

## Benefits of Exercises Performed in Prenatal and Postnatal Processes of Pregnancy

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**KEYWORDS** Pregnancy. Exercise. Bearing. Sports. Prenatal

**ABSTRACT** This research aims at determining views of health personnel regarding benefits of exercises performed properly in prenatal and postnatal processes of pregnancy. For this purpose, a questionnaire composed of two parts was applied on 570 attendees. Within the scope of the analysis, descriptive statistics, reliability analysis, Factor Analysis, Correlation Analysis, independent sample t-test, Anova analysis, Chi-square analysis, Kruskal Wallis-H and Jonckheere-Terpstra Test analyses were used. PASW 18.0 packet program was used in the analysis of data acquired from the research. At the end of the research, it was found that views of attendees regarding the importance of sports activities physically and mentally differed by number of pregnancy, educational status, working in private or public sector and having experienced an abortion or curettage. Furthermore, it was determined that views that sports activities protected babies differed by attendees who experienced abortion or curettage and educational status; and experiencing abortion or curettage was independent from educational status.

### INTRODUCTION

Women are the most important parts of social life. Women have started to take active part in social, cultural, economic and sports lives. We can say that the factors that make this process interesting are the roles attributed to women by the society in the past. Basically, women who are perceived as a part of domestic life and undertake maternal roles have gotten rid of this narrow thought and have become one of the main parts of life circle.

Maternity is a concept that is identified with women as a basic rule of nature in spite of the changes in all roles of women. Therefore, the fact that maternity of women is permanent will never change no matter what kind of social developments occur. While the concept of maternity is accepted as the reflection of a life span,

pregnancy comprises a short phase as a romantic manifestation of this reflection. Although this phase is accepted as an emotional and exciting process, it also comprises many physical, mental and physiological risk factors for future mothers.

Pregnancy, prenatal and postnatal processes should be followed in a controlled way by specialists and doctors; and this is particularly important for both prospective mothers and babies. As specified above, many disorders may appear during pregnancy. Mental and psychological disorders may also appear along with physical disorders such as diabetes depending on mainly over-weight and pregnancy. One of the basic study fields of medical community is realizing child-bearing in a healthy way especially by protecting maternal and infant health and completing pregnancy process comfortably. Medical supports of obstetricians and gynecol-

ogists are determining factors in preventing and treating the said disorders. In addition, sports and physical activities are also other tools for experiencing a healthy pregnancy period and protecting maternal and infant health.

Attending physical activities regularly during pregnancy period enables prospective mothers to protect her both physical and mental health. Attendance to physical activities is particularly important in performing a comfortable bearing. It would not be wrong to say that sports and physical activities have positive effects on preventing overweight during pregnancy and after bearing and avoiding obesity and many other disorders depending on obesity.

### Literature Information

Our age experiences the periods in which changes and developments are occurring rapidly. As in all social institutions, sports activities are certainly being affected by these changes and developments, as well. Sports activities attract the attention of masses with its dynamic characteristic and accepted as the symbol of health, focus point of peace, friendship and cultural intimacy. Sports activities are a type of action enabling physical, mental and social development of an individual. Sports activities, which are seen as an individual act, are actually a social act and with its feasibility, environment, purpose and pattern of performing it and they are performed in a social environment. It is one of the most common ways of recreation in modern societies (Öztürk 2003). Exercise is also considered safe for women with risk factors such as chronic hypertension, gestational diabetes, or overweight/obesity. A meta-analysis of 722 women with at least 1 of these conditions showed that aerobic exercise (walking, stationary cycling, aerobic dance, water gymnastics) at moderate intensity (<70% of heart rate reserve [HR<sub>max</sub> minus resting heart rate]) and strength exercise was safe for the fetus (cited from Wiebe et al. 2015 by Perales 2017: 2).

Today, sports activities which are perceived as preventive health service rather than just recreation tools have become one of the most important tools of women taking place in pregnancy. The main problems encountered by women during pregnancy are diabetes, overweighting and mental and physiological problems.

One of the most common problems encountered by women during pregnancy is diabetes

depending on pregnancy. In this period, diabetes depending on pregnancy is prevented in mainly overweight women by doing regular exercises and sedentary life style during and after pregnancy may be eliminated by performing convenient exercises (Dye et al. 1997). Views that performing sports during pregnancy period may cause negative results within the scope of social awareness are eliminated with scientific studies. In a research carried out by Evenson et al. (2004) in the USA regarding this topic, it was stated that exercising had become an important part of women's lives style and the rate of pregnant women doing exercises was determined as 65.6 percent while it was 73.1 percent among women who were not pregnant.

