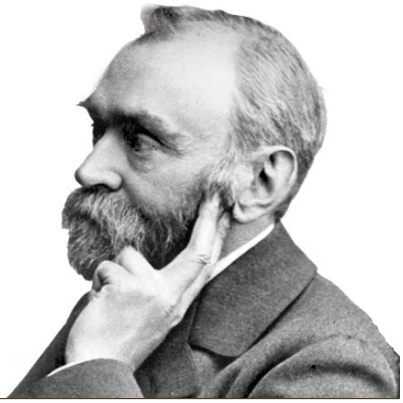
Örebro University's
NOBEL DAY FESTIVITIES



BOOK OF ABSTRACTS
9 December 2025

Örebro University, **School of Health Sciences** and
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Preface

The “Nobel Day Festivities” were established 2009 by Allan Sirsjö and Nikolaos Venizelos, researchers within Biomedicine, Department of Clinical Medicine (now School of Health Sciences and School of Medical Sciences) at Örebro University.

Every year, the Nobel Prize in Physiology or Medicine is awarded on the 10th of December, the anniversary of Alfred Nobel’s death. The School of Health Sciences and the School of Medical Sciences at Örebro University traditionally honour this day by organizing research activities and festivities.

The day includes scientific activities that are open for all, such as lectures, poster presentations and selected oral presentations by doctoral students, postdocs and specially invited students. All poster presentations are documented in this Book of abstracts.

We warmly welcome you to enjoy the research that will be presented at Nobel Day Festivities!

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A novel clinical trial protocol assessing probiotic and dietary fiber supplementation for managing hyperuricemia in adults

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Background/Objective: Gout is a common autoinflammatory disease driven by hyperuricemia, arising from disrupted purine metabolism or reduced urate excretion. Current dietary and pharmacological treatments are often limited by efficacy and tolerability. Emerging evidence indicates that the gut microbiome and host factors, such as genetics and glycan profiles, play key roles in urate metabolism, yet their impact on treatment response remains unclear. This study will assess a novel probiotic formulation, with or without beta-glucan, using multi-omics analyses to reduce plasma urate and identify predictors of individual response.

Method: A six-week, double-blind, randomized, placebo-controlled, parallel-group clinical trial will be conducted to evaluate the effects of a novel probiotic supplement, with or without beta-glucan, in adults with hyperuricemia. Ninety-nine participants aged 18–80 years with a BMI of 17.5–40 kg/m², plasma urate ≥ 405 µmol/L, and no medications or supplements affecting urate metabolism will be randomized (1:1:1) to receive placebo, probiotic, or probiotic plus beta-glucan. Randomization will be stratified by sex, baseline urate, kidney function (eGFR), and allopurinol use, with allocation concealed from both participants and investigators.
The primary outcome is the change in plasma urate concentration. Secondary and exploratory outcomes include creatinine, urate-related metabolites and enzymes, liver enzymes, blood lipids, inflammatory and intestinal barrier markers, gut microbiota composition, metabolomics, metagenomics, glycomics, gastrointestinal symptoms, quality of life, and body weight. Biological samples (blood, urine, stool, and breath) will be collected at baseline, 3 weeks, and 6 weeks using standardized procedures. (ClinicalTrials.gov identifier: NCT07141888; registered 2025-08-26)

Result: This is the first clinical trial to assess a novel probiotic, with or without beta-glucan, for urate lowering in hyperuricemic adults. Anticipated challenges include participant adherence, maintaining blinding, and managing multi-omics data integration, but the study design ensures feasibility and robustness.

Conclusion: This project introduces a precision nutrition approach combining probiotics, dietary fiber, and multi-omics responder profiling to lower blood urate and inform personalized gout prevention and management strategies.

Music Listening, Attitudes to Noise and Hearing Health Among Young People

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Background/Objective: Music listening with headphones and at high sound levels is common among young people. Risky music listening may be influenced by behavioral factors and investigating these could have implications for more effective prevention. Therefore, the aim of this study was to explore participants' hearing health and music listening habits, associations between attitudes to noise/loud music and measured sound levels from the participants' headphones, and associations between perceived auditory symptoms (such as tinnitus) with hearing-and sound level measurements.

Method: A cross-sectional study was conducted with 71 participants aged 10–20 years. Hearing measurements (pure-tone audiometry (0.125–16 kHz), Distortion Product Otoacoustic Emissions (DPOAEs)) as well as sound pressure level (SPL) measurements of participants' headphones were combined with a questionnaire assessing music listening behaviors, attitudes to noise, and auditory symptoms.

Result: Attitudes to noise were significantly associated with headphone listening levels, explaining 13–18% of the variance in measured SPLs. When age and gender were included, total explained variance was 22%. For total noise dose, attitudes (and age in the quiet test condition) explained up to 39% of the variability, indicating that attitudinal and demographic factors together play a meaningful role in shaping potentially risky listening behaviors. About 38% (27 participants) believed that music in headphones sounds better with a high sound level. The prevalence of perceived symptoms was as follows: 5 participants reported permanent tinnitus, 7 participants reported attenuated auditory sensation (muffled sounds/ear fullness) relatively often, and 11 participants reported experiencing sound-induced auditory fatigue at least once per week. Tinnitus was correlated with longer daily listening durations when listening with headphones. Attenauted auditory sensation was correlated with higher daily noise dose and sound-induced auditory fatigue was correlated with listening to loud music often.

