

**JoVE: Science Education**  
**General Approach to Palpation in the Physical Exam**  
--Manuscript Draft--

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## Overview

The physical examination requires the use of all of the provider's senses to gain information about the patient. The sense of touch is utilized to obtain diagnostic information through palpation (**Figure 1**).

The specific parts of the examiner's hand used for palpation differ based on the part of the body being examined. Because of their dense sensory innervation, the finger pads (**Figure 2**) are useful for fine discrimination (e.g., defining the borders of masses, lymph nodes). The dorsal surface (**Figure 3**) of the hand provides a rough sense of relative temperature. The palmar surfaces of the fingers and hands (**Figure 4**) are most useful for surveying large areas of the body (e.g., abdominal palpation). Vibration is best appreciated with the ulnar surface of the hands and 5<sup>th</sup> fingers (e.g., tactile fremitus) (**Figure 5**).

While palpation is fundamental to the diagnostic aspect of the physical exam, it is also important to acknowledge the role that touch plays in communicating caring and comfort during the patient encounter. Patients generally perceive touch from a healthcare provider in a positive light, and their perceptions of a healthcare provider can be shaped by the skilled use of touch during clinical encounters (McCann & McKenna, 1993). Physical contact has been associated with alterations in hormonal and neurotransmitter levels, specifically decreases in cortisol and increases in serotonin (Field, 2002).

Therefore, through the careful use of palpation, and touch in general, during the physical examination, the clinician has the opportunity to gain important diagnostic information, while developing rapport and promoting healing.

## Procedure

1. Before the patient encounter:

1.1 Keep fingernails clean, groomed, and trimmed.

1.2 Wash your hands with soap and water or topical disinfectant solution.

1.3 Warm your hands as able (e.g., with warm water or by rubbing them together) before patient contact.

1.4 If any specific infection control precautions are needed for the clinical encounter (e.g., contact precautions), explain to the patient why you are wearing protective equipment. Be aware that gowns, gloves, and masks can present a barrier to building a relationship with the patient (Verrees M, 1996).

## 2. Components of the exam:

2.1 Familiarize oneself with the specific palpation techniques for each regional/anatomic component of the exam; refer to each of the individual videos for exploration of how palpation is utilized.

**Commented [JR1]:** May be unnecessary to include.

2.2 Perform the palpation directly on the patient's skin. Employ draping techniques to optimize access, while balancing patient modesty. Refer to the videos on draping for specific details.

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## 3. General considerations:

3.1 In order to slowly invite oneself into the patient's personal space and gauge the patient's comfort with the clinician's touch, many providers start the examination with the hands. Perform gentle palpation of the nailbeds with your fingertips (to assess for capillary refill and pallor) and palpation of the radial pulse with your finger pads to initiate the first contact in a non-threatening way.

3.2 Use the finger pads when performing most of palpation, with the following notable exceptions:

3.2.1 Use the fingertips to palpate the nailbeds, liver edge, and cervix.

3.2.2 Use the ulnar surface of the hands when assessing tactile fremitus.

3.2.3 Use the palmar surface of the fingers and/or hands for assessing chest expansion, precordium for PMI/heaves/lifts/thrills, performing light and deep palpation of the abdomen, and strength testing against resistance.

3.2.4 Use the dorsal surface of the hands for assessing the relative temperature of the skin (typically in comparison to another portion of the patient's body).

3.3 Be aware of the pressure used for palpation, which varies based on the structures being examined. For example, excessive pressure may occlude a pulse, causing discomfort and limiting utility. Insufficient pressure may limit one's ability to palpate deep structures (e.g., aorta).

3.4 Be deliberate about the duration when applying pressure, which varies based on the structures being examined. For example, tense lower extremity pitting edema can be missed, if the examiner does not apply steady pressure for at least a few seconds. Similarly, a blanching rash may not be identified as such without ample duration of pressure. Conversely, excessive duration of palpation in a patient with peritoneal signs causes undue discomfort without increasing diagnostic yield.

3.5 Consider palpating areas of known discomfort toward the end of the examination, making it clear to patients this is done in the interest of their comfort. For example, if a patient has acute right knee pain, initiating the exam on the left lower extremity, followed by examination of the right ankle and hip, may make the patient less guarded when the painful right knee is examined.

3.6 Express empathy while acknowledging that certain parts of the examination may cause the patient discomfort. Patients expect to be examined, but ask permission and provide a warning if you are about to do something that is likely to worsen a patient's pain (e.g., palpation of the abdomen in a patient with suspected appendicitis).

## Summary

This demonstration covered the general considerations related to palpation during the physical examination. While specific techniques vary based on each individual portion of the exam, many general principles related to palpation hold throughout the exam. Attention to patient safety and comfort is achieved through hand-washing, proper grooming, warming of the hands, infection control precautions, and sensitive draping. The correct part of the fingers and hands should be used for different types of palpation, with finger pads being used most commonly during the exam. The clinician should be deliberate about the amount and duration of pressure being applied during palpation; these variables change based on the part of the body being examined and specific patient circumstances. Finally, the clinician should remember the important role that touch plays in the patient encounter in terms of therapeutic value and the clinician-patient relationship. The most direct physical contact during the encounter occurs through palpation, which provides an opportunity to secure the bond the clinician has started to develop during history taking.

## Figures

Figure 1: Clinician performing palpation.

Figure 2: Breast examination with finger pads.

Figure 3: Using the dorsum of hand to assess for warmth.

Figure 4: Abdominal palpation with palmar surface of fingers and hands.

Figure 5: Using the ulnar surface of the hand to assess for tactile fremitus.

## References

1. Field T. Violence and touch deprivation in adolescents. *Adolescence*. 2002;37(148): 735-49.
2. McCann K, McKenna HP. An examination of touch between nurses and elderly patients in a continuing care setting in Northern Ireland. *Journal of Advanced Nursing*. 1993;18:838-46.

**Commented [AS3]:** From the author: "An actor could demo abdominal pain...but perhaps we could have a slide here with these points showing over the video?"

I think these are important points to make, and 3.5 and 3.6 can be demonstrated. AS

**Commented [JR4]:** Figures 1 and 4 acquired from Shutterstock.

**Commented [JR5]:** For breast examination with the finger pads, we've chosen the linked image below. However, if you'd prefer, we can do the three diagram image described in Anna's comment above. Let us know what is best/easiest.

[http://www.shutterstock.com/s/breast+examination/search.html?page=1&thumb\\_size=mosaic&inline=81854029](http://www.shutterstock.com/s/breast+examination/search.html?page=1&thumb_size=mosaic&inline=81854029)

**Commented [JR6]:** Author: I cannot find a suitable photo on Shutterstock. I need a photo of a clinician with the back of one hand on a patient's skin, ideally at a site where there is a rash. Worst case, I can model this when we are filming and we'll take a still shot.

**Commented [AS7]:** Another option is to reproduce the three following diagrams in one figure as the panels. In this case, it will be:

Figure 2: Parts of the hand used in Palpation.

A. Palmar surface

<http://biology-forums.com/index.php?action=gallery;sa=view;id=5984>

B. Ulnar surface

<http://biology-forums.com/index.php?action=gallery;sa=view;id=5986>

C. Dorsal surface

<http://biology-forums.com/index.php?action=gallery;sa=view;id=5985>

AS

**Commented [JR8]:** Author: I cannot find a photo of this on Shutterstock, but it should be very easy to take one when we are filming.

3. Verrees M. Touch me. JAMA. 1996;276(16): 1285-6.



