Knee-Related Pain Problems during Pregnancy Correlate with an Increase in Body Weight. Results of a Prospective Study

Original title: Knieschmerz im Verlauf der Schwangerschaft in Bezug zum Anstieg des Körpergewichts. Ergebnisse einer prospektiven Studie

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**Purpose:** This study aimed to evaluate the incidence of knee pain or the intensification of knee-related problems during pregnancy. We hypothesised that the occurrence of knee problems correlates with an increase in body weight during pregnancy.

**Methods:** A total of 326 women (30th to 40th week of pregnancy) were involved in this study. At onset of the pregnancy, the patients were 29.4 [95 % CI 28.8–29.9] years of age. We asked all patients retrospectively about their anthropometric data at the beginning of pregnancy. All patients provided information about former knee problems, knee problems occurring after onset of pregnancy or any increase in these problems. These knee-patients were re-evaluated 6 weeks after childbirth. At follow-up, the patients were asked about their knee-problems and about their body weight.

**Results:** At the beginning of pregnancy, the mean body weight was 68.0 kg (95 % CI 64.4–69.6; range 41 to 117). The mean BMI of all patients was 24.5 kg / m² (25 % CI 23.9–25.0; range 17.0 to 26.0). The absolute body weight increased by 13.8 kg (95 % CI 13.2–1.5; range 3 to 38). A total of 24 patients (7.4 %) reported new knee problems during pregnancy. Two patients reported an increase in knee-related problems during pregnancy (0.6 %). The incidence of knee-related problems (new cases and increase of problems n = 26) was 26/326 or 7.6/100 pregnancies. In patients without knee problems, the pregnancy-related increase in the BMI (ΔBMI) was 4.8 kg / m² (95 % CI 4.6–5.1, range 1.1 – 14.1). In cases with incident knee problems, the ΔBMI was 5.9 kg / m² (95 % CI 4.9–6.9, range 2.1–11.8). The increase in body weight (Δbody weight) in patients without knee problems was 13.5 kg (95 % CI 12.9–14.2, range 3–38). Patients with incident knee pain experienced a Δbody weight of 16.8 kg (95 % CI 13.9–19.4, range 6–35). The differences in ΔBMI and Δbody weight were significant (p = 0.009). A Δbody weight > 20 kg was a significant risk factor for pregnancy-related knee pain [OR = 3.8 (95 % CI 1.5–9.3, p = 0.009)]. A total of 23 incident cases (92 %) underwent a follow-up interview 6 weeks after parturition. At this time, a total of 6 patients (26.1 %) had not experienced further knee problems, whereas persistent knee problems were reported in the remaining patients (73.9 %). Patients without any knee complaints [body weight 72.5 kg (95 % CI 60.9–83.9)] tended to have a lower body weight at follow-up than patients with persistent knee pain [85.5 kg (95 % CI 71.8–99.1), p = 0.162).

**Conclusion:** There is a body weight-associated increase in the incidence of functional knee pain in pregnant women. In about one-third of the cases, knee problems persist after pregnancy and are associated with a residual increase in body weight. Thus, we conclude that body weight is a potential risk factor for functional knee pain.

Fig 1 Increase in body mass index (ΔBMI [kg / m²]) in patients without and with pregnancy-related knee problems