The Outpatient Physical Examination

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INTRODUCTION

Most of the health care delivery in the United States happens in the outpatient setting. According to Centers for Disease Control and Prevention data, the number of outpatient visits in 2013 was approximately 920 million, and 53.2\% of these visits were made with primary care physicians.\textsuperscript{1}

Patients generally make an appointment with their health care provider for an acute problem, a checkup, or management of a chronic condition. It is common that a patient brings a multitude of complaints to a provider’s attention. Appointment time is limited, however, averaging approximately 15 minutes per visit.\textsuperscript{2} It is crucial that a provider is efficient and addresses the patient’s most pressing concerns while conveying a sense of caring. An astute medical provider can gain significant insight about a patient through observation. What is the patient’s appearance? Is the patient dressed

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- Problem-focused physical examination
- Low back pain examination
- Dizziness examination
- Headache examination
- Shoulder examination

KEY POINTS

- The annual physical examination in the outpatient setting is a valuable tool, despite lack of evidence-based support. It has a therapeutic effect.
- A targeted or problem-oriented physical examination has important diagnostic value, helping to rule in or rule out differential diagnoses.
- Obtaining a careful history is a crucial part of the work-up of any medical complaint and can help narrow the differential diagnosis.
- With a problem-oriented differential diagnosis, physical examination maneuvers can be performed to support or refute a specific diagnosis.

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neatly or disheveled? Does the patient smell like tobacco? How is the patient’s demeanor? Does the patient appear sad or depressed? Can the patient walk without assistance? Being curious and making an effort to understand the patient as a person and not just someone with a disease make a big difference in developing comfort and trust.

This article uses a few of the most common reasons patients present to a primary care physician to demonstrate that the physical examination not only is a crucial tool to help make or narrow down a diagnosis but also it can have a therapeutic effect.3

THE ANNUAL PHYSICAL EXAMINATION

Patient Case

A 45-year-old healthy man without any significant family history contacts you, asking if he needs to schedule an annual physical examination. He has not been seen in your office for more than 2 years. What do you tell him?

Beginning in the 1910s, the physical examination has been necessary for work clearance.4 Since the 1920s, when it was endorsed by the American Medical Association, the general physical examination has been popular with patients and physicians as a means to identify and screen for diseases before they become clinically significant.5 For the next 50 years, the comprehensive physical examination of apparently healthy people, or the preventive physical examination, was the standard of care. As early as 1975, however, the value of the comprehensive physical examination was called into question.6 Over the next 10 years, multiple major medical associations, including the Canadian Task Force On The Periodic Health Examination, the American College of Physicians, the American Medical Association, and the US Preventive Services Task Force (USPSTF), released statements recommending against the annual physical examination. Instead, it was recommended to screen for health problems in a more selective fashion.7–10

Numerous studies have shown that the annual physical examination does not reduce mortality or morbidity and can lead to unnecessary follow-up studies.11 A majority of patients and physicians, however, continue to believe in the importance of the annual physical examination. An estimated one-third of US adults receive an annual physical examination, accounting for approximately 8% of all ambulatory visits. This equates to a cost of approximately $7 billion.12 When patients schedule an appointment for their annual checkup, they expect a complete physical examination and are disappointed when this is not done. Patients’ satisfaction with their medical care decreases if the expectation for services has not been fulfilled.13,14

What do patients expect during a full physical examination? In a study about public expectations and attitudes,15 more than 90% of the respondents desired blood pressure measurement, heart and lung examinations, reflex testing, and an abdominal examination. Most of these examination maneuvers, however, are not recommended.7–10 Systematic reviews of the evidence for the components of the annual physical examination informed the current recommendations.16–18 Currently, the USPSTF recommends only 4 components of the physical examination:19–23 measurement of the blood pressure at least every 2 years, Papanicolaou smear for sexually active women with a cervix every 3 years to 5 years up to age 65 years, measurement of weight, and periodic screening for depression. The USPSTF recommends against Papanicolaou smears in women without a cervix or in women older than age 65 years, pelvic examination for the detection of ovarian cancer, testicular examinations for the detection of testicular cancer, thyroid examination
for the detection of thyroid cancer, and abdominal palpation for the detection of pancreatic cancer. There is insufficient evidence for skin cancer screening, breast examination when a mammogram is available, mouth examination for oral cancer, eye examination for impaired visual acuity or glaucoma, and hearing examination for hearing loss. Most physicians include many other examination components in their general physical examination that are not recommended. There might be some benefit to checking the pulse in people over age 65 years to screen for atrial fibrillation. Not recommended are palpation of liver and spleen to assess for hepatosplenomegaly, palpation of lymph nodes to screen for malignancy, routine evaluation of reflexes and sensation to assess for peripheral neuropathy, auscultation of the heart for coronary artery disease, abdominal auscultation to evaluate for renovascular hypertension/renal artery stenosis, and assessment of spine mobility to evaluate the risk for low back pain.¹⁶–¹⁸

