

To study on the reason for the student become unconscious while praying in standing position

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ABSTRACT - Many students become unconscious while praying in attention position. There are many reasons of it. Some of them may be -

1. Eating disorder
2. Impact of Gauge pressure while praying in attention position.
3. Praying in sitting position.

To study the aforesaid possible factors I collected the data from many schools under the following two categories -

1. What is the position of students while prayer in the schools?
2. In which position do the students become more unconscious- sitting or in attention position?

The result of a data based on the questionnaire clearly tells us that the students, who pray in an attention position, have more possibility of becoming unconscious. The reason behind this is clearly scientific. While in standing position, due to gauge pressure, the blood is not able to reach heart in a proper manner. So the student become unconscious.

Keywords – unconscious, disorder, gauge pressure, aforesaid, attention position, factors, scientific .

Introduction - The students in Dibiyaapur are done the prayer in standing position on the prayer site. During that time some students suddenly fall unconscious. Those who have been littered for a while, then they are re-consciousened. At the same time, Saraswati Vidya Mandir Inter College which is organized by Vidya Bharati, is organized the prayer in sitting position . Where the said problem remains negligible. We have studied this project under the problem and their solution of students become unconscious while praying in standing position.

Methodology -

1. Point out the schools which conduct the prayer in standing or sitting position.
2. Measuring the height of the heart and the brain of 10 students in the standing position of one of the school.
3. Measuring the height of those same students in the sitting position.
4. Finding the mathematical statistics by comparing them and finding solutions.

Process -

1. I pointed out the schools at Dibiyaapur city which are conducting the prayer in standing or sitting position.
2. I measured the height of the heart and the brain of 10 students in the standing position of one of the school.
3. I measured the height of those same students in the sitting position.
4. I found the mathematical statistics by comparing them and I also found solutions.

Survey Data -

1. Prayer status data obtained from schools.

Table 1 - Prayer status data obtained from schools.

S.R. No.	School Name	Prayer's Position		Student Attendance	Faint No. (Per Month)
		Standing Positio	Sitting Position		
1.	St. SaiNath I/c Dibiyapur	Standing Position	-	2500	15
2.	Shri Ram Ratan Gupt Balika I/c Dibiyapur	Standing Position	-	80	03
3.	Saraswati Vidya Mandir I/c Dibiyapur	-	Sitting Position	900	-
4.	U.P.S. Dibiyapur	Standing Position	-	110	02
5.	Indra Gandhi I/c Dibiyapur	Standing Position	-	330	02

2. Data obtained from the students who become unconscious at the prayer site .
3. Doctor's suggestion -

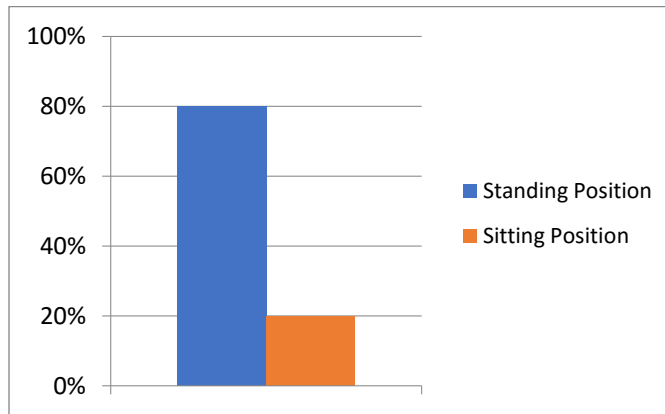
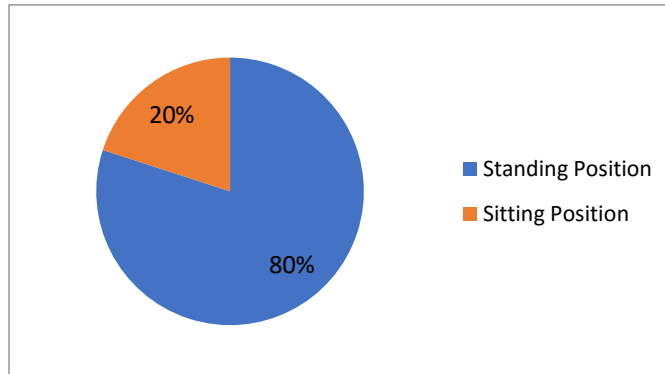
Cause of students faint who pray in standing position is, Due to Empty Stomach or Due to being Sick Already or Due to Stale Food or Due to Standing in the Sun or Any Other Reason.

