

## **Research Space**

Online educational resource

**You're pregnant, are you sure you should be doing that?**

**Mills, H. and DeVivo, M.**



HUMAN KINETICS



The British Association of  
Sport and Exercise Sciences

**You're pregnant, are  
you sure you should  
be doing that?**

BY: DR HAYLEY MILLS



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#HumanKineticsWebinar

#PAinPregnancy

# About Today's Webinar



Today's webinar is being produced jointly by the British Association of Sport and Exercise Sciences (BASES) and Human Kinetics.

It is scheduled to last for about an hour and will be recorded and made available for download and playback. You will receive an email containing a link to the recording when it is available.

All microphones and phone lines are muted so we ask that you submit questions by using the question box located in the lower right corner of your screen

We'll collect any questions sent throughout the presentation for Dr Mills and she will answer as many as possible during the Q&A segment at the end.

Join the conversation through Twitter

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# About Today's Presenter



Dr Hayley Mills

Dr Mills alongside her collaborator Dr De Vivo has been involved in a number of projects focusing on physical activity during pregnancy.

Dr Mills and Dr De Vivo have also been involved in updating the physical activity during pregnancy information on a national resource used in undergraduate teaching on health and medicine programmes across the UK.

She has also supervised three doctoral level students researching aspects of this topic area and continues to develop industry partnerships and projects to address physical activity issues during and post pregnancy.

Dr Hayley Mills is currently the Programme Director for the MSc Applied Exercise and Health Science at Canterbury Christ Church University.



The British Association of  
Sport and Exercise Sciences



HUMAN  
KINETICS

# Who and where are we?



Hayley Mills, BSc (hons), MSc, PhD  
HCPC Registered Sport and Exercise  
Psychologist



Marlize De Vivo, BA (Hons) HMS Biokinetics, MSc, PhD  
Registered Biokineticist (HPCSA), Graduate Sports  
Rehabilitator (BASRaT), Professional Member (BASES)



# Webinar Plan

- Myths and history of guidance
- Context: current infographic and guidelines (UK CMO, Canadian)
  - Safety considerations
- **Barriers and Enablers**
- **Evidence from our current work;**
  - **TPB paper looking at past behaviour**
  - **Midwives perspective paper**
  - **Pregnant women (IVF article)**
  - **Postnatal perspective - 'This mum moves' – insight work**
- Postnatal evidence check
- Whole systems approach
- Projects

# Myths and fears

*'Exercise will cause an early birth'*

*'Weight strengthening is dangerous'*

*'You selfish cow'*

*'Exercise will take nutrients from the baby'*

**MYTH**



*'Feet up- you need to rest'*

*'Don't let your heart rate rise over 140 bpm during exercise'*

*'You will starve the baby of oxygen'*

*'Running will jar the baby'*

*'Shaken baby syndrome'*

*'If you weren't active before you shouldn't start doing anything'*

# History of guidance- PA during Pregnancy

- *'The earliest advice largely reflected the cultural and social norms of the time, rather than evidence'* (Mittelmark & Gardin, 1991)
- In 1949, the US Children's Bureau issued - for prenatal PA: *'in the absence of maternal complications, pregnant women can continue housework, gardening, daily walks (up to 1-mile in several short bouts), and even swim occasionally but should avoid sports participation'*
- In 1985, ACOG issued the first guidelines for prenatal PA. Based on the consensus opinion of a panel of obstetricians, recognised the safety of most aerobic PA, but advised caution with high impact activities such as running and included restrictions for duration (no longer than 15 minutes for strenuous PA), heart rate (no greater than 140 beats/minute), and core body temperature (no greater than 100.4°F/38°C)



# Physical activity for pregnant women

Department of Health (2017)

- Helps to control weight gain
- Helps reduce high blood pressure problems
- Helps to prevent diabetes of pregnancy
- Improves fitness
- Improves sleep
- Improves mood

- Not active?**  
Start gradually
- Already active?**  
Keep going



- Do muscle strengthening activities twice a week
- Every activity counts, in bouts of at least 10 minutes

- No evidence of harm
- Listen to your body and adapt
- Don't bump the bump

## 2019 Canadian Guideline for Physical Activity throughout Pregnancy

# Recommendations:

The specific recommendations in the 2019 Canadian Guideline for Physical Activity throughout Pregnancy are provided below.

