

8. VISCERA

Factors for development of Celiacs disease

Potential risk factors for celiac disease in childhood: a case-control epidemiological survey

Authors Bittker SS, Bell KR

DOI <https://doi.org/10.2147/CEG.S210060>

Background: Celiac disease (CD) prevalence has increased significantly in recent decades in some developed countries. Yet the environmental factors in the existing literature do not appear to provide a satisfactory explanation for this increase.

Objective: To determine whether nine variables are associated with CD in children. These variables are: incidence of ear infection before 2 years old, courses of antibiotics before 2 years old, duration of breastfeeding, vitamin D drop exposure in infancy, vitamin D supplement exposure between 2–3 years old, age at gluten introduction into the diet, fat content of cow's milk consumed between 2–3 years old, quantity of cow's milk consumed between 2–3 years old, and type of water consumed at 2 years old.

Methods: An Internet-based survey was conducted among parents living in the US with at least one biological child between 3 and 12 years old. Potential participants were informed about the survey through social media, websites, electronic newsletters, and advertisements.

Results: After exclusions, there remained 332 responses associated with children with CD (cases), and 241 responses associated with children who do not have CD (controls). In this data set, skim milk as the primary form of liquid cow's milk consumed between 2–3 years old (adjusted odds ratio [aOR]=3.556, CI=1.430–10.22, $P=0.010$), vitamin D drops administered for more than 3 months (aOR=1.749, CI=1.079–2.872, $P=0.025$), courses of antibiotics (aOR=1.133, CI=1.037–1.244, $P=0.007$), and incidence of ear infection (aOR=1.183, CI=1.041–1.348, $P=0.010$) are all associated with CD in children.

Conclusions: This study is the first to find an association between skim milk consumption and CD and vitamin D drop use for greater than 3 months and CD. It also adds to evidence that early life exposure to antibiotics and early life infection, specifically ear infection, are associated with CD.

Keywords: coeliac, milk, vitamin D, antibiotic, ear infection, epidemiology, gluten

Non-alcoholic liver disease

Obesity (Silver Spring). 2019 Jun 27. doi: 10.1002/oby.22536.

Association Between Nonalcoholic Fatty Liver Disease and Future Deterioration of Metabolic Health: A Cohort Study.

Hwang YC¹, Ahn HY², Park CY³.

OBJECTIVE:

It was hypothesized that the presence of nonalcoholic fatty liver disease (NAFLD) at baseline predicts future conversion from the metabolically healthy (MH) to the metabolically unhealthy (MU) phenotype according to body fat mass.

METHODS:

A total of 22,551 Korean participants (13,601 men and 8,950 women) aged 18 to 78 years in the Kangbuk Samsung Health Study cohort were enrolled from 2007 to 2013.

RESULTS:

During a median of 5.1 years of follow-up (interquartile range 2.1-9.8 years), 23.5% (n = 5,298) of MH individuals converted to the MU phenotype. NAFLD at baseline predicted conversion independent of age, sex, BMI, lifestyle factors, individual components of metabolic syndrome, and insulin resistance (HR, 1.29; 95% CI: 1.19-1.39; P < 0.0001). In participants with lower BMI and fat mass, NAFLD was strongly associated with conversion; however, as BMI and fat mass increased, the risk decreased, and there was no association in participants with higher BMI and fat mass (P < 0.0001 for trend).

CONCLUSIONS:

NAFLD at baseline was independently associated with future conversion from the MH to the MU phenotype.

13 D. SLEEP**Sleep and breast CA risk**

BMJ. 2019 Jun 26;365:l2327. doi: 10.1136/bmj.l2327.

Investigating causal relations between sleep traits and risk of breast cancer in women: mendelian randomisation study.

Richmond RC^{1,2}, Anderson EL^{3,2}, Dashti HS^{4,5}, Jones SE⁶, Lane JM^{4,5}, Strand LB⁷, Brumpton B^{7,8}, Rutter MK^{9,10}, Wood AR⁶, Straif K¹¹, Relton CL^{3,2}, Munafò M^{3,12}, Frayling TM⁶, Martin RM^{3,2,13}, Saxena R^{4,5,14,15}, Weedon MN⁶, Lawlor DA^{3,2,13}, Smith GD^{3,2,13}.

