

Move it Baby – Exercise for Better Birth Outcomes

Tuesday, February 27th 2024

12:00PM (PST), 8:00PM (GMT)

Wednesday, February 28 2024

7:00AM (AEDT)



Speaker Introductions



Dana Elliott
Physiotherapist
MScPT, BSc, BHK



Carly Little
BSc. Exercise Science &
Certified Pro-Natal Fitness
Trainer



Tara Wilson
CSEP-CEP, Bkin, BCAK



Jen McCutcheon
DrPH, MPH, MSc,
Physiotherapist (non-practicing)

Land Acknowledgements

We respectfully acknowledge that I live and work on the traditional and unceded lands of :

- ▶ the Lil'wat7úl (Lil'wat) and Skwxwú7mesh (Squamish) Nations [Dana]
- ▶ the Coast Salish peoples, specifically, the q^wa:n̓lən' (Kwanlen), qíc'əy' (Katzie), Máthxwi (Matsqui) and. Se'mya'me (Semiahmoo) First Nations. [Tara]
- ▶ The Anishinabe Algonquin peoples [Carly]
- ▶ the Coast Salish people, specifically the in x^wməθk^wəyəm (Musqueam), Skwxwú7mesh Úxwumixw (Squamish), and sé lílwətaʔt (Tsleil-Waututh) [Jen]



Objectives

For participants to:

- ▶ Better understand the role of both general exercise and specific pelvic floor exercises in the prenatal population
- ▶ Understand the benefits of exercise in pregnancy
- ▶ Address any traditional concerns regarding prenatal exercise
- ▶ Understand current Gold Standard Exercise Guidelines for pregnant women (in Canada)
- ▶ Understand how a relationship between practitioners and Exercise Specialists and Pelvic Floor Physiotherapists can improve outcomes for both mother and baby
- ▶ Be familiar with examples of a prenatal exercise session

Our key take away is that for the vast majority exercise in pregnancy is beneficial for general health and birthing outcomes

Benefits of Exercise During Pregnancy

Data from the Canadian Guidelines (1,2)

- ▶ Reduces the odds of gestational diabetes mellitus by 38%
- ▶ Gestational hypertension by 39%
- ▶ Preeclampsia by 41%
- ▶ Long term risk of cardiovascular risk might be reduced due to the above
- ▶ Excessive gestational weight gain decreased by 32%
- ▶ Can reduce depression by 67%
- ▶ Reduces the odds of prenatal urinary incontinence by 51%
- ▶ Postpartum urinary incontinence by 37%
- ▶ Instrument delivery by 24%
- ▶ Reduce the severity (but not development) of low back and lumbopelvic pain

Lower incidence of:	Higher incidence of:
Excessive gestational weight gain	Vaginal delivery
Gestational diabetes mellitus	
Gestational hypertensive disorders	
Preterm birth	
Cesarean delivery	
Birthweight	

1. Davenport, Margie. Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.
2. Jennifer J. Stuart, Lauren J. Tanz, Eric B. Rimm, Donna Spiegelman, Stacey A. Missmer, Kenneth J. Mukamal, Kathryn M. Rexrode, Janet W. Rich-Edwards, Cardiovascular Risk Factors Mediate the Long-Term Maternal Risk Associated With Hypertensive Disorders of Pregnancy, Journal of the American College of Cardiology, Volume 79, Issue 19, 2022, Pages 1901-1913

Benefits of exercise during pregnancy

- ▶ Prenatal exercise improves VO_2max , as well as reduces heart rate, systolic blood pressure, and diastolic blood pressure (1)
- ▶ Exercise in overweight and obese population decreases risk for caesarean (2)
- ▶ 39% reduction in the odds of having a baby >4000g (3)

1. Cai C, Ruchat SM, Sivak A, Davenport MH. Prenatal Exercise and Cardiorespiratory Health and Fitness: A Meta-analysis. *Med Sci Sports Exerc.* 2020 Jul;52(7):1538-1548

2. McDonald, S.M., Mauro, S., Wiseman, B. *et al.* Influence of prenatal exercise on the relationship between maternal overweight and obesity and select delivery outcomes. *Sci Rep* 12, 17343 (2022)

3. Davenport MH, Meah VL, Ruchat S, *et al.* Impact of prenatal exercise on neonatal and childhood outcomes: a systematic review and meta-analysis. *British Journal of Sports Medicine* 2018;52:1386-1396.

Benefits of exercise during pregnancy (cont'd)

- ▶ Exercise can help decrease risk of anxiety and depressive symptoms before pregnancy and prenatally, as well as postpartum depression (1)
- ▶ Increased anxiety leads to poorer birthing outcomes
 - Prenatal anxiety associated with low birth weight and poorer Apgar score
 - Increased anxiety shown to lead to excessive prenatal weight gain (1)
 - More symptomatic prenatal anxiety and depression predicts increased labour length, and amount of oxytocin and epidural analgesia (2)
 - Prenatal anxiety not only affects psychological parameters, it can also increase the incidence of other pathologies like cancer, heart disease, stroke, arthritis, high blood pressure, and gestational diabetes” (1)



1. Sánchez-Polán, M.; Silva-José, C.; Franco, E.; Nagpal, T.S.; Gil-Ares, J.; Lili, Q.; Barakat, R.; Refoyo, I. Prenatal Anxiety and Exercise. Systematic Review and Meta-Analysis. *J. Clin. Med.* 2021, *10*, 5501. <https://doi.org/10.3390/jcm10235501>

2. Martina Smorti, Lucia Ponti & Franco Tani (2019) The effect of maternal depression and anxiety on labour and the well-being of the newborn, *Journal of Obstetrics and Gynaecology*, 39:4, 492-497

Benefits of exercise during pregnancy (cont'd)

- ▶ Exercise has been shown to help reduce pregnancy-related pelvic girdle pain (PPGP), especially if started prior to pregnancy (1)

FACTS TO HELP REFRAME BELIEFS ABOUT PREGNANCY PELVIC GIRDLE PAIN

Muller J, Britnell S, Sim A, Kuczyński J, Devereux S



STABLE

HORMONES

All pregnant people have hormonal changes to accommodate the demands of pregnancy, which alter tissue sensitivity, flexibility, and inflammatory processes in the body.^{1, 2}

It is helpful for people with PPGP to understand that hormones can create increased sensitivity, including flexibility, but the pelvis remains robust throughout pregnancy.



JOINT CHANGES

There is no current evidence connecting hormone levels and PPGP.^{3, 4} The pregnant pelvis has normal changes to increase fit and width of the pubic symphysis and sacrospinous joints.⁵

People with PPGP should be reassured that these changes are healthy and adaptive for pregnancy and birth.



VARIED MOVEMENTS

Misguided beliefs about lack of pelvic stability and the need to keep the core contracted and legs together⁶ can lead to muscle guarding, increased sensitivity, and fear of movement.⁷

People with PPGP should be reassured it is safe and beneficial to move in novel and diverse ways that are comfortable to them.



SAFE

POSTURE ADAPTATIONS

Posture and postural changes in pregnancy do not coincide with pain intensity or the development of PPGP.⁸

People with PPGP should be reassured that postural adaptations in pregnancy are healthy, necessary and normal.



LACTATION

Lactation does not worsen or prolong PPGP and has been proposed to have a global anti-inflammatory protective effect.⁹

People who wish to chestfeed, breastfeed or pump should be encouraged to do so without fear of worsening or prolonging PGP.