Conclusion: Attitudes to noise may play a role in shaping potentially risky music listening behaviors. Perceived auditory symptoms may occur before detectable hearing loss. There is a need to continue monitoring and repeating measurements of young people's music listening behaviors and hearing health. Increasing awareness of hearing health risks among young people is warranted. Developing and implementing effective prevention strategies at an early stage may contribute to shaping more cautious attitudes and promoting safer music listening habits that persis over time.

Cerebral Metabolism during Haemorrhagic Shock and Resuscitation with Resuscitative Endovascular Balloon Occlusion of the Aorta

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Kirurgi

Background/Objective: Resuscitative Endovascular Balloon Occlusion of the Aorta (REBOA) is increasingly employed as a less invasive alternative to aortic cross-clamping in the management of haemorrhagic shock (HS). However, its effects on cerebral metabolism particularly under conditions of raised intracranial pressure (ICP) remain poorly understood.
Objectives:
To evaluate the changes in cerebral haemodynamics and metabolism during haemorrhagic shock and resuscitation with total aortic occlusion (tREBOA) in a porcine model, and to determine whether elevated ICP modifies these effects.

Method: Eighteen anaesthetised pigs (nine with normal ICP (NICPG) and nine with elevated ICP (EICPG)) underwent controlled haemorrhage to achieve a mean arterial pressure (MAP) of 40 mmHg. In EICPG, ICP was raised to 25 mmHg using an epidural balloon. Cerebral microdialysis catheters were placed in the parietal cortex for measurement of lactate, and pyruvate. Following 30 minutes of bleeding, total REBOA was inflated in Zone 1 for 90 minutes. MAP, ICP, cerebral perfusion pressure (CPP), and metabolic markers were continuously monitored.

Result: In both groups, MAP fell during bleeding and rose sharply after aortic occlusion (NICPG: 49⊠159mmHg p<0.01; EICPG:46⊠168 mmHg, p<0.01). ICP remained stable in NICPG but increased in EICPG (29⊠38 mmHg post-AO, p>0.01). CPP declined during shock (NICPG: 78⊠32 mmHg; EICPG: 73⊠16 mmHg) and recovered post-AO (115–124 mmHg). Lactate/pyruvate ratio (LPR) increased during bleeding, indicating cerebral ischaemia, and returned towards baseline within 20–30 minutes post-AO in both groups, demonstrating reversible metabolic recovery. The EICPG showed a transient post-occlusion LPR surge but no sustained impairment.

Conclusion: Total REBOA effectively restores cerebral haemodynamics and reverses cerebral ischaemia induced by haemorrhagic shock. Even in the presence of raised ICP, tREBOA did not exacerbate metabolic injury, suggesting that its use may be neuro-protective rather than contraindicated in poly-trauma patients with concomitant head injury. These findings highlight the potential of tREBOA to extend the “golden hour” in severe haemorrhagic shock until definitive surgical control is achieved.

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Patients' Experiences of Orthopedic Care for Hip Fracture in Relation to Frailty and Frailty Assessment

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Background/Objective: Frailty is a concept that has been established within healthcare over the past decade and refers to an individual's reduced ability to cope with stressors due to impairments in multiple physiological systems. Validated rating scales exist to assess the degree of frailty. Patients who have sustained a hip fracture are often frail, but there is limited knowledge about how patients themselves perceive the concept of frailty and frailty assessment. The purpose of the study was to describe patients' experiences of orthopedic care for hip fracture in relation to frailty and frailty assessment.

Method: A descriptive qualitative design was used. Semi-structured interviews were conducted with 12 patients treated for hip fracture, where frailty assessment was part of the routine upon admission. The interviews were digitally recorded, transcribed, and analyzed using inductive content analysis.

Result: Patients' experiences of orthopedic care in relation to frailty were reflected in one main category, **'Being involved matters'**. This main category comprised three generic categories: **'Managing care'**, **'Being frail means being vulnerable'**, and **'Searching for a shared perspective'**. Within these were six subcategories: **'Targeting own goals'**, **'Submitting to care routines'**, **'Being fragile'**, **'Needing extra care'**, **'Lacking communication'**, and **'Wanting to be seen and heard'**.

Conclusion: Patients described that frail individuals require extra care but that they did not understand that frailty assessment was conducted. While they expressed that care should be adapted according to the patient's conditions, many reported having to set their own goals due to a lack of support from healthcare providers and that participation on their own terms was not always facilitated. The findings suggest a need for improved communication between healthcare providers and patients, where a shared vision for the patient's ongoing care and rehabilitation is based on the patient's conditions and individual preferences.

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Anxiety as a Predictor for Progressive Cognitive Decline in Mild Cognitive Impairment: A Systematic Review and Meta-Analysis

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Background/Objective: Mild Cognitive Impairment (MCI) is characterized by objective cognitive decline that does not yet significantly impair activities of daily living, and is risk state for progressive cognitive impairment and dementia. In addition to memory complaints, neuropsychiatric symptoms such as depression, anxiety and apathy, are frequently seen in this population. Anxiety is particularly common, with prevalence estimates suggesting it may affect up to half of those with MCI (1). Several longitudinal studies have explored the potential role of anxiety in accelerating cognitive decline, although findings remain inconsistent and inconclusive (2,3).