OBJECTIVE:

To examine whether sleep traits have a causal effect on risk of breast cancer.

DESIGN:

Mendelian randomisation study.

SETTING:

UK Biobank prospective cohort study and Breast Cancer Association Consortium (BCAC) case-control genome-wide association study.

PARTICIPANTS:

156 848 women in the multivariable regression and one sample mendelian randomisation (MR) analysis in UK Biobank (7784 with a breast cancer diagnosis) and 122 977 breast cancer cases and 105 974 controls from BCAC in the two sample MR analysis.

EXPOSURES:

Self reported chronotype (morning or evening preference), insomnia symptoms, and sleep duration in multivariable regression, and genetic variants robustly associated with these sleep traits.

MAIN OUTCOME MEASURE:

Breast cancer diagnosis.

RESULTS:

In multivariable regression analysis using UK Biobank data on breast cancer incidence, morning preference was inversely associated with breast cancer (hazard ratio 0.95, 95% confidence interval 0.93 to 0.98 per category increase), whereas there was little evidence for an association between sleep duration and insomnia symptoms. Using 341 single nucleotide polymorphisms (SNPs) associated with chronotype, 91 SNPs associated with sleep duration, and 57 SNPs associated with insomnia symptoms, one sample MR analysis in UK Biobank provided some supportive evidence for a protective effect of morning preference on breast cancer risk (0.85, 0.70, 1.03 per category increase) but imprecise estimates for sleep duration and insomnia symptoms. Two sample MR using data from BCAC supported findings for a protective effect of morning preference (inverse variance weighted odds ratio 0.88, 95% confidence interval 0.82 to 0.93 per category increase) and adverse effect of increased sleep duration (1.19, 1.02 to 1.39 per hour increase) on breast cancer risk (both oestrogen receptor positive and oestrogen receptor negative), whereas evidence for insomnia symptoms was inconsistent. Results were largely robust to sensitivity analyses accounting for horizontal pleiotropy.

CONCLUSIONS:

Findings showed consistent evidence for a protective effect of morning preference and suggestive evidence for an adverse effect of increased sleep duration on breast cancer risk.

14. HEADACHES

Vestibular migraines

Auditory brainstem function in women with vestibular migraine: a controlled study

- Alice A. Takeuti Mariana L. Fávero, Erica Helena Zaia and Fernando F. Ganança

*BMC Neurology*2019**19**:144

<https://doi.org/10.1186/s12883-019-1368-5>

Background

Vestibular migraine (VM) has been recognized as a diagnostic entity over the past three decades. It affects up to 1% of the general population and 7% of patients seen in dizziness clinics. It is still underdiagnosed; consequently, it is important to conduct clinical studies that address diagnostic indicators of VM. The aim of this study was to assess auditory brainstem function in women with vestibular migraine using electrophysiological testing, contralateral acoustic reflex and loudness discomfort level.

Methods

The study group consisted of 29 women with vestibular migraine in the interictal period, and the control group comprised 25 healthy women. Auditory brainstem response, frequency following response, binaural interaction component and assessment of contralateral efferent suppression were performed. The threshold of loudness discomfort and the contralateral acoustic reflex were also investigated. The results were compared between the groups.

Results

There was a statistically significant difference between the groups in the frequency following response and the loudness discomfort level.

Conclusions

The current study suggested that temporal auditory processing and loudness discomfort levels are altered in VM patients during the interictal period, indicating that these measures may be useful as diagnostic criteria.

20 A. ROTATOR CUFF**Repair results**

Arthroscopy. 2019 Jul;35(7):2003-2011. doi: 10.1016/j.arthro.2019.02.028. Epub 2019 May 27.

Arthroscopic Rotator Cuff Repair With a Knotless Suture Bridge Technique: Functional and Radiological Outcomes After a Minimum Follow-Up of 5 Years.

Dukan R¹, Ledinot P², Donadio J², Boyer P².