VAGINAL BIRTH

Vaginal births have a lower risk of severity and persistence of PPGP.¹⁰

Education regarding the safety and benefits of vaginal birth as well as support to reduce associated fears¹¹ should be primary interventions for people with PPGP.



SELF-MANAGEABLE

LIFESTYLE AND EDUCATION

PPGP is influenced by the stress response system, emotional wellbeing and sleep.^{12, 13}

Pain can be improved through individualized pain education¹⁴, lifestyle counseling and daily living movement strategies that empower people with PPGP to self-manage.



PHYSICAL ACTIVITY

Exercise has been shown to help reduce PPGP in pregnancy¹⁵ and to prevent PPGP if started prior to pregnancy.¹⁶

Pregnant people should be encouraged to obtain the minimum recommended activity in pregnancy for maternal and fetal health benefits and to prevent and reduce PPGP.



EXTERNAL SUPPORTS

Belt and manual therapies can be used to create sensory-motor changes through novel proprioceptive input that promotes confidence and safety in movement.¹⁷

People with PPGP should be advised that primary intervention should emphasize behaviour changes that empower self-management.



PREGNANCY PELVIC GIRDLE PAIN IS CHANGEABLE

For original supporting references, please consult the full text article: [link to article]

1. Pulsifer J, Britnell S, Sim A, et al. *Br J Sports Med* 2022;0:1–2

Benefits of exercise during pregnancy (cont'd)

- ▶ Exercise to maintain full, dynamic ROM and movement, myofascial flexibility
 - Maintaining mobility during pregnancy allows patient to continue their regular activities
 - Maintaining mobility during pregnancy will allow the patient to better keep moving during labour
 - Continued movement during labour and various birthing positions shown to improve labour outcomes
 - Walking and upright positions in first stage of labour reduces: duration of labour, risk of caesarean birth, need for epidural (1)
 - WHO recommends "Mobility in labour and birth position of choice" (2)



Impact of exercise on labour outcomes

- ▶ Prenatal exercise is shown to decreased risk of caesarean: mixed results in literature but trends towards a benefit (1, 2)
- ▶ Shorter second stage of labour in women who underwent a structured prenatal pelvic floor training program (3)
- ▶ Risk factors for pelvic floor injury during birthing: length of second stage of labour (>2hrs has higher risk), instrumentation (forceps>vacuum), vaginal delivery of infant over 9lbs/4kg, Valsalva when pushing (3, 4)
 - If exercise can decrease these risk factors then decreased risk of pelvic floor damage



1. Veisy A, Mohammad Alizadeh Charandabi S, Hematzadeh S, Mirghafourvand M. Effect of prenatal aerobic exercises on maternal and neonatal outcomes: A systematic review and meta-analysis. *Nurs Open*. 2021 Sep;8(5):2301-2317
2. Bojanić, Vlatka, and Vesna Ljubojević. "Research on the Influence of Prenatal Exercise on the Type of Delivery." *QUALITY OF LIFE (BANJA LUKA)-APEIRON* 20.1-2 (2021): 5-12.
3. Salvesen KA, Mørkved S. Randomised controlled trial of pelvic floor muscle training during pregnancy. *BMJ*. 2004 Aug 14;329(7462):378-80
4. Aly Youssef, Elena Brunelli, Marta Fiorentini, Gianluigi Pili, Federico Spelzini, The role of the maternal pelvic floor in vaginal delivery, *American Journal of Obstetrics and Gynecology*, 2023

Impact of exercise on labour (cont'd)

- ▶ Exercise to relax levator ani and increase its diameter (1,2)
 - Pelvic floor muscle relaxation is associated with increased levator ani muscle hiatus dimensions
 - Increased levator ani diameter at onset of labour and during shown to decrease second stage of labour
 - Increased levator ani diameter during pushing decreases risk of levator ani avulsion
 - Pelvic floor training and physiotherapy has been shown to improve pelvic floor relaxation in nonpregnant women with pelvic floor hypertonicity
 - Breathing, stretching, relaxation of PF exercises to decrease levator ani co-contraction and tone



1. Aly Youssef, Elena Brunelli, Marta Fiorentini, Gianluigi Pilu, Federico Spelzini, The role of the maternal pelvic floor in vaginal delivery, American Journal of Obstetrics and Gynecology, 2023
2. Baena-García L, de la Flor-Alemán M, Coll-Risco I, Reoyo OR, Aranda P, Aparicio VA. A concurrent prenatal exercise program increases neonatal and placental weight and shortens labor: The GESTAFIT project. Scand J Med Sci Sports. 2023 Apr;33(4):465-474

Impact of exercise on labour (cont'd)

- ▶ New Research Published February 12, 2024 (1)
 - 150 Ethiopian women
 - Engaged in vigorous physical activities: 87% had spontaneous vaginal deliveries
 - Engaged in light physical activities: 16.5% had spontaneous vaginal delivery
 - Duration of labor:
 - vigorous physical activity: 5.2 ± 2.07 h
 - light physical activity: 8.9 ± 2.8 h



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Impact of Physical Activity During Pregnancy on Delivery

Original Paper | Published: 12 February 2024

Volume 6, article number 21, (2024) [Cite this article](#)

Debunking Traditional Concerns

Evidence from the 2019 CSEP/SOGC guideline shows that exercise in pregnancy is NOT a concern in:

1) Increase in early pregnancy loss

There is no increased risk. Possible protective effect? (1,2)

2) Premature delivery

No increased risk shown (2)

3) Increased core body temperature leading to congenital anomalies

Prenatal exercise did not result in hyperthermia (2)

Improved thermoregulation d/t increased plasma volume, decreased vascular resistance, increased skin blood flow (3)

Congenital anomalies: minimal evidence. Non-RCT evidence did not support an increased risk of congenital anomalies. (4)

Encourage exercise throughout pregnancy (4).

4) Fetal growth restriction

Though earlier studies suggested that exercise may result in a decreased birth weight, exercise was not associated with increased risk of a small baby (5).

