

**WEIGHING CHILDREN AND ADULTS USING  
DIGITAL BALANCES**

# DIGITAL WEIGHING MACHINE

## Instrument specification for Digital weighing machine

Lithium battery operated

Weight of the machine 1.2-2.5 kg

Can weigh 5 - 150 kg

Accuracy  $\pm 100\text{g}$



# TESTING ACCURACY OF DIGITAL BALANCES

Accuracy of balances is an essential pre-requisite for accurate measurement of weight.

Accuracy of balances are tested by:

- using standard weights certified by the Deptt of Weights and Measures and checking the weight recorded by the balance.
- by weighing two persons of varying weights five times in the test balances and comparing it with the weight of the same person weighed using the standard balance.



**5KG**



**5 + 2 = 7KG**



**5 + 2 + 1 = 8KG**



**5 + 2 + 1 + 0.5 = 8.5KG**

**TESTING ACCURACY OF BALANCE USING STANDARD WEIGHTS**

# TESTING ACCURACY OF BALANCE USING STANDARD WEIGHTS



Deptt of Weights and Measures certified Standard weights of 5, 2, 1, 0.5, 0.2 and 0.1 kg are used.

Weigh first 5 kg and then 7, 8, 8.5, 8.7 and 8.8 kg as shown in the figures.

The balance should record weights with accuracy of  $\pm 0.1$  kg.





**Weigh two adults five times in each test balance.**

**Weigh the same two adults once in the standard balance.**

**The difference between weight measured by test balance and standard balance should not be  $>0.1$  kg.**



# TESTING SENSITIVITY OF ELECTRONIC BALANCES

Infants and young children who cannot stand by themselves are carried by the mother or care giver.

Mother or care giver carrying the baby is weighed first.

Then the infant is taken by others and the mother or care giver alone is weighed.

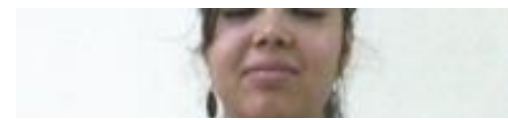
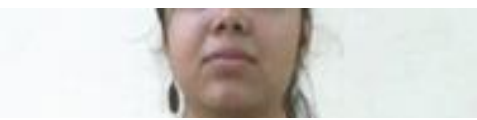
The weight of the baby is computed by subtracting mother's weight from the total weight of mother and the baby.

Accurate measurement of weight of the infant within 100 grams is essential for assessing growth using weight-for-age and BMI-for-age.

Some balances which are accurate while weighing standard weights or weighing adults may not be accurate upto 100 grams when the mother carrying the baby is weighed.

It is therefore essential to test the sensitivity of the balance by making adults carry standard weights and recording the total weight.

# TESTING SENSITIVITY OF BALANCES (ADULT + STANDARD WT)



**Weigh the adult.**

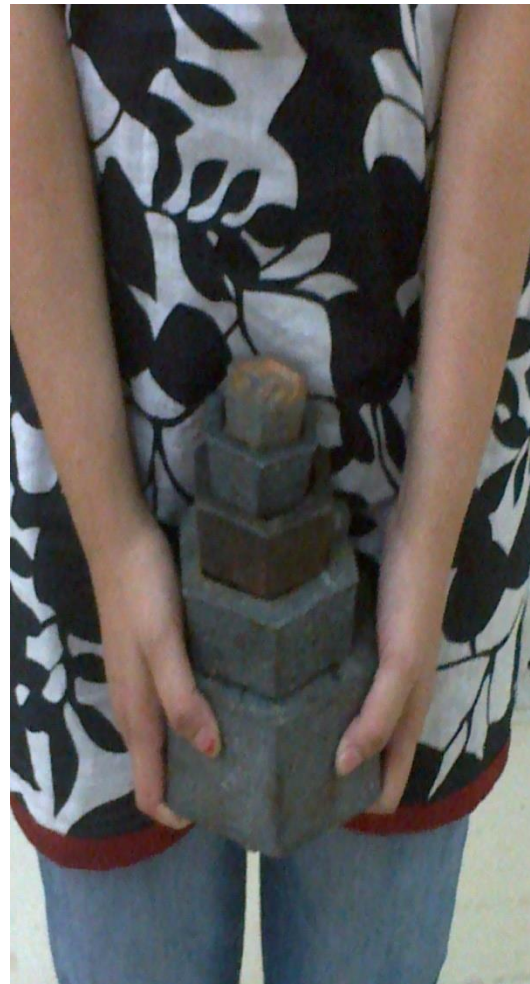
**Weigh the adult carrying 5 kg, 7 kg, and 8 kg.**

**The total of adult and the standard weights should be within  $\pm 0.1\text{kg}$  of the computed total weight.**





# TESTING SENSITIVITY OF BALANCES (ADULT + STANDARD WT)



**Weigh the adult carrying 8 (5+2+1) kg and 8.5., 8.7 and 8.8 kg as shown in the figures.**

**The combined weight of adult and the standard weight should be within  $\pm 0.1$  kg of the computed total weight.**

# PRECAUTIONS WHILE USING THE BALANCES

Digital weighing machines minimize errors in weighing; but they need be checked for accuracy every day before use.

Digital balances should **never** be stacked one on the top of the other.

Always remove the battery and store it safely in a dry zip lock bag.

If balance shows low battery or does not switch on - check the battery.

If in doubt about the battery change the battery and then undertake test for accuracy.



# WEIGHING CHILDREN AND ADULTS



Weighing using a digital balance is very easy. Keep the balance on level ground. Step on it to switch on the battery. Tell the person clearly that he/she should stand straight on the digital balance. Check for compliance. The pictures show breast-feeding mother, a pregnant women, a child standing straight on the digital balance in their home settings.

# WEIGHING CHILDREN AND ADULTS



## **MEASUREMENT OF INFANT'S WEIGHT**

**Weigh the mother when she is carrying the infant. Their combined weight is 59.3 kg.**

**Weight of mother alone; her weight is 54.2 kg.**

**Therefore infant's weight is  $59.3 - 54.2 = 5.1\text{kg}$ .**



## **MEASUREMENT OF INFANT'S WEIGHT**

Infants are usually comfortable when they are being carried by the mother/care giver.

Mother carrying the infant is weighed.

Then mother alone is weighed.

The difference in the weight between mother + infant (51.5 kg) and mother alone (43.4 kg) is the weight of the infant (8.1 kg).







**Young children who watch their mothers and other children getting weighed will willingly stand and get weighed.**





**In urban settings many fathers share the parenting tasks of their children. They respond readily and help in weight measurement of their infants.**