There are several reasons physicians continue to perform a screening physical examination despite the lack of evidence. Fear of missing a subclinical illness and the notion that most patients expect a head-to-toe examination contribute to the reluctance of omitting the examination. The physical examination is believed a crucial contributor to the patient-physician relationship.²⁴ Examining a patient communicates a special sense of caring to the patient.²⁵ The “laying on of hands” while performing a physical examination conveys empathy and solidarity.²⁶ Commonly, patients express a sense of gratitude and relief when a thorough physical examination has been performed and no abnormalities have been found. Patients frequently state that they feel much better after a complete physical examination. Performing a thorough and gentle physical examination has an important therapeutic effect that should not be underestimated.³

PROBLEM-FOCUSED PHYSICAL EXAMINATIONS

The complaint-driven or problem-driven physical examination is a valuable diagnostic tool in the outpatient setting. Many diagnoses can be made by a careful physical examination without diagnostic tests. Examples include cellulitis, shingles, Bell palsy, and Parkinson disease.²⁷ For many other medical problems, the physical examination guides necessary further work-up (eg, Is a chest radiograph required in a patient with a cough?).

The Problem-Oriented Examination: Dizziness

Patient case
A 48-year-old healthy old woman presents with intermittent dizziness. She denies any recent illness or injury. She takes no medication and has no history of depression. Symptoms are provoked with lying down and looking to the right. She denies imbalance with standing or walking. How do you determine the likely cause of her dizziness?

Although dizziness is a common primary care complaint,²⁸,²⁹ it is often difficult for patients to describe their symptoms. Determining the timing (onset, duration, and evolution of dizziness) and triggering factors (actions, movements, and situations) that provoke dizziness can help classify the dizziness as peripheral or central.³⁰,³¹ It is also important to determine whether there is hearing loss or any additional neurologic symptoms. The history can help narrow the differential diagnosis. For example, disequilibrium (abnormal sense of equilibrium often confused with dizziness) can be caused by decreased visual acuity and signs of peripheral neuropathy. Table 1 lists a brief differential diagnosis for dizziness as well as physical examination maneuvers that help support specific diagnoses.
The physical examination can distinguish benign from serious causes requiring additional evaluation. Observe a patient’s station and gait. When assessing gait, patients with vestibular neuritis tend to veer toward the affected side. An inability to walk, however, is a red flag for a central cause. Orthostatic hypotension can be ruled out by checking the blood pressure with a patient supine and after standing for 5 minutes. Hearing should be evaluated. Hearing is normal in vestibular neuritis. Evaluate for cranial nerve palsies, weakness, reflex changes, ataxia, decreased sensation in the feet, and gait abnormalities. Additional maneuvers can help determine the cause of dizziness. A head thrust is performed while a patient is sitting. During this maneuver, the head is thrust $10^\circ$ to the right and then to the left while the patient’s eyes remain fixed on the examiner’s nose. If a saccade occurs, the etiology of the dizziness is likely