This systematic review and meta-analysis aimed to examine the potential association between anxiety symptoms and the progression of cognitive decline in individuals with MCI.

Method: A systematic literature search was performed in PubMed, Embase, Cochrane Library, CINAHL, and PsycINFO. Of 104 full-text articles reviewed, 20 met inclusion criteria and were included in the final systematic review and meta-analysis.

Result: Anxiety was significantly associated with an increased risk of progression from MCI to dementia, with a pooled hazard ratio of 1.25, 95% CI 1.10 – 1.44, p = 0.001. Also, persons with MCI who progressed to dementia had more anxiety symptoms than those who remained stable, with a standardized mean difference of 0.33, 95% CI 0.00 – 0.65, p = 0.05.

Conclusion: Anxiety is a prevalent neuropsychiatric symptom in MCI and is a risk-factor for dementia progression

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Clinical Characteristics, Predictors and Outcomes of Ruptures after EVAR – A 14-Year Single-Center Experience

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Background/Objective: Rupture after prior endovascular aortic repair (rEVAR) is a serious complication with limited data on risk factors and outcomes. The European Society for Vascular Surgery (ESVS) Guidelines recognize rEVAR as an increasingly observed complication, citing an annual risk of 0.4-1.1% This study aims to evaluate clinical characteristics, outcomes, and predictors of rEVAR at a single center using an endovascular-first strategy for all ruptured abdominal aortic aneurysms (rAAA)

Method: This retrospective single-center study included all patients treated with endovascular repair for rEVAR between October 2009 and September 2023. Demographic, clinical, and anatomical data were collected from medical records and computed tomography angiography images. Cox regression analyses were performed to identify predictors of rEVAR and mortality.

Result: Among 178 patients with rAAA, 34 (19%) had prior EVAR and constituted the study cohort. Endovascular repair was attempted in 24 (71%), while 10 (29%) were treated conservatively. The mean time from index EVAR to rEVAR was 56 ± 33 months. At least one instructions for use (IFU) violation at index EVAR was present in 65% (22/34). Sac expansion occurred in 79% (27/34), of which 12 (44%) underwent reintervention. Type 1A endoleak was the leading cause of rEVAR (59%). All-cause 30-day mortality after endovascular repair of rEVAR was 42%. Cox regression identified conical neck anatomy as an independent predictor of early rEVAR (HR 52.5, 95% CI 6.2–440.9; p<0.001).

Conclusion: Although endovascular repair of rEVAR is feasible, prevention remains the optimal strategy. However, our findings demonstrate the challenge of preventing rEVAR even with close surveillance. Conical neck anatomy emerged as a major risk factor for early rupture, highlighting the limitations of standard EVAR in such patients. To reduce the risk of rEVAR, alternative strategies such as FEVAR, BEVAR, or open repair should be strongly considered in patients with conical neck regardless of whether the conical shape involves the entire neck or only the first 10 mm.

Dry Needle Arthroscopy of the Wrist in an Office Setting: 15 Cases.

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Background/Objective: Arthroscopy remains the gold standard to diagnose ligamentous lesions in the wrist. The COVID-19 pandemic put a strain on resources, prompting an increase in procedures performed under local anesthesia. Dry needle arthroscopy of the wrist has previously been used in the operating room. The purpose of this study was to assess the results and patient satisfaction of wrist arthroscopy under local anesthesia in an office setting.

Method: A prospective series of 15 patients presenting with wrist trauma and a suspected ligamentous injury to the wrist were included. All patients underwent radiography and magnetic resonance imaging before the procedure. Dry needle arthroscopy was performed by a surgeon with a nurse assistant, in the office under local anesthesia, using a traction device for distraction of the wrist. Patient satisfaction was assessed with the Picker Patient Experience-15 questionnaire.

Result: The patient's mean age was 34 years (range: 18e51). There were no intraoperative complications or postoperative infections. The median PPE-15 score was 90 of 100. Visualization of the intraarticular structures was excellent.

Conclusion: Dry needle arthroscopy of the wrist under local anesthesia in an office setting seems to be a feasible method to diagnose ligament injuries of the wrist. Patient satisfaction with the procedure was high.
Dry needle arthroscopy of the wrist under local anesthesia in-office could facilitate and expedite diagnosis of wrist injuries.

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Development Of A Novel Live-Attenuated Tick-Borne Encephalitis Vaccine Using The Langat Virus Platform

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Background/Objective: Tick-borne encephalitis (TBE) is a growing public health concern in Europe and Asia, driven by the increasing spread of the TBE virus (TBEV) and its tick vectors. Although current vaccines provide protection, their multi-dose schedule and reduced efficacy in the elderly contribute to occasional vaccine failures. This study aims to develop a novel TBE vaccine offering enhanced protection with fewer doses, focusing on mucosal immunization.

Method: Infectious clone of Langat virus (LGTV IC) was designed and rescued- in our laboratory. We assessed the safety and immunogenicity of the LGTV IC as a live-attenuated TBE vaccine platform in a murine model. Mice were vaccinated with LGTV IC via intranasal or intramuscular routes at low or high doses. We evaluated viremia, viral presence in cerebrospinal fluid, general health, and immune responses.

