effects of pure cocoa on a mechanically-induced headache model in healthy individuals. Serum β-endorphin concentrations were also measured to identify if any changes occurred in response to cocoa consumption.

Methods: Healthy volunteers (8 men and 7 women, average age: 22 ± 1.8 years) participated in a crossover study (approval number: N-20160015) consisting of two sessions with consumption of water or cocoa. A mechanical headband (custom-made, Aalborg University) was utilized to induce a moderate headache with pain rated as 4 on a Visual Analogue Scale (VAS_{0-10}). In each session Pressure Pain Threshold (PPT) was measured by a hand held algometer at temporalis muscles and blood samples were collected to assess β-endorphin levels by ELISA. ANOVA analysis and independent two-sample *t*-tests were performed for comparisons. $P < 0.05$ was considered as significant.

Results: Consumption of cocoa compared to water did not change the pressure sensitivity in the craniofacial region without mechanical headband. No changes occurred in PPT with the mechanical headband either. Regardless of substance consumption (water/cocoa), endorphin levels remained unchanged.

Conclusions: Findings demonstrated that pure cocoa in the applied concentration and within the timeline of this study did not seem to exert any analgesic or pro-algesic effect on the mechanical sensitivity of craniofacial muscles or β-endorphin levels.

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The impact of naloxegol treatment on gastrointestinal transit and colonic volume

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Aims: Opioid treatment is associated with gastrointestinal (GI) side effects, known as opioid-induced bowel dysfunction (OIBD). Symptoms of OIBD are caused by opioid receptor activation in the enteric nervous system, which results in increased GI transit time and increased faecal volume in the colon. OIBD can be experimentally induced in healthy participants through oral oxycodone treatment. The aim of this study was to investigate whether administration of naloxegol, a peripherally restricted opioid antagonist, could reduce GI symptoms, GI transit time, and colorectal volume, using an experimental model of OIBD.

Methods: In a double blind crossover trial, twenty-five healthy males were randomly assigned to a six day treatment of oral oxycodone in combination with either oral naloxegol or placebo. At baseline and at day six, participants filled in the Patient Assessment of Constipation Symptom questionnaire, and colorectal volume was quantified with a magnetic resonance imaging method. Participants swallowed a small electromagnetic capsule, which allowed determination of total and segmental GI transit times, using the 3D-Transit system.

Results: In the established model of oxycodone induced OIBD, fewer GI symptoms were observed during naloxegol treatment, compared to placebo ($P < 0.01$). Naloxegol decreased median total transit time by 27% (56 *vs* 71 h, $P < 0.05$) and decreased colorectal transit time by 33% (45 *vs* 59 h, $P < 0.01$), compared to placebo. No difference in colorectal volume was found between the two treatments.

Conclusions: In an experimental model of OIBD, GI symptoms and GI transit time were reduced during treatment with naloxegol, compared to placebo. However, naloxegol treatment did not reduce colorectal volume. These findings add information on the potential of naloxegol to be used in prevention and treatment of OIBD.

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Preoperative downregulation of long-noncoding RNA Meg3 in serum of patients with chronic postoperative pain after total knee replacement

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Aims: The incidence of chronic pain after total knee replacement (TKR) is approx. 20%, why preoperative risk factors for the development of chronic postoperative pain are highly warranted. Studies have indicated that preoperative inflammatory markers hold prognostic information for the development of chronic postoperative pain. Long-non-coding-RNA (lncRNA) regulates the expression of genes related with e.g. inflammation. The current study aimed to investigate the preoperative influence of lncRNA on the development of chronic postoperative pain following TKR.

Methods: 24 patients, who developed chronic postoperative pain and 12 patients with painfree recovery, were sampled from a larger clinical study. Preoperative serum samples were obtained from all patients and analyzed for potential lncRNA candidates. Briefly, total RNA was extracted from serum using miRNeasy Mini kit. cDNA samples were pre-amplified with RT2lncRNAPreAMP Primer Mix that contained specific set of primers to target genes of Human RT2lncRNA Inflammatory Response & Autoimmunity PCR Array. Further, the reaction (25 μl) will be aliquoted into the wells of RT2lncRNA PCR Array Human Inflammatory Response & Autoimmunity. LncRNA-expressions were compared between the two groups using student's *t*-test.

Results: 19 patients were excluded due to the "cut-off" of the statistical analysis's software that not included the samples because of genomic contamination, retro transcription and amplification's low efficiency. A total of 13 patients were included (7 with pain, 6 without pain). The preliminary analysis found that the MEG3-lncRNA (implicated in tumor vascularization suppressing) were downregulated in patients who developed chronic postoperative pain compared to patients with a normal recovery (fold change: −9.56, $P < 0.05$).