Especially with gaining weight, diabetes disorder may pose risks for both mother and infants. However, it is possible to decrease these disorder risks to minimum level with periodical exercise habits. Hinman et al. (2015) suggest that physical activities suitable for prospective mothers during pregnancy not only decrease the risk of diabetes depending on pregnancy, but also prevent irregular gaining weight of mothers and infants and minimize the possibility of caesarean. Again, it is emphasized that physical activities convenient for future mothers can minimize the risk of diabetes disorder depending on pregnancy (Barakat et al. 2012; Yin et al. 2014).

Obesity in women is pretty risky in prenatal period in terms of preeclampsia, diabetes and hypertension. Therefore, periodical physical activity during pregnancy process eliminates risks of disorders depending on obesity in terms of mother and infant health (Stutzman 2010).

Regarding the studies in the literature, overweighting and diabetes disorder depending on pregnancy pose serious risks for the mother and infant. It can be said that women attend physical activities more frequently and make this in a regular basis in order to eliminate and prevent these risks. Especially future mothers, after getting the awareness, tend towards sports for both their health and their babies' health. In a research carried out by Butler et al. (2004), it was stated that 91 percent of women had attended periodical physical activities in prenatal period while 84 percent of them had attended those activities in early pregnancy period and the said activities were cycling, walking, running, light weightlifting exercises. Again, in a research conducted by Simsek et al. (1997), periodical light exercise per-

formed during pregnancy had positive effects in various dimensions and it was not encountered with any finding that would affect maternal and fetal health negatively.

Akbayrak and Kaya (2012) specify benefits of periodical exercise activities during pregnancy. These activities;

- ◆ are important in preventing the possibility of pregnancy diabetes,
- ◆ keep weight control of mother,
- ◆ accelerate recovery in postnatal period,
- ◆ decrease possible problems in postnatal period,
- ◆ help develop potential for shortening time in bearing process,
- ◆ help increase in durability and strength,
- ◆ support muscle activity needed for bearing,
- ◆ contribute to exercise, providing social interaction and increasing well-being feeling socially and physiologically.

### METHODOLOGY

This research aims at determining views of health personnel regarding benefits of exercises performed properly during pregnancy in prenatal and postnatal processes. Therefore, a questionnaire was applied to 570 attendees. Non-parametric and parametric statistical tests were applied on the collected data.

Before the research, a pre-testing was performed in order to ensure reliability of validity of the measuring tool questionnaire. 125 attendees participated in the research in total for this pre-testing. Attendees were asked to fill in the questionnaire forms which were delivered to them by hand by dividing them to five groups in total each composing of 25 individuals totally. Attendees included in the sample were determined with simple random method from Black Sea, Central Anatolia, Aegean, Eastern Anatolia and Marmara Regions. Data acquired from these attendees was analyzed with SPSS 18 statistical program. After the analysis, validity and reliability co-efficient was found as 0.681. Due to the fact that that value was below the expected value, 7 questions possessing negative effect on the expected value in questionnaire form were excluded from the questionnaire. Then, again an analysis was performed and validity reliability co-efficient was found as 0.789. This value shows that the used measuring tool questionnaire is reliable.

As in the total sample within the scope of the research, attendees were chosen from five regions in total from 10 provinces within the Turkey universe. While making that preference, it was taken into account future mothers of regional and provincial health directorates giving birth to infants and number of infants that are newly born. The sample constitutes 20 percent of total universe. This rate was determined by calculating general distribution throughout the year. Within the framework of the research, especially public hospitals and health institutions managed by public were preferred. This can be shown among the limitations of the research. Before applying the research, research permission dated 08.02.2015 and numbered 81011618/044/107 was taken from Cumhuriyet University Faculty of Letters.

The first part of the applied questionnaire is composed of questions regarding demographic features of attendees while the second part is composed of 30-item scale questions regarding views of the attendees. Reliability of the scale was determined as 0.876. The scale was discussed in three dimensions after the applied factor analysis.

### Data Analysis

Within the scope of the analysis, descriptive statistics, reliability analysis, Factor Analysis, Correlation Analysis, independent sample t-test, Anova analysis, Chi-square analysis, Kruskal Wallis-H and Jonckheere-Terpstra Test analyses were used. PASW 18.0 packet program was used in the analysis of data acquired from the research. 0.05 of significance level was taken into account in the relationships and differences among variables.