Result: Intranasal immunization with LGTV IC induced strong immune responses. It elicited robust anti-TBEV IgG responses and strong TBEV NS3-specific IFNg and IL-2 production. Notably, low-dose intranasal immunization outperformed higher doses of both routes, inducing a more balanced and effective immune response. Low-dose intranasal administration was well tolerated, with no clinical signs, weight loss, or viral presence in the central nervous system. In contrast, intranasal immunization caused potential adverse effects at elevated doses.

Conclusion: These findings support LGTV IC as a promising vaccine platform for TBE, with intranasal administration emerging as a putative safe, well-tolerated, and effective needle-free alternative to intramuscular injection when given at a low dose. Ongoing efforts are focused on further attenuating LGTV IC to enhance its safety profile for future applications.

Assistive listening devices in compulsory school- A necessary prerequisite, but not sufficient?

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Background/Objective: Many students with hearing loss are mainstreamed into regular schools and experience difficulties in both hearing and being able to participate in school education. Assistive listening devices as multi-microphone systems aim to facilitate speech perception and communication in the classroom. There is a limited amount of research about the way in which these systems work in real-life situations for students who are hard of hearing.

Aim: The aim of the study was to investigate how students and teachers experienced the utilization of the multi microphone system ”The Örebro model”. The aim was furthermore to explore, during the early 2010s, what impact the system has had on the teaching situation in the classroom and if students who are hard of hearing experienced that the multi-microphone system facilitated participation in the school setting.

Method: The study had a qualitative research strategy, where 14 semi-structured interviews were carried out on ***students who are hard of hearing***, ***students with typical hearing*** and ***teachers*** in six different schools in the region of Örebro county. Qualitative content analysis was used for the analysis of the dataset where codes, categories and themes were developed which built up the results section.

Result: After the data analysis three general themes were brought forward: *Multi-microphone systems in practice* (1), *teacher's pedagogical responsibility, and the collective cooperation in the class that is required for a good learning environment* (2), *to feel a sense participation in school* (3).

Conclusion: Assistive listening devices as well-functioning multi-microphone systems in the classroom is a foundational prerequisite for students who are hard of hearing and their ability to hear, but this is not enough for their ability to participate in the classroom. A bigger responsibility is required from both teachers and school management to develop a comprehensive perspective on knowledge about hearing loss. It is also important to, with the help of established routines, ensure an education which is built upon an optimal listening environment, active participation and inclusion for students who are hard of hearing.

Tailored digital self-help for anxiety and depression: A randomized feasibility trial with or without guidance

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Background/Objective: Therapist-guided internet-based cognitive behavioural therapy has improved access to treatment for depression and anxiety, but scalability is limited by reliance on trained therapists. This feasibility trial evaluated a tailored digital self-help intervention for adults with depressive and anxiety symptoms, delivered with or without clinician guidance. The primary aim was to assess feasibility of both versions, while also considering outcome advantages of guidance and reduced clinician time with self-help.

Method: In total, 124 participants in Sweden with at least mild depressive or anxiety symptoms were recruited mainly through social media and randomized (1:1) to an eight-week program with (n = 63) or without (n = 61) clinician guidance. All participants completed telephone assessments before and after the intervention. Feasibility outcomes included adherence, credibility, acceptability, and adverse events.

Result: The intervention was perceived as credible, with high satisfaction and engagement: most participants used the program weekly, and two thirds completed at least three of five modules. Outcomes were similar across groups, though participants with guidance reported higher satisfaction. Clinician time averaged 36 minutes for self-help participants and 66 minutes for those receiving guidance. Both groups showed large symptom reductions (Cohen's d = 1.05–1.10).

Conclusion: This trial supports the feasibility of a tailored digital self-help intervention and motivates future trials comparing self-help and clinician-guided delivery.

Vulvodynia and Mental Health in Young Women

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Background/Objective: Vulvodynia is a common condition with devastating effects. It affects about 7-15%[1] of adult women and is considered even more common in younger women [2] . Despite this, research has mainly focused on adult, premenopausal women, where associations between vulvodynia and lower levels of mental, sexual and physical health have been found [3-5]. Knowledge about vulvodynia in emerging adulthood is largely lacking. It's pivotal to understand it's influence during such a crucial time of psychosocial and sexual development.
Aim: To explore differences between young women with or without vulvodynia symptoms regarding anxiety-, depressive symptoms and sexual satisfaction.
We hypothesize that women with vulvodynia symptoms will have significantly higher anxiety- and depressive symptoms and lower sexual satisfaction.

Method: Cross-sectional data were collected at youth guidance centers in region Örebro and region Värmland. 117 women responded to questions regarding vulvodynia symptoms, sexual health, and anxiety and depressive symptoms. Mean age was 18.9 years (*sd*=2.1). Two thirds had a current partner (71%) and most responders were highschool or university students. About a quarter (26%) were employed and 3% were unemployed or on sick leave. Two-sided Independent sample t-tests were performed, using Holm-Bonferroni [6] corrections . Due to outliers, confirmatory Mann Whitney U-tests were conducted. All analysis were performed in SPSS vs. 29.

Result: Out of the 117 women, 36 (31%) reported vulvodynia symptoms during the last three months. On average, this group reported a pain duration of 1,8 years (*sd*= 1.93). Mean pain rating (0=no pain, 10=worst possible pain) was 5.5, (*sd*= 1.54). There were statistically significant differences between women with and without vulvodynia symptoms on all constructs. Women with vulvodynia symptoms reported more anxiety, $t(114)2.685$, p=0.008, $d=.54$, higher depressive symptoms, $t(114)2.029$, p=0.045, $d=.41$, and lower sexual satisfaction, $t(114)-2.939$, p=0.004, $d=.61$, than women without symptoms. Confirmatory Mann-Whitney U results were in line with the primary analysis.

