

Pelvic dimensions and hypotheses on duration of active second stage of labour

Tilde Østborg¹ and TM Eggebo²

¹Stavanger University Hospital

²Trondheim University Hospital (St. Olavs Hospital)

March 10, 2023

Pelvic dimensions and hypotheses on duration of active second stage of labour

Tilde Broach Ostborg

Stavanger University Hospital

TM Eggebo

Trondheium University Hospital

We would like to thank Jan Novak and Petr Sedlak for their interest and comments to our manuscript. We found that increasing BMI was associated with shorter estimated median duration of the active second stage of labour.¹

We could not find any obvious causal mechanism for our findings; but suggested some possible explanations. The shorter active second stage may be related to increased abdominal pressure with increasing BMI, or perhaps increased strength when pushing.^{2, 3} Increased infiltration of fat in the muscular pelvic floor may decrease its strength and resistance.⁴ The presence of fat in the birth canal of obese women may delay the urge to bear down, thereby postponing active pushing until the head is lower in the maternal pelvis.

Novak et al. measured the bi-ilac and bi-cristal diameters of the greater pelvis and found a broader pelvis in individuals with a history of obesity from adolescence.⁵ We supposed that there would be an association between the size of the greater pelvis and the size of the birth canal. We agree to the limitations commented by Novak and Sedlak. However, our proposed causal mechanisms are merely hypotheses, and cannot be accepted nor rejected based on current knowledge.

1. Ostborg TB, Sande RK, Kessler J, Tappert C, von Brandis P, Eggebo TM. Put your weight behind it-Effect of body mass index on the active second stage of labour: A retrospective cohort study. BJOG. 2022;129:2166-2174.
2. Lambert DM, Marceau S, Forse RA. Intra-abdominal pressure in the morbidly obese. Obes Surg. 2005;15:1225-1232.
3. Tomlinson DJ, Erskine RM, Morse CI, Winwood K, Onambele-Pearson G. The impact of obesity on skeletal muscle strength and structure through adolescence to old age. Biogerontology. 2016;17:467-483.
4. Pomian A, Lisik W, Kosieradzki M, Barcz E. Obesity and Pelvic Floor Disorders: A Review of the Literature. Med Sci Monit. 2016;22:1880-1886.
5. Novak JM, Bruzek J, Zamrazilova H, Vankova M, Hill M, Sedlak P. The relationship between adolescent obesity and pelvis dimensions in adulthood: a retrospective longitudinal study. PeerJ. 2020;8:e8951.