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Joint mobility – is it a marker for stress incontinence?

AIMS OF STUDY: It has been well demonstrated that collagen abnormalities are associated with prolapse and incontinence (1,2). Women with joint hypermobility have a significantly higher prevalence of genital prolapse compared with women with normal joint mobility (3). In pregnancy there is marked remodeling of collagen and increased collagenolytic activity, and this may lead to alterations in the mechanical strength of connective tissue and so account for the high prevalence of stress incontinence seen in pregnancy. An increase in antenatal bladder neck mobility has been shown to be associated with an increased risk of postpartum stress incontinence(4), suggesting that this marker of collagen weakness may identify women at inherent risk of postpartum stress incontinence. It may be expected that an increased joint mobility may be associated with the presence of stress incontinence however this has not been previously evaluated.
The aims of this study were to (1) assess the relationship between joint mobility and objective and subjective evidence of stress incontinence and (2) assess the use of an antenatal joint mobility score to predict postpartum stress incontinence.

METHODS: We interviewed English-speaking nulliparous women with singleton pregnancies in the third trimester. A structured urinary symptom questionnaire was completed by each woman. Exclusion criteria included active or recurrent urinary tract infection or urinary tract abnormality. At initial interview, personal and family histories of incontinence, prolapse and collagen weakness were recorded. Physical examination was performed to assess physical markers of collagen weakness such as striae, hernia, varicose veins and joint hypermobility. Joint mobility scores were assessed using the modified Beighton's criteria (5). These women were then invited to return 12 weeks postpartum when the same questionnaire was completed and subtracted cystometry performed.

RESULTS: Two hundred and eighty-six women attended for antenatal investigations and 161 returned postpartum. In those women who attended for antenatal investigations the mean age was 29 years (range:17-43 years). The average gestation at attendance was 37 weeks (range:34-41 weeks). The ethnic distribution was Caucasian 70%, Afrocaribbean 14%, Asian 15.7% and Southeast Asian 0.3%.
Stress incontinence was reported by 131 (45.8%) of women antenatally and by 31 (19.2%) of the 161 women who returned postpartum. The results of the urodynamic studies are shown in Table 1.
The mean joint mobility score was 4.1 (range:0-10). There was no relationship between joint mobility scores , the symptom of stress incontinence and urodynamic diagnosis of genuine stress incontinence. Higher antenatal joint mobility scores were not associated with an increased risk of developing postpartum stress incontinence. There was also no relationship between the presence of other physical markers suggestive of collagen weakness such as striae, varicose veins, a family history of incontinence, prolapse or collagen abnormality and the presence of antenatal or postnatal stress incontinence.

Table 1. Urodynamic studies before and after delivery

Urodynamic diagnosis	Antenatal (n=286)	Postnatal (n=161)
Normal	207(72.4%)	134 (83.3%)
Genuine stress incontinence(GSI)	26 (9.1%)	8 (5.0%)
Detrusor instability (DI)	24 (8.4%)	11 (6.8%)
Mixed GSI and DI	5 (1.7%)	1 (0.6%)
Sensory urgency	6 (2.1%)	1 (0.6%)
Low compliance	8 (2.8%)	1 (0.6%)
Voiding disorder	10 (3.5%)	5 (3.1%)

CONCLUSIONS: This is the first study to evaluate the relationship between joint mobility and objective and subjective urinary stress incontinence. This study did not demonstrate a relationship between antenatal joint mobility and other physical markers of collagen weakness and objective and subjective stress incontinence. There was also no relationship between a higher antenatal joint mobility score and postpartum stress incontinence. This suggests that though joint hypermobility has been associated with prolapse the aetiology of stress incontinence may differ form prolapse. It may also be that joint mobility or these other physical markers are not useful markers of collagen weakness especially in pregnancy. A larger study is required to evaluate the role of physical markers of collagen weakness in relationship to stress incontinence and to assess whether these markers may enable the prediction of women at "high-risk" of pelvic floor dysfunction.

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PELVIC MORPHO-TOPOGRAPHY AND PATHOGENESIS OF GENITAL PROLAPSE

AIMS OF STUDY. In order to study the pelvic bone system changes and their relation to genital prolapse pathogenesis, a pelvimetric study, followed by a biomechanical analysis of the obtained data, is carried out.

METHODS. The material encompasses 340 genital prolapses and 136 control cases (patients without genital prolapse, different age), subjected to colpocystography, from whose first position, the author performs the pelvimetric investigations. Except classic pelvimteric parameters, he introduces an original measure, called distance "X", characterizing the ventral pelvic part, directly exposed to the effects of intra-abdominal force "hammer". A biomechanical analysis tries to elucidate the negative effects of the pelvic bone changes on the pelvic suspensory and sustensory systems.

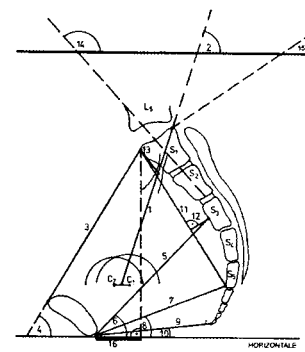

Fig 1. Scheme of measured pelvic parameters: 16-distance "X"

RESULTS. Computerized analysis of the data demonstrates that pelvic bone system in genital prolapses presents a progressive horizontalization and an infundibulary caudal enlargement. Namely, with total uterine prolapses, the middle pelvis is larger for 6,7%,pelvic outlet for 13,8% and the distance "X" for 56,7% in relation to control cases. The causes for these changes could be found in dorsal transposition of the inferior part of the sacrum and the antero-posterior rotation of the whole pelvis around a center located in the acetabulum. Aiming to determine the etiology of these changes, their relations to the patient age are investigated. Except, the identical character, the investigations demonstrate their progressivity, related to the aging process. Namely, the pelvis in the patient's group older than 61 years,is more horizontal (14,5°) and the distance "X" is larger for 91,4% than in controls - patients younger than 30 years.

At the other side, the study shows that the pelvis of control cases, without relation to their age, looks like the pelvis of the control patients and aged less than 30 years, and of that of nulliparous women, aged less than 35 years. Therefore, a simple conclusion is imposed by itself: the patients free of prolapse preserve their youthful pelvic morpho-topography!