Conclusions: Preoperative MEG-3 is downregulated in patients in risk of developing chronic postoperative pain following TKR. Future research, in larger cohorts should further investigate the role of MEG3 and hence the improvement of the cartilage

vascularization and other lncRNAs as predictive indicators for the development of chronic postoperative pain.

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Painful diabetic polyneuropathy and quality of life in Danish type 2 diabetic patients

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Background and aims: Painful polyneuropathy (PPN) is a disabling complication of diabetes. This study aims to determine its prevalence and relationship with Quality of Life (QoL) in a nationwide prospective cohort of incident recently diagnosed Danish type 2 diabetic patients.

Methods: We sent a detailed questionnaire on neuropathy, pain and QoL to 6726 patients prospectively enrolled from general practitioners and hospital specialist outpatient clinics into the Danish Centre for Strategic Research in Type 2 Diabetes (DD2) cohort. Patients who reported pain in both feet and a score ≥3 on the Douleur Neuropathique (DN4) questionnaire were considered to have possible PPN. QoL and pain intensity were measured on a numeric rating scale (NRS, 0–10). The Michigan Neuropathy Screening Instrument (MNSI) was used to assess neuropathy.

Results: A total of 5371 (79.8%) returned a complete questionnaire. 848 (15.8%) recently diagnosed type 2 diabetic patients reported pain in both feet. Of the 619 patients with pain who completed the DN4 questionnaire, 404 (65.2%) had a DN4 score ≥3, corresponding to a prevalence in the total population of possible PPN of 10.3%. Mean pain intensity was 5.2 (SD 2.2) and 89% had a MNSI score ≥3. Patients with possible PPN had a substantially lower QoL score than those without PPN (median QoL score 6 versus 8 ($p < 0.001$)), also when correcting for MNSI score.

Conclusions: Ten percent of newly diagnosed type 2 diabetic patients in Denmark had possible PPN. Patients with PPN had lower QoL than patients without PPN.

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"*What about me?*": A qualitative explorative study on perspectives of spouses living with complex chronic pain patients

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Aims: Being a close relative of a chronic pain patient affects family life. No study has been carried out in Denmark to explore relatives' life experiences and challenges while living with complex chronic pain patients. Hence, the aim of the study was to investigate the experiences of living with chronic pain patients from their spouses' perspectives. In particular, this study focused on how spouses describe: (i) their everyday tasks and roles as a spouse; (ii) the types of changes and challenges that the pain condition brings into their partnership lives; (iii) a gender difference in these experiences; and (iv) the type of help they wish to receive from the healthcare system.

Methods: Two focus group interviews were conducted in Multidisciplinary Pain Center, Køge, including a total of 11 spouses (6 men). The spouses were contacted via their partners who were referred to public pain clinics. Focus group interview was chosen because is a suitable method for exploratory studies. The approach was phenomenological and transcriptions of interview records were used for analysis.

Results: Eight categories emerged from the data analysis: psychological burden, physical burden, the pain invisibility, roles, loss, worries concerning medicine, self-care, and needs concerning help and support. The differences between gender were vague. Spouses for whom the patient pain condition was a new situation (<1 year) appeared to worry more.

Conclusions: The study demonstrated that the spouses' lives were dramatically affected. They had to support the family financially, do most of the household chores, be optimistic, a parent, and a pain care giver. The spouses experienced daily worries about several points including pain medicine by the patients. This study also highlighted an essential need for psychological support for coping with the changing life situation, the point that is currently neglected to a great extent.

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Increased postural stiffness in patients with knee osteoarthritis who are highly sensitized

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Aims: To evaluate the effect of widespread pain sensitization on postural stability during quiet standing tasks in patients with knee osteoarthritis.

Methods: Patients (56) stood quietly on a force platform for 1 min in 4 conditions (each repeated 3 times): (i) firm surface (FS) with open eyes (OE), (ii) FS with closed eyes (CE), (iii) soft foam surface (SS) with OE, and (iv) SS with CE. Postural stability was quantified by Center of Pressure (CoP) variables extracted from the force platform. Pressure pain thresholds (PPTs), were assessed bilaterally with a handheld pressure algometer (1 cm^2 probe) at: (i) four sites in the knee region (3 cm medial to the midpoint of the medial edge of the patella; 2 cm proximal to the superior edge