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ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಗ್ರಾಮೀಣಾಭಿವೃದ್ಧಿ ಮತ್ತು  
ಪಂಚಾಯತ್ ರಾಜ್ ಇಲಾಖೆ

**KHPT**  
engage, innovate, empower



# Using the medical devices in the GRAM PANCHAYAT KIT



# Pulse oximeter

Pulse Oximetry is a method of measuring the level of oxygen in the blood and the Finger Pulse Oximeter is an oxygen monitor used to monitor such these levels.

1

The pulse oximeter reading should preferably be taken in a sitting position. The reading should preferably be taken from the index finger, and the person's nails should not have any nail polish, pigments or deformity.



2

Press the 'ON' button and the screen will light up. Open the hinge and make sure the fingertip is placed on the red light. Keep the hand in a steady resting position.



3

Allow the reading to stabilise for a minute before recording. Do not press the pulse oximeter while the reading is being taken.



4

The oxygen saturation rate (SpO<sub>2</sub>) is recorded at the top, and heart rate at the bottom. A SpO<sub>2</sub> reading of 94 and above is considered normal. Please contact a healthcare provider if the reading is below 94.

### Things to note:

- Avoid taking the reading under a direct bright light source
- Shivering or cold extremities can alter the values
- See that the light source in the pulse oximeter is not blocked by dust or dirt.
- Sanitize the oximeter properly after use
- To check if it is working correctly, try on another person who has no symptoms



# Infrared Thermometer

1

Press the Power button to turn the thermometer on.



2

Set the thermometer in Fahrenheit mode by pressing the °C/°F button on the side of the device.



3

The temperature can be taken at either the temple or the wrist.



4

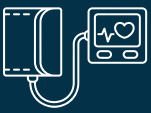
Keep the thermometer 2-5 centimetres away from the skin and press the button with your index finger.



5

The normal temperature for adults is 97-99 degrees Fahrenheit. Above 99 degrees is considered as fever.





# Digital BP Apparatus

People should not have smoked, consumed alcohol, tea, hot water, or done physical activity one hour prior to the test. They should not be anxious during the test. Also, the bladder needs to be empty before doing the test.

Before the test, ask the person to rest for about 5 minutes. After the 5-minute rest, ask the person to sit comfortably in a chair, their feet should be firmly on the ground.

1

Tie the BP arm cuff to the centre of the person's left arm above the elbow joint.



2

The BP arm cuff should not be too tight/loose. The arrow mark on the cuff should be positioned towards the centre of the front of the elbow.



3

The machine/monitor should be held at the level of the heart. Press the START/STOP button to begin taking blood pressure measurement. The BP cuff will start inflating.

4

The cuff will start to inflate and then slowly deflate so that the machine can take the measurement.

5

When the reading is complete, the blood pressure giving systolic and diastolic readings and pulse rate will appear on the screen.



6

If the monitor/machine does not record the reading, re-position the cuff and try again after 1-2 minutes and repeat the steps as mentioned above.

8

It is suggested to take a minimum of 2 readings at interval of 1- 2 minutes. The average of those readings should be used to represent the patient's blood pressure.

7

Record the reading either in the machine or in family card of the person. Press the START/STOP button to turn the machine off.

9

Additional readings should be taken if the difference between the first two is greater than 5 mm Hg, and then the average of these multiple readings is used.

**BP  $\geq$ 140/90 is considered as hypertension as per Joint National Commission 8 (JNC 8) guidelines.**

Ask the person to consult doctor for confirmation, if his BP reading is  $\geq$ 140/90 mm Hg.

Optimum control levels for already known hypertensive people are

- Below 60 years – Systolic BP <140 and Diastolic BP <90 mm Hg
- 60 years and above - Systolic BP <150 and Diastolic BP <90 mm Hg



## Glucometer

There are 3 types of Blood sugar tests:

- FBS (Fasting Blood Sugar):** This test is done on an empty stomach. The person should fast for an 8-10 hr interval after the night meal. FBS  $\geq$  126 mg/dl, the person has to be referred to doctor for confirmation of diabetes.
- PPBS (Post Prandial Blood Sugar):** This test is done 2 hours after a meal. If the PPBS reading is  $\geq$  200 mg/dl, the person has to be referred to doctor for confirmation of diabetes.
- RBS (Random Blood Sugar):** This test can be done at any time of the day. If the RBS reading is  $\geq$  140 mg/dl, the person has to be referred to doctor for confirmation of diabetes. For known case of Diabetes, FBS should be <140 mg/dl and PPBS <180 mg/dl.