### Hypotheses of the Research

- ◆ H1: There is not a relationship between sports activities and the number of pregnancy and abortion, curettage.
- ◆ H2: The number of pregnancy does not differ by factors.
- ◆ H3: Abortion or curettage is independent from education.
- ◆ H4: Curettage does not differ by factors.
- ◆ H5: Educational status does not differ by factors.

- ◆ H6: Sector of employment does not differ by factors.
- ◆ H7: Reason of performing sports activities does not differ by factors.
- ◆ H8: Abortion or curettage is independent from age.

## RESULTS

In this part, data regarding the attendees was analyzed, tabulated and interpreted. When Table 1 was examined, it was seen that it was the first pregnancy of 74 percent of the attendees, 89 percent of them never experienced abortion or curettage, most of the attendees (39%) preferred convenience foods and products during their, 29 percent of them had been working for between 13-15 years. In addition, 64 percent of the attendees were working in public sector, 39 percent of them were working at training research hospitals while 35 percent of them were working at university hospitals. 38 percent of the attendees exercised 1 hour in a day while 40 percent of them exercised 2 hours in a day and 83 percent of them preferred walking. 40 percent of the attendees were between 21-25 age range (Table 1).

After the factor analysis, sports activities during pregnancy period which was asked as 30 items could be gathered in 3 different items (Table 2). These items were:

1. Sports activities are important physically during pregnancy
2. Sports activities are important mentally during pregnancy
3. Sports activities protect baby

### ***H1: There is not a relationship between sports activities and number of pregnancy and abortion, curettage***

According to the correlation analysis (Table 3):

- ◆ There is a low level negative relationship between the number of pregnancy and opinion that sports activities affect pregnancy negatively.
- ◆ There is a low level positive relationship between the number of pregnancy and opinion that sports activities contribute to physical and mental health during pregnancy.
- ◆ There is a low level positive relationship between the number of pregnancy and opinion that sports activities do harm to pregnancy.

- ◆ There is a low level negative relationship between abortion or curettage and opinion that sports activities affect pregnancy negatively.
- ◆ There is a low level positive relationship between abortion or curettage and opinion that sports activities contribute to physical and mental health during pregnancy.
- ◆ There is a low level positive relationship between abortion or curettage and opinion that sports activities do harm to pregnancy.

### ***H2: Number of pregnancy does not differ by factors***

When factors are examined according to the number of pregnancy, it is seen that values of 1<sup>st</sup> and 2<sup>nd</sup> items among the related significance values are lower than 0.05. Therefore, basic hypotheses about these questions will be rejected. Statements of “Sports activities are important physically during pregnancy” (2 and above agree more) and “important mentally” (2 and above agree more) differ by the number of pregnancy (Table 4).

### ***H3: Abortion or curettage is independent from education***

When abortion or curettage situation is examined according to educational status, it is seen that significance value is higher than 0.05. Therefore, it was determined that abortion or curettage situation was independent from education (Table 5).

### ***H4: Curettage does not differ by factors***

When factors according to curettage situation are examined, it is seen that values of 2<sup>nd</sup> and 3<sup>rd</sup> items among related significance values are lower than 0.05. Therefore, basic hypotheses about these questions will be rejected. Statements of “Sports activities are important mentally during pregnancy period” (those having experienced abortion or curettage agree more) and “Sports activities protect baby” (those having experienced abortion or curettage agree more) differ by abortion or curettage situation (Table 6).

### ***H5: Educational status does not differ by factors***

When factors according to educational status are examined, it is seen that all of the related