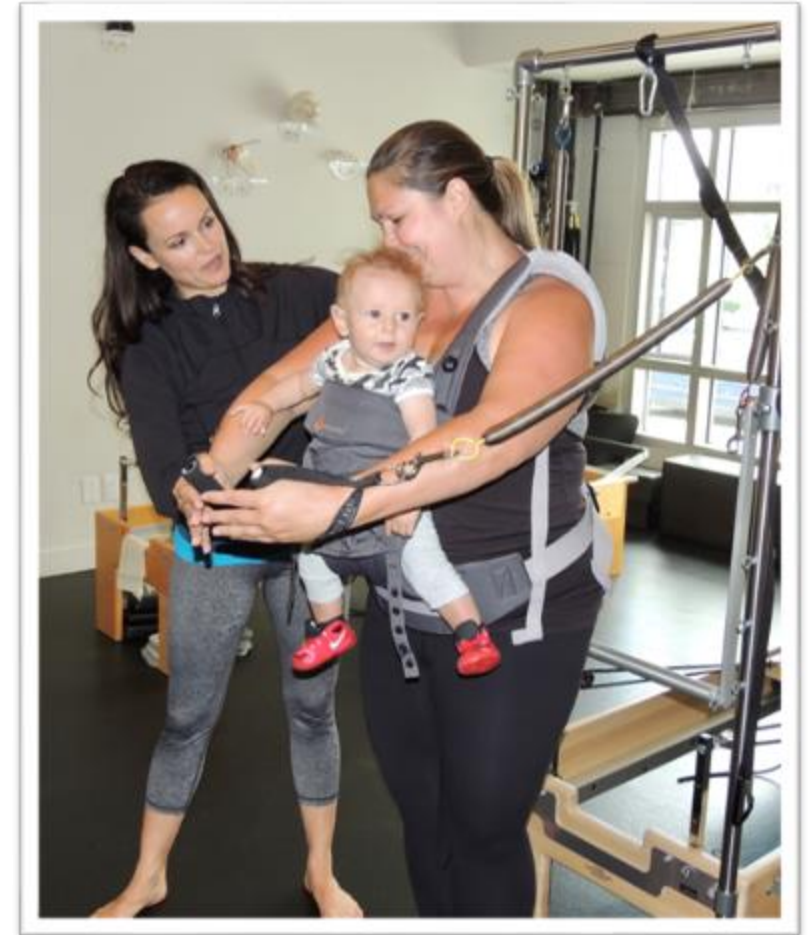
Prenatal exercise reduces the risk of macrosomia by 39% (2)



1. Nilsson et al BJOG 2014
2. Davenport et al BJSM 2018
3. Lindqvist et al 2003
4. Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.
5. Davenport et al BJSM 2019
6. Davenport, Meah et al Br J Sports Med 2018

Takeaway

- ▶ While adverse effects of prenatal exercise were not identified, many benefits have been. The risk of being inactive shifts the focus from the traditional concerns.
- ▶ The benefits extend beyond the prenatal period
- ▶ Pregnancy can have a positive impact of healthy behavior changes
- ▶ All expecting mothers without contraindications should be physically active during pregnancy



Contraindications

- ▶ **Absolute:** exercise should be avoided. Activities of daily living may be continued as directed by their health care professional.
- ▶ **Relative:** speak with health care professional to discuss pros/cons of exercise.
Some may benefit from exercise and some may not.
- ▶ Modifications vs complete cessation may be the answer for some.
- ▶ **This should be an ongoing discussion – contraindications can develop throughout pregnancy.** (1)

Davenport, Margie. Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

Absolute contraindications

The Canadian Guidelines include ⁽²⁾:

- ▶ Ruptured Membranes, Premature labour
- ▶ Unexplained persistent vaginal bleeding
- ▶ Placenta praevia > 28 weeks
- ▶ Preeclampsia
- ▶ Incompetent cervix or cervical insufficiency
- ▶ Intrauterine growth restriction
- ▶ High order multiples (triplets or higher)
- ▶ Uncontrolled type 1 diabetes, hypertension or thyroid disease
- ▶ Other serious cardiovascular, respiratory or systemic disorders

While there is variance in the guidelines around the world, most include:

Preeclampsia, intrauterine growth restriction and pre-existing cardiovascular or respiratory diseases ⁽¹⁾⁽²⁾

1. Meah et al, 2020

2. Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

Relative Contraindications

The Canadian Guidelines include (2):

- ▶ Recurrent (2 or more consecutive) miscarriage
- ▶ History of spontaneous preterm birth (<37 weeks)
- ▶ Gestational hypertension
- ▶ Symptomatic anaemia
- ▶ Malnutrition
- ▶ Eating disorders
- ▶ Twin Pregnancy after 28 weeks
- ▶ Mild or moderate cardiovascular or respiratory disease (ex. Asthma)
- ▶ Other significant medical conditions

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.



Activities To Avoid

In excessive heat – especially with high humidity ⁽¹⁾

- ▶ Due to increased vasodilation leading to increased risk of fainting
- ▶ Increased chance of dehydration
- ▶ No safety information regarding excessive heat or humidity as all research was conducted in thermoneutral conditions
- ▶ Modify to exercise in air conditioning, morning or evening

Activities that risk trauma to the belly (contact or falling) ⁽¹⁾

- ▶ Greater risk for injury and risk to the fetus
- ▶ Even with experience, as conditions around time or changes in balance with a growing belly, baby kicks etc. cannot always be controlled



Activities To Avoid

Scuba diving ⁽¹⁾

The fetal lung is too immature to filter out nitrogen

No known safe depth

Lowlanders (those born and living <2500m) should avoid exercise at altitudes above 2500m ⁽¹⁾

The effects of the altitude, pregnancy and exercise are unknown above 2500m

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019,
<https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

Exercise With Caution!

Avoid Jarring activities, quick direction changes, bouncing, overstretching (1)

Due to relaxin softening and relaxing ligaments (joints)

- Proper warm up and cool down is essential
- focus on good technique
- focus on good posture
- stretch and exercise with controlled movements

Maintain adequate nutrition (blood glucose) and hydration (1)

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

When to Modify Exercise

Specific activities or exercises may need to be modified or stopped if any of the below occur during or after exercising:

- ▶ Incontinence
- ▶ Increased urgency or frequency of bladder &/or bowel
- ▶ Feelings of heaviness or bulging in the vagina
- ▶ Doming of the abdominals
- ▶ Musculoskeletal pain

A pelvic floor physiotherapist can assess and treat these conditions and make recommendations for return to the exercise



Exercise Modifications

If Diastasis Recti has developed, avoid sit-ups to prevent further separation of the rectus abdominis (1)

Avoid The Valsalva Maneuver (forced expiration against a closed glottis) if it causes light-headedness (1)

Pregnant Athletes who want to exercise beyond the guidelines should speak with their Health Care Provider (1)

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.



Exercise Modifications

If feeling unwell (faint or nauseous) while supine, there may be a decrease in venous return, cardiac output and / or delivery of blood flow to the baby (from compression of the inferior vena cava).

Modify by ⁽¹⁾:

