The association of self-reported generalized joint hypermobility with pelvic girdle pain during pregnancy: a retrospective cohort study by Kerstin Alquist et al  
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(Authors include Lena Nilsson-Wikmar; an important researcher who studied the quality of life implications of PGP/LBP in pregnancy, and who advocated for the importance of discriminating between LPB vs PGP in research pregnancy related pelvic girdle pain)

Background:
Generalized joint hypermobility (GJH) is a collagen phenotype that impacts the entire body. It may affect multiple joints or allowed joints to move beyond normal limits. It is a congenital and possibly inherited trait. GJH is often asymptomatic but has been associated with musculoskeletal pain including chronic myofascial pelvic pain. The association of GJH & PGP in pregnancy is scarcely investigated. The authors hypothesize that women with GJH would more often report PGP during pregnancy. The aim of the project was to study the association between self-reported GJH and the presence of PGP.

Methods: cohort study of self-reported data from the Swedish longitudinal pregnancy planning study (SWEPP) which is based on three questionnaires. The present study use data from questionnaires one and two in Swedish language which had pain drawings available.

Figure 1 outlines the recruitment strategy. 2217 out of 5796 eligible women from 144 antenatal clinics in Sweden were ultimately recruited for the study by answering questionnaires one and two of the SWEPP - longitudinal pregnancy planning study. Questionnaire one included socio-demographic data; questionnaire 2 included a pain drawing are the respondents indicated paint areas using a roller mouse, and the five part questionnaire (5PQ). The 5PQ is a questionnaire that identifies joint hyper-mobility. It has a sensitivity of 84% and specificity of 89%. The five questions are answered with a yes or no. Yes score equals one, no = 0. A total score of 0 to 5 is calculated. A cut off point of equal to or greater than two positive answers defines generalized joint hypermobility. The score is based on the correlation to the Beighton scale of 4/9. 
The pain drawing was scored by computer. Figure 2 demonstrate where on the drawing would indicate pelvic girdle pain.

Statistical methods: characteristics of the study sample are presented at means and as proportions (percentages). Group differences were assessed using two sample t-test and Wilcoxon Rank sum tests. Uni variable and multi variable logistical regression analysis were used to test the association of GJH with the presence of PGP and Odds ratios and adjusted odds ratios were estimated. Cluster analysis were performed, trends across the number of positive responses to the 5PQ were also tested. Additional analysis in strata of women with known risk factors were performed including obesity, history of back pain before the current pregnancy and physical activity three months before the pregnancy.

Results

50.3% response rate is acceptable and similar to other survey studies.

The characteristics of the study population are shown in table 1. The mean age of the cohort was 29 years. 55.8% reported at least one previous childbirth.
Primary outcome measure was the presence of PGP as indicated on the pain drawing for each trimester and its association with GJH.

Prevalence of self reported generalized joint hyper-mobility was 28.7%. Among women with classified GJH the most frequently answered questions were number one and number three of the 5PQ.
1. Or could you ever place your hands flat on the floor without bending your knees?
2. The child did you amuse your friends by controlling your body and a strange shapes or could you do the splits?

Overall nine month prevalence of pelvic girdle pain was 43% shown in table 2.
• Women with GJH were more likely to report PGP during pregnancy than women without GJH, at 47.9% versus 41% which was statistically significant to P <= than 0.001.
• They were likely to report PGP in trimester one versus and trimester three.
• The Association between GJH and PGP for the entire pregnancy remained after adjustment for age and ethnicity.
• The adjusted odds ratio of PGP in the entire pregnancy increased with the increasing number of positive answers to the 5PQ in trimester one only Table 3

The association of GJH & PGP displayed similar patterns in strata of women based on BMI and trimester one, parity, history of back pain, and physical activity three months before pregnancy.

Discussion
Women with GJH at 27% higher odds of reporting PGP during the entire pregnancy compared with those without GJH. The odds of PGP was 54% in trimester one. The odds of PGP also increased with a number of positive responses to the 5PQ for the entire pregnancy and in trimester one.

Authors comment that this prevalence of GJ age of 28.7% was higher than expected compared with estimated prevalence of 10 to 20% in the general population. Population estimates however are inconsistent in the literature.

Since the 5PQ has been developed, measurement properties for classifying GJH have been revised and the cut off point for GJH for fertile women has been raised from a Beighton score of 4/9 to 5/9. If the 5PQF2. With a cut off point at three in the 5PQ the prevalence of self reported GJH would be 13.6% in the study.

Strength of the study: longitudinal design with large study sample that generated 4434 pain drugs for analysis. Authors advocate using pain drawing to distinguish between PGP and lumbar pain. Are use of a pain drawing for diagnosis is limited without comparable objective diagnostic testing. Same limitations are true with the GJH as a diagnostic tool as compared to comparable objective diagnostic testing.

The survey response rate of 50.3% is considered good, a considerable number of dropouts can introduce selection bias. In other words perhaps only women with pain answered the questionnaire.

Implications: Pregnant women with pelvic girdle pain may benefit from being assessed for GJH early in pregnancy for preventative and therapeutic measures to avoid increased risk of chronic PGP.
**Journal Club discussion questions:**
Are you screening pregnant patients for GJH? Do GYNS know about GJH/EDS?

*Thoughts from April 6: recommend screen before pregnancy*

When you identify GJH, what education are you providing your patients about it?

How does the care of a pregnant women with GJH differ from the care of a pregnant woman without GJH?

Advise re: physical activities, bracing, risk of pain, concerns relating to delivery, vaginal vs C section, need for closer monitoring during pregnancy and postpartum,

*Thoughts from April 6: Intelleskin garments, Jogbra
V2Brace*