**Table 1: Demographic and descriptive statistics regarding the attendees**

<i>Items</i>	<i>Frequency</i>	<i>%</i>
1. <i>How Many Times Did You Get Pregnant?</i>		
One	420	74
Two	128	22
Three	18	3
Four	4	1
2. <i>Have You Ever Experienced Abortion/Curettage?</i>		
Yes	62	11
No	508	89
3. <i>What Kind of Nutrition are You Caring for Mostly During Your Pregnancy Period?</i>		
a. Mainly fruits and vegetables	34	6
b. Meat and dairy products	128	22
c. Convenience foods and products	224	39
d. Liquids and desserts	126	22
e. Other products	58	10
4. <i>For How Many Years Have You Been Working?</i>		
a. 1-3	22	4
b. 4-6	128	22
c. 7-9	70	12
d. 10-12	118	21
e. 13-15	168	29
f. 16-20	48	8
g. 21+	16	3
5. <i>In which Sector are You Working?</i>		
Public	364	64
Private	206	36
6. <i>In which Type of Institution are you Working?</i>		
a. Training Research Hospital	224	39
b. University Hospital	200	35
c. Hospital	118	21
d. Community Health Centre	28	5
7. <i>What is Your Educational Status?</i>		
a. High school	112	20
b. College	318	56
c. University	94	16
d. Master's degree	34	6
e. Doctorate	12	2
8. <i>What is Your Duty?</i>		
a. Internal Medicine	372	65
b. Surgical Medicine	124	22
c. Midwife Gynecology	10	2
d. Psychiatry	38	7
Other	26	5
9. <i>What is Your Income?</i>		
a. 1500-1800	204	36
b. 1801-2000	300	53
c. 2001-2500	42	7
d. 2051-3000+	24	4
10. <i>Are You Benefiting from Private Health Insurance?</i>		
Yes	38	7
No	532	93
11. <i>Have You ever Experienced a Physiological Problem during Your Pregnancy Period?</i>		
Yes	14	2
No	556	98
12. <i>Which of the Following One are You Using?</i>		
a. Cigarette	282	49
b. Alcohol	70	12
e. None of them	118	21
f. Alcohol + Cigarette	100	18
13. <i>Do You Experience Social Domestic Problems Regarding Your Work and Occupation?</i>		
Yes	22	4
No	548	96

**Table 1: Contd...**

<i>Items</i>	<i>Frequency</i>	<i>%</i>
14. <i>Do You Use Social Media? If Yes, Which One?</i>		
a. Facebook	350	61
b. Twitter	54	9
d. All of them	152	27
e. None of them	14	2
15. <i>How Many Hours do You Exercise Daily?</i>		
a. 1 Hour	218	38
b. 2 Hours	226	40
c. 3 Hours	28	5
d. 4 Hours	70	12
e. 5+	28	5
16. <i>Generally What Kind of Exercise do You Perform?</i>		
a. Walking	472	83
b. Swimming	72	13
c. Fitness and Other Sports Activities	26	5
17. <i>Do Sports Activities Affect Your Pregnancy Negatively?</i>		
No	424	74
Yes	146	26
18. <i>For Which Reasons Are You Performing Sports Activities?</i>		
a. For my Health and Pregnancy	468	82
b. Habit	10	2
c. Doctor's Suggestion	46	8
d. without any reason	46	8
19. <i>Do/did Sports Activities Contribute to Your Physical and Mental Health During Your Pregnancy Period?</i>		
Yes	36	6
No	534	94
20. <i>Do You Think that Sports Activities Do Harm to Your Pregnancy?</i>		
Yes	32	6
No	538	94
21. <i>Do You Get Reactions from Your Environment –Family Regarding Your Sports Activities Because of Your Pregnancy?</i>		
Yes	56	10
No	514	90
22. <i>Do You Know That Sports Activities Will Mainly Provide Benefit for Your Own Health and Your Pregnancy Period and then Again for You and Your Baby?</i>		
Yes	542	95
No	28	5
23. <i>Does Your Spouse also Accompany You While you are Performing Sports Activities?</i>		
Yes	42	7
No	528	93
24. <i>Do You Recommend Pregnant People Around You to Do Sports Activities as a Future Mother?</i>		
No	32	6
Yes	538	94
25. <i>Do You Think that Your Pregnancy Period was Hard and Problematic?</i>		
Yes	38	7
No	532	93
26. <i>Do You Frequently Go for Check-ups and See Your Doctor Regarding Your Pregnancy?</i>		
No	70	12
Yes	500	88
27. <i>Did You Put on Weight More Than Normal Level During Your Pregnancy?</i>		
Yes	536	94
No	34	6
28. <i>For How Many Years Have You Been Married?</i>		
a. 1 year	302	53
b. 2-4 years	268	47
29. <i>How Old Are You?</i>		
a. 18-20	120	21
b. 21-25	262	46
c. 26-30	108	19
d. 31-35	42	7
e. 36-40	38	7