Conclusion: The findings from the current study support the previously found associations between mental health, sexual satisfaction and vulvodynia symptoms in adult women, showing similar links in young women. If we learn more about vulvodynia in late adolescence and early adulthood we can develop promotive, preventative and therapeutic interventions to stance it's long-term effects. Future research should study the associations longitudinally to inform such initiatives.

References: Ung Vulvodyni - Örebro universitet

The association of periodontitis, bacterial findings and inflammatory markers in cerebrospinal fluid and dementia

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Background/Objective: Since dementia patients exhibit neuroinflammation and subsequent neuronal cell loss consistent to ongoing infection, an infectious etiology to Alzheimer´s disease (AD) has been proposed. Periodontitis and periodontal bacteria have been highlighted as risk factors for dementia and our aim was to investigate associations and possible mechanistic explanations linking Periodontitis and *P. gingivalis* to AD.

Method: 120 patients investigated for cognitive impairment at a Memory Clinic, between 2010 and 2020, were included based on available CSF sample stored in the biobank. Bacterial DNA in CSF was analyzed using RT-qPCR, virulence factors and antibodies using ELISA and inflammatory proteins using Olink proteomics. Dental records were evaluated regarding periodontal disease 0 (T2) and 10 years (T1) prior to CSF sample. Medical records were evaluated regarding dementia.

Result: No *P. gingivalis* DNA was detected in the CSF samples.
Gingipain K (KGP) was detected in only one CSF sample while gingipain R (RGP) was detected in 95% and *P. gingivalis* IgG in all CSF samples.
Correlation analyses showed, after adjustments for age, sex and smoking status, significant correlations between Marginal bone loss at T1 and CRP and GCA, Progression of marginal bone loss and Ab-42, RGP and Albumin ratio and Number of teeth at T2 and ADL grades. After testing for multiple correction none of the significant p-values remained.

Conclusion: Our preliminary findings show presence of bacterial antibodies and virulence factors in CSF indicating a potential impact on the brain. The significant correlations imply association between periodontitis and periodontal bacteria and AD pathology but larger sample size or modified study design is required to confirm such conclusion.

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Reduced postoperative nausea, vomiting, and recovery time with effect-site TCI and SmartPilot View in hip and knee arthroplasty

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Background/Objective: Primary total hip (THA) and knee arthroplasty (TKA) are common procedures where anaesthetic management is crucial for smooth recovery. Postoperative nausea and vomiting (PONV) remain a major concern, often delaying discharge and prolonging post-anaesthesia care (PACU) stay. Effect-site target-controlled infusion (TCIe) and SmartPilot View (SPV) are modern, model-based anaesthetic techniques that may enhance precision and recovery.
This study evaluated whether implementing TCIe and SPV influenced PONV, recovery time, and other early postoperative outcomes.

Method: A retrospective cohort study including 2316 procedures (2210 patients) was conducted at Lindesberg Hospital (2018–2023). A pre-implementation period (2018–2019, n = 1258) using plasma-targeted TCI without SPV was compared with a post-implementation period (2022–2023, n = 1058) using effect-site TCI with SPV.
Data were retrieved from the Swedish Perioperative Register (SPOR). The primary outcome was PONV; secondary outcomes were PACU length of stay, postoperative pain, and surgical duration. Multivariable regression adjusted for age, sex, BMI, ASA class, type of surgery, airway management, and conversion from spinal anaesthesia.

Result: PONV incidence decreased from 8.4 % to 3.0 % after implementation ($p < 0.001$; adjusted OR 0.36, 95 % CI 0.23–0.55).
Median PACU stay shortened by 70 minutes (95 % CI 61–78; $p < 0.001$).
Postoperative pain scores were slightly lower post-implementation (median NRS 7 vs 5; $p < 0.001$). Surgical duration increased (84 vs 87 minutes; $p = 0.003$).

Conclusion: Implementation of TCIe and SPV in THA and TKA was associated with markedly reduced PONV and shorter recovery times, suggesting benefits for early recovery and perioperative efficiency.
Limitations include the retrospective design, limited preoperative data, and lack of intraoperative drug information. Although no major routine changes occurred, residual temporal confounding cannot be excluded. Still, the consistent effects in this large real-world cohort support the clinical relevance of TCIe and SPV. Further studies should confirm these findings and explore impacts on drug use and healthcare costs.

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Influence of sex and depressive symptoms on diagnostic delay of ADHD in adolescent psychiatric patients.

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Background/Objective: Attention deficit hyperactivity disorder (ADHD) is one of the most common neurodevelopmental disorders in adolescence resulting in functional impairment that often persist to adulthood. Girls seem to be diagnosed with ADHD later in life than boys and more often have a comorbid major depressive disorder (MDD). It has been suggested that comorbidity with MDD can interfere with early identification of ADHD.
The aim of the study was to investigate the diagnostic delay for boys and girls with ADHD in child and adolescent outpatient settings as well the interference of self-reported symptoms of MDD.

