for patient diagnosis and management.

The Context

Almost without exception, some medical history about the patient is available at the time of the physical examination. Rarely, there may be no history, or at best brief recordings of acute events. Information pertinent to the physical examination can be learned from observation of speech, gestures, habits, gait, and manipulation of features and extremities. Interactions with relatives and staff are often revealing. Pigmentary changes such as cyanosis, jaundice, and pallor may be noted. Diaphoresis, blanching, and flushing may provide clues about vasomotor tone related to mood or physiologic abnormalities. Aspects of patient habits, interests, and relationships can be ascertained from pictures, books, magazines, and personal objects at the bedside.

The Physician–Patient Interaction

Aside from the hospital room and office, physical examination may occur in a variety of other settings where it is difficult to establish privacy and quiet. The best resource available to the physician to set the stage for the physical examination is to communicate respect and a genuine interest in the patient's welfare. The patient should be addressed politely and asked to perform the required maneuvers of the examination, a technique far preferable to imperative language such as, "I want you to. . . ." Patients should be prepared for unpleasant portions of the examination.

Aside from explanations and reassurance, it is not necessary to maintain a continuous conversation with the patient during the examination. Avoid embarrassing the patient. Be certain that draping material is used appropriately and that personal areas are not subjected to undue exposure. An examination that ends abruptly may diminish the value of the doctor–patient relationship and may destroy its therapeutic content. The patient may benefit from a brief summary of relevant findings and may require reassurance about what has and has not been found.

The Materials

The single most useful device for optimal performance of the physical examination is an inquisitive and sensitive mind. Next most useful is mastery of the techniques of observation, palpation, percussion, and auscultation. Less important are the tools required for the examination (Table 4.1).

The Examination

As the environment affects the quality of the physical examination, it is wise to arrange for quiet and privacy, darkening the room for parts of the examination, and comfort for the patient and examiner.

The complete examination should proceed in an orderly fashion with a minimum of required position shifts by the patient (Table 4.2). On the other hand, the physician must be able to ascertain the integrity of the various organ systems from regional examinations. For instance, from examination of the head and neck, the physician must identify the vascular, neurologic, lymphatic, skeletal, and integumentary components and must relate them to their complements in other body regions. It would be tedious, by contrast, to examine the vascular system in its entirety, followed by a complete neurologic examination and the other organ systems each in turn. When examining an anatomic region, the observer must be alert to the appearance of any abnormality and question at the time the morphologic aspects of the abnormality and its clinical significance.

The general physical examination can take many forms depending upon circumstances. Most often, the examiner evaluates body regions in a general way, looking for abnormalities. Clues derived from the history signal the need for a more precise and detailed examination of a given system. A thorough physical examination often includes the sequence presented in Table 4.3.

The clinically significant physical examination is a flexible entity that should vary with the needs of the patient. Periodic examinations for health assessment need to be

Table 4.1
Equipment Required for the Physical Examination

Cotton wisp	Sphygmomanometer
Flashlight	Stethoscope
Lubricating jelly	Tape measure
Mydriatic solution	Thermometer
Oto-ophthalmoscope	Tissues
Paper towels	Tongue depressors
Pocket eye chart	Tuning fork (128 Hz)
Rectal gloves	Vials of coffee and cinnamon
Reflex hammer	

Table 4.2
Positions of Patient and Examiner during the Physical Examination

Anatomical area or activity	Patient	Examiner
Vital signs, general inspection	Sitting or reclining	Standing before patient or at bedside
Head and neck	Sitting	Standing before patient
Anterior torso	Sitting	Standing before patient initially, later behind the patient
Posterior torso	Sitting	At patient's side
Anterior chest and abdomen	Supine	Before the patient
Male genitalia	Standing	Before the patient
Gait, station, coordination	Variable positions	Behind the patient
Female genitalia	Reclining on examining table, draped, knees flexed, legs adducted, feet in stirrups	Sitting on stool at times or standing