**Table 2: Factor analysis (Rotated Component Matrixa)**

	<i>Component</i>		
	<i>1</i>	<i>2</i>	<i>3</i>
Sports activities are important physically during pregnancy period	.699		
Sports activities are important physically during pregnancy period	-.677		
Sports activities are important physically during pregnancy period	.675		
Sports activities are important physically during pregnancy period	.655		
Sports activities are important physically during pregnancy period	-.615		
Sports activities are important physically during pregnancy period	.603		
Sports activities are important physically during pregnancy period	-.556		
Sports activities are important physically during pregnancy period	.533		
Sports activities are important physically during pregnancy period	.482		
Sports activities are important physically during pregnancy period	-.411		
Sports activities are important physically during pregnancy period	-.411		
Sports activities are important physically during pregnancy period	.388		
Sports activities are important physically during pregnancy period	.331		
Sports activities are important physically during pregnancy period	.231		
Sports activities are important mentally during pregnancy period		.712	
Sports activities are important mentally during pregnancy period		.616	
Sports activities are important mentally during pregnancy period		.606	
Sports activities are important mentally during pregnancy period		.601	
Sports activities are important mentally during pregnancy period		.573	
Sports activities are important mentally during pregnancy period		.364	
Sports activities are important mentally during pregnancy period		-.340	
Sports activities protect baby			.539
Sports activities protect baby			.516
Sports activities protect baby			.497
Sports activities protect baby			.480
Sports activities protect baby			.397
Sports activities protect baby			.373
Sports activities protect baby			.372
Sports activities protect baby			.341
Sports activities protect baby			.241

**Table 3: Number of pregnancy regarding scale dimensions and correlation analysis according to abortion or curettage situation**

	<i>1. How many times did you get pregnant?</i>	<i>2. Have you ever experienced abortion/curettage?</i>
18. Do sports activities affect your pregnancy negatively?	5%	5%
20. Do/did sports activities contribute to your physical and mental health during your pregnancy period?	7%	9%
21. Do you think that sports activities do harm to your pregnancy?	11%	1%

**Table 4: ANOVA test regarding scale dimensions according to number of pregnancy of the attendees**

		<i>Sum of squares</i>	<i>df</i>	<i>Mean square</i>	<i>F</i>	<i>Sig.</i>
1. Sports activities are important physically during pregnancy period	Between groups	20.442	3	6.814	7.031	.000
	Within groups	548.558	566	.969		
	Total	569.000	569			
2. Sports activities are important mentally during pregnancy period	Between groups	4.853	3	1.618	1.623	.003
	Within groups	564.147	566	.997		
	Total	569.000	569			
3. Sports activities protect baby	Between groups	1.908	3	.636	.635	.593
	Within groups	567.092	566	1.002		
	Total	569.000	569			

**Table 5: Chi-square test regarding abortion or curettage situation and educational status of the attendees**

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-square	4.786 <sup>a</sup>	4	.310
Likelihood ratio	4.449	4	.349
Linear-by-linear association	.676	1	.411
N of valid cases	570		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 1.31.

**Table 6: T test regarding scale dimensions according to abortion or curettage situation of the attendees**

	Levene's test for equality of variances		t-test for equality of means			
	F	Sig.	t	df	Sig. (2-tailed)	Mean difference
1. Sports activities are important physically during pregnancy period.						
Equal variances assumed	.082	.775	1.395	568	.164	.18749582
Equal variances not assumed			1.371	75.968	.174	.18749582
2. Sports activities are important mentally during pregnancy period.						
Equal variances assumed	32.157	.000	2.018	568	.044	.27073422
Equal variances not assumed			3.230	122.415	.002	.27073422
3. Sports activities protect baby						
Equal variances assumed	.000	.984	1.526	568	.028	.20506724
Equal variances not assumed			1.515	76.348	.034	.20506724

significance values are lower than 0.05. Therefore, basic hypotheses about these questions will be rejected. Statements of “Sports activities are important physically during pregnancy period”, (those having education of university agree more) “it is important mentally” (those having education of university agree more) and “Sports activities protect baby” (those having education of above master’s degree agree more) differ by educational status (Table 7).