<table>
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<tr>
<th>Table 1</th>
<th>Dizziness differential diagnosis and physical examination maneuvers</th>
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<tr>
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<td>Peripheral causes</td>
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<td></td>
<td>Dix-Hallpike\textsuperscript{32} maneuver causing transient upbeat-torsional nystagmus. If negative, a supine roll test\textsuperscript{33} should be performed.</td>
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<tr>
<td></td>
<td>Vestibular neuritis</td>
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<td>Spontaneous horizontal nystagmus or a mixture of spontaneous horizontal nystagmus and rotatory nystagmus is seen. A positive head-thrust test and suppression of the nystagmus with the visual fixation test.\textsuperscript{33} Visual fixation can be tested by asking a patient to focus on an object in the room (nystagmus stops) and then placing a blank sheet of paper in front of the patient’s face (nystagmus returns).</td>
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<td>Meniere disease</td>
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<td>Eye examination demonstrates unidirectional, horizontal-torsional nystagmus.\textsuperscript{34} There is also hearing loss and balance or gait difficulty.</td>
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<td>Central causes</td>
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<td>Vestibular migraine</td>
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<td>Spontaneous episodes of vertigo are associated with migraine headaches. The physical examination is normal in patients with vestibular migraine, unless presenting during a vestibular migraine. At that time, there may be a positive Romberg test.</td>
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<td>Cerebrovascular disease/ stroke</td>
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<td>The use of the HINTS examination can distinguish a stroke (central cause) from peripheral cause.\textsuperscript{35} Nystagmus associated with a central lesion, such as acute stroke, is unsuppressed by visual fixation.\textsuperscript{33} Skew deviation (vertical eye misalignment, or vertical strabismus) is assessed with the cover/uncover test and is also positive in some strokes.</td>
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<td>Cerebellopontine angle and posterior fossa meningiomas</td>
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<td>Nystagmus and positive Romberg test without hearing loss</td>
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<td>Other causes</td>
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<td>Psychiatric</td>
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<td>Normal examination and history of major depression, anxiety disorder, and somatization disorder</td>
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<td>Orthostatic hypotension</td>
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<td></td>
<td>Blood pressure measured while the patient is standing and supine. Orthostatic hypotension is present when the systolic blood pressure decreases 20 mm Hg, the diastolic blood pressure decreases 10 mm Hg, or the pulse increases 30 beats per minute after going from supine to standing for 1 minute.\textsuperscript{36}</td>
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</table>

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Benign paroxysmal positional vertigo (BPPV) is diagnosed with the Dix-Hallpike maneuver. Transient upbeat-torsional nystagmus during or after the maneuver is diagnostic, especially if the description of the timing and trigger is consistent with BPPV. A negative result does not necessarily rule out BPPV if the timing and triggers are consistent with BPPV. In these cases, a supine roll test should be performed.

The head-impulse–nystagmus–test-of-skew (HINTS) examination can help differentiate a peripheral cause of vestibular neuritis from a central cause. Spontaneous nystagmus that is dominantly vertical or torsional or that changes direction with the gaze (gaze-evoked bidirectional) suggests a central etiology. With central pathology, nystagmus changes direction less than half of the time and can be suppressed with a fixation test. Test of skew is performed by asking the patient to look straight ahead and then cover and uncover each eye. Vertical deviation of the covered eye after uncovering is abnormal. Although this is not a sensitive test for central pathology, an abnormal result is fairly specific for brainstem involvement.

The Problem-Oriented Examination: Shoulder Pain

Patient case
A 67-year-old woman presents to the clinic with acute on chronic right shoulder pain. The pain got significantly worse after she hung up her curtains a week ago. Now, she has severe pain in the shoulder with moving the arm and feels that the right arm is weaker. How do you evaluate her?

After back and knee pain, shoulder pain is the third most common musculoskeletal reason for primary care visits. The lifetime prevalence for shoulder pain is as high as 70%; 16% percent of all musculoskeletal complaints presenting to the outpatient clinic are shoulder complaints.

The shoulder joint is the most mobile joint in the body. This flexibility makes the shoulder more susceptible to instability and injury. An experienced health care provider can diagnose or narrow the differential of shoulder pain by getting a good history and performing a thorough physical examination. Many clinicians, however, are not comfortable examining the shoulder because the shoulder examination is perceived to be confusing. More than 100 tests have been described to examine the shoulder.

Knowledge of the functional anatomy of the shoulder is crucial to understanding the possible etiologies of shoulder pain. The shoulder joint is comprised of the following structures:

- 3 bony structures: humerus, scapula (with acromion and coracoid process), and clavicle
- 3 main joints: glenohumeral, sternoclavicular, and acromioclavicular (AC)
- 4 rotator cuff muscles: supraspinatus (abduction), infraspinatus (external rotation), teres minor (external rotation, adduction), and subscapularis (adduction, internal rotation)
- The subacromial bursa, which serves as a cushion for the rotator cuff tendons as they move below the acromion

A good history can give significant clues about the etiology of the shoulder pain.

Factors that need to be assessed are

- Age of the patient: it is rare for patients under the age of 40 to have rotator cuff disease without antecedent trauma.
- Location of the pain: pain in the deltoid region is often caused by rotator cuff disease. Pain in the anterior-superior area of the shoulder is frequently associated with AC joint pathology.
Radiation: radiation of pain past the elbow suggests a neurologic problem.

History of activities or trauma

Exacerbating and alleviating factors: for example, pain with overhead reaching and at night is common in patients with rotator cuff disease

The physical examination of the painful shoulder should always include the following steps:

Inspection: it is crucial to expose the entire shoulder and always compare to the other side. The shoulder is examined for asymmetry and muscular atrophy. Infra-spinatus atrophy can be easily identified by a greater prominence of the scapular spine on the atrophied side.

