# Stethoscope: A Description

A stethoscope is a piece of medical equipment used by medical professionals to assess patients. It is used to listen to different body sounds such as heart, lung, and bowel (abdominal) sounds. By being able to listen to body sounds, medical staff may be able to detect abnormal sounds that may potentially indicate a problem and require further testing. There are different kinds of stethoscopes such as pediatric, cardiac, fetal, acoustic, and electronic.

## Characteristics of the Stethoscope

The Littmann Classic II SE acoustic stethoscope is featured by the company website as one that is high in quality with a reasonable price (See Figure 1). This stethoscope is a total of 71.12 centimeters in length and weighs 135 grams. The tubing is ocean blue color per specifications on the Littmann website. The body of the stethoscope is made up of the head piece which joins with the U-shaped top part of the tubing which is two sided to allow for insertion of the ear tubes. The tubing then narrows down to one single long tube that has the diaphragm attached at the other end. The stethoscope is made up of three main parts: (a) the head piece, which contains the ear tubes and ear tips, (b) the tubing, which joins the head piece and chest piece, and (c) the chest piece, which includes the stem and diaphragm.



Figure 1. 3M(TM) Littmann(R) Classic II S.E. Stethoscope, Model 2819. Digital image. 3M Littmann Stethoscopes. 3M, n.d. Web. Accessed October 14, 2014.

## Parts of a Stethoscope

The head set, tubing, and chest piece are the parts of the stethoscope and can be seen reflected in Figure 2. These parts are not permanently attached. They are removable so that they may be replaced or cleaned if needed. All parts need to be present, attached and functioning for successful use of the stethoscope.

**Head Set.** The head set has hollow ear tubes which measure 15.24 centimters in length. These are also called the binaural tubes. They are silver colored and made of anodized aluminum. The top part of each ear tube has a curvature inwards and a ribbed design for attachment of the ear tips. The ear tube inner diameter is 0.5 centimeters and outer diameter is 1 centimeter. The hollow soft ear tips are size medium and are gray. They are made of soft sealing and have an inner diameter of one centimeter and outer diameter distally of three centimeters. They have a pear shape that tapers towards the ear tube insertion side. The ear tips also have an internal ribbed design that complements the ribbed area of the ear tubes for a tight fit and seal. These ear tips snap in place. The opposite side of the ear tubes attach to the tubing. They are held in place by a seal and a tension spring which holds the ear tubes apart. The ear tubes can be pulled or pressed together to increase or reduce the tension for a tighter or looser fit. The ear tubes can also be rotated for proper placement in the ears. Ideally, the ear tips would be slightly rotated away from the user for best function of stethoscope.

**Tubing.** The hollow tubing of the stethoscope is the longest part. This is also called the acoustic tube. It is made of polyvinyl chloride (PVC), and measures 50.8 centimeters in length. It has an inner diameter of 1 centimeter and outer diameter of 1.5 centimeters. The top part, which is shaped like a U, is where the ear tubes are inserted. Internally, it also contains a tension spring that is used to modify fit and hold the ear tubes together. The two separate tubes merge down into a single tube in this model. The material is flexible and soft. This is the part of the stethoscope that is ocean blue color.

**Chest Piece.** The chest piece of this model has the stem which connects the tubing to the tunable diaphragm. It is 1.63.5 centimeters long and has an inner diameter of 0.5 centimeter and outer diameter of 1.25 centimeters. This piece is made of anodized aluminum and is silver colored. The stem is also used to open the side of the diaphragm that you wish to use. To perform this action, the stem is rotated 180 degrees. When it is rotated, it clicks into place. The diaphragm of the stethoscope is made of machined stainless steel and is double sided. The diaphragm is the part used to initially transmit sounds. It has a flat side and a side that looks like a bell with a small hole in the middle. The flat side diameter is 4.445 centimeters and used for high frequency sounds while the bell side diameter is 3.175 centimeters and used for low frequency sounds. When listening to sounds, the diaphragm vibrates and transmits air up the tubes to produce sound in your ears. The flat side of the diaphragm has a fiberglass finish with the company's logo on it. Both sides have rubberized gray border covers that can be removed for cleaning. These covers are in place to keep the cold metal from patients for comfort.



Figure 2. Parts of a stethoscope. Kubin, Paul. The Stethoscope. Digital image. Inside PA Training: Become a Physician Assistant. MyPATraining, 04 Nov. 2012. Web. Accessed October 14, 2014.

When used appropriately, the stethoscope in an invaluable piece of equipment used by most medical personnel when assessing patients. It has undergone changes throughout the years for maximum functionality. It truly is a timeless medical device.