PURPOSE:

To evaluate clinical and radiological outcomes of knotless suture bridge repair after a minimum of 5 years of follow-up.

METHODS:

A prospective consecutive series of full-thickness supraspinatus atraumatic chronic tears was evaluated in the study. Tears were medium or large. Further inclusion criteria were minimum clinical follow-up of 5 years with magnetic resonance imaging (MRI) at 24 months and fatty infiltration <2. Patients with shoulder stiffness, arthritis, or rotator cuff tear involving the subscapularis tendon were excluded. An arthroscopic cuff repair was performed using a knotless double-row suture bridge technique with braided suture tapes. Clinical outcomes were evaluated using the Constant score, the American Shoulder and Elbow Surgeons score, strength score, and a visual analog scale. Tendon healing was analyzed according to Sugaya MRI classification at 24 months. A Sugaya score of 1 or 2 was considered as tendon healing. Statistical analysis was performed with the Student's t-test. $P = .05$ were considered statistically significant.

RESULTS:

Sixty-eight patients were included in this series. Mean follow-up was equal to 68.8 ± 7 months. At last follow-up, the mean visual analog scale, American Shoulder and Elbow Surgeons score, and Constant scores improved significantly from 5.5 ± 1.6 , 48.2 ± 13.1 , 37.8 ± 8.3 , to 2.1 ± 2.1 ($P = 5.43 \text{ E-}14$), 87.4 ± 15.8 ($P = 7.15 \text{ E-}27$), and 82.8 ± 14.7 ($P = 1.01 \text{ E-}33$), respectively. Anteflexion improved from $99.3^\circ \pm 13.4^\circ$ preoperatively to $136.6^\circ \pm 15.9^\circ$ at last follow-up ($P = 3.08 \text{ E-}21$). Strength score was significantly higher postoperatively (18.4 ± 6.7 vs 8.3 ± 3.5). MRI showed 88% ($n = 57$) of Sugaya 1-2 repairs. Patients with unhealed rotator cuffs showed significantly lower functional results than the Sugaya 1-2 group. No correlation between degree of retraction and rate of healing was observed. Four symptomatic patients (6%) required revision for failed rotator cuff repair.

CONCLUSIONS:

Despite potential confounding factors, arthroscopic knotless suture bridge repair of rotator cuff tears with acromioplasty demonstrated excellent long-term results of tendon healing, pain relief, and improvement of shoulder function.

28. HIP REPLACEMENTS

Mental health improvement

Improvement in mental health following total hip arthroplasty: the role of pain and function

- Uyen-Sa D. T. Nguyen, Thomas Perneger, Patricia D. Franklin, Christophe Barea,
- Pierre Hoffmeyer and Anne Lübbecke

BMC Musculoskeletal Disorders 2019 **20**:307

<https://doi.org/10.1186/s12891-019-2669-y>

Background

Mental health has been shown to improve after total hip arthroplasty (THA). Little is known about the role of pain and function in this context. We assessed whether change in mental health was associated with improvement in pain and function 1 year post-surgery.

Methods

This prospective study included patients enrolled in a THA registry from 2010 to 2014. We examined the mental component score (MCS) before and 1 year post-surgery, and 1-year change, in association with Western Ontario McMaster Universities (WOMAC) pain and function scores. All scores were normalized, ranging from 0 to 100 (larger score indicating better outcome). Analyses were adjusted for potential confounders.

Results

Our study included 610 participants, of which 53% were women. Descriptive statistics are as follows: the average (SD) for age (years) was 68.5 (11.8), and for BMI was 26.9 (4.9). In addition, the MCS average (SD) at baseline was 44.7 (11.2), and at 1-year after THA was 47.5 (10.5). The average change from baseline to 1-year post-THA in MCS was 2.8 (95% CI: 1.9, 3.6), for an effect size of 0.26. As for the WOMAC pain score, the average change from baseline to 1-year post-THA was 44.2 (95% CI: 42.4, 46.0), for an effect size of 2.5. The equivalent change in WOMAC function was 38.1 (95% CI: 36.2, 40.0), for an effect size of 2.0. Results from multivariable analysis controlling for covariates showed that an improvement of 10 points in the 1-year change in pain score resulted in a 0.78 point (95% CI: 0.40, 1.26) increase in the 1-year change in MCS, whereas a 10-point improvement in the 1-year change in function was associated with a 0.94 point (95% CI: 0.56, 1.32) increase.

