

Saraga M, Rešić B, Krnić D, Jelavić T, Krnić D, Sinovčić I, Tomasović M. A stereotypic “elbowing” movement, a possible new primitive reflex in newborns. *Pediatr Neurol*. 2007;36:84-7.

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The objective of the current study was to describe a new pattern of primitive reflex, noticed in 52 of 81 randomly chosen newborns and young infants during pressing of the subcostal region. Some of them reacted by three-phase stereotypic movement as follows: phase 1: quick adduction of upper arm with flexion of the forearm, with elbow directed toward the site of stimuli, touching the stimulated area; phase 2: abduction and retroflexion of upper arm with the movement of removing the stimulus with the elbow; phase 3: extension and pronation of the forearm. The prevalence of this newly described reflex was 64.2%. The incidence of all three phases together was highest at day 16 (63.5%); phase 1 was the most frequent at day 30 (88.5%) in 52 children with positive reflex. At day 86, only 18.4% of them retained the first phase of the movement and 2% retained the third phase. All reflexes appeared until day 30. The authors believe they have described a new primitive reflex, with all characteristics essential for primitive reflexes. It is definitely involuntary, complex, stereotypic, with decreased incidence over time. Because of the defensive purpose and peculiar manner of this reflex, they named it the “elbowing reflex.”

Turk N, Kaštelan D, Čuković-Čavka S, Kraljević I, Koršić M, Vucelić B. Discriminatory ability of calcaneal quantitative ultrasound in the assessment of bone status in patients with inflammatory bowel disease. *Ultrasound Med Biol*. 2007;33:863-9.

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A high incidence of bone disease in patients with inflammatory bowel disease (IBD) requires frequent monitoring of skeletal status and, for that reason, evaluation of radiation-free technology is an issue of interest. The objective was to appraise the parameters of calcaneal quantitative ultrasound (QUS): broadband ultrasound attenuation (BUA), speed of sound (SOS)

and stiffness index (QUI), and establish their t-score values to investigate discriminatory ability of QUS in patients with metabolic bone disease. The study included 126 patients (Crohn's disease [n=94] and ulcerative colitis [n=32]), and 228 age- and sex-matched healthy volunteers. Bone status was evaluated on the same day by calcaneal QUS and dual-energy x-ray absorptiometry (DXA) at spine (L1-L4) and total hip. All QUS measurements were lower in patients compared with healthy controls (BUA $p < 0.001$; SOS $p < 0.001$; QUI $p < 0.001$) and correlated significantly but inversely with disease duration ($r = -0.3$, $p = 0.002$). There was no difference with respect to type of disease or corticosteroid therapy. All three QUS t-scores were significantly lower in patients who had previously sustained fragile fractures (n=28) than in those without fracture in their history (n=98). Axial DXA was not significantly different between the fracture and nonfracture patients, whereas total hip DXA showed a discriminatory power between the two ($p = 0.001$). Patients with t-score < -1.0 scanned by DXA were classified as bone disease. The sensitivity of QUS to identify bone disease was 93% and specificity 63%. The sensitivity of QUS to detect osteopenia was 84% and 72% for osteoporosis. Alternatively, lower negative QUS t-score cutoff ≤ -1.8 identified 83% of osteoporosis at lumbar spine and 100% at total hip. All three QUS variables had t-scores less than -1.8 when osteoporosis was detected at both spine and hip. However, the subgroup of IBD patients with QUI t-score cutoff ≤ -1.8 still included 26% of individuals with normal bone status. Calcaneal QUS measurements may identify patients with IBD who are at a higher risk of fracture independently of DXA measurements. However, QUS showed poor agreement with bone status scanned by DXA and a low discriminatory power between osteopenia and osteoporosis.

Sarić A, Balog T, Sobočanec S, Marotti T. Endomorphin 1 activates nitric oxide synthase 2 activity and downregulates nitric oxide synthase 2 mRNA expression. *Neuroscience*. 2007;144:1454-61.

