

Difference Between Invasive and Noninvasive Blood Pressure

www.differencebetween.com

Key Difference - Invasive vs Noninvasive Blood Pressure

[Blood pressure](#) (BP) refers to the force or the pressure exerted on the blood vessels. The blood pressure on [arteries](#) is termed as arterial blood pressure. The normal blood pressure is measured as a ratio of diastolic and [systolic pressure](#). It should be 120 mmHg / 80 mmHg. Blood pressure monitoring is an important technique in medical diagnostics and testing. Blood pressure monitoring and measuring are done using two main techniques namely, invasive blood pressure monitoring and noninvasive blood pressure monitoring. In invasive blood pressure, the blood pressure is monitored by direct methods by inserting a cannula into a suitable artery. Noninvasive blood pressure monitoring refers to the technique where an apparatus is used to measure the arterial blood pressure. It is an indirect way of measuring blood pressure. The key difference between invasive and noninvasive blood pressure is the method used to monitor the blood pressure. **Invasive blood pressure is monitored directly via inserting a cannula whereas noninvasive blood pressure is monitored indirectly using an apparatus.**

What is Invasive Blood Pressure?

Invasive blood pressure is the blood pressure monitoring technique which uses a direct measurement technique to measure the arterial pressure. This is done by inserting a cannula needle into a suitable artery. The needle cannula used in the monitoring process should be a [sterile](#), fluid-filled system. The cannula is connected to an electronic pressure monitor. There are different monitors available to measure invasive blood pressure. These include single pressure monitoring, dual pressure monitoring, and multi-pressure monitoring. These monitors monitor the wavelengths following blood pressure fluctuations.

There are many advantages of invasive blood pressure monitoring as it is a direct monitoring method. Beat to beat blood pressure monitoring can be done as the blood pressure can be monitored per heartbeat. This is very important in patients whose blood pressure is required to be monitored regularly in critical conditions such as brain injuries, internal hemorrhages, and head injuries. It is also useful in patients who are under special [drug](#) treatments so that their fluctuations upon drug administration can be measured, especially when monitoring blood pressure in ICU patients. Invasive blood pressure monitoring is also important in monitoring blood pressure readings under very [low blood pressures](#).

What is Noninvasive Blood Pressure?

Noninvasive blood pressure monitoring is an indirect method of blood pressure measuring. This uses a simple apparatus to measure the blood pressure. Clinical interventions are not done in this method. There are different techniques used in noninvasive blood pressure monitoring such as,

- Palpation methods
- Auscultatory methods
- Oscillometric methods

Palpation method is a relatively simple, inaccurate method of measuring blood pressure and is not widely used.

The auscultatory method uses a stethoscope and a sphygmomanometer. This method is comprised of an inflatable cuff placed around the arm, and it measures the pressure through a mercury [manometer](#). The auscultatory method uses a stethoscope and a sphygmomanometer. This comprises of an inflatable cuff placed around the upper arm at roughly the same vertical height as the heart, attached to mercury or aneroid manometer. It is the gold standard method for blood pressure monitoring.

Oscillometric method is similar to the auscultatory method, but instead of the manual mercury barometer, this method uses an electronic pressure sensor. Hence, it's more accurate in comparison with auscultatory method. The device used should be regulatory calibrated to ensure the quality of the apparatus.