#### **H6: Sector of employment does not differ by factors**

When factors according to sector of employment are examined, it is seen that values of 1<sup>st</sup> and 2<sup>nd</sup> items among related significance values are lower than 0.05. Therefore, basic hypotheses about these questions will be rejected. Statements of “Sports activities are important physically during pregnancy period” (private sector agrees more) and “it is important mentally” (pri-

**Table 7: Chi-square test regarding scale dimensions according to educational status of the attendees**

	1. Sports activities are important physically during pregnancy period	2. Sports activities are important mentally during pregnancy period	3. Sports activities protect baby
Chi-square	8.405	16.985	8.485
df	4	4	4
Asymp. Sig.	.008	.002	.005

a. Kruskal Wallis Test

b. Grouping Variable: 8. What is your educational status?



vate sector agrees more) differ by sector of employment (Table 8).

**H7: Reason of performing sports activities does not differ by factors**

When factors according to reason of performing sports activities are examined, it is seen that values of 1<sup>st</sup> and 2<sup>nd</sup> items among related significance values are lower than 0.05. Therefore, basic hypotheses about these questions will be rejected. Statements of “Sports activities are important physically during pregnancy period” (those taking doctor recommendation agree

more) and “it is mentally important” (those thinking that it is because of their health agree more) differ reason of performing sports activities (Table 9).

**H8: Abortion or curettage is independent from age**

When abortion or curettage situation is examined according to age, it is seen that significance value is lower than 0.05. Therefore, it was determined that low level of curettage situation was not independent from age. The highest curettage level was found in 21-25 age group (Table 10).

**Table 8: Jonckheere-Terpstra Test regarding scale dimensions according to sectors of employment of the attendees**

	1. Sports activities are important physically during pregnancy period	2. Sports activities are important mentally during pregnancy period	3. Sports activities protect baby
Number of Levels in 5. In which sector are you working?	2	2	2
N	570	570	570
Observed J-T Statistic	44240.000	32692.000	39060.000
Mean J-T Statistic	37492.000	37492.000	37492.000
Std. Deviation of J-T Statistic	1888.901	1888.901	1888.901
Std. J-T Statistic	3.572	-2.541	.830
Asymp. Sig. (2-tailed)	.000	.011	.406

a. Grouping Variable: 5. In which sector are you working?

**Table 9: ANOVA Test regarding scale dimensions according to attendees’ reasons of performing sports activities**

		Sum of squares	df	Mean square	F	Sig.
1. Sports activities are important physically during pregnancy period	Between Groups	3.904	3	1.301	1.303	.002
	Within Groups	565.096	566	.998		
	Total	569.000	569			
2. Sports activities are important mentally during pregnancy period	Between Groups	5.740	3	1.913	1.923	.025
	Within Groups	563.260	566	.995		
	Total	569.000	569			
3. Sports activities protect baby	Between Groups	1.118	3	.373	.371	.774
	Within Groups	567.882	566	1.003		
	Total	569.000	569			

**Table 10: Chi-square test regarding abortion or curettage situation and age variable of the attendees**

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-square	11.771 <sup>a</sup>	4	.019
Likelihood ratio	12.190	4	.016
Linear-by-linear association	4.800	1	.028
N of valid cases	570		

a. 2 cells (20.0%) have expected count less than 5. The minimum expected count is 4.13.

## DISCUSSION

The phenomenon of woman which is one of the basic elements of communal richness and social mobility takes place at the center of vital activity. The existence of woman affects all elements of society positively and meaning and mission attributed to woman include a wide scope. One of these is maternity. Maternity brings in a different dimension for the existence of woman with its emotional and social content except from being just a woman. We can say that women acting with maternity mood are accepted as a starting point in developing and protecting social health. Thus, women leading a healthy life starting from pregnancy and taking precautions for this will provide healthy child-bearing as well. In this context, women participation in physical and sports activities during pregnancy will contribute to the health of both future mothers and babies.

Within the scope of the research, it was found that future mothers who permanently participated in periodical physical activities could stay healthy physically and mentally and babies would also be affected positively in terms of health.

Sufficient physical activity level of future mothers during pregnancy is pretty beneficial physically and psycho-socially for both mothers and babies (Thompson et al. 2015).

Women's participating in regular physical activities during pregnancy provides significant benefits in long term in terms of health for both mothers and babies. However, many pregnant women keep away from the benefits of exercise regarding health because of insufficient activity level (Hayman et al. 2015).

Women's participating in regular physical activities during pregnancy period may remove the possibility of caesarean and it is stated that normal (vaginal) delivery is better for both maternal and infant health. Therefore, it can be said that future mothers should be active as far as possible during pregnancy (Domenjuz et al. 2014).