Method: Adolescent psychiatric outpatients were assessed with DSRS-A Screener (version of Depression Self-Rating Scale for Adolescents) at intake. Diagnostic delay for ADHD was estimated with Kaplan-Meier survival curve with separated analysis for boys/girls and for negative/positive MDD screening. Cox regression analysis was used to examine the association of sex and MDD screening.

Result: Diagnostic delay for N=252 (41% boys, mean age =15.23 years) was 3.5 years, 1.4 for boys and 4.9 for girls (p=0.004). Positive MDD screening was associated with prolonged diagnostic delay (from 1.4 to 4.9 years p=0.002), which in separated analyses was statistically significant only for girls from 1.8 to 4.9 years (p =0.018). In Cox regression male sex was associated with decreased diagnostic delay (p=0.023) while positive MDD screening with prolonged diagnostic delay (p=0.015).

Conclusion: The diagnostic delay of ADHD was more than three times longer for girls. Co-occurring symptoms of MDD prolonged diagnostic delay significantly only for girls.

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Assessment of Acute Effects of a Novel Probiotic on Small Intestinal Transcriptomics and Glycomics in Healthy Individuals

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Background/Objective: Hyperuricemia, the causal factor for gout, remains inadequately managed by existing therapies and dietary recommendations. The gut represents a significant pathway for urate excretion, and the microbiome of gout patients exhibits a distinct pro-inflammatory profile. Probiotics offer a promising therapeutic avenue, but their mechanism of action is not fully understood, especially at the small intestinal mucosa where host-microbe interactions are initiated. Furthermore, the role of glycans, critical mediators of microbial adhesion and immune function, has never been explored in this context.
Our Objective is to investigate the acute effects of the novel probiotic, with and without the prebiotic beta-glucan, on the small intestinal transcriptome and glycome in healthy individuals, thereby delineating its fundamental host-mediated mechanisms.

Method: In a single-center, randomized, double-blind, placebo-controlled crossover study, eight healthy adults (4F/4M) will undergo three interventions: (1) Probiotic, (2) Probiotic + beta-glucan, and (3) placebo. Following an overnight fast and ingestion of the study product the prior evening, participants will undergo a gastroscopy. Eight duodenal biopsies will be collected for transcriptomic (Nanopore RNA sequencing) and glycomic (LC-MS) analysis. Secondary and exploratory outcomes include systemic urate levels, inflammatory markers, blood and metabolomics, and the small intestinal microbiome (shotgun metagenomics). Additionally, we will compare glycomic profiles from rectal swabs, feces, and biopsies and attempt to establish small intestinal organoids as a future *ex vivo* model.

Result: We hypothesize that our novel probiotic will significantly modulate the small intestinal transcriptome, altering host pathways related to inflammation and urate metabolism. Concurrently, we anticipate a measurable impact on the mucosal glycan landscape. The synbiotic combination with beta-glucan is expected to amplify these effects. The multi-omics dataset will be integrated to identify key responder profiles and mechanistic targets for a subsequent intervention in a hyperuricemic population.

Conclusion: This study will provide first-in-human evidence of the acute effects of a novel probiotic on the small intestinal mucosa, unveiling critical host and microbial pathways. The findings will establish its foundational host-mediated mechanism of action and define target factors for developing a precision nutrition strategy to manage hyperuricemia.

Fulfilling their responsibilities in municipal health care - Municipal Chief Nurses' views on obstacles and possibilities

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Background/Objective: Shortcomings in Municipal Health Care have been reported, and there has been criticism of the structure of the health care and the fragmentary organization of Swedish primary health care, with some of the deficiencies falling within the scope of the Municipal Chief Nurses' (MCN) responsibilities (1). Municipal chief nurses hold overall responsibility for patient safety within municipal healthcare, yet they lack authority over finances and staffing (2).
MCN role and responsibilities have not been examined in previous studies since it was introduced in 1992. The aim of this study was to explore municipal chief nurses' experiences of obstacles and possibilities in decision-making to ensure patient safety in municipal healthcare.

Method: A qualitative descriptive design was used since the purpose was to get a deeper understanding of the something has never been studied before. Data were collected by 15 semi-structured interviews with 15 Municipal Chief Nurses' and the results were analysed by qualitative content analysis (3).

Result: The data analysis resulted in the overall theme: **Navigating decision-making to ensure patient safety.** This overall theme comprised three underlying categories: Unclear role and understanding of the assignment; Impact of organisational level on decision-making mandate; and Knowledge, competence, and experience in patient safety work.

Conclusion: Consequently, the MCNs had to navigate in the system and find alternative ways to ensure patient safety. The study revealed a lack of clarity regarding MCNs' assignments in the municipal healthcare organ isation. The MCNs felt that their organisations had insufficient knowledge of healthcare, and it became evi dent that organisational placement and their own compe tence affected their decision-making. Some MCNs noted that the organisation's shortcomings in healthcare and patient safety could be advantageous, as it provided them with more room for action.

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Machine learning-based 4-domain dynamic framework for evaluating COVID-19 policies: a counterfactual analysis of 27 OECD countries

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Background/Objective: European countries implemented highly diverse mitigation policies during the COVID-19 pandemic, ranging from strict nationwide lockdowns to more voluntary approaches. Understanding how timing, stringency, and comprehensiveness of policy responses influenced epidemic trajectories is critical for future pandemic preparedness.

