

BEHAVIOR OF PREGNANT WOMEN IN RELATION TO ADHESION TO AND PERIOD OF COMPLIANCE WITH A WATER AEROBICS PROGRAM

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ABSTRACT:

Water aerobics is recommended to pregnant women, but there are few studies analyzing adherence or compliance of pregnant women with exercises. The objective of this study is verifying and characterizing the behavior of pregnant women who practice water aerobics, in regards to the average gestational age upon adhesion (GAA) to the program, average period of compliance (PC) with it and the average gestational age upon interruption (GAI) of the program. A survey was conducted through the database of a gym in Porto Alegre, between 2001 and 2005, with 308 pregnant women, from classes A and B⁺, average age 32.14 ± 4.01 years. The Shapiro-Wilk test for normality and descriptive statistics was utilized in order to analyze measures of central tendency, using the statistical package SPSS, version 11.0. The results in gestational weeks (GW) showed that the GAA was 18.71 ± 5.62 (GW), the PC was 14.85 ± 7.09 (GW) and the GAI was 32.76 ± 4.01 (GW). Only 19.15% (59) of the pregnant women were exercising prior to adhering to the program, and the 80.85% who did not practice any physical activity regularly, started to practice water aerobics after they got pregnant. Most of the pregnant women (91.88%) waited until the end of the first trimester to adhere to the water aerobics program; most of them (76.29%) exercised during the second semester; and some (36.7%) went on practicing water aerobics after the 37th week.

KEYWORDS: normal pregnancy, water aerobics, compliance, adhesion.

INTRODUCTION

The number of women that adhere to or comply with an exercising program during the gestational period is considerable (BATISTAL et al., 2003). In this setting, regular exercises are an important factor to promote and maintain women healthy, in every age and situation, including during pregnancy and the period post-pregnancy (LEITÃO et al., 2000). Pregnancy is a distinctive period, due to several physiological and endocrinological adjustments to create the ideal environment for the fetus (ARTAL et al., 1999).

Many women already exercise before getting pregnant and continue to do it, or start during pregnancy (PREVEDEL et al., 2003). Therefore a pregnancy should not be a period of seclusion, and women should be encouraged to lead an active lifestyle, given that they do not present any medical or obstetric condition (ARTAL et al., 1999). The recommendation for exercises to pregnant women have transformed according to the social cultural contexts of the period, and there have also been times in which exercising was not recommended at all (LEITÃO et al., 2000). Estimates indicate that at least 40% of the women in the United States exercise during pregnancy (McARDLLE et al., 2003). Exercising is recommended during pregnancy both for active and inactive women, and aerobic and muscle conditioning exercises should be part of the program (SANTOS et al., 2005). In face of that, exercising during pregnancy has beneficial side effects, including improvement in the physical disposition, better control of the body weight and increase in strength and resistance (LARSSON & LINDQVIST, 2005). Some types of exercise, such as water exercising, walking and bicycling are standing out as beneficial during the gestational period (BATISTAL et al., 2003). Activities in water have been increasing and developing over time, more specifically water aerobics (BAUM, 2000).

The main advantages of water aerobics during pregnancy in relation to land exercises are less articular stress, reduction of the gravitational strengths, easiness to withstand the body weight and improvement in the articular mobility (LARSSON & LINDQVIST, 2005), helping reduce edema and increase diuresis (HARTMANN & HUCH, 2005). Aerobics in water allows pregnant women to continue exercising as the fetus grows. Women who were already exercising prior to the pregnancy need to adapt their exercise program (KATZ, 1999). In the study of Prevedel et al. (2003), water aerobics did not cause prematurity or low weight in newborns and helped with the correct postnatal metabolic and cardiovascular adaptation. This result is important in order to emphasize the benefits of water exercises for pregnant women.

Even though the practice of water aerobics by pregnant women has increased in the last years and more and more exercising during pregnancy is being seen as beneficial and safe to both mother and baby, there are few studies relating compliance or adhesion of this population to exercising programs. This topic, compliance or adhesion to exercises is being studied by countless authors, therefore revealing behavior patterns, in relation to physical activities, population, age group, gender, social class and schooling. According to Barbanti (1994), compliance is the constant participation in exercising programs, either individually or in group, previously structured or not. In relation to the topic under study, the analysis conducted by Okuma (1994) makes evident that researches and studies on compliance with physical activity programs have increased significantly, which also increases the interest of researchers from different fields.

Adhesion to an activity, especially to exercising, requires from the individual an effort to alter routine and the initiative to motivate changes (TAHARA, 2004). According to Lico & Darido (2001), the reasons that individuals who practice Physical Education at School to not adhere to exercises are, in order of importance, lack of time, disliking the sport, laziness, lack of money and health problems. Tahara et al. (2003) analyzed adhesion to and compliance with exercising in gyms, and the fact most mentioned as a difficulty to comply with regular exercising was lack of time. As for motivation and interest, Berger (1996) states that “discovering and outlining the personal meanings in sports and exercises might help achieving a healthy lifestyle”. For the author, personal meaning is related to the

reason for exercising, which can pleasure, fun, awareness and improvement in quality of life. The influence of family and friends is also very important to help comply with a physical activity, because this social support encourages the individual to remain physically active (DISHMAN, 1988). Tahara et al. (2003) stated that in addition to family there is also the influence of the media, and they are important factors in adhering to and complying with exercising.