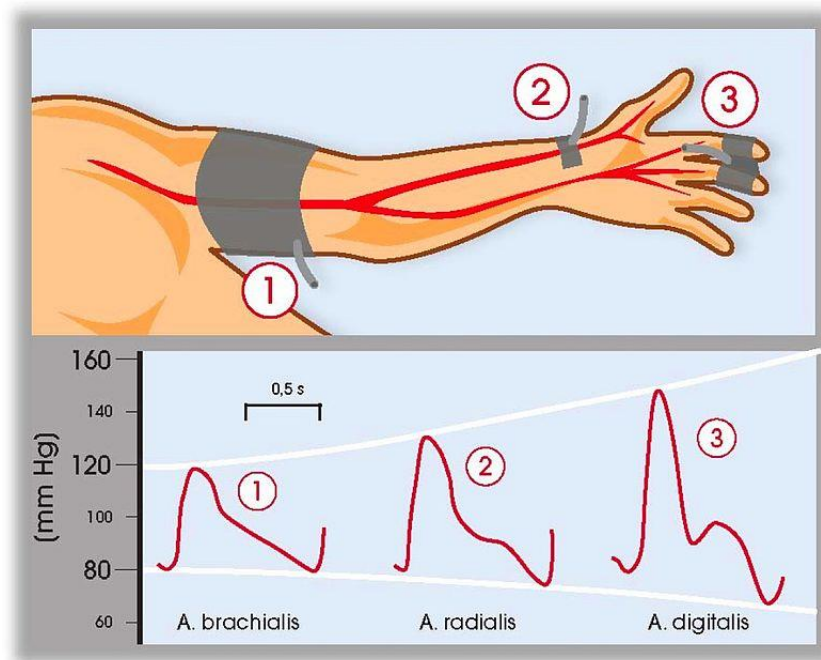


Figure 01: Noninvasive blood pressure monitoring

The main advantage of using noninvasive method for blood pressure monitoring is when clinical interventions are not performed by this method. This reduces the exposure of the patient to various health complications caused by unsterilized needles, misuse of equipment used to puncture and can be prone to infections. Although the accuracy of pressure monitoring is not as precise as invasive blood pressure monitoring.

What are the Similarities Between Invasive and Noninvasive Blood Pressure?

- Both techniques are used to measure arterial blood pressure.
- Both techniques measure both systolic blood pressure and diastolic blood pressure.
- Both techniques can be manual, semi-automated or automated.

What is the Difference Between Invasive and Noninvasive Blood Pressure?

Invasive Blood Pressure vs Noninvasive Blood Pressure	
Invasive blood pressure is a blood pressure monitoring method in which the blood pressure is monitored by direct methods by inserting a cannula into a suitable artery.	Noninvasive blood pressure is a way of monitoring the blood pressure indirectly using a special apparatus.
Clinical Intervention	
Required – the cannula is inserted into a suitable vein during the invasive blood pressure monitoring.	Not required – a cuff is used which is wrapped around the arm and connected to a monitor during the noninvasive blood pressure monitoring.
Accuracy	
Invasive blood pressure monitoring is a highly accurate method.	Noninvasive blood pressure monitoring is a less accurate method.
Advantages	
Accurate measurements of beat to beat pressure fluctuations and can be used to monitor the blood pressure of patients in a critical health condition.	Noninvasive hence not prone to infections, or clinical manifestations caused by unsterilized needles.

Disadvantages

Invasive blood pressure method results in harmful side effects due to clinical interventions.

Noninvasive blood pressure monitoring is not very accurate and error-prone.

Summary - Invasive vs Noninvasive Blood Pressure

Blood pressure measurement is a very common test done to monitor the arterial blood pressure during many clinical conditions including [cardiovascular diseases](#), renal diseases and as a preparatory step for patients undergoing surgery. Blood pressure is measured using two main techniques, depending upon the requirement of the patient and the clinical condition. Invasive blood pressure monitoring is done via administering a cannula and connecting to a monitoring system, whereas noninvasive methods use a special apparatus to measure blood pressure by using a cuff wrapped in the arm. This is the difference between invasive and noninvasive blood pressure monitoring.

Download the PDF Version of Invasive vs Noninvasive Blood Pressure

You can download PDF version of this article and use it for offline purposes as per citation note. Please download PDF version here

Reference:

1. Davies, Huw. "Noninvasive blood pressure measurement." EBME. [Available here](#)
2. Dobbin, Kathleen R. "Noninvasive Blood Pressure Monitoring." Critical Care Nurse, 1 Apr. 2002. [Available here](#)
3. "Invasive blood pressure." MEMSCAP. [Available here](#)

Image Courtesy:

1. 'Arterial Pathway' By ProfBondi - Own work. [\(CC BY-SA 3.0\)](#) via [Commons Wikimedia](#)

How to Cite this Article?

APA: Difference Between Invasive and Noninvasive Blood Pressure. (2017 November 13). Retrieved (date), from <http://differencebetween.com/difference-between-invasive-and-vs-noninvasive-blood-pressure/>

MLA: "Difference Between Invasive and Noninvasive Blood Pressure" Difference Between.Com. 13 November 2017. Web.

Chicago: "Difference Between Invasive and Noninvasive Blood Pressure." Difference Between.Com. <http://differencebetween.com/difference-between-invasive-and-vs-noninvasive-blood-pressure/> accessed (accessed [date]).



Copyright © 2010-2017 Difference Between. All rights reserved