

Progress in Research During Pregnancy and Postpartum Exercise

Jingxuan Liu¹, Na Zhou*

1. Dali University, Dali 671000, China.

2. The Third People's Hospital of Yunnan Province, Kunming 650000, China.

Abstract: As our two children, three policy, older pregnant women also increasing, in order to avoid risk, appropriate exercise during pregnancy also increasingly attention, in addition, studies have shown that lack of exercise during pregnancy, can lead to natural birth difficulty increase, but the national requirements to reduce cesarean section rate, and research confirmed that pregnancy and postpartum exercise can reduce adverse birth outcomes, is conducive to postpartum recovery, so now more and more people will focus on the movement during pregnancy, also realized the importance of movement.

Keywords: Exercise During Pregnancy; Birth Outcomes; Importance

Introduction

Numerous studies have shown that exercise during pregnancy and postpartum is not only good for the fetus, but also for the mother. But the current situation is not optimistic, and very few pregnant women can do exercise during pregnancy. At the same time, China has no specifically for pregnancy and postpartum sports guidelines or expert consensus, so this paper will combine Canada, the United States, Australia and the asia-pacific region during pregnancy and postpartum sports activity guide consensus, and research on pregnancy and postpartum exercise in recent years, clinical care and future direction research to provide reference.

1. The status quo of exercise during pregnancy in China

Due to the traditional Chinese view that activity should be reduced during pregnancy, the vast majority of pregnant women almost spend the whole pregnancy sitting quietly except for daily life. Now, especially in developed countries, they have proved that exercise during pregnancy is beneficial to the fetus and the mother, while exercise does not increase the adverse delivery outcomes. Studies in China have also shown that exercise during pregnancy can shorten the second course of labor and is beneficial to the recovery of postpartum pelvic floor muscles. But studies have shown that more than 20 percent of pregnant women have little physical activity every day^[1]. Moreover, the "Healthy China 2030" planning outline also clearly points out that pregnant women should actively carry out exercise. Although exercise during pregnancy is beneficial to the pregnant woman and the fetus, the current situation of exercise during pregnancy in China still needs to be improved. A survey of 15 Chinese provinces showed that 9.1 percent of pregnant women were consistently physically inactive throughout pregnancy, and only 36.2 percent could maintain the activity their bodies need^[2].

2. The benefits of the exercise

Prenatal exercise is considered as a first-line, preventive and therapeutic approach to reduce pregnancy complications and optimize maternal-fetal health. Guidelines experts recommend encouraging physical exercise throughout pregnancy in the absence of exercise contraindications and pregnancy complications^[3].

2.1 Benefits of exercise during pregnancy

Studies have shown that regular exercise during pregnancy for pregnant women's physical and mental health, but also can help the weight management, the 2021 Asia Pacific consensus: pregnancy and postpartum physical activity and exercise will Asia prepregnancy body mass index (BMI) category of optimal gestational weight gain (GWG) defined as underweight of 19.5 kg, normal weight of 13.7 kg, overweight 7.9 kg, obese women is 1.8 kg^[4]. Therefore, prenatal physical exercise is beneficial to control the body mass index (BMI) and pregnancy weight gain (GWG) of pregnant women, and then significantly improve blood sugar, reduce the occurrence of gestational diabetes and avoid obesity; Meanwhile, pregnancy exercise can reduce neonatal complications, reduce preeclampsia, premature birth, pregnancy hypertension and lumbar-pelvic pain, reduce caesarean section, device delivery and postpartum weight gain, prevent postpartum depression and postpartum and urinary incontinence, promote postpartum recovery and shorten postpartum rehabilitation time^[3,4,5,6].

2.2 Postpartum exercise benefits

The guidelines strongly recommend that all pregnant women undergo pelvic floor muscle exercises (pelvic floor muscle training, PFMT) during pregnancy and postpartum, and that starting PFMT before delivery can reduce the incidence of postpartum urinary incontinence in about 30% of European women^[5], PFMT should be started immediately after normal vaginal delivery and cesarean delivery^[4]. There is also evidence that postpartum aerobic exercise reduces the symptoms of maternal postpartum depression and that regular aerobic exercise in lactating women can improve their cardiovascular health^[6].