# 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  $\geq 25$  kg/m<sup>2</sup>).

# 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.

# Evidence of other benefits

- Other benefits associated with being active during and following pregnancy include (low-moderate quality evidence):
  - Increased likelihood of vaginal delivery
  - Short labour
  - Positive effect on depression during and post pregnancy.
- Evidence base is growing – lots of interest and research in this area

Recent research using a porcine animal model suggests that aerobic exercise during pregnancy improves vascular function which may have long term health implications for offspring (Bahls, Sheldon, Taheripour, Clifford, Foust, Breslin, Marchant-Forde, Cabot, Laughlin, Bidwell & Newcomer, 2014).



Children born to mothers who exercised whilst pregnant had significantly lower BP at 8-10 years old (Pivarnik et al 2014)



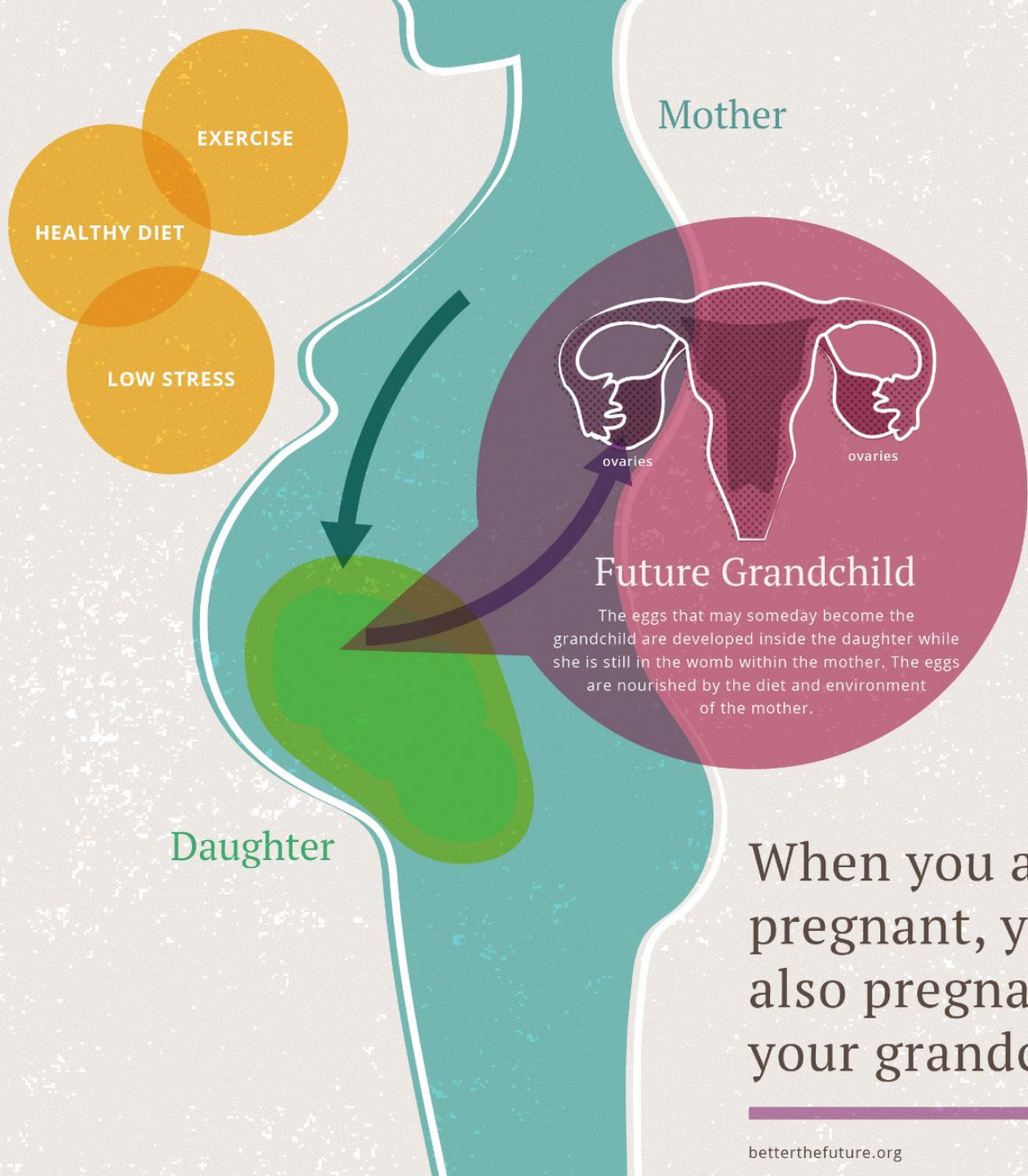
“The health of the child depends on the health of the mother.”