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Endomorphins seemed to be involved in the process of vasodilatation by stimulating release of nitric oxide. In this study the

authors stimulated *in vitro* J774 macrophages with different concentrations of endomorphin 1 or 2 for measuring nitric oxide release and nitric oxide synthase 2 (NOS 2) mRNA expression. Results showed that 48 h incubation did not enhance nitric oxide release when measured with the Griess method. On the other hand, using real-time amperometric detection of nitric oxide release shortly after challenge with endomorphins, they showed that only 10⁻⁶ M endomorphin 1 was able to stimulate nitric oxide release from a J774 macrophage cell line by activation of NOS 2 isoenzyme. The peak release was 1000-1500 s after stimulation and was in the range of nitric oxide release stimulated with 10 microg/ml lipopolysaccharide. In contrast, endomorphin 2 failed to induce nitric oxide release in all tested concentrations. Using a specific inhibitor of nitric oxide synthase 2 (N-(3-[aminoethyl]benzyl)acetamidine, 1400W) the authors eliminated the stimulatory effect of endomorphin 1 on nitric oxide release. The expression of mRNA for NOS 2 in J774 macrophages, after 30 min incubation with either lipopolysaccharide or 10⁻⁶ M endomorphin 1 was not upregulated. As expected, lipopolysaccharide induced *de novo* NOS 2 transcription within 4 h. At the same time, in contrast to lipopolysaccharide, mRNA expression of cells treated with endomorphin 1 was downregulated. Since a μ -opioid receptor specific antagonist beta-funaltrexamine hydrochloride inhibited nitric oxide release from endomorphin 1-treated cells, the effect seemed to be μ -opioid receptor mediated.

Fumić K, Beluzić R, Ćuk M, Pavkov T, Kloor D, Barić I, et al. Functional analysis of human S-adenosylhomocysteine hydrolase isoforms SAHH-2 and SAHH-3. Eur J Hum Genet. 2007;15:347-51.

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S-adenosylhomocysteine hydrolase (AdoHcyase) catalyzes the hydrolysis of AdoHcy to adenosine and homocysteine. Increased levels of AdoHcy may play a role in the development of cardiovascular diseases and numerous other conditions associated with hyperhomocysteinemia. Several polymorphic isoforms named SAHH-1 to 4 may be resolved by horizontal starch gel electrophoresis from red blood cells. The authors have identified the genetic background of isoforms SAHH-2 and SAHH-3. SAHH-2 represents the previously described polymorphism in exon 2 of the AdoHcyase gene (112 C>T; p.R38W). Isoform SAHH-3 is based on a new polymorphism in exon 3 (377 G>A), leading to the conversion of glycine to arginine at amino-acid position 123. To shed light on the effects of these polymorphisms on the molecular and catalytic properties of AdoHcyase, the authors made recombinant wild-type and polymor-

phic R38W and G123R enzymes for a comparative analysis. The amino-acid exchanges did not bring about major changes to the catalytic rates of the recombinant proteins. However, circular dichroism analysis showed that both polymorphisms effect the thermal stability of the recombinant protein *in vitro*, reducing the unfolding temperature by approximately 2.6 degrees C (R38W) and 1.5 degrees C (G123R) compared to wild-type protein. In view of the altered thermal stability, and slightly decreased enzymatic activity of polymorphic proteins (<or=6%), one may consider the analyzed AdoHcyase isoforms as risk markers for diseases caused by irregular AdoHcyase metabolism.

Živković M, Poljak-Blaži M, Žarković K, Mihaljević D, Schaur RJ, Žarković N. Oxidative burst of neutrophils against melanoma B16-F10. Cancer Lett. 2007;246:100-8.

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Intensive oxidative burst was determined by chemiluminescence of peripheral blood neutrophils of mice that were intramuscularly injected with melanoma B16-F10 and/or subcutaneously with Sephadex G-200. The neutrophils from papula developed at the site of Sephadex injection were cytotoxic for the B16-F10 cells *in vitro*. However, survival of Sephadex injected tumour-bearing mice was lower than of control animals bearing B16-F10, while their tumours grew faster and were less necrotic. Thus, it is likely that injection of Sephadex distracted the neutrophils from the tumour allowing faster progression of the tumour, indicating that neutrophils may have an important role in the host defence against malignant cells in the early stage of tumour development.

Šagud M, Mihaljević-Peleš A, Pivac N, Jakovljević M, Muck-Šeler D. Platelet serotonin and serum lipids in psychotic mania. J Affect Disord. 2007;97:247-51.