Many pregnant women do not participate in physical activities. However, participating in physical activities during pregnancy period is important in preventing chronic tension, diabetes and lots of routine disorders depending on pregnancy. Furthermore, regular physical activity is also significant for infant health. Contrary

to popular belief, regular exercise does not do any harm to the baby. However, many women are not aware of the benefits of participating in regular physical activities (Wadsworth 2007).

We can say that future mothers possess the wrong information that they should not move so much during pregnancy because of insufficient information or knowing some truths as myths especially concerning pregnancy. Contrary to the popular belief, mobility and regular exercise is pretty beneficial for both maternal and infant health.

In a research carried out by Yalçın and Tekin (2013), it was stated that the attendees had information about performed exercises, but they did not possess enough and correct information about those exercises (Yalçın and Tekin 2013). It is seen that some wrong beliefs should be corrected and future mothers should be informed sufficiently. Gaston and Cramp (2011), point out that participating in regular physical activities during pregnancy is crucial for direct effect of these exercises on physical and mental health of women.

In a research carried out by Evenson and Bradley (2010) among pregnant women, 78 percent of women stated that they performed regular exercise and 89 percent of them specified that an active pregnancy process was better than an inactive pregnancy period (Evenson and Bradley 2010).

Exercise is an important part of healthy life and it can also be applied during pregnancy period by obeying certain rules. Exercise performed during pregnancy will contribute to better functioning of respiratory and circulatory system as well as helping control your weight, increasing self-confidence, having positive feelings and feeling more fit (<http://gebelik.org/dosyalar/egzersiz.html>, 1 February 2016).

Exercise during pregnancy enables future mother feel better both physically and mentally; decreases backaches; fixes body disorders; provides a normal delivery; decreases labor pain; helps fast recovery of the body in postnatal period for mother and increases self-confidence of the mother (Agaoglu 2015).

The process of pregnancy is a pretty sensitive period for women. Certainly, regular exercise and physical activity have a positive effect on both mother and baby. However, these activities should be determined by taking into account their severity and intensity. The severity

and intensity of these activities and exercises must be suitable for future mother.

It is pretty suitable for women during pregnancy period to participate in activities such as walking, swimming, light weightlifting, performing step and aerobics (Evenson et al. 2004). Pregnancy is no longer considered a state of confinement; an active lifestyle during pregnancy is safe and beneficial. Most medical and scientific organizations promote physical activity in all phases of life, including pregnancy (Perales et al. 2017).

#### Other Results Acquired from the Study

- ◆ There is a low level negative relationship between the number of pregnancy and opinion that sports activities affect pregnancy negatively.
- ◆ There is a low level positive relationship between the number of pregnancy and opinion that sports activities contribute to physical and mental health during pregnancy period.
- ◆ There is a low level positive relationship between the number of pregnancy and opinion that sports activities do harm to pregnancy.
- ◆ There is a low level negative relationship between abortion or curettage and opinion that sports activities affect pregnancy negatively.
- ◆ There is a low level positive relationship between abortion or curettage and opinion that sports activities contribute to physical and mental health during pregnancy period.
- ◆ There is a low level positive relationship between abortion or curettage and opinion that sports activities do harm to pregnancy.
- ◆ Statements of “Sports activities are important physically during pregnancy period” (2 and above agree more) and “important mentally” (2 and above agree more) differ by number of pregnancy.
- ◆ It was determined that abortion or curettage situation was independent from the level of education.
- ◆ Statements of “Sports activities are important mentally during pregnancy period” (those having experienced abortion or curettage agree more) and “Sports activities protect baby” (those having experienced abortion or curettage agree more) differ by abortion or curettage situation.
- ◆ Statements of “Sports activities are important physically during pregnancy period” (private sector agrees more) and “it is important mentally” (private sector agrees more) differ by sector of employment.
- ◆ Statements of “Sports activities are important physically during pregnancy period” (those taking doctor recommendation agree more) and “it is mentally important” (those thinking that it is because of their health agree more) differ reason of performing sports activities.
- ◆ It was determined that low level of curettage situation was not independent from age.

#### CONCLUSION

Physical activity and exercise programs are pretty important in developing and protecting social health. This becomes even more important for future mothers when it comes to them and their infants. Contrary to popular belief, exercise programs whose severity and density are well-regulated help women experience a healthy pregnancy period. Both the result of this research and findings taking place in national and international literature suggest that women should be active during their pregnancy. Moreover, it can be stated that active social structure can be improved by completing the process of pregnancy both physically and socially for maternal and infant health.

