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OP Education for Competitiveness
INVESTMENTS IN EDUCATION DEVELOPMENT

Manual perineal protection with various sizes of fetal head

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A finite element biomechanical model is used to analyze the tension of the perineum during vaginal delivery in 10 modifications of manual perineal protection for 3 different sizes of the fetal head and compare them with the "hands off" technique. The aim of this study is to evaluate whether the most effective modification of manual perineal protection with normal fetal head size is also the most effective in cases with substantially smaller or larger fetal head.

Numerical FE analyses of the pelvic floor during childbirth

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This paper presents numerical FE analyses of the pelvic floor model during childbirth. From CT a MRI scans was created 3D FE model of pelvic floor with bones and soft tissues and organs. On this model were carried out series FE simulations of childbirth. Aims of these simulations were analyses of the loading and damage risk on some selected parts of pelvic floor model.

Enhanced computational model of the bladder tissue

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In this model are incorporated three types of cells: Smooth muscle cells, interstitial cells of Cajal and the urothelium cells. The main result of this complex nonlinear dynamical system is the time evolution of the calcium concentration in the muscle cell. This is the main control parameter for the bladder contraction. The influence of the urothelium on the behavior of bladder tissue is investigated and compared with the published experimental results.

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