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The aims of the study were to determine platelet serotonin (5-HT) concentration, platelet monoamine oxidase (MAO) activity, and serum total cholesterol, high-density lipoprotein cholesterol (HDL), low-density lipoprotein cholesterol (LDL) and triglycerides (TG) in patients with psychotic and nonpsychotic subtypes of mania and in healthy control subjects. The serum lipids, platelet 5-HT and MAO were determined in 40 (17 psychotic, 23 nonpsychotic) drug free male inpatients with type I bipolar affective disorder, current episode mania (DSM-IV criteria), and in 32 healthy

male subjects. Platelet 5-HT levels in manic patients were similar to the values in healthy controls. Serum cholesterol and LDL values were significantly lower in manic patients than in healthy controls. Patients with psychotic features had increased platelet 5-HT concentrations and decreased levels of cholesterol and LDL as compared to the nonpsychotic manic patients and healthy controls. There was no significant difference in age, body mass index, platelet MAO activity, serum levels of TG and HDL between psychotic and nonpsychotic manic patients and healthy subjects. Data on physical activity, dietary habits and alcohol consumption before hospitalization were not collected. The results of the present study suggest that biological differences between subtypes of mania might depend upon the presence of the psychotic symptoms. These data confirm their previous results showing the increased platelet 5-HT concentration in psychotic disorders across the different diagnoses.

Klepac N, Pikija S, Kraljić T, Relja M, Trkulja V, Juren S, et al. Association of rural life setting and poorer quality of life in Parkinson's disease patients: a cross-sectional study in Croatia. Eur J Neurol. 2007;14:194-8.

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Assessment of quality of life (QoL) has become an important measure in Parkinson's disease (PD) healthcare as a part of the efforts to evaluate the 'total burden' of the illness, and not only the motor disabilities. By analogy with some other diseases, the authors aimed to investigate potential urban-rural disparities in QoL in PD patients. A total of 111 consecutive PD patients were assessed for QoL using a specific 39-item version of PD quality of life questionnaire (PDQ-39) in a cross-sectional study involving two centers in Croatia. Rural life setting (adjustment for center, age, sex, levodopa dose, disease duration and severity, education, employment status and number of household co-members) was an independent negative predictor of QoL: rural patients had significantly ($p < 0.05$) worse PDQ-39 Summary Index Score and most of the PDQ-39 subscale scores (cognition, social support, stigma, emotional wellbeing and mobility score, and communication and activity of daily living scores with borderline significance) than their urban counterparts. Socioeconomic background should be considered in attempts to achieve the best management of PD patients' needs.

Štimac D, Miletić D, Radić M, Krznarić I, Mazur-Grbac M, Perković D, et al. The role of nonenhanced magnetic resonance imaging in the early assessment of acute pancreatitis. Am J Gastroenterol. 2007;102:997-1004.

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The primary aim of this study was to determine the diagnostic value of nonenhanced magnetic resonance imaging (NEMRI) to assess severity and predict outcome in patients with acute pancreatitis (AP) from the third to fifth day after admission. The study included 101 patients (49 men, 52 women, median age 62 yr, range 20-82) with a diagnosis of AP admitted to hospital between January 1, 2004 and June 31, 2005. Contrast-enhanced spiral computed tomography (CECT) exams were performed in all patients from the third to fifth day after admission, and Balthazar grade and CT severity index were calculated. All patients underwent NEMRI, and MR severity index (MRSI) was calculated. In addition, the authors also performed magnetic resonance cholangiopancreatography (MRCP) in all patients to detect bile duct lithiasis. Significant correlation between CECT and NEMRI was found for Balthazar grade ($p < 0.001$) and the assessment of pancreatic necrosis ($p < 0.001$), as well as between the combined severity indices ($\rho = 0.819$, $p < 0.001$). MRSI correlated with Ranson score ($\rho = 0.656$, $p < 0.01$), C-reactive protein (CRP) levels 48 h after admission ($\rho = 0.502$, $p < 0.01$), appearance of systemic complications ($\rho = 0.576$, $p < 0.01$), and length of hospital stay ($\rho = 0.484$, $p < 0.01$). Considering the Atlanta criteria as the gold standard and the Ranson score, no difference in sensitivity, specificity, positive predictive value, negative predictive value, and accuracy of the two methods was observed. Comparing the group of patients with presumed acute pancreatic hemorrhage with the group of patients with severe AP, they found a significantly higher APACHE II score on the first day ($p < 0.05$), that the development of systemic complications was more frequent ($p < 0.05$), and that the hospital stay and ICU management of patients with MRI signs of pancreatic hemorrhage tended to be longer. In conclusion, NEMRI is comparable to CECT in the early assessment of the severity of AP, and both methods are equally efficient in predicting local and systemic complications of AP. MRI has a potential advantage over CT in detecting bile duct lithiasis and pancreatic hemorrhage.

