

## BENEFITS OF EXERCISES ON SELECTED PHYSIOLOGICAL COMMON COMPLAINTS DURING PREGNANCY

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### ABSTRACT

*The purpose of the study was to identify the common pregnancy related physiological complaints among the women during pregnancy at selected hospitals in Pune city. The population in this study consisted of Pune city women who attended the antenatal exercises classes from selected hospitals. The researcher selected total 71 subjects as a sample for the study. To achieve the objectives of the present study researcher constructed the questionnaire for the purpose of data collection. For collection of data researcher used closed ended type questionnaire. Data were numerically coded and captured in Excel, using an SPSS software program. The researcher used Descriptive statistics percentage and inferential statistics Pearson Chi-Square in this research. Out of 69, 57 (82.6%) subjects were suffering from back pain, out of this 56 subjects (98.2%) got positive results and (1.8%) has no change in the back pain, out of 69, 40 subjects (58%) were suffering from fatigue, laziness, but antenatal exercises helped 32 subjects (80%) to reduce the fatigue, laziness etc and 20% subjects has no change. Out of 69, 59 subjects (85.5%) were having leg cramp. 58 subjects (98.3%) got relief from leg cramp and (1.7%) has no change in the leg cramp. In this study participants (Pregnant women) who received antenatal exercises helps to reduce the back pain, fatigue and laziness and leg cramp i.e. selected physiological complaints during pregnancy.*

**Keywords:** Pregnancy, antenatal exercise.

### 1. INTRODUCTION

Globally, estimated 1.5 billion women were of childbearing age (15 to 45 years old) in 2011. About 210 million become pregnant every year; of which 13.33% (28 million) belongs to developed countries and remaining huge portion (86.66%) is from developing world including India. Pregnancy and childbirth are special

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events in women's lives, and, in fact, in the lives of their families. Maternal and child healthcare (MCH) is a major component of primary health care (PHC). After Alma-Ata declaration in 1978 and safe motherhood conference in 1987 in Nairobi, India focused on policies, plans and programs (PPP) related to mother and their child health care. First national health policy (1983), population policy (2000), revised health policy (2002) and National Rural Health Mission (NRHM) (2005) had focused on improvement of the health status of mother and their children in rural areas. Care of women during pregnancy (after conception to just before delivery) for safer and healthier pregnancy outcome is Antenatal Care (ANC). It is one of the most effective health intervention for preventing maternal morbidity and mortality. Antenatal period is an important opportunity for identifying pregnancy related threats to the mother and unborn baby's health. It supports to apply the possible preventive and curative measures to manage the complications in time by through various services viz. counseling on nutrition, birth preparedness, delivery care, post partum care and family planning options after delivery. Most recently, physical activity recommendations for pregnant women were also included in the first ever Physical Activity Guidelines for Americans published in 2008 by the United States Department of Health and Human Services (DHHS).

Birth is a natural physiological event. Pregnancy is a time of great changes in a woman's body and undergoes important adaptations. Pregnant women experiences common complaints during pregnancy. The common complaints during pregnancy of two types Physiological and Psychological which lead to mental and physical disturbance. These complaints can be reduced with the help of some yogic exercises, meditation, walking and exercises (May &Mahlmeister, 1997).

Exercise during pregnancy is associated with numerous health benefits for both mother and her offspring (Mottola&McLaughlin2011). Physical exercises play an important role in prenatal health, the beneficial effects of which on the mother and fetus have been indicated in many studies (Artal& Sherman, 1999). Back pain is also known as dorsalgia. Pain felt in the back that usually originates from the muscles, nerves, bones, joints or other structures in the spine. The spine is a complex interconnecting network of nerves, joints, muscles, tendons and ligaments. Pregnant women commonly develop pain where the pelvis and the sacrum/tailbone join (Patel & Ogle, 2000). A biomechanical aspect shows that the pelvis floor exercises helps to improve the blood flow to the muscles and joints and it increase pelvic floor strength (Weiss, 2011). The benefits of regular exercise during pregnancy as confirmed in various studies include reduction of blood glucose concentration of diabetic mothers, pelvic and back pain, anxiety and depression, constipation, and leg cramps. Also, exercise leads to increased blood pressure, increased mental health and improved quality of life, better sleep patterns, increased physical function, and posture improvement (Abedzadeh, Saberi, Sadat, 2005). Many researchers in their studies on pregnant women who

