

## **Physical activity after gestational diabetes: more motivation or change the situation?**

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This document is the Accepted Version [AM]

### **Citation:**

IOANNOU, Elysa, HUMPHREYS, Helen, HOMER, Catherine and PURVIS, Alison (2023). Physical activity after gestational diabetes: more motivation or change the situation? *The Sport and Exercise Scientist*, 77 (Autumn). [Article]

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## **Physical activity after Gestational Diabetes: more motivation, or change the situation?**

*Ms Elysa Ioannou (PhD student), Dr Helen Humphreys, Dr Catherine Homer and Dr Alison Purvis discuss physical activity promotion after Gestational Diabetes.*

### **Introduction**

Physical activity (PA) is particularly important for diabetes risk management, including after Gestational Diabetes (GDM), which is pregnancy-specific inability to regulate blood sugar levels. Women with previous GDM are at a 10-times increased risk of Type 2 Diabetes (T2DM) (Vounzoulaki *et al.*, 2020). However, internationally, participation in initiatives targeting behaviours, including PA, to reduce risk of T2DM, is low and variable (Dasgupta *et al.*, 2018).

The theory behind the Socio-Ecological Model (SEM) is that individual behaviour, such as PA, is impacted by wider, inter-related cultural, social and other contextual factors (Mcleroy *et al.*, 1988). The SEM can be used as a tool for purposeful intervention design and planning to ensure multiple levels, e.g., social, organisational, are targeted, which could improve uptake of behaviours, such as PA.

### **Intervention components categorised using the SEM**

We conducted a review to identify lifestyle interventions containing PA, aiming to reduce risk of Type 2 Diabetes (T2DM) after GDM. The aim was to investigate the extent a socio-ecological approach was integrated in the intervention design, and to investigate patterns across wide-ranging PA outcomes (summarised below).

#### ***Intrapersonal***

Targeting individuals included behaviour change strategies and educating around risk or giving lifestyle advice, including printed materials. Only 20% of the interventions addressed how to do PA with exercises like a program or instructional videos.

#### ***Social & Community***

Intervention components involved Health Care Professionals e.g., dietitians, or laypeople to deliver the interventions, and connecting women through forums or group-based sessions. One-fifth of the interventions allowed participants to bring their family or partner to sessions.

#### ***Organisational***

At the organisational level, components included those impacting context and access. For example, remote delivery of the intervention, provision of childcare or covering costs.

### **Strategies for increasing PA after GDM**

#### ***Importance of community and social support***

After GDM, many women want more support, including connecting and meeting with other mums who have had GDM (Dennison *et al.*, 2022). Forums may not be equivalent to live group sessions as they are less personal and may not be providing the type of social support women with previous GDM are looking for. Therefore, connecting women with previous GDM through group-based sessions could be a useful social-level component to increase engagement with PA.

#### ***Remote delivery of interventions***

Home-based PA could better engage women after GDM, as lack of time and flexibility are key barriers to activity (Ioannou *et al.*, 2023). Given, as highlighted above, group-based sessions are an important social-level consideration, a blended approach could be beneficial. Future interventions should consider offering hybrid options for participation and find a balance between an overly structured, regimented approach and a flexible one, to increase accessibility for mothers. Taking an SEM lens, this flexibility of online approaches is important as it could overcome access, organisation, and environmental barriers to PA.

#### ***Provision of childcare***

Lack of childcare is one of the biggest structural barriers to PA after GDM (Ioannou *et al.*, 2023). Childcare is not wholly within an individual's capability to overcome and should be addressed by the non-intrapersonal levels of

the SEM. For example, by providing childcare options within PA contexts, like child minding services attached to gyms. However, it is important to consider that the provision of childcare may also not be a simple answer as just 'providing' childcare, or reimbursing childcare. Some preliminary data from the next stages of our work suggests how childcare is implemented need further consideration and co-production to ensure opportunities are well-received.

### Take-home messages

Despite having this increased understanding of multi-level intervention components which could be helpful for increasing PA, it is still unclear **how** to implement these findings. Future intervention planning should consider the components highlighted for a multi-level approach. However, these components should be developed and implemented with women with previous GDM, incorporating essential elements of patient and public involvement, co-production, or co-design.

### References

- Dasgupta *et al.*, (2018).** Achieving penetration and participation in diabetes after pregnancy prevention interventions following gestational diabetes: A health promotion challenge. *Diabetes Res Clin Pract*, 145, 200–213.
- Dennison *et al.*, (2022).** “Post-GDM support would be really good for mothers”: A qualitative interview study exploring how to support a healthy diet and physical activity after gestational diabetes. *PLOS ONE*, 17(1), e0262852.
- Ioannou *et al.*, (2023)** A Systematic Review and Thematic Synthesis of the Barriers and Facilitators to Physical Activity for Women after Gestational Diabetes: A socio-ecological approach. *BJD*, 23(1), 2-12.
- McLeroy *et al.*, (1988).** An Ecological Perspective on Health Promotion Programs. *Health Educ Q*, 15(4), 351–377.
- Vounzoulaki *et al.*, (2020).** Progression to type 2 diabetes in women with a known history of gestational diabetes: systematic review and meta-analysis. *BMJ*; 369.