Hippocrates

**#LifecourseMinsk**







Mother

HEALTHY DIET

EXERCISE

LOW STRESS

### Future Grandchild

The eggs that may someday become the grandchild are developed inside the daughter while she is still in the womb within the mother. The eggs are nourished by the diet and environment of the mother.

Daughter

When you are pregnant, you are also pregnant with your grandchild.

# Considerations and precautions for exercise during pregnancy



Women with relative contraindications should discuss the advantages and disadvantages of moderate-to-vigorous intensity physical activity with their obstetric care provider prior to participation.

## Relative contraindications:

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



<https://csepguidelines.ca/guidelines-for-pregnancy/>

# Considerations and precautions for exercise during pregnancy

Women with absolute contraindications may continue their usual activities of daily living but should not participate in more strenuous activities.

## Absolute contraindications:

- 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.



<https://csepguidelines.ca/guidelines-for-pregnancy/>

# Activities not recommended for pregnant women

- Activities with an increased **risk of trauma**
- Activities with **physiological risk factors**
- Activities involving lying flat on back after the first trimester
- Activities pregnant women who are **not already active** should avoid might be running, or strenuous weight training



# Other Safety Messages

- CMO Infographic applies to **uncomplicated** pregnancies
- Additional monitoring and specialist support may be required for those with obstetric or medical **complications**
- Keep cool, comfortable and hydrated.
- Consider postural issues

# Safe activity is to be encouraged to allow women and babies to gain the benefits

## Review level evidence

- It is estimated that only 3-15% of women meet the recommended guidelines for physical activity during pregnancy (Currie et al., 2013)
- Mild, moderate and vigorous activity and sport all decreased from trimester 1 to 2 through to trimester 3 of pregnancy, and do not usually pick up post-delivery, rarely returning to pre-pregnancy levels (Abbasi & Van Den Akker, 2015).
- In short...mothers are at risk of being physically inactive and in doing so, lose out on the benefits of an active pregnancy

# Barriers and Enablers

- Pregnant women had positive attitudes towards physical activity, identifying it as important, beneficial and safe.
- *Barriers: Fatigue, lack of time, pregnancy discomfort.*
- *Enablers: maternal and foetal benefits, social support and pregnancy specific programmes.*
- *Conclusion: 'Person-centred strategies using behavioral change techniques should be used to address intrapersonal and social factors to translate pregnant women's positive attitudes into increased physical activity participation'.*