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exercise regularly found out that the mentioned women experience a shorter active labor and fewer cesarean sections. In this group of women, meconium-stained amniotic fluid is less frequently seen and the fetus undergoes less distress during labor (Lewis, Avery, Jennings, Martinson, & Crain, 2008). In another study, it was found that less than half of the women (42.3 percent) have exercised during pregnancy and the most common exercise has been walking (Piravej&Saksirinukul, 2001). Considering few studies in this field and the role of exercise in physical and mental health of mothers during pregnancy, the main objective to study is see the benefits of the exercises on selected common complaints during pregnancy.

## **2. METHODS AND MATERIALS**

### **2.1 Subjects**

The purpose of the study was to assess the effect of antenatal exercises on selected common complaints during pregnancy. The population in this study consisted of Pune city women who attended the antenatal exercises classes from June 2009 to October 2010 at DeenanathMangeshkar hospital, Ruby hall, Patankar hospital. From these hospitals researcher selected total 71 subjects as a sample for the study, between the age group of 21 to 36 years old. Out of 71 subjects, 36 subjects (50.7%) are housewives and 35 subjects (49.3%) are professional (working women in various fields). Out of 71 subjects, 45 subjects (63.4%) are up to graduate and 26 subjects (36.6%) are Post Graduate.

### **2.2Tool**

To work on the objectives of the present study researcher constructed a questionnaire for the purpose of data collection. For collection of data researcher used closed ended type questionnaire. The closed ended questionnaire is focused on effect of antenatal exercises on selected common complaints during pregnancy. The questions were designed for the detail information regarding the subject [demographic Data, Previous Pregnancies, Common Complaints during pregnancy, Exercise during Pregnancy, At the end of antenatal classes (Feedback ), At the time of delivery (Feedback)] were included in the questionnaire.

### **2.3Data Analysis**

To evaluate the content validity and reliability of the questionnaire, test-retest method was used, yielding a correlation coefficient of  $r=0.85$ . The data was analyzed by Pearson chi-square test. The statistic significant difference is calculate by (Pearson chi-square value 62.575,  $df=1$ ,  $p=0.001$ ). Data were numerically coded and captured in Excel, using an SPSS software program. The

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researcher used Descriptive statistics percentage and inferential statistics Pearson Chi-Square in this research.

### 3. RESULTS

The result of the study is presented in the following Tables.

**Table1: Indicating descriptive statistics**

Complaints	No of Women suffering with pain	Does not suffering with pain	No change (No Relief) from pain)	Positive Change (relief from Pain )	Total No of Pregnant women who undergo ANC exercises
Back Pain	57	12	01	56	69
Constipation	06	03	03	63	69
Fatigue, Laziness etc	40	08	32	29	69
Frequent urination	08	04	04	61	69
Leg cramp	59	01	58	10	69
Food Nausea	17	15	02	52	69
Headache	06	01	05	63	69

**Table 2: Pretest back pain and posttest back pain**

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
69	97.2%	2	2.8%	71	100.0%

There are 71 subjects out of which 69 subjects have answered the questionnaire (Table 2).

Out of 69, 57 (82.6 %) subjects were suffering from back pain. Out of this, 56 subjects (98.2%) got positive results that there was decrease in back pain and (1.8%) has no change in the back pain. 12 subjects has responded that there was no back pain during pregnancy [Table 3].