Butković D, Kralik S, Matolić M, Kralik M, Toljan S, Radešić L. Postoperative analgesia with intravenous fentanyl PCA vs epidural block after thoracoscopic pectus excavatum repair in children. Br J Anaesth. 2007;98:677-81.

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The aim of this prospective, randomized trial was to compare analgesia, sedation, and cardiorespiratory function in children after thoracoscopic surgery for pectus excavatum repair, using two types of analgesia—epidural block with

bupivacaine plus fentanyl vs patient-controlled analgesia (PCA) with fentanyl. Twenty-eight patients scheduled for thoracoscopic pectus excavatum surgery were randomly assigned to receive either thoracic epidural block or i.v. PCA for postoperative analgesia. Pain was assessed using a visual-analogue scale (VAS). The Ramsay sedation score, arterial pressure, ventilatory frequency, and heart rate were also measured, and blood gas analysis was performed regularly during the first 48 h after surgery. A significant decrease in the VAS pain score, Ramsay sedation score, heart rate ventilatory frequency, systolic and diastolic blood pressure, and PaCO₂, and a significant increase in PaO₂ and oxygen saturation were found over time. Patients in the PCA group had significantly higher PaCO₂ values. In addition, a significantly slower decline of systolic blood pressure and heart rate, and faster recovery of PaCO₂ were found in PCA patients than in patients with epidural block. In conclusion, I.V. fentanyl PCA is as effective as thoracic epidural for postoperative analgesia in children after thoracoscopic pectus excavatum repair. Bearing in mind the possible complications of epidural catheterization in children, the use of fentanyl PCA is recommended.

Čala S. Peritoneal dialysis in Croatia. *Perit Dial Int.* 2007;27:238-44.

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The aim of this study was to present the state of renal replacement therapy (RRT) in Croatia, assess the quality of dialytic treatment, verify the value of peritoneal dialysis (PD), and promote expansion of PD in Croatia based on results attained locally. Croatian nephrologists have adopted the policy of increasing the use of PD. However, evidence for recommendations were obtained in specific circumstances and might not be relevant elsewhere. The aim of this

observational study is to compare the outcome of PD with that of hemodialysis (HD), as practiced in Croatia. Since 2000, the Croatian Registry for Renal Replacement Therapy has been collecting individual patient data for all patients on RRT, with complete coverage. As of 31 December 2004, there were 251 prevalent patients on PD (continuous ambulatory PD and automated PD) in Croatia, accounting for 7% of all patients on RRT and giving a prevalence of 57 patients per million population. From 1 January 2000 to 31 December 2004, 377 patients started PD and were followed from the first day of RRT. For 80% of them, PD was the first mode of RRT. The probability of staying on PD for 5 years was 31% [95% confidence interval (CI) 29-32]. Five-year technique survival (excluding transplanted, recovered, and deceased patients) was 68% (95%CI 65-70). For survival analysis and comparison between PD and HD, only patients on the same method from the start of their RRT were included. Patients changing treatment were censored after 60 days (intention-to-treat analysis). Unadjusted 5-year survival in the PD-first group (301 patients) was 60% (95%CI 54-65), which is significantly better than in the 2789 HD-first patients (42%, 95%CI 40-44; log-rank $p < 0.0001$). When data were stratified for age and diabetes, 5-year mortality rates on HD were higher in all strata. Only in patients ≥ 70 years old was the advantage of PD less impressive. Standardized mortality ratio was 1.85 ($p < 0.01$) in favor of PD. Hazard ratio of HD versus PD was 2.1 (95%CI 1.6-2.8). After adjustments for age, gender, diabetes, and nephroangiosclerosis, the hazard ratio settled at 1.5 (95%CI 1.1-1.9). In summary, PD in Croatia is used mostly as the first RRT. Almost one third of patients continue PD for 5 years due to good patient and technique survival. Starting RRT with PD offers 50% superior 5-year survival in comparison to HD. Dialysis patients in Croatia would benefit from an expanded PD program.