- ▶ Raising the incline
- ▶ Turning to the left lateral side
- ▶ Sitting up

Not feeling well or feeling tired (ex. Morning sickness, fatigue) ⁽¹⁾

- ▶ Listen to the body and modify as needed
- ▶ Return to activity when they can



Reasons To Stop Physical Activity and Consult a HealthCare Provider ⁽¹⁾

Persistent excessive shortness of breath that doesn't resolve on rest

Severe Chest Pain

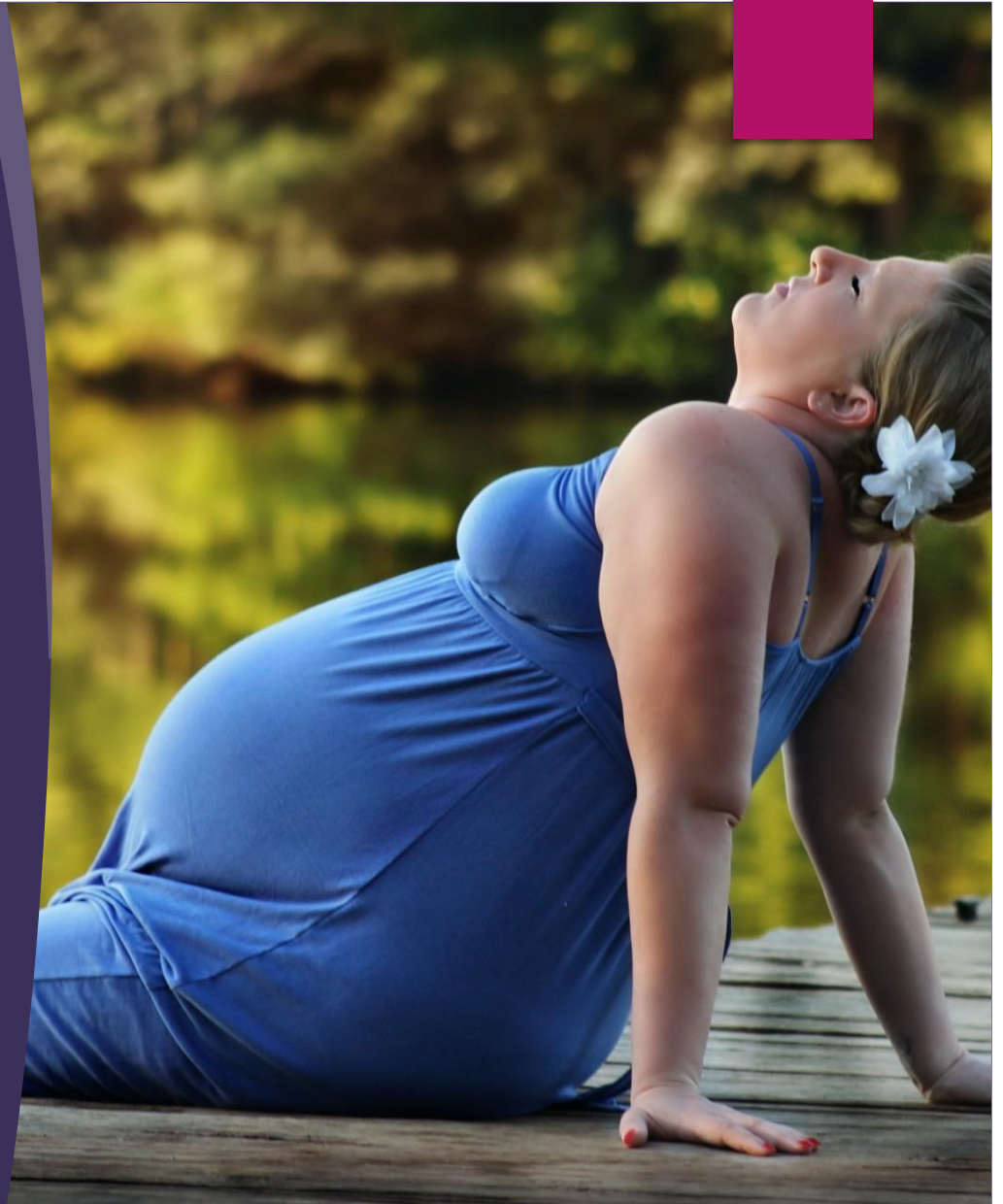
Regular and Painful Uterine Contractions

Vaginal Bleeding

Persistent loss of fluid from the vagina indications rupture of the membranes

Persistent dizziness or faintness that doesn't resolve with rest

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.



"Teamwork Makes The Dream Work"

- John C.
Maxwell

- ▶ WE WANT TO WORK WITH YOU! Exercise professionals are ready and willing to work as part of the team.
- ▶ HOW TO MAKE IT HAPPEN? Find us through our national, provincial or state regulatory bodies and associations and google (more examples ahead)
- ▶ DEMISTIFY AND REDUCE BARRIERS: hand out or post in your office, information on the benefits of exercise during pregnancy
- ▶ INCLUDE AND ENCOURAGE: the use of tools for screening and further consultation (ex. CSEP/SOGC QAQ-P and Healthcare Provider Consultation Form For Prenatal Physical Activity).



- Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.



Get Active Questionnaire

CANADIAN SOCIETY FOR EXERCISE PHYSIOLOGY –
PHYSICAL ACTIVITY TRAINING FOR HEALTH (CSEP-PATH®)

Physical activity improves your physical and mental health. Even small amounts of physical activity are good, and more is better.

For almost everyone, the benefits of physical activity far outweigh any risks. For some individuals, specific advice from a Qualified Exercise Professional (QEP – has post-secondary education in exercise sciences and an advanced certification in the area – see csep.ca/certifications) or health care provider is advisable. This questionnaire is intended for all ages – to help move you along the path to becoming more physically active.

- I am completing this questionnaire for myself.
- I am completing this questionnaire for my child/dependent as parent/guardian.

PREPARE TO BECOME MORE ACTIVE

The following questions will help to ensure that you have a safe physical activity experience. Please answer YES or NO to each question **before** you become more physically active. If you are unsure about any question, answer YES.

- 1 Have you experienced **ANY** of the following (A to F) **within the past six months**?
 - A A diagnosis of/treatment for heart disease or stroke, or pain/discomfort/pressure in your chest during activities of daily living or during physical activity?
 - B A diagnosis of/treatment for high blood pressure (BP), or a resting BP of 160/90 mmHg or higher?
 - C Dizziness or lightheadedness during physical activity?
 - D Shortness of breath at rest?
 - E Loss of consciousness/fainting for any reason?
 - F Concussion?
- 2 Do you currently have pain or swelling in any part of your body (such as from an injury, acute flare-up of arthritis, or back pain) that affects your ability to be physically active?
- 3 Has a health care provider told you that you should avoid or modify certain types of physical activity?
- 4 Do you have any other medical or physical condition (such as diabetes, cancer, osteoporosis, asthma, spinal cord injury) that may affect your ability to be physically active?

..... > **NO** to all questions: go to Page 2 – ASSESS YOUR CURRENT PHYSICAL ACTIVITY

YES to any question: go to Reference Document – ADVICE ON WHAT TO DO IF YOU HAVE A YES RESPONSE . . . >>>



Get Active Questionnaire

ASSESS YOUR CURRENT PHYSICAL ACTIVITY

Answer the following questions to assess how active you are now.

- 1 During a typical week, on how many days do you do moderate- to vigorous-intensity aerobic physical activity (such as brisk walking, cycling or jogging)? DAYS/WEEK
 - 2 On days that you do at least moderate-intensity aerobic physical activity (e.g., brisk walking), for how many minutes do you do this activity? MINUTES/DAY
- For adults, please multiply your average number of days/week by the average number of minutes/day: MINUTES/WEEK

Canadian 24-Hour Movement Guidelines recommend that adults accumulate at least 150 minutes of moderate- to vigorous-intensity physical activity per week. For children and youth, at least 60 minutes daily is recommended. Strengthening muscles and bones at least two times per week for adults, and three times per week for children and youth, is also recommended (see csep.ca/guidelines).

GENERAL ADVICE FOR BECOMING MORE ACTIVE

Increase your physical activity gradually so that you have a positive experience. Build physical activities that you enjoy into your day (e.g., take a walk with a friend, ride your bike to school or work) and reduce your sedentary behaviour (e.g., prolonged sitting).

If you want to do **vigorous-intensity physical activity** (i.e., physical activity at an intensity that makes it hard to carry on a conversation), and you do not meet minimum physical activity recommendations noted above, consult a Qualified Exercise Professional (QEP) beforehand. This can help ensure that your physical activity is safe and suitable for your circumstances.

Physical activity is also an important part of a healthy pregnancy.

Delay becoming more active if you are not feeling well because of a temporary illness.