**Table 3: Pretest back pain and posttest back pain cross tabulation**

			Posttest Back Pain		Total
			No Change	Positive Change	
Pre Test Back Pain	Pain	Count	1	56	57
		Expected Count	10.7	46.3	57.0
		% within Pretest Back Pain	1.8%	98.2%	100.0%
		% within Posttest Back Pain	7.7%	100.0%	82.6%
		% of Total	1.4%	81.2%	82.6%
	No Pain	Count	12	0	12
	Expected Count	2.3	9.7	12.0	

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		% within Pre Test Back Pain	100.0%	.0%	100.0%
		% within Posttest Back Pain	92.3%	.0%	17.4%
		% of Total	17.4%	.0%	17.4%
Total		Count	13	56	69
		Expected Count	13.0	56.0	69.0
		% within Pre Test Back Pain	18.8%	81.2%	100.0%
		% within Posttest Back Pain	100.0%	100.0%	100.0%
		% of Total	18.8%	81.2%	100.0%

**Table 4: Pretest and posttest back pain chi-square tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	62.575 (b)	1	0.001		
Continuity Correction (a)	56.315	1	0.001		
Likelihood Ratio	56.710	1	0.001		
Fisher's Exact Test				0.001	0.001
Linear-by-Linear Association	61.668	1	0.001		
N of Valid Cases	69				

a= Computed only for a 2x2 table

b= 1 cells (25.0%) have expected count less than 5. The minimum expected count is 2.26.

Table 4, indicates that the effect of antenatal exercises on back pain was analyzed by Pearson chi-square test. It was found that there was statistically significant difference in the back pain due to antenatal exercises (Pearson chi-square value 62.575, df=1, p=0.001). This shows that there was significant effect of antenatal exercises to reduce the back pain during pregnancy.

**Table 5: Pretest and posttest constipation**

		Cases			
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
69	97.2%	2	2.8%	71	100.0%

Out of 71 subjects only 69 subjects has answer the questionnaire [Table 5].

**Table 6: Pre test constipation and posttest constipation cross tabulation**

	Posttest constipation		Total
	No Change	Positive Change	

Pretest Constipation	Yes	Count	3	3	6
		Expected Count	5.7	.3	6.0
		% within Pretest Constipation	50.0%	50.0%	100.0%
		% within Posttest Constipation	4.5%	100.0%	8.7%
		% of Total	4.3%	4.3%	8.7%
	No	Count	63	0	63
		Expected Count	60.3	2.7	63.0
		% within Pretest Constipation	100.0%	.0%	100.0%
		% within Posttest Constipation	95.5%	.0%	91.3%
		% of Total	91.3%	.0%	91.3%
Total	Count	66	3	69	
	Expected Count	66.0	3.0	69.0	
	% within Pretest Constipation	95.7%	4.3%	100.0%	
	% within Posttest Constipation	100.0%	100.0%	100.0%	
	% of Total	95.7%	4.3%	100.0%	

From Table 6, out of 69, 6 subjects (8.7%) were having constipation during pregnancy. Out of this, 3 subjects (50%) got positive results and 50% has no change in constipation. Out of 69, 63 subjects responded that there was no constipation complaint during pregnancy.

**Table 7: Pretest and posttest constipation chi-square tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	32.932 (b)	1	0.001		
Continuity Correction(a)	22.006	1	0.001		
Likelihood Ratio	16.363	1	0.001		
Fisher's Exact Test				0.001	0.001
Linear-by-Linear Association	32.455	1	0.001		
N of Valid Cases	69				

a Computed only for a 2x2 table

b 2 cells (50.0%) have expected count less than 5. The minimum expected count is .26.

Table 7 show that the effect of antenatal exercises on constipation was analyzed by Pearson chi-square test and it was found that there was statistically significant difference in the constipation due to antenatal exercises (Pearson chi-square value (32.932, df=1, p=0.001). This shows that there was significant effect of antenatal exercises to reduce the constipation.

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**Table 8: Pretest fatigue and posttest fatigue, laziness**

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
69	97.2%	2	2.8%	71	100.0%

Out of 71, 69 subjects answered the questionnaires [Table 8].