Conclusions

Mental health significantly improved from baseline to 1-year post-THA. Greater improvement in pain and function was associated with greater improvement in mental health 1 year post-THA.

32 A. KNEE/ACL**Reconstruction better results than repair**

July 2019 Volume 35, Issue 7, Pages 2233–2247

Anterior Cruciate Ligament Repair Outcomes: An Updated Systematic Review of Recent Literature

Benedict U. Nwachukwu, M.D., M.B.A.^{a,*} Bhavik H. Patel, B.S.^a Yining Lu, B.A.^a

Answorth A. Allen, M.D.^b Riley J. Williams III, M.D.^b

DOI: <https://doi.org/10.1016/j.arthro.2019.04.005>

Purpose

To critically review recent literature on outcomes following primary surgical repair of the anterior cruciate ligament (ACL).

Methods

In December 2018, a search of the MEDLINE database was conducted for English language articles reporting clinical outcomes of ACL repair from 2003 to 2018. Included studies were evaluated for patient demographics, patient-reported outcome measures, return to sports/work, patient satisfaction, and postoperative complications. Subgroup analysis was conducted for studies that included patients with only type 1/proximal ACL ruptures.

Results

Twenty-eight studies satisfied the inclusion criteria, comprising 2,401 patients (52.3% male, 35.7% female, 12.0% unspecified gender) with mean age ranging from 6.0 to 43.3 years. Most studies were conducted in Europe (82.1%), were level of evidence IV (60.7%), and were designed as case series (57.1%). Fourteen investigations (50.0%) used primary suture repair and 14 (50.0%) used dynamic intraligamentary stabilization. Preoperative ranges for Lysholm, International Knee Documentation Committee Score subjective, and Tegner scores were 28 to 100, 94.1 to 100, and 2 to 9, respectively. Postoperative ranges for the same measures were 80 to 100, 54.3 to 98, and 3.67 to 7, respectively. Time to return to sport/work ranged from 3.1 ± 3.3 to 17.4 ± 1.5 weeks. Frequency of rerupture, revision ACL surgery, and overall reoperations were as high as 23.1%, 33.3%, and 51.5%, respectively. Overall ACL repair survivorship ranged from 60.0% to 100.0%. In subgroup analysis for proximal ruptures treated with repair, the rates of revision ACL reconstruction (ACLR) and total reoperations were as high as 12.9% and 18.2%, respectively.

Conclusions

Based on our cumulative findings across 2,401 patients from the 28 included studies, it appears that ACLR results in better survivorship and patient-perceived postoperative improvement when compared with ACL repair. At present, ACLR appears to remain the superior treatment strategy in the vast majority of cases.

Level of Evidence

Level IV, systematic review of Level II to IV studies.

37. OSTEOARTHRITIS/KNEE**Instability and progression of OA**

BMC Musculoskelet Disord. 2019 Jun 29;20(1):308. doi: 10.1186/s12891-019-2685-y.

Accelerated knee osteoarthritis is associated with pre-radiographic degeneration of the extensor mechanism and cruciate ligaments: data from the Osteoarthritis Initiative.

Davis JE¹, Harkey MS^{1,2}, Ward RJ³, MacKay JW⁴, Lu B⁵, Price LL^{6,7}, Eaton CB⁸, Lo GH^{9,10}, Barbe MF¹¹, McAlindon TE¹, Driban JB¹².

BACKGROUND:

To determine if adults with incident accelerated knee osteoarthritis (KOA) are more likely to have degenerative knee ligaments or tendons compared to individuals with typical or no KOA.