DECLARATION

To the best of my knowledge, all of the information I have supplied on this questionnaire is correct. If my health changes, I will complete this questionnaire again.

I answered **NO** to all questions on Page 1

I answered **YES** to any question on Page 1

Sign and date the Declaration below

Check the box below that applies to you:

- I have consulted a health care provider or Qualified Exercise Professional (QEP) who has recommended that I become more physically active.
- I am comfortable with becoming more physically active on my own without consulting a health care provider or QEP.

<input type="text"/>	<input type="text"/>	<input type="text"/>
Name (+ Name of Parent/Guardian if applicable) [Please print]	Signature (or Signature of Parent/Guardian if applicable)	Date of Birth
<input type="text"/>	<input type="text"/>	<input type="text"/>
Date	Email (optional)	Telephone (optional)

With planning and support you can enjoy the benefits of becoming more physically active. A QEP can help.

- Check this box if you would like to consult a QEP about becoming more physically active. (This completed questionnaire will help the QEP get to know you and understand your needs.)

Use this reference document if you answered **YES** to any question and you have not consulted a health care provider or Qualified Exercise Professional (QEP) about becoming more physically active.

1 Have you experienced ANY of the following (A to F) within the past six months?	
<p>A A diagnosis of/treatment for heart disease or stroke, or pain/discomfort/pressure in your chest during activities of daily living or during physical activity?</p> <input type="checkbox"/> YES	Physical activity is likely to be beneficial. If you have been treated for heart disease but have not completed a cardiac rehabilitation program within the past 6 months, consult a doctor – a supervised cardiac rehabilitation program is strongly recommended. If you are resuming physical activity after more than 6 months of inactivity, begin slowly with light- to moderate-intensity physical activity. If you have pain/discomfort/pressure in your chest and it is new for you, talk to a doctor. Describe the symptom and what activities bring it on.
<p>B A diagnosis of/treatment for high blood pressure (BP), or a resting BP of 160/90 mmHg or higher?</p> <input type="checkbox"/> YES	Physical activity is likely to be beneficial if you have been diagnosed and treated for high blood pressure (BP). If you are unsure of your resting BP, consult a health care provider or a Qualified Exercise Professional (QEP) to have it measured. If you are taking BP medication and your BP is under good control, regular physical activity is recommended as it may help to lower your BP. Your doctor should be aware of your physical activity level so your medication needs can be monitored. If your BP is 160/90 or higher, you should receive medical clearance and consult a QEP about safe and appropriate physical activity.
<p>C Dizziness or lightheadedness during physical activity?</p> <input type="checkbox"/> YES	There are several possible reasons for feeling this way and many are not worrisome. Before becoming more active, consult a health care provider to identify reasons and minimize risk. Until then, refrain from increasing the intensity of your physical activity.
<p>D Shortness of breath at rest?</p> <input type="checkbox"/> YES	If you have asthma and this is relieved with medication, light to moderate physical activity is safe. If your shortness of breath is not relieved with medication, consult a doctor.
<p>E Loss of consciousness/fainting for any reason?</p> <input type="checkbox"/> YES	Before becoming more active, consult a doctor to identify reasons and minimize risk. Once you are medically cleared, consult a Qualified Exercise Professional (QEP) about types of physical activity suitable for your condition.
<p>F Concussion?</p> <input type="checkbox"/> YES	A concussion is an injury to the brain that requires time to recover. Increasing physical activity while still experiencing symptoms may worsen your symptoms, lengthen your recovery, and increase your risk for another concussion. A health care provider will let you know when you can start becoming more physically active, and a Qualified Exercise Professional (QEP) can help get you started.

After reading the ADVICE for your YES response, go to Page 2 of the *Get Active Questionnaire – ASSESS YOUR CURRENT PHYSICAL ACTIVITY*

Use this reference document if you answered **YES** to any question and you have not consulted a health care provider or Qualified Exercise Professional (QEP) about becoming more physically active.

<p>2 Do you currently have pain or swelling in any part of your body (such as from an injury, acute flare-up of arthritis, or back pain) that affects your ability to be physically active?</p> <input type="checkbox"/> YES
<p>If this swelling or pain is new, consult a health care provider. Otherwise, keep joints healthy and reduce pain by moving your joints slowly and gently through the entire pain-free range of motion. If you have hip, knee or ankle pain, choose low-impact activities such as swimming or cycling. As the pain subsides, gradually resume your normal physical activities starting at a level lower than before the flare-up. Consult a Qualified Exercise Professional (QEP) in follow-up to help you become more active and prevent or minimize future pain.</p>
<p>3 Has a health care provider told you that you should avoid or modify certain types of physical activity?</p> <input type="checkbox"/> YES
<p>Listen to the advice of your health care provider. A Qualified Exercise Professional (QEP) will ask you about any considerations and provide specific advice for physical activity that is safe and that takes your lifestyle and health care provider's advice into account.</p>
<p>4 Do you have any other medical or physical condition (such as diabetes, cancer, osteoporosis, asthma, spinal cord injury) that may affect your ability to be physically active?</p> <input type="checkbox"/> YES
<p>Some people may worry if they have a medical or physical condition that physical activity might be unsafe. In fact, regular physical activity can help to manage and improve many conditions. Physical activity can also reduce the risk of complications. A Qualified Exercise Professional (QEP) can help with specific advice for physical activity that is safe and that takes your medical history and lifestyle into account.</p>
<p>After reading the ADVICE for your YES response, go to Page 2 of the <i>Get Active Questionnaire – ASSESS YOUR CURRENT PHYSICAL ACTIVITY</i></p>

WANT ADDITIONAL INFORMATION ON BECOMING MORE PHYSICALLY ACTIVE?

► csep.ca/certifications

CSEP Certified members can help you with your physical activity goals.

► csep.ca/guidelines

Canadian 24-Hour Movement Guidelines for all ages.

HEALTH CARE PROVIDER CONSULTATION FORM FOR PRENATAL PHYSICAL ACTIVITY



PATIENT NAME:	DUE DATE (DD/MM/YYYY):	TODAY'S DATE (DD/MM/YYYY):
---------------	------------------------	----------------------------

Your patient wishes to begin or continue to be physically active during pregnancy. Your patient answered "Yes" to one or more questions on the Get Active Questionnaire for Pregnancy and has been asked to seek your advice (www.csep.ca/getactivequestionnaire-pregnancy).

Physical activity is safe for **most** pregnant individuals and has many health benefits. However, a **small number of patients** may need a thorough evaluation before taking part in physical activity during pregnancy.

The Society of Obstetricians and Gynaecologists of Canada/Canadian Society for Exercise Physiology 2019 *Canadian Guideline for Physical Activity throughout Pregnancy* recommends that pregnant women get at least 150 minutes of moderate intensity physical activity each week (see next page or csepguidelines.ca/pregnancy). But there are contraindications to this goal for some conditions (see right).

Specific concern from your patient and/or from a Qualified Exercise Professional:

To ensure that your patient proceeds in the safest way possible, they were advised to consult with you about becoming or continuing to be physically active during pregnancy. Please discuss potential concerns you may have about physical activity with your patient and indicate in the box below any modifications you might recommend:

Unrestricted physical activity based on the *SOGC/CSEP 2019 Canadian Guidelines for Physical Activity throughout Pregnancy*.