#### REFERENCES

- Agaoglu SA 2015. Kadin sagligi ve egzersiz. *Spor ve Performans Arastirmalari Dergisi*, 6(2): 67-72.
- Akbayrak T, Kaya S 2012. *Gebelik ve Egzersiz*. Ankara: Ministry of Health Publication No: 730, P. 7.
- Barakat R, Cordero Y, Cation J, Luaces M, Montejó R 2012. Exercise during pregnancy improves maternal glucose screen at 24–28 weeks: A randomised controlled trial. *Br J Sports Med*, 46: 656–661.
- Butler CL, Williams MA, Sorensen TK, Frederick IO, Leisenring WM 2004. Relation between maternal recreational physical activity and plasma lipids in early pregnancy. *American Journal of Epidemiology*, 160(4): 350-359.
- Domenjoz I, Kayser B, Boulvain M 2014. Effect of physical activity during pregnancy on mode of delivery. *American Journal of Obstetrics and Gynecology*, 211(4): 401-411.
- Dye DT, Knox KL, Artal R, Aubry RH, Wojtowycz MA 1997. Physical activity obesity and diabetes in preg-

- nancy. *American Journal of Epidemiology*, 146(11): 961-965.
- Evenson KR, Savitz DA, Huston SL 2004. Leisure-time physical activity among pregnant women in the US. *Paediatr Perinat Epidemiol*, 18: 400-407.
- Evenson KR, Bradley CB 2010. Beliefs about exercise and physical activity among pregnant women. *Patient Education and Counseling*, 79(1): 124-129.
- Gaston A, Cramp A 2011. Exercise during pregnancy: A review of patterns and determinants. *Journal of Science and Medicine in Sport*, 14(4): 299-305.
- Gebelikte Egzersiz Ve Spor 2013. From <<http://gebelikte.org/dosyalar/egzersiz.html>> (Retrieved on 1 February 2016).
- Hayman M, Short C, Reaburn P 2015. An investigation into the exercise behaviours of regionally based Australian pregnant women. *Journal of Science and Medicine in Sport*, (In Press).doi: 10.1016/j.jsams.2015.09.004.
- Hinman SK, Smith KB, Quillen DM, Smith MS 2015. Exercise in pregnancy: A clinical review. *Sports Health*, 7(6): 527-531.
- Öztürk E 2003. Sabah sporlarına katılan ev hanımlarının spor konusundaki bilgileri, ilgileri ve görüşlerinin incelenmesi. *Istanbul Üniversitesi Spor Bilimleri Dergisi*, 11(3): 151-156.
- Perales M, Artal R, Lucia A 2017. Exercise during pregnancy. *JAMA*, 317(11): 1113-1114. doi:10.1001/jama.2017.0593
- Simsek M, Kutlu M, Yücel N, Kaya F, Kaya N, Ocak Y 1997. Gebelik süresince yapılan hafif nitelikli düzenli egzersizin gebelerdeki fiziksel ve fizyolojik etkileri. *Perinatoloji Dergisi*, 5(3): 95-100.
- Stutzman SS 2010. The effects of exercise conditioning in normal and overweight pregnant women on blood pressure and heart rate variability. *Biological Research for Nursing*, 12(2): 137-148.
- Thompson EL, Vamos CA, Daley EM 2015. Physical activity during pregnancy and the role of theory in promoting positive behavior change: A systematic review. *Journal of Sport and Health Science*, (in press).
- Wadsworth P 2007. The benefits of exercise in pregnancy. *The Journal of Nurse Practitioners*, 3(5): 333-339.
- Wiebe HW, Boulé NG, Chari R, Davenport MH 2015. The effect of supervised prenatal exercise on fetal growth. *Obstet Gynecol*, 125(5): 1185-1194.
- Yalçın H, Tekin M 2013. Gebelikte egzersizler hakkındaki gebelerin bilgi düzeylerinin değerlendirilmesi. *International Journal of Human Sciences*, 10(1): 24-33.
- Yin Y, Li X, Tao T, Luo B, Liao S 2014. Physical activity during pregnancy and the risk of gestational diabetes mellitus: A systematic review and meta-analysis of randomised controlled trials. *Br J Sports Med*, 48: 290-295.

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**Paper received for publication on February 2016**  
**Paper accepted for publication on October 2017**