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## HYALURONAN INJECTION AFTER MICROFRACTURE

Focal, full thickness chondral deficits are commonly seen after injuries sustained during athletic activities. Current treatment options include microfracture techniques, which entail penetration of the subchondral bone plate, which fills the defect with repair tissue. In recent animal studies, intra-articular injection of hyaluronic acid was found to reduce arthritic lesions of articular cartilage by inhibiting degenerative changes within chondrocytes in the cartilage matrix. This study sought to determine whether hyaluronic acid injections, administered after microfracture surgery, can improve the quality of the repair.

This animal study included 36 rabbits with full thickness cartilage defects created in the weight-bearing area of the medial femoral condyle. The defects were then treated with surgical microfracture. The animals were randomized to receive either three weekly or five weekly injections of hyaluronic acid, beginning one week post-surgery. Eighteen rabbits formed a three-month cohort, and 18 formed a six-month cohort. At three and six months post-surgery, the animals were sacrificed for analysis. Comparisons were made by gross and histologic analysis.

At three months, the injection group had significantly better fill of the defects and more normal appearing hyaline-like tissue than did the controls. At six months, a comparison between those receiving three and those receiving six injections revealed no significant differences. Histological analysis of the repair tissue at three months demonstrated significantly better scores on the O'Driscoll histological scoring system within the chondral defect in the three-injection group than in the control group. Examination of the entire knee at six months revealed a significantly greater extent of degenerative

change in the control group, including synovial inflammation and osteophyte formation, than in the treatment group.

**Conclusion:** This animal study of articular cartilage lesions suggests that, after a microfracture surgery, three, weekly injections of hyaluronic acid can positively impact the repair tissue and can limit degenerative changes within the knee.

Strauss, E., et al. The Efficacy of Intra-Articular Hyaluronon Injection after Microfracture Technique for the Treatment of Articular Cartilage Lesions. *Am J Sports Med.* 2009, April; 37(4): 720-726.

## MICROFRACTURE IN THE NATIONAL BASKETBALL ASSOCIATION

Full thickness cartilage lesions of the distal femur can cause pain, loss of function and arthritis. While a variety of cartilage restoring and pain reducing procedures have been described, microfracture is commonly accepted as a treatment method. While most clinical studies report improvement in function in patients undergoing this surgery, studies of elite athletes are few. This study describes the results of microfracture surgery in a series of National Basketball Association (NBA) players.

Twenty-seven NBA players undergoing microfracture surgery between 1997 and 2006 were identified from team injury reports. Players were excluded if they had additional diagnoses and were treated for other knee conditions at the time of the surgery. Demographic data, as well as average performance data for the first full years before and after surgery, were analyzed.

Of the 24 players followed, eight did not return to play in the NBA. Of the 14 who returned, points scored per game ( $p=0.008$ ) and minutes played ( $p=0.045$ ) were reduced after

surgery. However points scored per minutes of play did not change.

**Conclusion:** This study of NBA players undergoing microfracture surgery of the knee found that 33% never returned to competitive play. Those who did return had similar performance characteristics per minutes of play. However, those individuals played less and, therefore, scored less than before the surgery.

Namdari, S., et al. Results and Performance after Microfracture in National Basketball Association Athletes. *Am J Sports Med.* 2009, May; 37(5):943-948.

## SPLINTING FOR THUMB OSTEOARTHRITIS

Osteoarthritis (OA) of the base of the thumb is a relatively common condition affecting middle age and older individuals. This disorder ultimately leads to an alteration and limitation of hand function. Among the treatment recommendations for OA at this location are corticosteroid injections for painful flares, surgery when conservative treatments have failed and splints. However, no randomized trials have been completed to support those recommendations. Therefore, this study investigated the efficacy of splints for the base of the thumb OA.

This multicenter, randomized trial included 112 patients with base of the thumb OA. The participants were randomized to receive a custom made neoprene splint or to undergo usual care. The splints were recommended for use at nighttime only. The primary outcome measure was change in pain level, as assessed on a visual analogue scale at one month, with secondary measures including changes in pain and disability at one year.

No between group differences in primary or secondary outcomes were observed at one month. However, at

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one year, pain reduction was greater in the intervention group than in the control group ( $p=0.002$ ). In addition, the intervention group realized significantly greater reductions in disability ( $p=0.008$ ) and patient perceived disability ( $p=0.003$ ) than did the usual care group.

**Conclusion:** This study of patients with base of the thumb arthritis demonstrates that wearing a nighttime splint can improve pain and disability at 12 months, as compared to usual care.

Rannou, F., et al. Splint for Base of Thumb Osteoarthritis. *Ann Int Med.* 2009, May; 150(10): 661-669.