METHODS:

We identified 3 sex-matched groups among Osteoarthritis Initiative participants who had a knee without radiographic KOA at baseline (Kellgren-Lawrence [KL] < 2): 1) accelerated KOA: at least 1 knee had KL grade ≥ 3 in ≤ 48 months, 2) typical KOA: at least 1 knee increased in radiographic scoring within 48 months, 3) no KOA: both knees had the same KL grade at baseline and 48 months. We evaluated knee magnetic resonance images up to 2 years before and after a visit when the accelerated or typical KOA criteria were met (index visit). Radiologists reported degenerative signal changes for cruciate and collateral ligaments, and extensor mechanism and proximal gastrocnemius tendons. We used generalized linear mixed models with 2 independent variables: group and time.

RESULTS:

Starting at least 2 years before onset, adults with accelerated KOA were twice as likely to have degenerative cruciate ligaments than no KOA (odds ratio = 2.10, 95% CI = 1.18, 3.74). A weaker association (not statistically significant) was detected for adults with accelerated versus typical KOA (OR = 1.72, 95%CI = 0.99, 3.02). Regardless of time, adults with accelerated (odds ratio = 2.13) or typical KOA (odds ratio = 2.16) were twice as likely to have a degenerative extensor mechanism than no KOA. No other structural features were statistically significant.

CONCLUSIONS:

Degenerative cruciate ligaments or extensor mechanism antedate radiographic onset of accelerated KOA. Hence, knee instability may precede accelerated KOA, which might help identify patients at high-risk for accelerated KOA and novel prevention strategies.

56. ATHLETICS

Hamstring rehab

Pain-Free Versus Pain-Threshold Rehabilitation Following Acute Hamstring Strain Injury: A Randomized Controlled Trial

- AUTHORS

Jack T. Hickey, PhD, AEP¹, Ryan G. Timmins, PhD¹, Nirav Maniar, PhD¹, Ebonie Rio, PT, PhD², Peter F. Hickey, PhD³, Christian A. Pitcher, PhD, AEP¹, Morgan D. Williams, PhD⁴, David A. Opar, PhD¹

+ AFFILIATIONS

Published: *Journal of Orthopaedic & Sports Physical Therapy*, 2019 **Volume:**0 **Issue:**0 **Pages:**1–35 **DOI:**10.2519/jospt.2019.8895

Study Design Randomized controlled trial.

Background Conventional guidelines recommend hamstring strain injury (HSI) rehabilitation should only be performed and progressed in complete absence of pain, despite lack of comparison to alternative approaches.

Objectives The primary aim of this study was to compare the number of days from acute HSI to return to play (RTP) clearance following a standardised rehabilitation protocol performed within either pain-free or pain-threshold limits. The secondary aims were to compare isometric knee flexor strength, biceps femoris long head (BF_{lh}) fascicle length, fear of movement and re-injury during a six-month follow-up between pain-free and pain-threshold groups.

Methods

Forty-three men with acute HSIs were randomly allocated to either a pain-free (n=22) or pain-threshold (n=21) rehabilitation group. Days from HSI to RTP clearance, isometric knee flexor strength, BF_{lh} fascicle length, fear of movement and re-injuries within six-month follow-up were reported.

Results

The median time from HSI to RTP clearance was 15 days (95% CI = 13 to 17) in the pain-free group and 17 days (95% CI = 11 to 24) in the pain-threshold group, which was not significantly different (p = 0.37). Recovery of isometric knee flexor strength at 90/90 degrees of hip/knee flexion was greater in the pain-threshold group at RTP clearance by 15% (95% CI = 1 to 28) and by 15% (95% CI = 1 to 29) at two-month follow-up. BF_{lh} fascicles were 0.91cm (95% CI = 0.34 to 1.48) longer at two-month follow-up in the pain-threshold group. Two re-injuries occurred in both the pain-free and pain-threshold group during six-month follow-up.

Conclusion

Pain-threshold rehabilitation did not accelerate RTP clearance but did result in greater recovery of isometric knee flexor strength and better maintenance of BF_{lh} fascicle length improvements compared to pain-free rehabilitation. *J Orthop Sports Phys Ther*, Epub 28 Jun 2019.

doi:10.2519/jospt.2019.8895