

# Exercise during pregnancy improves vascular function of offspring into adulthood

October 25 2013

---

Exercise during gestation has the potential to program vascular health in offspring into their adulthood, in particular significantly altering the vascular smooth muscle, shows a new study published today in the journal *Experimental Physiology*.

The current guidelines for pregnant women recommend thirty minutes of moderate intensity [physical activity](#) on most if not all days of the week. Unfortunately, not all physicians are yet convinced that [exercise](#) is beneficial for both the pregnant women and their [offspring](#).

The results of this study provide evidence that maternal exercise during pregnancy is a powerful programming stimulus in the arteries of the offspring and that this programming may have implications for future cardiovascular disease susceptibility of the offspring.

Previous studies only focused on offspring at an early age, so this study is the first to demonstrate the effects of exercise on adult offspring.

Dr Sean Newcomer, of California State University San Marcos USA, and Dr Bahls, of Universitätsmedizin Greifswald Germany say:

"Our study was the first to demonstrate that maternal exercise during pregnancy significantly impacts vascular function in adult offspring."

"A second important aspect of the findings in our study is that previous research identified the endothelium, which is the single-cell layer lining

all blood vessels, to be susceptible to foetal-programming interventions. Contrarily, we show that the [vascular smooth muscle](#) was significantly altered in adult offspring from exercise trained mothers."

The research took place in pigs as they have human-like responses to physical activity and can be trained to complete exercise regimens, whilst avoiding the time and ethical constraints of long-term studies in humans.

Drs Newcomer and Bahls explain how they carried out the research:

"Swine are considered a superior animal model for cardiovascular studies compared to rodents. Pregnant swine were treadmill exercised for 20-45 minutes for five days a week, which is consistent with American Congress of Obstetricians and Gynaecologists (ACOG) recommendations. We assessed vascular function in offspring femoral arteries using in vitro techniques."

Future research, especially in humans, is essential to not only improve biological understanding of how exercise during pregnancy alters adult offspring health, but also to ensure evidence-based guidelines for [pregnant women](#).

Drs Newcomer and Bahls say:

"We are only starting to understand how exercise during gestation influences offspring adult health and disease. Results like ours may help to create guidelines enabling women to make the best decisions for them and their children by providing evidence based health choices.

"Physical activity may act through multiple pathways which depend on type, duration, intensity and frequency of the exercise regimen. Furthermore, it is essential that future research investigates the coronary

circulation and also establishes what impact these reported changes in [vascular function](#) in the offspring have on cardiovascular disease susceptibility."

**More information:** Bahls M, Sheldon R, Taheripour P, Clifford K, Foust K, Breslin E, Marchant-Forde J, Cabot R, Laughlin H, Bidwell C and Newcomer S (2013). Mothers' exercise during pregnancy programs vasomotor function in adult offspring. *Experimental Physiology*, 2013.

Provided by Wiley

Citation: Exercise during pregnancy improves vascular function of offspring into adulthood (2013, October 25) retrieved 27 April 2024 from <https://medicalxpress.com/news/2013-10-pregnancy-vascular-function-offspring-adulthood.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.