Table 4.3
Steps of the Physical Examination

1. Patient's comfort Be certain that the patient is in a relaxed position, properly gowned or draped.
2. The optimal environment The examination surface should be at a height appropriate for the examiner. Light sources and curtains should be optimally arranged. Television sets, radios, and other noisy distractions should be eliminated.
3. Vital signs and general inspection Evaluate the radial pulse for rate and rhythm. Measure brachial blood pressure. Inspect nails, skin, and hair. Note the general appearance, body habitus, hair distribution, muscle mass, movement coordination, odors, and breathing pattern.
4. Head <ul style="list-style-type: none"> a. Eyes: Examine the conjunctiva, sclera, cornea, and iris of each eye. Test pupils for irregularity, accommodation, and reaction. Evaluate visual fields and visual acuity (cranial nerve II). Assess extraocular movements (cranial nerves III, IV, VI). Test the corneal reflex (cranial nerve V). b. Ears: Examine the pinnae and periauricular tissues. Test auditory acuity, perform Weber and Rinne maneuvers (cranial nerve VIII). c. Ophthalmology-otoscopy: The ophthalmoscope can now be used after darkening the room to examine the interior of the eye through the pupillary aperture. Particular emphasis should be placed on the retina, optic disc, vessels, and macula lutea. Attention must be given to the media, lens, and cornea. Keeping the room darkened, attach the otoscope head and observe the auditory canals and tympani. d. Nose: Connect the nasal speculum to the otoscope and examine the nares, noting the condition of the mucosa, septum and turbinates. e. Mouth: Examine the vermilion border, the oral mucosa, the tongue. Identify the salivary duct papillae. Assess the dentition for decay, repair, condition of bite. View the pharynx. Evaluate the function of cranial nerves IX, X, and XII. If appropriate, evaluate sensory divisions of cranial nerves V, VII. f. Face: Evaluation of symmetry, smile, frown, and jaw movement will provide information about motor divisions of cranial nerves V and VII.
5. Neck Palpate the neck with emphasis on the salivary glands, lymph nodes, and thyroid. Look for tracheal deviation. Identify the carotid arteries and auscultate for bruits. Note jugular venous distention. Reexamine the thyroid from behind the patient. Certain parts of evaluation of this area, jugular venous filling, may warrant review with the patient reclining. Test shoulder strength of the sternocleidomastoid and trapezius muscles (cranial nerves XI and XII).
6. Anterior torso With the patient sitting, examine the epitrochlear and axillary nodes. Examine the breasts. Define the PMI and examine the heart, having the patient lean forward if necessary.
7. Posterior torso Observe for spinal curvature or chest deformity. Evaluate the vertebral column and the costovertebral areas. Auscultate the posterior and lateral lung fields.
8. Completion of the "sitting" portion of the examination Evaluate proximal and distal motor strength, deep tendon reflexes, distal pulses and sensation.
9. With the patient supine <ul style="list-style-type: none"> a. Thorax: Examine the breasts; reexamine the heart, turning the patient to the left lateral decubitus position if appropriate. Auscultate the anterior lung structures. b. Abdomen: After inspection, auscultate, listening for bowel sounds and bruits. Next inspect, percuss, and palpate the abdomen, taking special notice of hepatic or splenic enlargements. c. Proximal lower extremities: Examine the inguinal, femoral, and popliteal regions for adenopathy and pulses. Evaluate range of motion of hips, knees, and ankles.
10. With the patient standing Examine external genitalia of the male. In both male and female, evaluate station and gait.
11. Pelvic and rectal examination In females, the pelvic examination should be performed on an examining table provided with stirrups. Rectal examination and occult blood testing should be done simultaneously. In males, the rectal examination is best performed with the patient in the bent forward position.

comprehensive, as do most hospital admission examinations. In contrast, it will not be cost effective to undertake a complete physical examination in most patients presenting with symptoms of an upper respiratory tract infection or a urinary tract infection.

Conclusion

The physical examination is a key part of a continuum that extends from the history of the present illness to the therapeutic outcome. If the history and physical examination are linked properly by the physician's reasoning capabilities, laboratory tests should in large measure be confirmatory. The physical examination, however, can be the weak link in this chain if it is performed in a perfunctory and superficial manner. Understanding the pathophysiologic mechanism of a physical abnormality is essential for correct diagnosis and management. For instance, the failure to discriminate between and know the origin of carotid bruits and transmitted sounds of valvular origin can have critical significance.

As knowledge of disease changes, the techniques of physical examination become augmented. The astute physician constantly reviews and adds to the repertoire of techniques for physical examination.

Evaluation of the physical examination in terms of sensitivity and specificity is difficult. Interpretation of isolated physical findings is often influenced by the presence or absence of historical information and coexisting physical findings. For instance, the assessment of whether clubbing of the fingers is present or absent has significant interobserver variability and has been demonstrated to be influenced by the clinical appearance of the patient.

A number of studies have attempted to look at the validity of the physical exam as a diagnostic tool. The concept of interobserver and intraobserver variability has been introduced when looking at specific isolated findings. For example, judging the presence or absence of rales is more

likely to be agreed upon by several observers and on repeated exams by a single blinded observer, than is the graded intensity of breath sounds. The presence or absence of ascites in patients with known liver disease has been shown to be difficult to determine when using physical exam techniques alone. The bedside measurement of forced expiratory time by auscultation however, has been shown to have a small interobserver variability in trained observers and to have clinical value in following the degree of airway obstruction.

Because of the large degree of variability in observing many physical signs, the following recommendations can be made when reporting and interpreting physical findings.

1. Emphasis should be placed on dichotomous variables (i.e., presence or absence of rales) rather than on graded variables (i.e., intensity of breath sounds).
2. Some physical signs (i.e., clubbing of the fingers) represent a continuum from obviously normal to obviously abnormal. Emphasis should be placed on those findings which represent the extremes rather than the "borderline" cases.
3. Recognition of those physical findings which have a high degree of interobserver variability is important. Good examples of this include detection of moderate or small amounts of ascitic fluid and detection of diaphragmatic movement by percussion. These findings should be deemphasized in favor of those with better reproducibility.
4. It is beneficial to use the body's "symmetry" to advantage. Differences auscultated in breath sounds between similar area of the right and left lung are far more clinically important than an overall decrease in breath sounds.

If these points are kept in mind, the physical exam will fill its proper role in the care of the patient. That is as an adjunct to a thorough history and as a way for the physician to interact physically with the patient.