**Table 9: Pretest and posttest fatigue, laziness cross tabulation**

			Posttest fatigue, laziness		Total
			No Change	Positive Change	
Pretest fatigue, laziness	Yes	Count	8	32	40
		Expected Count	20.9	19.1	40.0
		% within Pretest fatigue, laziness	20.0%	80.0%	100.0%
		% within Posttest fatigue, laziness	22.2%	97.0%	58.0%
		% of Total	11.6%	46.4%	58.0%
	No	Count	28	1	29
		Expected Count	15.1	13.9	29.0
		% within Pretest fatigue, laziness	96.6%	3.4%	100.0%
		% within Posttest fatigue, laziness	77.8%	3.0%	42.0%
		% of Total	40.6%	1.4%	42.0%
Total	Count	36	33	69	
	Expected Count	36.0	33.0	69.0	
	% within Pretest fatigue, laziness	52.2%	47.8%	100.0%	
	% within Posttest fatigue, laziness	100.0%	100.0%	100.0%	
	% of Total	52.2%	47.8%	100.0%	

From Table 9, out of 69, 40 subjects (58%) were suffering from fatigue, laziness etc as a common complaints during pregnancy, but antenatal exercises helped 32 subjects (80% ) to reduce the fatigue, laziness etc and 20% subjects has no change in the fatigue, laziness etc. Out of 69, 28 subjects responded that they were not suffering from fatigue, laziness etc. during pregnancy.

**Table 10: Pretest fatigue and posttest fatigue, laziness chi-square tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	39.482(b)	1	0.001		
Continuity Correction(a)	36.474	1	0.001		
Likelihood Ratio	46.792	1	0.001		

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Fisher's Exact Test				0.001	0.001
Linear-by-Linear Association	38.910	1	0.001		
N of Valid Cases	69				

a Computed only for a 2x2 table

b 0 cells (.0%) have expected count less than 5. The minimum expected count is 13.87.

From Table 10 found that there was statistically significant difference in the fatigue, laziness etc due to antenatal exercises (Pearson chi-square value 39.482, df=1, p=0.001). This shows that there was significant effect of antenatal exercises to reduce the Fatigue, laziness etc.

**Table 11: Pretest frequent urination and posttest frequent urination**

Cases					
Valid		Missing		Total	
N	Percent	N	Percent	N	Percent
69	97.2%	2	2.8%	71	100.0%

There are 71 subjects out of which 69 subjects answered the questionnaires [Table 11].

**Table 12: Pretest frequent urination and posttest frequent urination cross tabulation**

			Posttest frequent Urination		Total
			No Change	Positive Change	
Pretest frequent Urination	Yes	Count	4	4	8
		Expected Count	7.5	.5	8.0
		% within Pretest frequent Urination	50.0%	50.0%	100.0%
		% within Posttest frequent Urination	6.2%	100.0%	11.6%
		% of Total	5.8%	5.8%	11.6%
	No	Count	61	0	61
		Expected Count	57.5	3.5	61.0
		% within Pretest frequent Urination	100.0%	.0%	100.0%
		% within Posttest frequent Urination	93.8%	.0%	88.4%
		% of Total	88.4%	.0%	88.4%
Total		Count	65	4	69
		Expected Count	65.0	4.0	69.0
		% within Pretest frequent Urination	94.2%	5.8%	100.0%
		% within Posttest frequent Urination	100.0%	100.0%	100.0%

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	% of Total	94.2%	5.8%	100.0%
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From Table 12, out of 69, 8 subjects (11.6%) were suffering from frequent Urination problems, but due to antenatal exercises it helped 4 subjects (50%) to decrease frequent urination and 50% subjects has no change in the problem after receiving the antenatal exercises. Out of 69, 61 subjects was not suffering from frequent urination during pregnancy.

**Table 13: Pretest and posttest frequent urination chi-square tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	32.377(b)	1	0.001		
Continuity Correction(a)	23.868	1	0.001		
Likelihood Ratio	19.456	1	0.001		
Fisher's Exact Test				0.001	0.001
Linear-by-Linear Association	31.908	1	0.001		
N of Valid Cases	69				

a Computed only for a 2x2 table

b 2 cells (50.0%) have expected count less than 5. The minimum expected count is .46.

The Table 13 shows that the effect of antenatal exercises helps to decrease frequent urination and which was analyzed by Pearson chi-square test. It was found that there was statistically significant difference in the frequent urination due to antenatal exercises (Pearson chi-square value (32.377, df=1, p=0.001). This shows that there was significant effect of antenatal exercises to reduce frequent Urination during pregnancy.