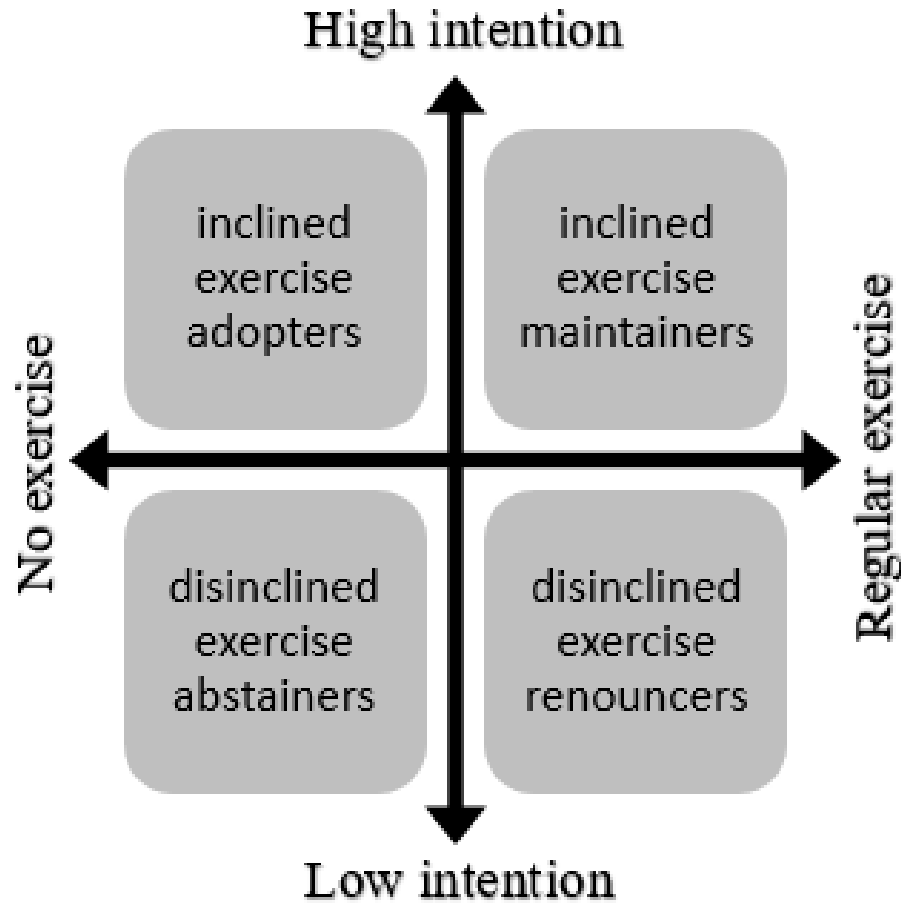
(Harrison, Taylor, Shields, & Frawley, 2018).

# Using theory to understand maintenance and initiation of PA behaviour during pregnancy

- 89 pregnant women, data at two time points ( 2 weeks apart)
- Novel application of the theory of planned behaviour through scrutiny of the role of past behaviour
- The importance of context
- Although engagement with physical activities may continue into pregnancy, the context in which it takes place requires re-evaluation of existing beliefs, values, and strategies.
- For women who were active before becoming pregnant, the process may be less consuming, but for those who were not previously active, more support may be required in terms of addressing concerns, education, overcoming barriers, and offering reassurance.

# Profiling

De vivo & Mills 'under review'  
(work from De Vivo PhD thesis 2017,  
open access on CCCU)



# Midwives perspective

- Ten community midwives- thematic analysis
- What are the midwives perceived roles and responsibilities in providing PA advice and guidance?
- *“I do, I think, umm, we are ideally placed to give that information particularly at the booking appointment; we’ve got the time capacity to do it. But I don't think we’re fully, umm, equipped with the information really...”*
- *It is apparent that despite the varied and complex scope of the profession, midwives do still observe a role and responsibility in advocating regular PA as part of a healthy pregnancy, however, there are various factors influencing their daily practice.*

(De vivo & Mills, 2019) <https://doi.org/10.31236/osf.io/8uc9z>

# Midwives themes

- What are the barriers perceived by midwives in providing effective PA advice and guidance to pregnant women?
- *“I do feel there is limited information, you know, and I don't have lots of knowledge about what advice to give women, I just draw on, like my personal experience and sort of what I've picked up going along, you know.”*
- *“but I think the fear, it's the fear attached to it, of not making sure that you're giving the right information and umm, you know, you know, not sort of upsetting the women or you know offending the women..”*
- Notwithstanding the value of physical activity during pregnancy, midwives felt constrained by several perceived barriers in providing effective physical activity advice and guidance

# Midwives themes

- What are midwives perceived opportunities in changing pregnant women's PA behaviour?
  1. Recognising and addressing barriers
  2. Professional development
  3. Inter-professional collaboration
  4. Communicating effectively through simple, credible resources
  5. Improved access, availability and awareness of suitable activities in the local community
  6. Encouraging a support network
  7. 'Selling' PA by challenging misconceptions and focusing on benefits
  8. Suitable motivation, incentives and reward



# *The Experience of IVF pregnancy and PA*

(Walker, Mills, & Gilchrist, 2017).