1

Take out the glucometer and place it on a flat surface.

Remove a test strip from the container and place in the glucometer. Insert the strip into the slot with the white arrow pointing towards the meter until the meter beeps. Ensure the code displayed on the screen matches with the code on the bottle of strips.



2

The glucometer will turn on. When the flashing blood symbol  appears, the meter is ready for the sample.

Use a lancet to pierce the skin and obtain blood from the tip of a finger.



4

Watch the glucometer screen. It should show a “waiting” or “processing” symbol, and will emit a beep when the sample has been tested. The results will be displayed as a number on the screen.



3

Place the blood sample on the test strip. The test strip package will have exact instructions, including blood sample size. Usually, this is accomplished by placing the blood drop against the edge or top of the strip.




5

Discard the used lancet and strips in a proper disposal manner. Record your test results in your notebook and also inform the person who underwent the test.



## Haemoglobinometer

1

Turn on the haemoglobinometer by pressing the button marked . The system undergoes an auto check and auto calibration after which the battery level, date, time and strip's batch code are displayed within 2 seconds.

2

If the displayed batch code is found to be different from the code mentioned on the strip bottle, use arrow buttons to move to the correct digit and buttons to set the correct value. Accept the batch code by pressing the button.

3

The meter would flash 'strip' symbol on the display. Insert a fresh test strip into the meter with the arrows on the strip facing up and pointing towards the display.

5

Do not allow fingers or other foreign objects to come in contact with the white test area of the test strip.

6

Immediately after inserting the fresh test strip the display would flash the symbol. Make sure the body part used for extracting blood sample is clean and disinfected. Hold the lancing device against the side of the finger and push the release button to prick the fingertip. Touch the tip of the pipette to the blood drop and make sure it reaches the black line.

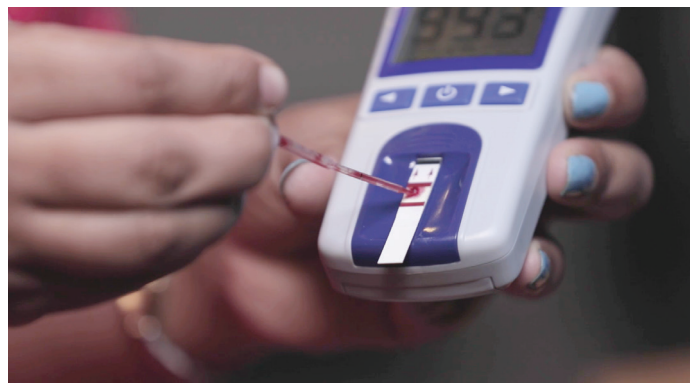
4

Ensure the correct positioning of the strip with the guiding V notch and the positioning hole in the strip properly placed and locked.



7

Ensure that there is sufficient blood (a minimum of 10µl or hanging blood drop) to completely cover the white coloured test area on the test strip.



8

The meter will automatically start sample evaluation and display the result. Within a minute the test result will be displayed on the meter. The SI unit of the test result is g/dL.

Normal Haemoglobin Levels

1. Adult Males- 13-18 g/dL
2. Adult Females- 12-16 g/dL

9

Remove the used test strip from the meter and dispose it as per local regulations & blood sample disposal guidelines.

If the Hb levels are <13 for males and <12 for females, it is considered as Anaemia. Refer the person to doctor.



## Child Mid-Upper Arm Circumference (MUAC) Measurement Tape

MUAC is a quick and simple way to determine whether or not a child is malnourished using a simple coloured plastic strip. MUAC is suitable to use on children from the age of 12 months up to the age of 59 months. However, it can also be used for children over six months with length above 65 cm.

1

Bend the left arm to a right angle and locate the tip of shoulder. Ensure tip of the shoulder and tip of the elbow are in a straight line vertically.



2

Keep the arrow at the wide end of the tape at the tip of the shoulder and measure the length to the elbow.



3

Calculate the midpoint of the child's left upper arm, mark with a pen.



4

Straighten the child's arm, insert the tape at the mid-point and measure the MUAC.