Method: We analysed 27 European OECD countries from January 2020 to December 2022. Daily epidemiological data (COVID-19 cases, deaths, effective reproduction number) were linked with government response indicators, demographics, vaccination, testing, and mobility data. Temporal Fusion Transformer (TFT) models captured nonlinear relationships between policy response indicators and COVID-19 outcome variables, Simulations under eight hypothetical response scenarios, from loosest to strictest, assessed policy impacts by comparing counterfactual and factual outcomes.

Result: TFT models achieved excellent predictive accuracy (percentage mean absolute error <10%). Strictest responses could reduce daily COVID-19 cases by over 10% in several countries, notably Hungary, Switzerland, and Turkey, while the loosest responses increased incidence by 10–20% in highly affected settings such as Poland. Effects on mortality were smaller and varied, with maximal reductions of 7–10% in Belgium, Portugal, and Switzerland under strict scenarios. Sustained restrictions until vaccination deployment might lead to outcomes as adverse as consistently loose policies. Feature importance analyses identified mobility and gathering restrictions, vaccination, testing, fiscal measures, and country-level factors such as age structure and chronic disease burden as key drivers.

Conclusion: Comprehensive, multi-domain interventions outperformed partial or short-lived restrictions. Stringent policies reduced transmission, but mortality benefits were limited by demographic and systemic vulnerabilities. Lifting measures before achieving sufficient immunity and epidemic control posed major risks. Adaptive, data-driven strategies integrating epidemiology, policy, and structural context are essential to strengthen policy responses against future pandemics.

A mid-term follow-up of two surgical methods for wrist fractures.

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Background/Objective: Fractures of the wrist, or distal radius are the most frequent type of fracture seen in adults. Depending on the fracture pattern and the patient's needs, treatment may be non-surgical or surgical. The most used surgical method is volar plating, where a plate is placed on the palm side of the wrist to secure the bone fragments. In certain complex cases, surgeons may choose combined plating, which uses both a volar and a dorsal plate to provide additional support, especially for fragments at the back of the wrist. The aim of this study was to compare the long-term results of these two approaches in patients with AO type C distal radius fractures, using both radiographic and clinical assessments five years after surgery.

Method: Originally, 150 patients with AO type C distal radius fractures were randomly assigned to either volar plating or combined plating. Detailed inclusion and exclusion criteria ensured a consistent study group. The one-year outcomes from this trial have already been reported (Lundqvist et al., 2022). For the present work, participants were invited to attend a 5-year follow-up. At this stage, researchers collected X-rays, measured grip strength and wrist motion, and recorded pain levels using the VAS scale. Participants also completed validated questionnaires: PRWE, QuickDASH, and EQ-5D. X-rays were reviewed for signs of arthritis in the wrist joints and graded classification by a senior radiologist.

Result: In total, 135 patients of the 150 initially included took part in the 5-year follow-up (66 volar plating; 69 combined plating), corresponding to a 90% retention rate. Median patient age was 67 years. The two treatment groups were comparable in terms of sex distribution, fracture characteristics, and which hand was affected. Analysis showed no significant differences between groups in the development of post-traumatic osteoarthritis. However, the volar plating group showed superior functional results, with better wrist flexion (75° vs 60°), extension (65° vs 55°), radial deviation (25° vs 20°), and lower PRWE scores (median 1 vs 6). These trends were consistent with the previously published one-year outcomes. No group differences were detected for QuickDASH, EQ-5D index, or EQ-VAS. Notably, removal of fixation material was far more frequent in the combined plating group (64%) than in the volar plating group (30%).

Conclusion: After five years, patients who underwent volar plating for AO type C distal radius fractures demonstrated better function and required fewer hardware removals compared to those treated with combined plating. X-ray findings related to arthritis did not differ significantly. Taken together, the results indicate no clear benefit of combined plating at the group level, supporting volar plating as the standard approach for these fractures.

Biomarkers Associated with Metastasis in Cutaneous Squamous Cell Carcinoma– a Systematic Literature Review

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Background/Objective: Cutaneous squamous cell carcinoma (cSCC) is the second most common nonmelanoma skin cancer, with increasing incidence. While prognosis is generally favorable, approximately 3% of cases metastasize. Among those, only 29-46% survive beyond three years. Current risk stratification models rely solely on clinical and histopathological factors, and some high-risk cases are missed.

This systematic literature review aimed to identify **biomarkers associated with metastasis** of **primary cSCC** in human tumors.

Method: A systematic literature review was conducted following the Cochrane method. Searches were performed in PubMed and Web of Science for studies published between January 2015 and 2025. Eligible studies were screened based on predefined criteria. Lastly, quality and risk of bias assessment were conducted for all included studies.

Result: 27 studies met inclusion criteria, investigating 35 different biomarkers and one multi-biomarker panel. The biomarkers were grouped into nine functional categories, with oncogenes and immune modulators being the most frequently studied. Totally 23 biomarkers and one multi-biomarker panel showed statistically significant associations with metastasis of cSCC. Notable biomarkers included PS6, Podoplanin, E-cadherin, MMP-13 and the 40-GEP biomarker panel.

Conclusion: Several biomarkers showed association with metastasis risk of primary cSCC tumors. However, variability in study design, limitations in original studies, and inconsistent reporting limit clinical interpretation and applicability. Future research should focus on validating promising biomarkers in larger standardized cohorts. This will help interpret the results clinically to evaluate biomarkers' potential in improving cSCC risk stratification.

