



## GENERAL EXAMINATION

### 4.2. Pulse Examination

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**The pulse**, reflects the number of times the heart contracts (beats) within one minute. It indicates the speed at which the heart is functioning. The pressure exerted by the heart on the vessel wall to pump blood is perceived externally as a pulse. The normal pulse rate ranges from 60 to 100 beats per minute. A pulse rate below 60 is called bradycardia, while a pulse rate above 100 is called tachycardia.

There are three aspects to consider during pulse examination:

1. Rate (frequency): The speed at which the pulse beats.
2. Rhythm: The regularity or irregularity of the pulse beats.
3. Volume: The strength or fullness of the pulse.

The pulse is most commonly examined from peripheral arteries, especially the radial artery (Figure 1).

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- Claudication: a significant symptom of occlusive arterial diseases characterized by cramp-like pain that occurs with exertion and improves with rest.
- Ischemic rest pain

### Signs of advanced ischemia

- Ischemic gangrene and ulcerations
- Calf muscle atrophy
- Asymmetry
- Decreased hair growth on the dorsum of the foot
- Thickening of the nails
- Atrophy of the skin and subcutaneous tissue
- Delayed capillary refill in the finger pulps
- Buerger's sign (When pressure is applied to the affected area (fingertip or toe), it turns pale due to reduced blood flow, and upon release of pressure, the area may become red again as blood rushes back. This phenomenon is caused by the constriction and inflammation of blood vessels in the extremities, which is a hallmark feature of Buerger's disease.)
- Localized pallor
- Cyanosis

### References

1. Hansen J. Netter's Clinical Anatomy (2010).2e. Elsevier.
2. Bickley L, Szilagy P. Bates' Guide to Physical Examination (2007). 9e. Lippincott Williams&Wilkins.