4. Graphical representation of the data obtained from the survey and their analysis.

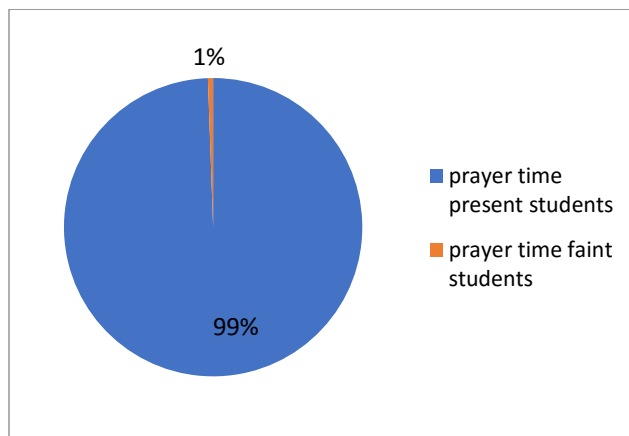
Table 2 - Data obtained from the students who become unconscious at the prayer site .

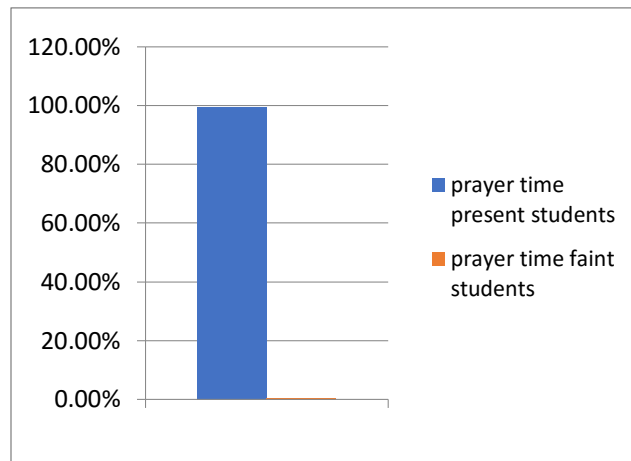
		Stomach	Food	Standing in the Sun	being Sick Already	Other Reason
1.	Mili Gupta	-	-	-	-	Any Other Reason
2.	Shikha Pandey	Due to Empty Stomach	-	-	-	-
3.	Shalini	Due to Empty Stomach	-	-	-	-
		Stomach				
						Other Reason
					being Sick Already	
	Singh			Standing in		

				the Sun		
8.	Saurabh	Due to Empty Stomach	-	-	-	-
9.	Aman	-	-	-	-	Any Other Reason
10.	Chaturbhuj Singh	Due to Empty Stomach	-	-	-	-

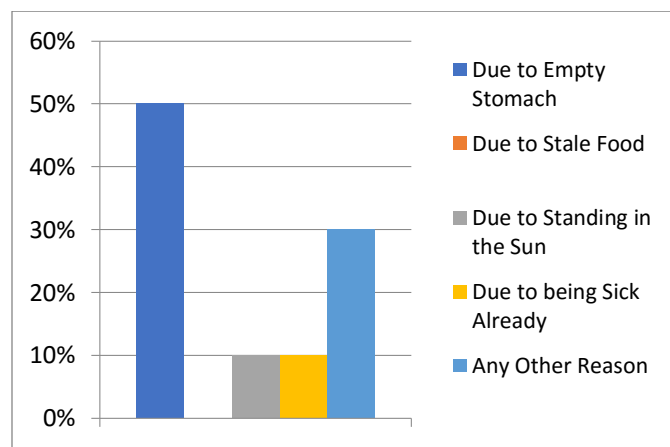
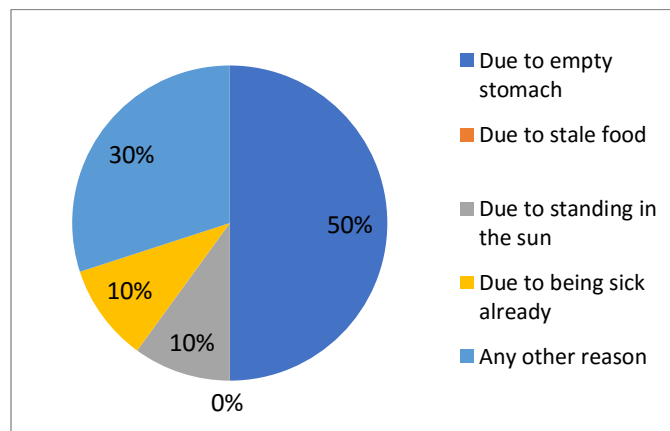


Graph[a]. This is the graph of Prayer status data which obtained from schools.