Key words: cutaneous squamous cell carcinoma, biomarker, metastasis, risk stratification, systematic review

Risk factors for spinal cord ischemia after endovascular aneurysm repair for complex aortic aneurysms

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Background/Objective: Repair of complex aortic aneurysms - those involving aortic branches - requires EVAR using fenestrated or branched stent grafts (F/BEVAR). A potentially lifealtering complication after F/BEVAR is spinal cord ischemia (SCI). Although factors affecting the risk for SCI has been previously studied, more research is needed to obtain stronger evidence for factors affecting SCI development after F/BEVAR.

The aim of this study was to investigate pre- and intraoperative factors that affect the risk of SCI and evaluate the impact of SCI in patients after F/BEVAR.

Method: This retrospective cohort study included 98 patients treated with F/BEVAR between 2011 and 2023 at Örebro University Hospital, Sweden. Dats was collected from the medical records. Primary outcome was postoperative SCI and secondary outcomes included duration of hospital stay and mortality. Pre- and intraoperative factors, and postoperative outcome were compared between patients developing postoperative SCI and those without postoperative SCI.

Result: 25 patients (26%) had any SCI (transient or permanent), with 15 (15%) patients having permanent SCI. In multivariate analysis, smoking (adj. OR 4.56 [1.43-14.50]) and contrast (adj. OR 1.01 [1.00-1.02] were associated with developing any SCI, while treatment with statins (adj. OR 0.21 [0.05-0.97] protected against SCI. Duration of hospital stay, and ICU stay were significantly longer for those with any SCI and permanent SCI.

Conclusion: Independent risk factors for any SCI were smoking and a higher intraoperative contrast volume. Statin treatment independently decreased the risk for any SCI. SCI negatively impact recovery after F/BEVAR.

Sex Differences in Intensive Care Patients with Sepsis

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Background/Objective: The relationship between sex, disease severity, and clinical outcomes in sepsis remains unclear, with growing evidence that women receive fewer intensive care unit (ICU) interventions.

Aim: To examine sex differences in disease severity, the level of intensive care received, and clinical outcomes among intensive care patients with sepsis at the University hospital in Örebro.

Method: This retrospective observational study included ICU patients with sepsis enrolled in the prospective "SIVA" study. Adult patients presenting to the emergency department with confirmed or suspected community-acquired sepsis requiring intensive care were recruited to SIVA from 2019 to 2024. For this analysis, patient data were obtained from a database established for the SIVA study, which contained patient records and laboratory findings.

Result: Of the 54 patients (56% men) included, no statistically significant sex differences were found for any of the outcomes, while some numerical differences were observed. For disease severity, the median Sequential Organ Failure Assessment (SOFA) score was 8.5 (5.8–10.0) in men and 6.5 (4.0–8.8) in women ($p = 0.085$). Regarding intensive care received, Milrinone was administered to 5 (17%) men but no women ($p = 0.059$).

Conclusion: No statistically significant sex differences were observed in disease severity, intensive care received, or clinical outcomes. Nevertheless, trends toward greater disease severity and a higher level of intensive care among men emerged, warranting further investigation in this area.

Morphological, functional and biological (mal-)adaptations during and after an extreme ultra-running challenge: A Case Study

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Background/Objective: Ultra-running challenges have gained increasing global attention in recent decades, prompting research into their physiological consequences. Generally, endurance exercise elicits beneficial cardiovascular and mitochondrial adaptations. However, at extreme durations, it imposes severe stressors such as high energy expenditure, dehydration, and muscle damage (1). ***Acute*** ultra-endurance exercise is known to cause substantial losses in muscle size and function, and alterations in pathways related to proteolysis and mitochondrial function (2, 3). Yet, the long-term effects of ***chronic*** ultra-endurance exposure remain poorly understood. This case study investigated the morphological, functional, and molecular (mal-) adaptations during and after a 444-day ultra-running challenge.

Method: A 49-year-old Lithuanian ultra-runner completed a 444-day running challenge under observation by a team of researchers of the Lithuanian Sports University. Anthropometric measurements, muscle function assessments, biopsies, and blood samples were obtained before, immediately after, and at 4 weeks, 10 months, and 17 months post-challenge. Regular blood draws and body composition measurements were collected throughout the challenge. Molecular analyses of muscle tissue (RT-qPCR and Western blotting) were performed at Örebro University, evaluating markers of mitochondrial function, proteolysis, and extracellular matrix remodelling.

Result: During the challenge (mean distance ≈ 68 km/day), chronically elevated biomarkers of muscle damage and catabolism were observed, accompanied by marked body-mass reductions. Post-running-challenge analyses revealed decreased body- and skeletal muscle size, reduced skeletal muscle function, and diminished protein levels of mitochondrial remodeling markers and electron transport chain proteins. In parallel, mRNA levels of extracellular matrix remodeling and recovery pathways were upregulated, together with increased protein abundance of proteolytic markers. Muscle function and molecular indicators (protein/mRNA levels) remained perturbed 4 weeks post-challenge, but largely recovered at 10 months post-challenge.

Conclusion: Prolonged chronic ultra-endurance exercise induced sustained skeletal muscle atrophy, catabolic activation, and mitochondrial dysfunction, with gradual recovery over several months. These findings provide novel insight into the temporal and chronic dynamics of muscular (mal-)adaptation and recovery following extreme, long-term endurance stress.

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