Palpation: palpation can reveal areas of local tenderness. Isolated pain with palpation over the AC joint suggests AC joint pathology. Tenderness to palpation over the subacromial bursa occurs with rotator cuff pathology.

Range of motion: range-of-motion testing includes flexion, abduction, adduction, external rotation, and internal rotation. It is easiest for an examiner to demonstrate to a patient the movement to be performed and ask the patient to mirror it. If the patient has no problems performing active range of motion, testing passive range of motion is unnecessary. Loss of active range of motion with intact passive range of motion is suggestive of rotator cuff disease. Loss of active and passive range of motion is indicative of adhesive capsulitis.

Provocative and strength tests

Rotator cuff impingement (tendinopathy): inflammation and pain are caused by compression of the rotator cuff tendons (most frequently the supraspinatus tendon) as they cross between the acromion and the humeral head. Impingement signs reproduce the subacromial pain by compressing the tendons between the acromion and the humeral head. The painful arc test (the patient is asked to abduct the arm—pain should be present between 60°–120°) is the only pain provocative test that significantly raises the likelihood of having rotator cuff disease. The Neer sign (1 hand presses down on the shoulder and the other raises the arm on the same side to 90°) and the Hawkins sign (the clinician flexes the arm 90° in the shoulder and the elbow and internally rotates the patient’s arm) are the most popular. Neither sign significantly increases the likelihood of rotator cuff tendinitis but the absence of both signs significantly decreases the likelihood.

Rotator cuff tear: besides advanced age (60 years or older) the findings that most significantly increase the probability of rotator cuff tears are a positive dropped arm test and a positive external rotation lag test. The dropped arm test is performed with the clinician passively abducting the arm above 180°. The patient is then asked to actively lower the arm. The test is positive, indicating a supraspinatus tear, when the patient is not able to slowly lower the arm to more than 100°, after which the arm often falls to the side. In the external rotation lag test, the patient is asked to fully externally rotate the arms at their sides. In a positive test, the patient is unable to hold this position because of damage to the infraspinatus muscle.

AC joint pain: the cross-body adduction test increases the probability of AC joint disease. The test is performed with the clinician maximally adducting the affected arm across the patient’s chest. The test is positive when the patient has pain in the AC joint.

Table 2 lists the presentation of shoulder pain and associated physical examination maneuvers.
DISCUSSION

Until recently, the physical examination, next to patient history, was the most important tool a physician had to establish a diagnosis. Recently, the focus has shifted toward technological data. Even in the ambulatory setting, it is frequently much easier for a physician to order a diagnostic test than to perform a thorough physical examination. Reasons for this could be time constraints or that physicians do not trust their examination skills as much as they trust the results of a diagnostic test. Lack of confidence in examination skills leads to lack of comfort with performing an examination and to a lower threshold of ordering diagnostic studies.

Despite the impressive advances in clinical investigative technology, however, the physical examination remains a crucial diagnostic tool. In addition to the importance for the patient/physician relationship, a well-performed physical examination can lead to diagnostic clues that would have been missed by just looking at a patient’s chart and test results. Developing, maintaining, and teaching strong physical examination skills remain important parts of medicine.

REFERENCES


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<thead>
<tr>
<th>Cause of Shoulder Pain</th>
<th>Symptom</th>
<th>History</th>
<th>Physical Examination Findings</th>
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<tbody>
<tr>
<td>Adhesive capsulitis</td>
<td>Intense pain, not relieved with rest, shoulder movements worsen the pain</td>
<td>Age: 40–60, diabetes, or thyroid disorder</td>
<td>Limited active and passive range of motion</td>
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<tr>
<td>AC joint disease</td>
<td>Pain at the AC joint</td>
<td></td>
<td>Positive cross-body adduction test</td>
</tr>
<tr>
<td>Impingement (rotator cuff tendinopathy)</td>
<td>Lateral deltid pain</td>
<td>Pain worse at night</td>
<td>Painful arc (Hawkins test, Neer test)</td>
</tr>
<tr>
<td></td>
<td>Pain worse with overhead movement</td>
<td>History of repetitive activity over the head</td>
<td></td>
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<tr>
<td>Rotator cuff tear</td>
<td>Weakness</td>
<td>Trauma in younger patients Symptoms came on suddenly</td>
<td>Weakness with active range of motion</td>
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<td></td>
<td>Pain at night</td>
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Table 2
Presentation and examination