5

Make sure the tape is not too tight or too loose. Record the MUAC to the nearest 0.1 cm or 1mm.



### Interpretation of the 3-colour tape:

- a measurement in the green zone means the child is well nourished
- a measurement in the yellow zone indicates child is at risk of malnutrition
- a measurement in the red zone indicates severe acute malnutrition (SAM)

Red	0-11.5 cm
Yellow	11.6 cm - 12.5 cm
Green	12.6 cm or higher



## Digital Weighing Machine

1

Place the scale on firm flooring (such as tile or wood) rather than carpet.

3

Have the participant stand with both feet in the center of the scale. The weight should be evenly distributed on both feet, with feet kept slightly apart.

Ask the individual to look straight ahead and stay still on the scales.



5

Record the weight to the nearest decimal fraction (for example, 25.1 kilograms). Take the measurement twice to ensure correct weight. Take the average of the measurements to get the accurate weight.

2

Zero the scales before the individual steps onto the weighing machine. Have the individual remove shoes and heavy clothing, such as sweaters, purse, keys etc. from pockets.

4

Wait for the digital screen to settle before recording the measurement.





# Measuring Tape for Height Measurement

1

## **Find a wall to use for measuring.**

It should be solid without a window or other cut-outs. It needs to be wide enough to fully fit the person's shoulders without them touching anything else. The floor in the area should be level as well.

3

**Stand up straight.** Move to the wall for measuring. Make the person stand with their back touching the wall. Ask them to hold themselves up nice and straight the entire time. When you look at their profile from the side, you should verify that the backs of their feet, head, shoulders, and bottom all lightly touch the wall.



5

**Place their hands and arms to the side of their body.** The person may want to clasp their hands before them or cross their arms, however, this will have an effect on their posture and final height measurement. Instead, ask them to purposefully hang their arms loosely at their side.

2

**Remove all bodily obstructions.** The person should take off their shoes and stay barefooted (or wear socks). They should take down any hair accessories like cap, clip, pony tail etc. If the person is wearing a bulky coat or jacket, have them take it off so that you can observe body posture and make sure that the person is standing up perfectly straight when measured.

4

**Position their legs together.** Ask the person to pull their legs slightly close to one another. Their weight should be balanced between both feet. Their knees and ankles should be close to touching or actually touching one another. The individual should stand with feet flat, together, and against the wall.



6

**Ask them to look forward.** Point out a spot across the room, at eye level height, and request that they focus on this area while you complete the measurement. Circle around the person and make sure that their eyes and ears are horizontal to one another in profile.

7

**Use the pencil mark method.** Place a pencil or scale in a horizontal position above the person's head with the tip facing the wall. Lower the pencil or scale until it reaches the top of their head, maintaining the level position. Slowly move the pencil tip or end of the scale toward the wall until it makes a mark.



8

Get the measuring tape. Place the tape against the wall and measure up from the floor to your mark. You can use any marking device, however, a pencil is best as you can erase the marks when you are finished. Just make sure to make a dark enough mark so that it is visible when you pull away. Make sure that you keep the tape straight as you go up from the wall. It should also lay lightly against the wall. Accurately record the height to the nearest 1/8th inch or 0.1 centimeter.



## Body Mass Index Chart / App

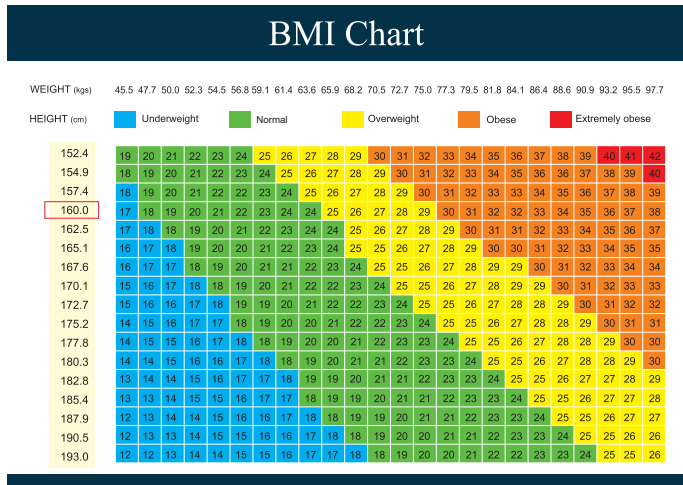
Body Mass Index is a measure of body fat based on height and weight. High BMI can indicate high body fatness. BMI screens for weight categories that may lead to health problems, but it does not diagnose the body fatness or health of an individual. Body Mass Index (BMI) is a person's weight in kilograms divided by the square of height in meters.