Graph[b]. This is the graph which show that how many students present or faint at prayer site in prayer time.



Graph[c]. This is the graph of students who become unconscious at the prayer site due to many reasons.

Graphs[a], [b] and [c] are the graphical representation of survey data

Experimental Data -

1. Data of height obtained in different situations of students .

Table 1 - Data of height obtained in different situations of students .

Name	CLASS	Height (cm) in standing position		Height (cm) in sitting position		Height (cm) in labelling position	
		Till the Heart	Till the Brain	Till the Heart	Till the Brain	Till the Heart	Till the Foot
Neha	10	111	153	38	80	4	3
Newton	7	103	141	34	72	4	3
Kavita	8	103	141	34	72	4	3
Pranshu	11	119	161	39	81	4	3
Nitin	8	104	146	35	77	4	3
Monika	6	99	135	32	68	4	3
Brajendra	12	121	166	41	86	4	3
Prince	3	93	130	30	67	4	3
Jyoti	5	99	135	32	68	4	3
Sanskar	11	119	161	39	81	4	3

2. Calculation of Gauge pressure on the basis of height in different situations of students.

To the bernoulli's theorem -

$$P_1 + \frac{1}{2}\rho v_1^2 + \rho gh_1 = \text{constant}$$

$$P_1 + \frac{1}{2}\rho v_1^2 + \rho gh_1 = P_2 + \frac{1}{2}\rho v_2^2 + \rho gh_2$$

But velocity of blood $v_1 = v_2$

We can neglect kinetic energy $[\frac{1}{2}\rho v^2]$

$$\text{Then, } P_1 + \rho gh_1 = P_2 + \rho gh_2$$

$$P_1 - P_2 = \rho g[h_2 - h_1]$$

In the position of standing -

For Heart -

$$h_H = 111\text{cm}$$

$$= 1.11\text{m}$$

$$g = 9.8\text{m/sec}^2$$

$$\rho = 1060 \text{ kg/m}^3$$

then,

$$P_H = \rho gh_H$$

$$= 1060 \times 9.8 \times 1.11$$

$$= 11530.68 \text{ Pa}$$

$$= 11.5 \text{ kPa}$$

For Brain -

$$h_B - h_H = 42\text{cm}$$

$$= 0.42\text{cm}$$

To the bernoulli's theorem -

$$P_1 - P_2 = \rho g[h_2 - h_1]$$

$$\text{To, } P_H - P_B = \rho g[h_B - h_A]$$

$$= 1060 \times 9.8 \times 0.42$$

$$= 4.3 \text{ kPa}$$

$$P_H - P_B = 4.3 \text{ kPa}$$

$$P_B = P_H - 4.3 \text{ kPa}$$

$$= 11.5 - 4.3$$

$$= 7.2 \text{ kPa}$$

For Foot -

$$P_F - P_H = \rho g[h_H - h_F]$$

$$= 1060 \times 9.8 \times (1.11 - 0)$$

$$= 1060 \times 9.8 \times 1.11$$

$$= 11530.68 \text{ Pa}$$

$$P_F - P_H = 11.5 \text{ kPa}$$

$$P_F = 11.5 + P_H$$

$$= 11.5 + 11.5$$

$$= 23 \text{ kPa}$$

In the position of sitting -

For Heart -

$$P_H = 11.5 \text{ kPa}$$

For Brain -

Difference between Heart & Brain = 42cm

$$= 0.42\text{cm}$$

$$P_H - P_B = \rho g\Delta h$$

$$= 1060 \times 9.8 \times 0.42$$

$$= 4362.96 \text{ Pa}$$

$$P_H - P_B = 4.3 \text{ kPa}$$

$$\begin{aligned}P_B &= P_H - 4.3 \\ &= 11.5 - 4.3 \\ &= 7.2 \text{ kPa}\end{aligned}$$