3. Exercise advice

Experts suggest that pregnant women should carry out physical exercise for no less than 3 days a week, and should accumulate at least 150 min of moderate-intensity physical activity per week^[3,4]. Pregnant women are encouraged to combine aerobic exercise and resistance training to exercise, and aerobic exercise is safe and encouraged to start in the first trimester of pregnancy for approximately 30-60 min per day, at least 3-4 times per week until delivery^[4]. However, exercise should follow a gradual process, gradually increasing the time and frequency. For special pregnant women, such as highly inactive, the speed of progress should be slower. Meanwhile, it is recommended that pregnant women should have pelvic floor muscle exercise throughout pregnancy.

3.1 Type of movement

The guidelines recommends moderate intensity exercise including aerobic and resistance training, aerobic exercise, including brisk walking, modified yoga, modified Pilates, swimming, stationary cycling, jogging, etc.; resistance training such as squatting, lunges and push-ups; light dumbbell lifting exercises and resistance belt exercises; and moderate weight bearing and daily housework, such as gardening and window washing^[3,4].

3.2 Exercise intensity

Test the intensity of pregnant women exercise mainly has the first "talk test", such as pregnant women in the process of exercise, can maintain the dialogue, prove the intensity is appropriate, but can not sing, if can not maintain the dialogue, the intensity should be reduced^[3,4]. Second, maternal heart rate is also a measure of the intensity of physical activity, such as Table 1, moderate intensity physical activity (40% -59% heart rate reserve (HRR)), high intensity physical activity (60% -80% (HRR))^[3,4]; Pregnant women, especially athletes, should avoid exercise with the highest heart rate with an intensity greater than 90% in the first and second trimester of pregnancy^[4]. Third, perceived exercise (RPE) can also be used to assess the intensity of physical activity, with moderate intensity exercise rated as 13-14 in the 6-20 Borg perceived Exercise scale (somewhat difficult)[6]As shown in Table 2.

3.3 Conduction to exercise

3.3.1 With absolute contraindications

(1) Placental abruption^[3,4]; (2) Preterm birth^[3,4]; (3) Persistent vaginal bleeding of unknown causes^[3,4]; (4) Placenta previa appeared after 28 weeks of gestation^[3,4]; (5) Severe preeclampsia^[3,4]; (6) Cervical insufficiency^[3,4]; (7) Intrauterine growth restriction^[3,4]; (8) Multiple pregnancy (e. g., triplets)^[3,4]; (9) poorly controlled type I diabetes, hypertension or thyroid disease^[3,4]; (10) Other serious cardiovascular, respiratory, or systemic diseases^[3,4].

3.3.2 With relative contraindications

(1) Mild preeclampsia^[3,4]; (2) Type 1 diabetes mellitus is well controlled^[3,4]; (3) A history of spontaneous abortion, preterm birth, or fetal growth restriction^[3,4]; (4) Mild/moderate cardiovascular or respiratory disease^[3,4]; (5) Symptomatic anemia^[3,4]; (6) Malnutrition or eating disorders^[3,4]; (7) Twin pregnancies after week 28^[3,4]; (8) Moderate to heavy smoking (> 20 cigarettes per day)^[3,4]; (9) Other major diseases^[3,4].

In addition, in the 2021 Asia Pacific Consensus: Pregnancy and Postpartum Physical Activity and Exercise, based on the empirical evidence that pregnant women can benefit from prenatal exercise, these are no longer considered contraindication:

(1) Chronic hypertension^[4]; (2) Gestational hypertension^[4]; (3) Overweight or obese women^[4]; (4) Recurrent abortion^[4]; (5) Shorter of the uterine cervix^[4]; (6) Multiple fetal pregnancies^[4]; (7) epilepsy^[4]; (8) Anemia^[4]; (9) Limitations of orthopedics^[4]; (10) A history of a sedentary lifestyle, preterm birth, or fetal growth restriction^[4].

