



Factors related to exercise over the course of pregnancy including women's beliefs about the safety of exercise during pregnancy

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Abstract

Objective: to explore pregnant women's exercise patterns across pregnancy, reported reasons for exercising or not exercising, beliefs about the safety of exercise during pregnancy and the association of those beliefs with the amount and intensity of exercise that women participated in.

Design: a prospective questionnaire-based approach was implemented over three pregnancy time points 8 weeks apart, with retrospective pre-pregnancy data obtained at the first time point.

Setting: participants were mailed questionnaires at 16–23-weeks pregnancy (T1), 24–31-weeks pregnancy (T2), and 32–38-weeks pregnancy (T3).

Participants: a total of 158 pregnant women participated.

Measurements: at 16–23-weeks pregnancy women completed an Exercise Safety Beliefs Questionnaire in which they described their beliefs about the safety of *low to medium exercise*, *high intensity exercise*, *gentle exercise*, and *weight bearing exercise*. At T1, T2 and T3 reasons for exercising and not exercising were described, and participants maintained a 1-week exercise diary in which they recorded amount and intensity of physical activity. Physical symptoms experienced over time were also reported.

Findings: the amount and intensity of exercise decreased over the course of pregnancy, with main reasons for not exercising including feeling tired or unwell, being too busy, and, particularly in late pregnancy, exercise being uncomfortable. Some women also reported safety concerns. Safety concerns predicted amount and/or intensity of exercise.

Key conclusions: overall, most women had clear beliefs about what forms of exercise were safe or not safe during pregnancy. Women who rated *gentle* and *low to medium exercise* as unsafe reported engaging in less intense and fewer minutes of exercise.

Implications for practice: information and discussion about ways to exercise safely, enjoyably, and comfortably should be offered to pregnant women by health professionals in early pregnancy, when safety beliefs may impact on women's exercise patterns across pregnancy, and throughout pregnancy since the most appropriate forms of exercise may need to be modified over time.

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Introduction

Increasing evidence supports the importance of exercise for individual health. Being active can reduce the risk of diseases such as osteoporosis (Welten et al., 1994), cardiovascular disease (Berlin and Colditz, 1990), type II diabetes (Manson and Spelsberg, 1994; Macdonald et al., 2006), colon cancer (Slattery et al., 1997), and obesity (Cortright et al., 2006). Regular exercise has also been shown to be effective in managing stress (Simonsick, 1991), alleviating depression (Morgan, 1994; Bartholomew et al., 2005; Galper et al., 2006), boosting self-esteem (Simonsick, 1991) and enhancing body image (Williams and Cash, 2001; Suris and Parera, 2005).

An awareness that exercise is important in promoting health and well-being has led to many women wanting to continue exercising during pregnancy (Da Costa et al., 2003). Traditionally, pregnant women have been advised to restrict exercise due to concerns for the health of the mother and her fetus, including risks of over heating; impaired delivery of oxygen and nutrients to the fetus; and premature labour (American College of Obstetricians and Gynaecologists, 1985). While no study has found any negative effect of moderate intensity aerobic exercise on pregnancy outcome in a normal, healthy pregnancy (Lokey et al., 1991; Bell et al., 1995; Sternfeld et al., 1995), the safe limits for exercise during pregnancy have not been determined.

The American College of Obstetricians and Gynaecologists (ACOG) guidelines for exercise during pregnancy aim to assist practitioners involved in the management of pregnant women, and the women themselves, in considering risks and benefits of exercise during pregnancy and deciding about participation. The 1985 ACOG guidelines recommended against vigorous exercise during pregnancy for previously sedentary women and those with adverse symptoms during pregnancy. Other women were advised to limit high impact activity, exercise intensity (≤ 140 beats/min), and exercise duration (≤ 15 min sessions). More recent ACOG guidelines (2002) acknowledged that participation in a range of exercise and recreational activities appeared to be safe during pregnancy. However, pregnant women were advised that each activity should be reviewed individually for its potential risk. If no medical or obstetric complications were present the guidelines recommended 30 min or more of moderate exercise on most, if not all, days. The guidelines acknowledged that there was little information available regarding vigorous exercise and women were advised to consult their

health practitioners if considering strenuous exercise during pregnancy.

It has been suggested that uncertainty surrounding the safety of exercise during pregnancy leads women to stop or reduce exercising because of concerns for their unborn child (Ezmerli, 2000; Clarke and Gross, 2004) and increased risk of maternal falls and injury (Clarke and Gross). However, we are not aware of research that has examined whether there is an association between pregnant women's beliefs about the safety of exercise and their levels of exercise participation during pregnancy.

Therefore, this prospective study followed women across pregnancy, to examine their beliefs about the safety of exercise during pregnancy and whether these beliefs were associated with the amount or the intensity of exercise engaged in over time. The study also explored the amount and intensity of exercise that women participated in across pregnancy and reasons women reported for exercising or not exercising during pregnancy.

Method

In this study, women in the early phases of their pregnancy were recruited from the general population and completed questionnaires and a 1-week exercise diary at 16–23-weeks gestation (T1), 24–31-weeks gestation (T2), and 32–38-weeks gestation (T3). Approval for this study was obtained from the La Trobe University Human Ethics Committee. The study reported here was part of a larger project on women's experiences across pregnancy—only measures relevant to this study are described here.

Recruitment and participants

Advertisements were placed in local newspapers and community newsletters (such as pregnancy exercise providers and mothers groups) and on pregnancy websites requesting volunteers for pregnancy research. Private obstetricians and gynaecologists were also contacted and if they consented, flyers were sent to their rooms to be placed in their waiting rooms. The advertisements invited women who were in the early phases of pregnancy to participate in a longitudinal study investigating 'a range of life style factors during pregnancy.' In the advertisements, women interested in participating were directed to contact the researchers by telephone or email and study

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