- Eight women, who had undergone successful IVF treatment
- *Superordinate – Negotiating a safe passage*
  - *Subordinate theme 2.1. Staying afloat*
- This theme speaks to managing perceived threats to pregnancy. PA was experienced by the majority of participants as a threat, particularly in the early stages of pregnancy, which affected PA behaviour:
- *'I barely did any sort of exercise during the pregnancy because I was scared of something happening and me losing it'. (Emily)*

<https://www.tandfonline.com/eprint/UADZAtyygdmMXVMNndGu/full>

# ***Subordinate theme 2.2. Knowing your body***

- The majority of participants experienced an internal *'need to be active'* (Rebecca) once they had arrived at a 'safe stage' of pregnancy. In some cases, the need to be active seemed connected to a sense of self – to an identity of someone who had previously valued PA – as in Paige's case:
- *'If I didn't do some type of exercise, I didn't feel like me'.*
- Most responded by being able to *'listen to [the] body'* (Victoria) to stay safe during PA or by modifying their level or mode of activity. *'Knowing the body'* seemed to be related to a process of rebuilding trust in the body's capabilities after an experience of infertility, where it was experienced as having failed.

## *Subordinate theme 2.3. Information as a help and hindrance*

- This subtheme reflects a huge variance in how information about PA during pregnancy (particularly in the early stages) was experienced by participants; for some it was useful, informative and gave confidence to engage in PA; for others it was experienced as confusing or non-existent.
- Five women experienced a lack of, or unclear, information from health professionals about PA which led to uncertainty in some cases, while others had **'wads of information booklets'** (Ella). Some participants had benefitted from the knowledge of friends and extended support networks with regard to information about PA; however, some experienced PA advice as contradictory, with internet forum-users advising her to **'rest up'** while **'some people would be just like, "oh like normal"'**.

Three of the overall insights from this body of work:

- (1) Pregnant women lack access to the necessary information that would allow them to make informed decisions regarding their engagement in physical activities;
- (2) A co-ordinated effort involving interprofessional collaboration is required to support pregnant women in overcoming barriers associated with regular physical activity participation; and
- (3) Profiling pregnant women according to motivation and behaviour status could serve as a useful and manageable starting point for intervening to produce positive changes in pregnant women's physical activity behaviour.

# Physical activity behaviour change interventions during pregnancy

- Interventions with regular face-to-face meetings are more likely to produce positive changes in physical activity behaviour...every contact counts!
- A person-centred approach involving individualised goal setting and planning is fundamental.
- Educational interventions (e.g. information provision) result in positive physical activity outcomes during pregnancy.
- Theoretically underpinned interventions allow for greater understanding and generalizability. They are also more likely to address the psychological needs of the individual.
- **Tailored** interventions that are flexible enough to accommodate physiological and psychological changes.



# Postpartum physical activity

There is currently no CMO guidelines on postnatal physical activity (although this is currently being developed and expected to be released in September 2019).

POGP publications- set of booklets ( covers range of issues, focus mostly on pelvic health and recovery)

<https://pogp.csp.org.uk/>

Return to running guidelines- comprehensive guide to postnatal return to running for clinicians and health professionals. <https://www.running-physio.com/postnatal-guide/>

# Post-partum quotes

## Capability



- “No one spoke about exercise...”
- I had no real information; was told to wait for the 6-8 week check and then couldn’t get an appointment”
- “Used google but don’t know who to trust”
- “...said drink lots of water and didn’t ask about activity...”
- Was all about breastfeeding and weighing- nothing about being active...”

# Opportunity



- “It’s hard when the baby cries, need someone to help, not all places have a crèche”
- “I want things locally and easy to get to...expensive to get to some”
- “Time to chat to other mums, learn new things...” (New mother while walking)
- “There are mixed views; some feel you shouldn’t do it, people tell you to go and have a sit down...”



# Motivation



- “no one tells you, think [healthcare FOR MUM AND BABY professionals] need to let you know the positives then might have carried on...”
- They concentrated on mental health, but I know exercise does help with mental health as well...”
- “Want to get body back, feel like me again, it helps...”
- “Just started going to the gym as it has a crèche - good for my mental and physical health...good for everything”

# *This mum moves (Sport England funded, Ukactive led project). Insights report*

## Capability

- Lack of information and specific advice from HCP.
- Reliance on other sources of information.
- During pregnancy, perceived focus on being health but with no link to physical activity.
- Following pregnancy, perceived focus on breastfeeding and mental health but no link to physical activity.
- Continuity of care/carer an issue.
- Health and safety restrictions at the workplace.
- Helpful information from other professionals.