Progressive physical activity

Recommend avoiding:

Recommend including:

Recommend supervision by a Qualified Exercise Professional, if possible.

Refer to a physiotherapist for pain, impairment and/or a pelvic floor assessment.

Other comments:

Absolute contraindications

Pregnant women with these conditions should continue activities of daily living, but not take part in moderate or vigorous physical activity:

- ruptured membranes,
- premature labour,
- unexplained persistent vaginal bleeding,
- placenta previa after 28 weeks gestation,
- preeclampsia,
- incompetent cervix,
- intrauterine growth restriction,
- high-order multiple pregnancy (e.g. triplets),
- uncontrolled Type 1 diabetes,
- uncontrolled hypertension,
- uncontrolled thyroid disease,
- other serious cardiovascular, respiratory or systemic disorder.

Relative contraindications

Pregnant women with these conditions should discuss advantages and disadvantages of physical activity with you. They should continue physical activity, but modify exercises to reduce intensity and/or duration.

- recurrent pregnancy loss,
- gestational hypertension,
- a history of spontaneous preterm birth,
- mild/moderate cardiovascular or respiratory disease,
- symptomatic anemia,
- malnutrition,
- eating disorder,
- twin pregnancy after the 28th week,
- other significant medical conditions.

SOGC/CSEP 2019 CANADIAN GUIDELINE FOR PHYSICAL ACTIVITY THROUGHOUT PREGNANCY



The evidence-based guideline outlines the right amount of physical activity women should get throughout pregnancy to promote maternal, fetal, and neonatal health.

Research shows the health benefits and safety of being active throughout pregnancy for both mother and baby. Physical activity is now seen as a critical part of a healthy pregnancy. Following the guideline can reduce the risk of pregnancy-related illnesses such as depression, by at least 25%, and of developing gestational diabetes, high blood pressure and preeclampsia by 40%.

Pregnant women should get at least 150 minutes of moderate-intensity physical activity each week over at least three days per week. But even if they do not meet that goal, they are encouraged to be active in a variety of ways every day. Please visit csepguidelines.ca/pregnancy for more information. The guideline makes six recommendations:

- 1** All women without contraindication should be physically active throughout pregnancy. Specific subgroups were examined:
 - Women who were previously inactive.
 - Women diagnosed with gestational diabetes mellitus.
 - Women categorized as overweight or obese (pre-pregnancy body mass index $\geq 25\text{kg/m}^2$).
- 2** Pregnant women should accumulate at least 150 minutes of moderate-intensity physical activity each week to achieve clinically meaningful health benefits and reductions in pregnancy complications.
- 3** Physical activity should be accumulated over a minimum of three days per week; however, being active every day is encouraged.
- 4** Pregnant women should incorporate a variety of aerobic and resistance training activities to achieve greater benefits. Adding yoga and/or gentle stretching may also be beneficial.
- 5** Pelvic floor muscle training (e.g., Kegel exercises) may be performed on a daily basis to reduce the risk of urinary incontinence. Instruction in proper technique is recommended to obtain optimal benefits.
- 6** Pregnant women who experience light-headedness, nausea or feel unwell when they exercise flat on their back should modify their exercise position to avoid the supine position.

SOGC/CSEP 2019 Canadian Guideline for Physical Activity Throughout Pregnancy

RECOMMENDATION 1 ⁽¹⁾⁽²⁾

All women without contraindication should be physically active throughout pregnancy.

Specific subgroups were examined:

- ▶ Women who were previously inactive.
- ▶ Women diagnosed with gestational diabetes mellitus.
- ▶ Women categorized as overweight or obese (pre-pregnancy body mass index $\geq 25\text{kg/m}^2$).
- ▶ From conception to delivery.
- ▶ The subgroups were pre-determined by the Guideline Consensus Panel.
- ▶ No evidence was found for women >35 years.



No. 367-2019 Canadian Guideline for Physical Activity throughout Pregnancy JOINT SOGC/CSEP CLINICAL PRACTICE GUIDELINE | Volume 40, ISSUE 11, P1528-1537, November 01, 2018.

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.



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SOGC/CSEP 2019 Canadian Guideline for Physical Activity Throughout Pregnancy

RECOMMENDATION 2 ⁽¹⁾⁽²⁾

Pregnant women should accumulate at least 150 min of moderate-intensity physical activity each week to achieve clinically meaningful reductions in pregnancy complications.

- ▶ Only 15- 20% of pregnant women achieve this! (2)
- ▶ Barriers: Fatigue, discomforts, safety concerns, lack of time and support, weather, safe access to facilities, socioeconomic challenges, knowledge about the exercise
- ▶ Dose-response between and increasing volume of exercise and pregnancy outcomes.
- ▶ The threshold is a 25% in the odds of developing an outcome.
- ▶ Most of the studies examined were of moderate intensity



1. No. 367-2019 Canadian Guideline for Physical Activity throughout Pregnancy JOINT SOGC/CSEP CLINICAL PRACTICE GUIDELINE | Volume 40, ISSUE 11, P1528-1537, November 01, 2018

(2) Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.



SOGC/CSEP 2019 Canadian Guideline for Physical Activity Throughout Pregnancy



RECOMMENDATION 3 (1)(2)

Physical activity should be accumulated over a minimum of three days per week; however, being active every day is encouraged.

- ▶ In order to see a 25% reduction in the odds of pregnancy complications need at least 3 days per week.
- ▶ The higher the frequency (days) the greater the benefits.

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SOGC/CSEP 2019 Canadian Guideline for Physical Activity Throughout Pregnancy



RECOMMENDATION 4 (1)(2)

Pregnant women should incorporate a variety of aerobic and resistance training activities to achieve greater benefits. Adding yoga and/or gentle stretching may also be beneficial (on top of the 150 min).

- Very limited evidence. Recommendations for resistance training were based on expert opinion.
- Adding some resistance training improves muscular and functional capacity and could reduce injury risk
- Resistance training goal is to maintain reasonable level of fitness vs optimizing it.

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Davenport, Margie. Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-natal-exercise-specialization>.

SOGC/CSEP 2019 Canadian Guideline for Physical Activity Throughout Pregnancy

RECOMMENDATION 5 ⁽¹⁾⁽²⁾

PFMT (eg. Kegel exercises) may be performed on a daily basis to reduce the odds of urinary incontinence. Instruction on the proper technique is recommended to obtain optimal benefits.

- ▶ Based on low quality evidence
- ▶ Proper instruction is key
- ▶ The relaxation phase of contractions is often ignored



1.No. 367-2019 Canadian Guideline for Physical Activity throughout Pregnancy
JOINTSOGC/CSEP CLINICAL PRACTICE GUIDELINE | Volume 40, ISSUE 11, P1528-1537, November 01, 2018

2.Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019,
<https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

SOGC/CSEP 2019 Canadian Guideline for Physical Activity Throughout Pregnancy



RECOMMENDATION 6 ⁽¹⁾⁽²⁾

Pregnant women who experience light-headedness, nausea or feel unwell when they exercise flat on their back should modify their exercise position to avoid the supine position.

- ▶ Very low quality evidence. Recommendation based on expert opinion.
- ▶ Very little information regarding supine exercise.
- ▶ Some evidence of non-reactive fetal heart rate during and following acute supine exercise.