There are studies on compliance with exercising in gyms, indoor soccer, nature adventure, leisure, *capoeira* (an Afro-Brazilian dance that incorporates self-defense maneuvers), dancing and physical activities for the elderly. However, in relation to pregnancy and exercises, there are few studies. Since the topic of compliance of pregnant women with exercises is not clarified in the literature, this behavior is described in this study, both to measure the period of time that women keep practicing a physical activity during pregnancy and to have more information on the influences of the gestational period on a water aerobics program.

In face of these considerations, the objective of this study is verifying and characterizing the behavior of pregnant women who practice water aerobics, in regards to the gestational age upon adhesion, period of compliance and gestational age upon interruption of the program.

MATERIALS AND METHODS

The population consisted of 308 pregnant women, with average age of 32.14 ± 4.01 years and gestational age between 5 and 40 weeks. They all took part in a water aerobics program for pregnant women in a gym in Porto Alegre. The criteria to be included in the water aerobics program were: presenting a medical certificate, authorizing the women to practice a physical activity and filling a form with their history. The procedures for selection were conducted using a database with data from 2001 to 2005, considering the analysis of the initial form in order to characterize the population and the heart rate and blood pressure chart filled once a week to verify the student's attendance in the water aerobics program. With the data, we verified the average gestational age upon adhesion (GAA), the average period of compliance (PC) and the average gestational age upon interruption (GAI) of the water aerobics program. We also investigated the average age of the population, the different kinds of sports they were practicing before the pregnancy, such as walking, yoga, bodybuilding, water aerobics, swimming, stretching, pilates, localized exercises, paddle and exercise bike, by means of a questionnaire with open-ended questions. According to the demographic analysis conducted by the gym (in agreement with ABEP – Associação Brasileira de Empresas de Pesquisa, *Brazilian Association of Market Research Companies*), the population of this study belongs to classes A and B⁺.

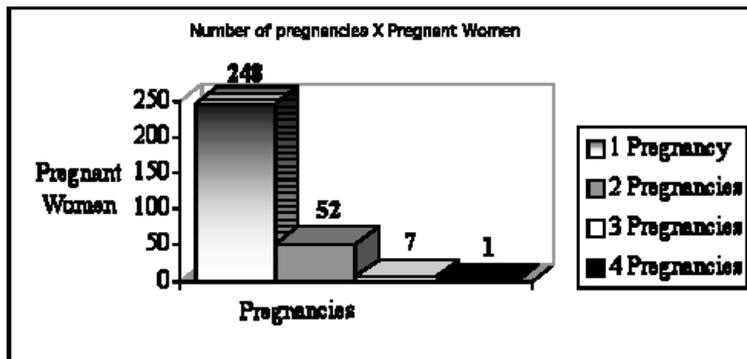
The water aerobics sessions were conducted in a swimming pool with immersion depth ranging from the umbilical scar to the xiphoid appendix, and water temperature between 30-32°C. The intensity was controlled using Borg's Perceived Exertion Scale (SSE), sustaining the effort between index 13 (corresponding to mild intensity) and 14 (corresponding to a level before intense-heavy). The participants underwent a training to use Borg's scale correctly.

To examine the data, we used the Shapiro-Wilk test for normality and descriptive statistics to analyze measures of central tendency, such as mean and standard deviation, using the statistical package SPSS, version 11.0.

RESULTS

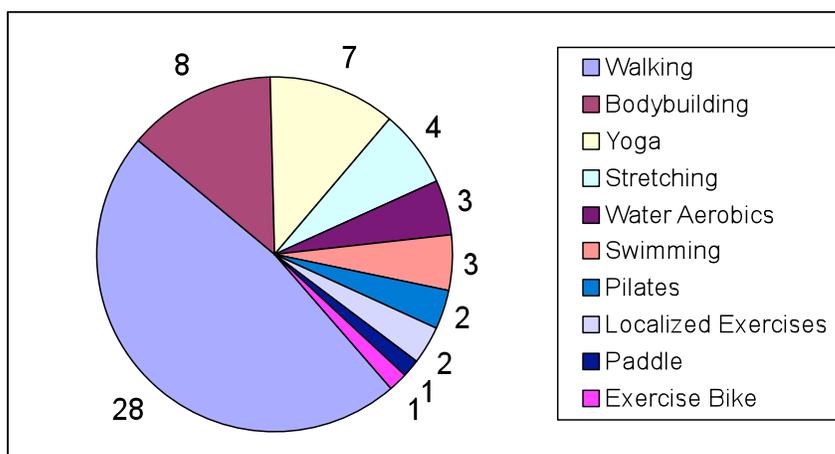
From the 308 pregnant women, 248 (80%) were primigravida. Only one of the pregnant women was in her fourth pregnancy. The primigravidas had their babies with an average age of 32.14 ± 4.01 years (Chart 1).