**Table 14: Pretest leg cramp and posttest leg cramp**

		Cases					
		Valid		Missing		Total	
N	Percent	N	Percent	N	Percent	N	Percent
69	97.2%	2	2.8%	71	100.0%		

There are 71 subjects, 69 subjects answered the questionnaires. [Table 14]

**Table 15: Pretest leg cramp and posttest leg cramp cross tabulation**

		Posttest leg cramp			Total
		No Change	Positive Change		
Pretest leg	Yes	Count	1	58	59

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cramp		Expected Count	7.7	51.3	59.0
		% within Pretest leg cramp	1.7%	98.3%	100.0%
		% within Posttest leg cramp	11.1%	96.7%	85.5%
		% of Total	1.4%	84.1%	85.5%
	No	Count	8	2	10
		Expected Count	1.3	8.7	10.0
		% within Pretest leg cramp	80.0%	20.0%	100.0%
		% within Posttest leg cramp	88.9%	3.3%	14.5%
	% of Total	11.6%	2.9%	14.5%	
Total	Count	9	60	69	
	Expected Count	9.0	60.0	69.0	
	% within Pretest leg cramp	13.0%	87.0%	100.0%	
	% within Posttest leg cramp	100.0%	100.0%	100.0%	
	% of Total	13.0%	87.0%	100.0%	

The Table 15, indicates that out of 69, 59 subjects (85.5%) were having leg cramp. Out of this, 58 subjects (98.3%) got relief from leg cramp and (1.7%) has no change in the leg cramp. Out of 69, 8 subjects said as they were not suffering from leg cramp during pregnancy.

**Table 16: Pretest leg cramp and posttest leg cramp chi-square tests**

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	46.226(b)	1	0.001		
Continuity Correction(a)	39.580	1	0.001		
Likelihood Ratio	33.289	1	0.001		
Fisher's Exact Test				0.001	0.001
Linear-by-Linear Association	45.556	1	0.001		
N of Valid Cases	69				

a Computed only for a 2x2 table

b 1 cells (25.0%) have expected count less than 5. The minimum expected count is 1.30.

From Table 16 shows that the effect of antenatal exercises showed significant relief in leg cramp. The data was analyzed by Pearson Chi-square test and it was found that there was significant difference in the leg cramp due to antenatal exercises (Pearson chi-square value 46.226, df=1, p=0.001) This shows that there was significant effect of antenatal exercises to decrease leg cramp during pregnancy.

#### 4. DISCUSSION

According to Clapp (1990), the individual's growth is conditioned not only by genetic background but also by environmental stimuli, for example, adequate supply of nutrients and practice of physical activity. In Antenatal exercises, exercises are given to neck, upper back, lower back or tail born which helps to improve the flexibility of the muscle, joints and ligaments (Clapp, 1990). Flexibility exercises helps to reduce the back pain (Garshasbi&Zadeh, 2005). The sitting pelvis tilt exercises helps to reduced the sleep disorders and lower back pain because the pelvis tilt movement strengthens and tones the abdominal muscles and stretches the lower back muscles (Kamali, 2009; Shrock, 2008). Lawani, Alihonou, Akplogan, Poumarat, Okou, and Adjadi, (2003) explained in their study that antenatal gymnastic exercises are a non- pharmacological childbirth preparation methods. These antenatal gymnastic exercises helps to maintain rachidian static and to relieve painful syndromes (joints, lumbar pains, backaches) during pregnancy.

Pelvis floor exercises, stretching exercises and yogic exercises helps to improve the blood flow to the muscles and joints and it also increases the pelvis floor strength (Weiss, 2011) and exercises helps to improve the muscles tone and elasticity of stretches muscles (Abdominals, rhomboids, upper back and neck muscles) and it also stretch shorten muscles (lower back and pectorals) and reduces tension in joint of the pelvis, shoulders, hips and knee and helps to improve the flexibility in the muscles and joints, which decreases the laxity in the joints and ligaments (Klein-Olkin, 1987; Noble, 1995).