$$\text{BMI} = \frac{\text{Weight in Kilograms}}{\text{Height in Metres}^2}$$

Underweight - Less than 18.5  
Normal BMI - 18.5-24.9  
Overweight - 25.0-29.9  
Obese: 30.0 - 34.9  
Extremely Obese: Greater than 35

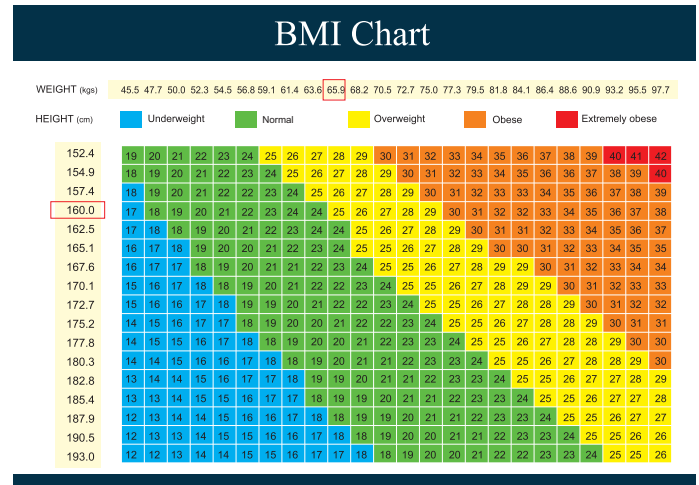
1

To use the table, find the appropriate height in the left-hand column labelled Height.



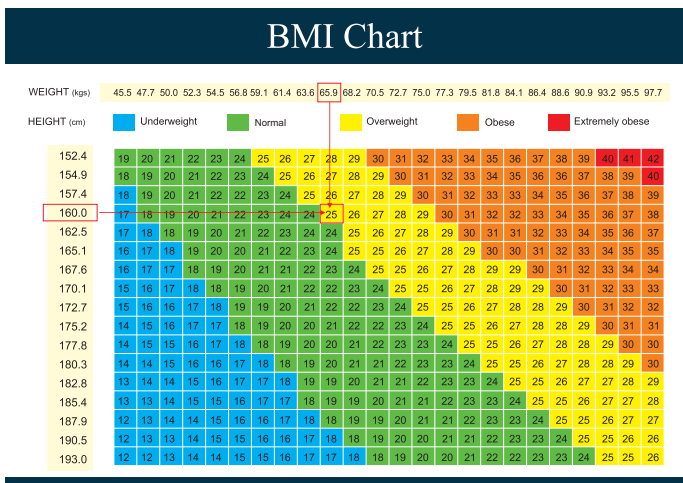
2

Identify the person's weight with the readings on top of the chart in kgs.

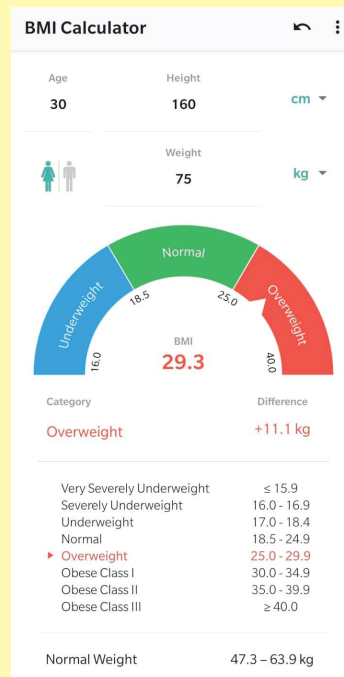


3

Note the colour of the square at which the height and weight meet. If the colour is **blue**, the person is underweight. If the square is **green**, the person is of normal BMI. If the square is **yellow**, the person is overweight. If the square is **orange**, the person is obese. If the square is **red**, the person is extremely obese.



## BMI App



You can also use an app downloaded from the Google Play/Apple Store to enter the weight (in kgs) and height (in cm) to automatically generate a person's BMI.

Source: Appovo BMI Calculator App

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