CHART 1- Number of pregnancies related to the number of pregnant women.



Fifty-nine pregnant women (19.15%) were practicing some kind of sport prior to the pregnancy. The kind of exercise most practiced by the group of active women (prior to the pregnancy) was walking, representing 47.45% (28 pregnant women) of the total (Table 1). Most of the women analyzed (80.84% - 249 pregnant women) did not exercise at all prior to adhering to the water aerobics program.

TABLE 1- Types of sports practiced by 59 pregnant women, prior to the pregnancy.



The results regarding gestational age upon adherence to the water aerobics program were 18.71 ± 5.62 gestational weeks. A pregnancy lasts approximately 40 weeks, which means that the pregnant women were, in average, in their fourth month of pregnancy when they started the physical activity. The PC with water aerobics was 14.85 ± 7.09 weeks, representing over three months of pregnancy practicing a physical activity regularly. The ending or interruption of the program was 32.76 ± 4.01 gestational weeks, or eight months of pregnancy. Only 36.7% of the pregnant participants went on practicing water aerobics after the 37th week of pregnancy.

DISCUSSION

According to Leitão et al. (2000), exercising during pregnancy is recommended in the total absence of abnormalities, upon specialized medical evaluation.

The results of this study made evident that compliance of pregnant women with the water aerobics program depended upon countless factors that may have interfered in the permanence of the population in the program.

We consider that a GAA of 19 weeks was late to adhere to the water aerobics program. It is likely that a reasonable number of pregnant women would have adhered earlier. According to Katz et al. (1999), exercising regularly is the reality for many women, and they maintain the exercises or adhere to them during pregnancy. In the present study, only 59 pregnant women (19.15%) exercised before adhering to the water aerobics program.

The PC with the water aerobics program was 15 weeks in average, and considering that a pregnancy lasts approximately 40 weeks, we established that the population exercised during 37.5% of the pregnancy. Numerous are the factors that motivate pregnant women to adhere to and comply with exercising during pregnancy: maintenance of the physical condition and health, reduction of gestational symptoms and delivery stress, better control of body weight, better recovery post-birth, improvement in the venous return, preventing the appearance of varices in the inferior members and improvement in the irrigation conditions of the placenta (LEITÃO et al., 2000). These are the possible reasons that determine adherence to and compliance with an exercising program. This type of exercise is positive to pregnant women due to its low articular impact (KRUEL, 2000), the increase in the venous return by the hydrostatic pressure (KATZ, 2003), reduced heart rate and blood pressure (ALBERTON et al., 2003), and for avoiding the supine position (ARTAL et al., 2003). According to Sorensen et al. (2003), the women who adhere in the beginning of the pregnancy to an exercising program may present 35% less risk of developing preeclampsia than sedentary pregnant women. When the women exercised intensely, this relation increased to 54%.

The average gestational age upon interruption (GAI) of the program was 32.76 ± 4.01 weeks. This period of time represents approximately the eighth gestational month, and this can be explained through the signs for interrupting the exercises, such as vaginal bleeding; abdominal or chest pain; vaginal discharge; dizziness, nausea and vomiting; sharp pain in the pubic region or in the hips; oral temperature over 38°C; contractions; palpitations and shortness of breath (HANLON et al., 1998). We cannot be sure that these were the reasons for the interruption of the water aerobics program, since this data was not analyzed in the study; it can be examined in a posterior research. However, they are

possible reasons that justify interrupting or leaving the program. We consider that the gestational age upon interrupting or leaving the water aerobics program is acceptable, due to the pregnant state and all the repercussion it could, as previously described, cause. In the last month of the program, 36.7% of the pregnant women were still practicing water aerobics, which means that little over 1/3 of the population kept on exercising. That confirms that pregnancy is a period of countless physiological and endocrinological changes, which lead the women to a series of adaptations to their own bodies and their babies, and they might affect the practice of a regular physical activity.

It is important to highlight that there is still a lot to be researched concerning the level of compliance with or adhesion of pregnant women to a water aerobics program and also to other types of physical activities, since there are not many studies in the literature related to these topics.

CONCLUSION

In our study most of the pregnant women waited until the end of the first trimester of pregnancy to adhere to the water aerobics program. Most of them exercised throughout the second trimester, but few remained in the last month of the water aerobics program. The fact that they were pregnant motivated most of the population under study to adhere to the program, since prior to the pregnancy they did not exercise at all.

We recommend future studies in order to identify the main causes for this behavioral pattern and to analyze the reasons, suggesting strategies so that this population can improve their level of adhesion during pregnancy.

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