Mild exercises, Squats against the wall and pelvis floor exercises helps to improve the bowel movement function properly which leads to improves digestive system, helps to tone the intestine muscles and also toning the anal muscle and anal sphincter. The body wall consisting of the levatorani and coccygeus muscles that is stretched across the pelvis cavity, supporting the abdominal contents, the uterus and is pierced by the anal canal, urethra and vagina. Exercise gently stimulates the bowels movement, which leads to improve digestive system (Weiss,2011).

Yoga and physical exercises is the best solution for fatigue, laziness etc. It involves only gentle stretches and hence leaves the pregnant women refreshed after practice. This is most essential for individuals with CFS, as they are already deficit of energy. By practicing a few minutes of breathing exercises, meditation and a few gentle stretches helps to reduce fatigue, laziness etc. While meditation helps in conservation of energy and in boosting self confidence, the yoga postures helps in pushing in more oxygen through the body organs and releases muscle tension.

Yoga helps relieve the muscles tension, allowing them to relax. Yoga exercises are clubbed with meditation and breathing techniques that which help in normalizing life life and making it a productive as possible.

Pregnant women who suffer from fatigue and laziness etc. face emotional and physical tension which usually gets lodged in the muscle tissues, by knotting and tightening them and decreasing the blood circulation. Through various yoga postures that involve breathing deeply and gently, these muscle tissues are relaxed and they get more oxygen which in turn releases the tension. During deep breathing there is maximum intake of oxygen and release to toxins.

Stress is considered as the main factor for fatigue, laziness etc. breathing techniques help in increasing awareness and concentration, by simultaneously reducing reactions to stress. Most of the time stress is caused by an event in the past, or for fear of future or when caught in a situation that cannot or dealt with. The breathing techniques will help in finding a source of unlimited energy that lies within one's self by constantly reminding the mind to deal with the present moment.

- Exercises which ensure proper blood and oxygen flow to uterus helping the fetus to get ample supply of blood, oxygen and nutrition.
- Pregnancy often leaves women feeling less energetic, but regular exercise can give more energy to make it through the day (Weiss, 2011).
- In the *womenhealthcaretake* article fatigue is a common pregnancy complaint, but exercising during pregnancy can help boost energy level and reduce fatigue during pregnancy. Exercising in pregnant women helps boost the levels of endorphins in their body and helps get the blood circulating throughout the body. Exercise in pregnancy also strengthens cardiovascular system, and it gives strong and toned muscles.

The Kegel exercises as the alternative medicine to cure the frequent urination. Kegelexercises are actual exercises done to strengthen the pelvic floor muscles which are helpful in strengthening the pelvic floor to avoid overactive bladder or loss of bladder function. The exercises help strengthen the muscles around the bladder and urethra to reduce negative bladder symptoms and reduce urinary urgency and frequency. Exercising the pelvic muscles for five minutes three times a day can make difference in bladder symptoms (Molly, 2009; Gallery, 2009). Intensive pelvis floor muscle training during pregnancy prevents urinary incontinence during pregnancy and after delivery (Morkved, Bo, Schei& Salvesen, 2003).

Stretching exercises (Stretch the calf muscles during the day and before going to bed at night), yogic exercises and walking helps to improve the blood circulation in the muscles and ligaments and exercises helps to improve the muscles tone and elasticity of stretches muscles. Author also suggests the home remedies also helps to cure the leg cramps during pregnancy such as, standing and sitting for long periods and crossing the legs while sitting can cause the leg cramp. leg cramps occur due to decrease in blood circulation. Morning stretching

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exercises and sitting in erect position helps to improve the proper circulation of blood in the muscles helps to reduce cramps. Sleeping position at night influences the blood circulation. Lying on the left side at night is the best sleeping position for increasing blood circulation. This is important for cramping, as well as bringing more oxygen to the body and for the baby. Dehydration can contribute to leg cramping. Sipping water throughout the day helps to stay well hydrated, which can reduce leg cramps, (Hughes, 2011).

## 5. CONCLUSIONS

With the limitation of the present study, it may be concluded that the effect of antenatal exercises helps to reduce the intensity of back pain and decrease constipation. Antenatal Exercises helps to reduce frequent Urination also reduces fatigue and laziness and reduces leg cramps during pregnancy.

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