For Foot -

$$\begin{aligned}\text{Difference between Heart \& Foot} &= 38\text{cm} \\ &= 0.38\text{cm}\end{aligned}$$

$$\begin{aligned}P_F - P_H &= \rho g \Delta h \\ &= 1060 \times 9.8 \times 0.38 \\ &= 3947.44 \text{ Pa}\end{aligned}$$

$$P_F - P_H = 3.9 \text{ kPa}$$

$$\begin{aligned}P_F &= P_H + 3.9 \\ &= 11.5 + 3.9 \\ &= 15.4 \text{ kPa}\end{aligned}$$

Sitting in comparison to the standing position on prayer site the blood return to the heart easily. Because the pressure difference is minimum.

In the position of labelling -

For Heart -

$$P_H = 11.5 \text{ kPa}$$

For Brain -

$$\begin{aligned}\Delta h &= 4\text{cm} \\ &= 0.04\text{cm}\end{aligned}$$

$$\begin{aligned}P_H - P_B &= \rho g \Delta h \\ P_B &= P_H - \rho g \Delta h \\ &= P_H - [1060 \times 9.8 \times 0.04] \\ &= 11.5 - 0.4 \text{ kPa} \\ &= 11.1 \text{ kPa}\end{aligned}$$

For Foot -

$$\begin{aligned}\Delta h &= 3\text{cm} \\ &= 0.03\text{cm}\end{aligned}$$

$$P_H - P_B = \rho g \Delta h$$

$$P_B = P_H - \rho g \Delta h$$

$$= P_H - [1060 \times 9.8 \times 0.03]$$

$$= 11.5 - 0.3 \text{ kPa}$$

$$= 11.2 \text{ kPa}$$

Gauge pressure is almost equal.

At the time of respiratory activity and body movements, partial blood return back to the heart by the action of skeletal muscles.

3. Data obtained on the basis of Gauge pressure in different situations of students.

Name	CLASS	Gauge pressure (kPa) in standing position			Gauge pressure (kPa) in sitting position			Gauge pressure (Kpa) in labelling position		
		Heart	Brain	Foot	Heart	Brain	Foot	Heart	Brain	Foot
Neha	10	11.5	7.2	23	11.5	7.2	15.4	11.5	11.1	11.2
Newton	7	10.6	6.7	22.2	10.6	6.7	13.6	10.6	10.1	10.3
Kavita	8	10.6	6.7	22.2	10.6	6.7	13.6	10.6	10.1	10.3
Pranshu	11	12.3	8.0	24.6	12.3	8.0	16.3	12.3	11.9	12
Nitin	8	10.8	6.5	20.8	10.8	6.5	14.4	10.8	10.3	10.5
Monika	6	10.2	6.5	20.4	10.2	6.5	13.5	10.2	9.8	9.9
Brajendra	12	12.5	7.9	24.0	12.5	7.9	16.7	12.5	12.1	12.2
Prince	3	9.6	5.8	19.2	9.6	5.8	12.7	9.6	9.1	9.3
Jyoti	5	10.2	6.5	20.4	10.2	6.5	13.5	10.2	9.8	9.9
Sanskar	11	12.3	8.0	24.6	12.3	8.0	16.3	12.3	11.9	12

Data analysis -

1. The schools are 80% which conduct prayer in standing position.
2. The schools are 20% which conduct prayer in sitting position.
3. If we assume the number of students present in prayer time 100%, the number to be unconscious is 0.56%. While the attendees in the prayer meeting are 99.4%.
4. In 0.56% of unconscious students -

Due to 50% empty stomach, due to standing in 10% sunlight, 10% have already been ill and 30% students are unconscious due to some another reason.

5. The number of students falling unconscious was found in schools where students prayed in standing position while the number of students praying in sitting position were found negligible.
6. By calculation it was found that the caution of unconsciousness in the standing position of students due to lack of access to blood in the heart. While sitting in comparison to the standing position on prayer site the blood return to the heart easily. Because the pressure difference is minimum.

Result / Conclusion - *The best posture/position for prayer is to sit and pray.*

Acknowledgement -

Guide - Mr. Ramendra Singh Kushwaha (PhysicsLecturer)

Reference - NCERT Class-11 Physics (Part 2) Chapter-10 "Mechanical Properties of Liquid" (Appendix-10.1)

Biography : My name is Neha Kushwaha . I am a student of class 11th . I have a passion to read science books and magazines.