3.4 Stop the movement signal

If the pregnant woman has the following conditions during exercise, stop exercising immediately:

(1) Persistent and excessive shortness of breath can not be relieved at rest^[3,4]; (2) Severe chest pain^[3,4]; (3) Frequent painful uterine contractions^[3,4]; (4) The vaginal bleeding^[3,4]; (5) Continuous loss of vaginal fluid indicates rupture of fetal membranes^[3,4]; (6) Severe headache or swelling^[3,4]; (7) Persistent dizziness or syncope, can not disappear at rest^[3,4].

3.5 Safety guarantee measures

It is recommended that pregnant women wear loose clothes to exercise in a cool environment, and ensure sufficient water and heat to avoid the occurrence of dehydration and hypoglycemia. Every pregnant woman should have enough "warm-up" and "cooling" exercise. For safety reasons, the following situations should be avoided:

(1) exercising in the presence of high fever; (2) some activities or sports that touch the body or are at risk of falling; (3) diving; (4) lowland women living below 2500 m should prevent physical activity at high altitude (> 2500 m)^[3]; (5) Rapid change of direction and jumping during exercise increases the risk of injury; (6) prolonged standing time and a significant reduction in cardiac output^[4]; (7) The supine exercise after the first trimester can lead to reduced cardiac output, aortic-inferior-cava compression, and hypotension^[4]; (8) Excessive abdominal movements, such as abdominal bending, may cause rectus dispersion requiring postnatal repair^[4].

4. Summary

To sum up, pregnancy and postpartum exercise benefits greater than risk, encourage all pregnant women to take an active part in sports, can optimize the health of the two generations, but it is important to note that all pregnant women before deciding to exercise to consult the doctor, fully evaluate all aspects of pregnant women, then according to the doctor's advice to take the appropriate type of exercise, and regularly check the fetus, adjust at any time, must be safety first, avoid blindly follow suit. It is also hoped that this study can provide a reference for the formulation of a pregnancy exercise program in China.

Table 1 Target heart rate ranges for different exercise intensities in pregnant women

Pregnant woman age (years)	Exercise intensity	Heart rate (sub / min)
<29	mild	102~124
	secondary	125~146
	violent	147~169
30+	mild	101~120
	secondary	121~141
	violent	142~162

Table 2 Borg Perception Activity Scale (Borg Scale)

grade	level
6	
7	Very, very light
8	
9	very light
10	
11	light
12	
13	a little bit difficult
14	
15	difficulty
16	
17	in troubled water
18	
19	Very, very difficult
20	

References

- [1] Li J, Zou FL, Huang SR, et al. Health Beliefs and Health Behavior Survey of women in pregnancy [J]. *Journal of Nursing*, 2017,32 (08): 25-28.
- [2] Chen YL, Ma HH, Shi YJ, et al. Physical activity levels of pregnant women in different pregnancies and their influencing factors [J]. *Chinese Journal of Disease Control*, 2021,25 (02): 149-154.
- [3] Mottola Michelle F,Davenport Margie H, Ruchat Stephanie-May, et al. 2019 Canadian guideline for physical activity throughout pregnancy [J]. *BJSM*, 2018, 52(21).
- [4] Lee R, Thain S, Tan LK, et al. Asia-Pacific consensus on physical activity and exercise in pregnancy and the postpartum period. *BMJ open sport & exercise medicine*. 2021,7 (2): e000967.
- [5] Brown WJ, Hayman M, Haakstad LAH, et al. Australian guidelines for physical activity in pregnancy and postpartum.*Journal of Science and Medicine in Sport*.2022,25 (6):511-519.
- [6] Physical Activity and Exercise During Pregnancy and the Postpartum Period: ACOG Committee Opinion, Number 804.*Journal of International Obstetrics and Gynecology*. 2020, 135 (4): e178-e188.
- About the author: Liu Jingxuan, female, master's degree in Dali University, nurse, 671000.