### **NONSURGICAL TREATMENT OF SHOULDER IMPINGEMENT**

Shoulder impingement is a common diagnosis which can be managed surgically. However, previous studies have found that nonoperative treatment is successful in 70% of cases. This study assessed patient outcomes over time in a cohort treated with standardized, best practice, non-operative treatment.

Ninety-four patients between the ages of 35 to 65 years, each diagnosed with impingement syndrome, were studied. All participants completed the American Shoulder and Elbow Surgeons (ASES) Shoulder Questionnaire, in an effort to assess the etiology, onset and duration of their pain. All then received subacromial injections of a local anesthetic and steroid.

A positive response was defined as a 50% or greater reduction in pain during repeat impingement testing, performed 10 minutes post-injection. All patients were then treated with a standardized, four-week course of physical therapy. The physical therapists were instructed to address issues including posture, associated muscle spasm, overall shoulder mechanics, posterior capsular tightness, weakness of the rotator cuff and periscapular musculature. Each subject then completed follow-up assessments at six weeks, three months, six months, and one and two years post-treatment.

At two years, 20 patients required surgery. Predictors of surgery included response to the initial subacromial injection and the number of subsequent injections provided. At one year, the remaining 74 patients

obtained increased shoulder scores, from 56 to 95, and decreased pain scores, from 4.8 to 0.6 ( $p<0.001$ ). Thirty percent continued to report some shoulder pain. No change was seen at two years.

**Conclusion:** This study found that nonsurgical management of impingement can significantly improve shoulder function and pain.

Cummins, C., et al. Impingement Syndrome: Temporal Outcomes of Non-Operative Treatment. *J Shoulder Elbow Surg.* 2009; 18: 172-177.

### **CREATINE SUPPLEMENTATION AND EXERCISE INDUCED MUSCLE DAMAGE**

Exercise-induced muscle damage results from strenuous, unaccustomed exercise. This damage is primarily due to eccentric actions affecting structural composition and leading to impairment in performance. As previous studies have indicated that creatine supplementation may be helpful as an ergogenic aid in high intensity activities, this study investigated the effects of creatine supplementation on indirect markers of muscle damage.

Twenty, male subjects were randomly assigned to a creatine or a placebo group. The participants were assessed at baseline and at follow-up for serum creatine kinase, lactate dehydrogenase, muscle strength, range of motion and muscle soreness. The creatine group received 20 g per day for seven days, followed by 6 g per day for 23 days. Following seven and then 30 days of supplementation, the subjects performed the knee extensor eccentric exercise protocol to induce muscle damage.

The data revealed that acute use of creatine did not affect indirect markers of muscle damage. At seven days, no significant differences were found in knee range of motion or maximum isometric force generated at the knee. At 30 days, however, the maximum isometric force was greater for the creatine group than for the placebo group.

**Conclusion:** This study investigated the effects of creatine supplementation, demonstrating no short-term, but positive long-term,

effects on maximal isometric force generation.

Rosene, J., et al. Short- and Longer-Term Effects of Creatine Supplementation on Exercise-Induced Muscle Damage. *J Sports Sci & Med*. 2009, March;8(1): 89-96.

### PILATES AFTER THA AND TKA

The number and rate of total hip and knee arthroplasties performed in the United States each year is steadily increasing, while the average age of surgical candidates continues to decline. Previous studies have documented the early benefits of rapid rehabilitation for these patients. This study sought to introduce Pilates as a technique for rehabilitation.

This retrospective study included a chart review of 38 patients who used Pilates in their rehabilitation, including 22 undergoing total hip arthroplasties (THAs) and 17 undergoing total knee arthroplasties (TKAs). The average age of the patients undergoing THAs was 46.2 years, while that of the TKA patients was 55.4 years. The patients' levels of satisfaction and outcomes were recorded.

At one-year follow-up, among the 38 patients, 25 reported being extremely satisfied and 13 being satisfied, with the outcome of use of Pilates in their rehabilitation. Of the 30 women, 22 reported continuing Pilates at one year post-joint replacement. The endorsement by the men was not as enthusiastic.

**Conclusion:** This retrospective study of patients undergoing total hip or knee arthroplasty who used Pilates as part of their rehabilitation found high satisfaction with this technique. Most were satisfied or very satisfied, with 70% of the women continuing Pilates after completion of their rehabilitation program.

Levine, B., et al. Pilates Training for Use in Rehabilitation after Total Hip and Knee Arthroplasty. *Clin Orthop Rel*. 2009, June 467(6): 1468-1475.