1. Mottola, Nagpal *et al* Br J Sports Med 2019, Greenberg & Roeder IJGO 2016

2.No. 367-2019 Canadian Guideline for Physical Activity throughout Pregnancy JOINT SOGC/CSEP CLINICAL PRACTICE GUIDELINE | Volume 40, ISSUE 11, P1528-1537, November 01, 2018

3.Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

The Evidence

- ▶ Recommendations 1-5 only from randomized controlled trials (exercise vs. no exercise). (1)
- ▶ Recommendation 6 based on any study design. (1)

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.



Limitations of the Studies Used For The CSEP/SOGC Guidelines ⁽¹⁾ ⁽²⁾

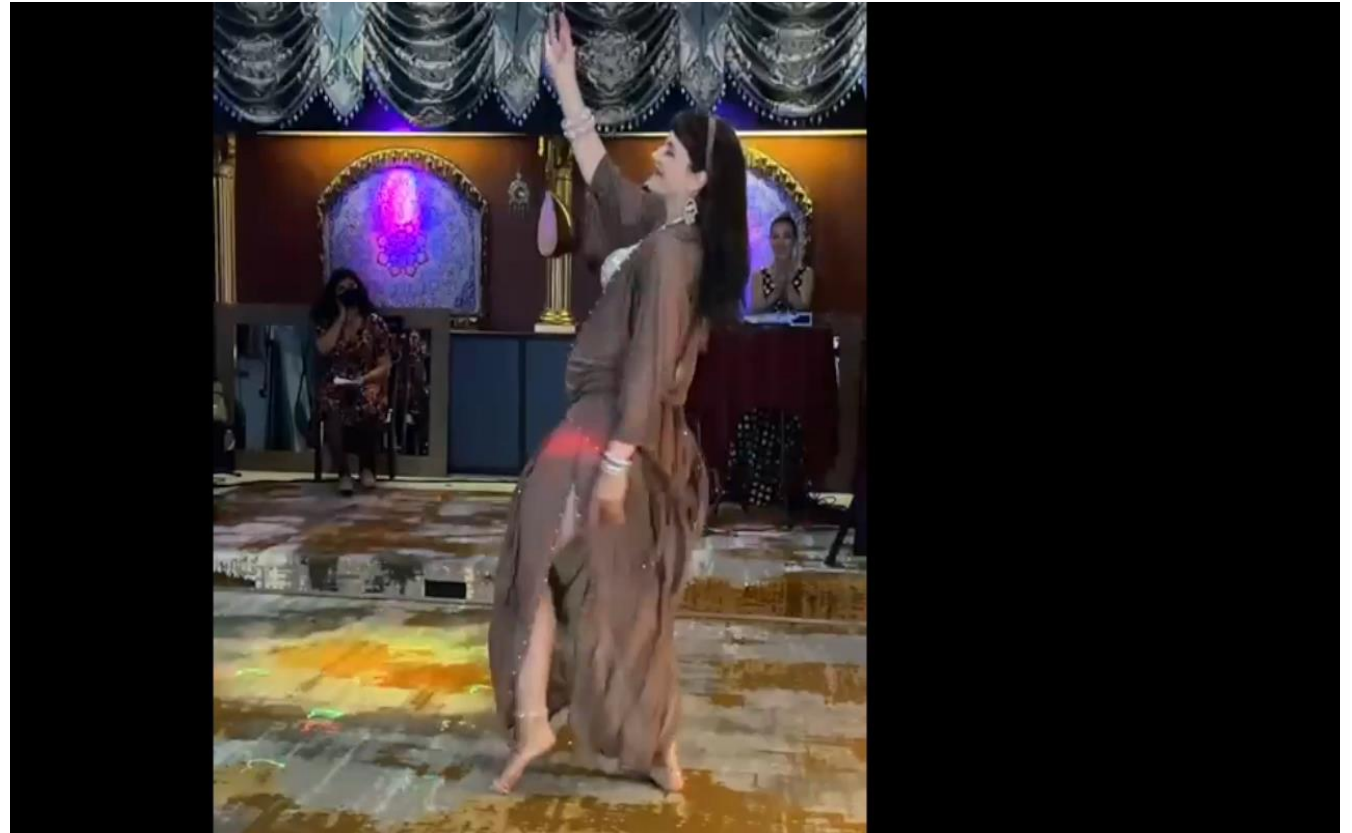
- ▶ Very limited information on high intensity, duration and volume
- ▶ No limit identified
- ▶ The impact of reducing activity and detraining after being previously highly active is also unknown
- ▶ Although we know resistance training can build muscular strength and improve functional capacity, very limited research on resistance training during pregnancy
- ▶ Reps, sets, load (ex. heavy lifting) etc. are not identified
- ▶ Limited information on the impact of sedentary time in pregnancy
- ▶ Typically studies within the scope of previous guidelines

Mottola MF, Davenport MH, Ruchat SM et al. Br J Sports Med. 2018; Bgeginski Journal of Strength and Conditioning Research 2015

Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

Endorsed by (1)

- ▶ Alberta Health Services-Healthy Families and Children
- ▶ Canadian Academy of Sport Medicine
- ▶ Canadian Association of Midwives
- ▶ College of Family Physicians of Canada
- ▶ Directorate for Chief Medical Officer and Chief Scientist Office of Scotland
- ▶ Exercise is Medicine Canada
- ▶ Ontario Public Health Association
- ▶ ParticipACTION
- ▶ Perinatal Services BC
- ▶ Sociedad Espanola de Ginecologia y Obstetricia (the Spanish Society of Gynecology and Obstetrics)

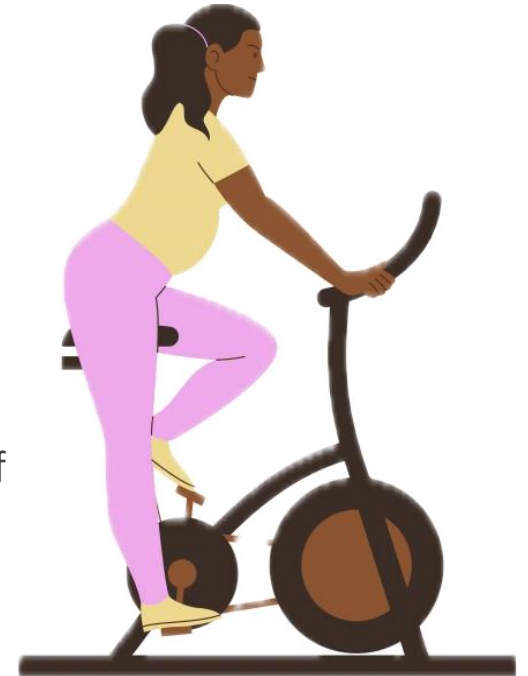


Ashley Rianne:
www.ashleydance.com

1. Davenport, Margie Advanced Module Series – Exercise In Pregnancy. 19th, March, 2019, <https://store.csep.ca/collections/csep-pre-postnatal-exercise-specialization>.