## Opportunity

- Time
- Travel and cost
- Social support
- Social stigma

## Motivation

- Benefits for mum and baby
- Mental health
- Staying fit and being in shape
- Having own time and space



# Guidance postnatal- evidence pointing to:

- Resumption of physical activities should be **gradual and individualised**.
- Resumption of physical activities depends on (1) the type of delivery (for example, recovery time may be longer for those who've had a caesarean) and (2) how active a woman was before and during pregnancy.
- For most women, it is safe to go for walks, do pelvic floor exercises, and gentle stretches as soon as they feel up to it.
- A good time to discuss return to other activities is at the 6-week postnatal check.
- Generally, low impact physical activities (such as yoga) are safe to resume after 6 – 8 weeks.
- Social support for PA to be encouraged, also important for mental well-being
- Generally, high impact exercise (such as running) can be resumed after 12 weeks.



- Challenging time; Childcare barriers, tiredness, changing priorities.
- Important time; activity with baby, can introduce links to the birth -5 years guidelines, start of family activity being the norm? 😊

## Physical activity for early years (birth – 5 years)

Active children are healthy, happy,  
school ready and sleep better



BUILDS  
RELATIONSHIPS  
& SOCIAL SKILLS



MAINTAINS  
HEALTH &  
WEIGHT



CONTRIBUTES TO  
BRAIN DEVELOPMENT  
& LEARNING



IMPROVES  
SLEEP



DEVELOPS  
MUSCLES  
& BONES



ENCOURAGES  
MOVEMENT  
& CO-ORDINATION

### Every movement counts

Aim for at least  
**3**  
Hours  
across everyday



PLAYGROUND



JUMP



CLIMB



MESSY PLAY



THROW/CATCH



SKIP



OBJECT PLAY



DANCE



GAMES



PLAY



TUMMY TIME



SWIM



WALK



SCOOT



BIKE

**Move more. Sit less. Play together**

UK Chief Medical Officers' Guidelines 2011 Start Active, Stay Active: [www.bit.ly/startactive](http://www.bit.ly/startactive)

# Whole systems approach

- Opportunities to align and reinforce consistent messages through effective inter-professional collaboration
- Following recent consultation the Chartered Institute for the Management of Sport and Physical Activity (CIMSPA) have updated their professional standards for working with antenatal and postnatal clients to be in line with CMO guidelines.
- The midwives influence may be better served as part of a wider network of facilitators that share a consistent and confident message regarding the normalisation of active pregnancies in the wider population (De vivo & Mills 2019).
- Ultimately a need to normalise PA during pregnancy and the postnatal period to maximise available benefits to mothers, babies and families

# Projects, campaigns and research

- To allow all women and families to experience the benefits of PA during and after pregnancy there is an urgency to utilise all avenues to normalise this behaviour as a prevention rather than a treatment across our society.



*SP<sup>4</sup>A*



**Moving Medicine**



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- GIF <https://tenor.com/view/pregnant-gif-9465424>
- <http://betterthefuture.org/how-we-got-here-the-barker-hypothesis-and-the-developmental-origins-of-health-and-disease/>
- <https://www.mommyconnections.ca/>

Thank you for listening 😊

# Any Questions?

Please submit any questions using the box in the bottom right hand corner of your screen.

We'll try fit in as many as possible in the time remaining.



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# What's coming up?

Please join us for the upcoming webinar.

[What is the right exercise for your age?](#) By Dr Julie Broderick

**Date:** Wednesday 19th June 2019

**Time:** 15.00 BST

Registration is open now.

\*Summer break in July/August, we are back in September.

Further details on: [www.humankinetics.me](http://www.humankinetics.me) and [www.uk.humankinetics.com](http://www.uk.humankinetics.com)

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# Thanks from us!



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Please take a few moments when your webinar window closes to complete a short survey on today's presentation – we appreciate your feedback as it helps us continually improve our webinars.

We will email everyone a link to the recording of today's presentation, so you can view it yourself or pass it along to friends or colleagues.

Thank you again for your participation, enjoy the rest of your day.