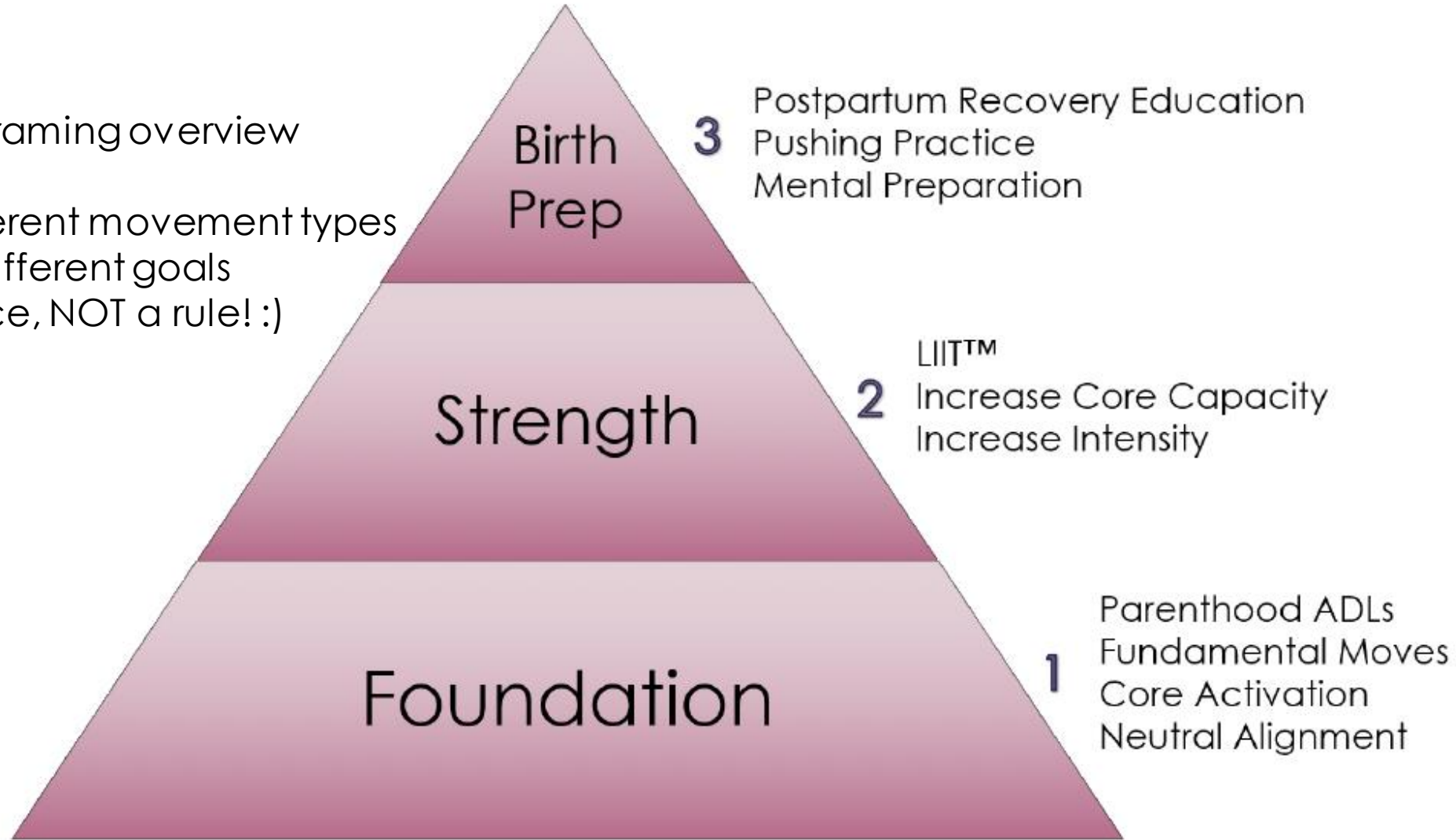
Limitations of the Current Research

- ▶ Blinding is difficult, increasing risk of bias
- ▶ Low compliance and reporting of the intervention
- ▶ More exercise-only interventions are needed: many studies included lifestyle management education as well
- ▶ Studies provide limited details regarding the specific exercise intervention
- ▶ Need studies for optimal dose: type, frequency, and intensity of exercise
- ▶ Studies tend to look at moderate intensity exercise with a maximum duration of 60min/session
- ▶ Little information on adapting sporting activities to pregnancy
- ▶ Studies needed that include women with medical disorders that have been considered contraindications to prenatal exercise



Prenatal framework programming overview

- Every client is different
- Every client enjoys different movement types
- Every client will have different goals
- This triangle is a resource, NOT a rule! :)



Reference:

Pronatal Fitness, <https://pronatalfitness.com/contact-us/>

Example of a Pre/Post Natal Exercise Class

Focusing on "Can" Vs. "Can't"

Pelvic Floor Activation

360 Breathing

Warm Up:

1. 3-5min Cardio
(bike, row, ski, light walk)
2. Fundamental Movements
3. Dynamic Stretching

Strength

Upright movements
Low impact
Emphasis on recovery

Ex: Full Body Strength
4x10 back squat
4x10 DB reverse lunge
4x10 reps Banded wall sit pulse
4x10 TRX Row
4x10 Bicep curl -> OH Press

Cardiovascular Training

- 10x10s EMOM Sprint

LIIT:

Train client for labor!

Stretching & Mobility

- Cat/cow
- Frog stretch
- Yoga ball seated hip openers
- Kneeling wrist & arm opener

The Proof is in the Feedback!



"Becoming a mom is equally beautiful and hard. This form-fit class helped me build back my body strength and confidence. Best decision I have made for myself this year"

-Rae Maitland

"The expert guidance helped keep me and my baby healthy, which has been so reassuring as I navigate my first pregnancy. This community is also incredible.

-Kathleen Davis

"I'm a pelvic floor physiotherapist and I never thought I could be stronger after having my second baby than ever before"

-Shelagh Haynes

Examples of How to find a Kinesiologist or Exercise Physiologist

In Canada:

Connect with a “CSEP -Clinical Exercise Physiologist” or a “CSEP certified Personal Trainer”:

<https://csep.ca/membership-overview/csep-organizational-directory/>

*you can search your location in the search bar.

The Canadian Kinesiology Alliance: <https://www.cka.ca/en/find-a-kin> Click on the province to find a Kin near you.

BC: <https://bcak.bc.ca/find-a-kinesiologist/>

ALBERTA: https://www.albertakinesiology.ca/directory?current_page=1&sort_type=featured&search_for=user&asset_type=company_user&display_type=default

ONTARIO: <https://www.oka.on.ca/client/roster/clientRosterView.html?clientRosterId=131>

QUEBEC: <https://www.kinesiologue.com/annuaire>

How to Find a Pelvic Floor Physiotherapist

Reach out to a practitioner close to you to meet for a coffee and discuss what they can offer and what their training is... they will be happy to pay for the drink!

Canada:

<https://www.womenshealthcpa.com>

<https://bcphysio.org/find-a-physio>

Search functions for Pelvic Health and Women's Health

Each provincial association has their own page

<https://pelvichealthsolutions.ca/find-a-health-care-professional>

UK:

<https://squeezezyapp.com/directory/>

https://thepogp.co.uk/patient_information/

USA:

<https://www.aptapelvichealth.org/ptlocator>

Good Old Google:

Google the following terms to see who is close to you:

- ▶ Pelvic floor physio/physiotherapy/physical therapy,
- ▶ women's health physio/physiotherapy/physical therapy,
- ▶ prenatal/postpartum physio/physiotherapy/physical therapy



For more resources or a copy of the
presentation, please
visit: <https://scienceofbirth.ubc.ca/news>

Thank you!