### EXERCISE TRAINING IN CHRONIC HEART FAILURE

Heart failure is a major and increasingly common cardiovascular syndrome. An estimated five million Americans have heart failure, with an

additional 500,000 cases diagnosed each year. Over the past two decades, it has been recognized that physical deconditioning may play a key role in the progression of symptoms and in poor outcome. Nevertheless, a safety concern persists regarding exercise training in patients with heart failure. This study sought to determine whether patients with stable heart failure can significantly reduce the incidence of mortality or hospitalization with structured regular exercise.

This multi-center, randomized, controlled trial included 2,331, medically stable outpatients with documented heart failure. The patients were randomized to receive usual care plus aerobic exercise training, or usual care alone. The exercise group participated in a structured, group based, supervised exercise program, with a goal of three sessions per week for a total of 36 sessions. Exercise was initiated at 15 to 30 minutes per session at a heart rate corresponding to 60% of heart rate reserve. After six sessions, the exercise duration was increased to 30 to 35 minutes, while intensity was increased to 70% of heart rate reserve. Patients in the exercise group were provided home exercise equipment and heart rate monitors. Those in the usual care group received detailed self-management educational materials. The primary endpoint was hospitalization or all cause mortality, at a mean follow-up point of 30 months.

In the exercise training group, 37 patients underwent at least one hospitalization due to an event that occurred during or within three hours of exercise. In the usual care group, 22 patients underwent such a hospitalization. During follow-up, 759 (65%) patients in the exercise group and 796 (68%) in the usual care group experienced a primary clinical event ( $p=0.13$ ). In addition, the exercise group demonstrated a non-significant trend toward decreased cardiovascular mortality or cardiovascular hospitalization. This finding remained significant after adjusting for prognostic factors.

**Conclusion:** This study of patients with stable chronic heart failure demonstrates that exercise training was safe. In fact, after adjusting for prognostic factors the exercise was associated with modest, but significant, reductions in all cause mortality or hospitalization and

cardiovascular mortality or heart failure hospitalization.

O'Connor, C., et al. Efficacy and Safety of Exercise Training in Patients with Chronic Heart Failure. *JAMA*. 2009, April 17; 301(14): 439-1450.

### DAIRY FOODS AND RISK OF CEREBROVASCULAR ACCIDENT

Some observational studies have found dairy consumption to be associated with lower blood pressure. Dairy consumption has also been found to be inversely related to the insulin resistance syndrome. However, prospective studies concerning the relationship of milk and total dairy intake to stroke incidence have produced inconsistent results. This prospective investigation sought to better define the relationship between intake of total dairy, specific dairy foods and the risk of stroke.

Data were obtained from the Alpha-Tocopherol, Beta Carotene Cancer Prevention (ATBC) study. This randomized, double-blind, placebo-controlled trial was originally designed to test whether alpha tocopherol, beta carotene or both can reduce cancer incidence in male smokers. That cohort comprised 29,133 men, ranging in age from 50 to 69 years, each of whom resided in southwestern Finland and had smoked five or more cigarettes per day.

Dietary intake was assessed using a validated, self-administered food frequency questionnaire that included 276 food items. The questionnaire was used to determine average consumption and portion sizes for each food during the previous year. Those data were then used to determine the relationship between dairy intake and subsequent stroke. Strokes were classified as cerebral infarction, intracerebral hemorrhage, subarachnoid hemorrhage, or unspecified stroke, as identified by record linkage to national registries.

During a mean follow-up period of 13.6 years, 2,702 cerebral infarctions, 383 intracerebral hemorrhages, 196 subarachnoid hemorrhages, and 84 unspecified strokes were identified. The data revealed no strong associations between total dairy intake and risk of any subtype of

stroke. Among individual dairy foods, positive associations were observed for whole milk intake and the risk of intracerebral hemorrhage, and between yogurt intake and the risk of subarachnoid hemorrhage. For butter intake, the risk of intracerebral hemorrhage was moderately increased. Men in the highest quintile of cream intake had a moderately lower risk of cerebral infarction and intracerebral hemorrhage than did those in the lowest quintile.

**Conclusion:** This prospective cohort study in men suggests that intake of whole milk and yogurt maybe associated with an increased risk of stroke, although cream intake may be associated with a lowered risk. No significant association was found between total dairy intake and stroke.

Larsson, S., et al. Dairy Foods and Risk of Stroke. **Epidemiology**. 2009, May; 20(3): 355-360.

#### ACETAMINOPHEN AND OUTCOME IN ACUTE STROKE

Elevated temperature during acute stroke is related to poor functional outcome. Previous animal stroke studies have suggested that even mild hyperthermia confers a degree of neuroprotection. In addition, previous studies have found that induced hypothermia can reduce infarct volume and improve functional outcome. This randomized, double-blind, placebo-controlled trial investigated whether early treatment with acetaminophen can improve functional outcome among patients admitted to the hospital with acute stroke and elevated temperature.

Fourteen hundred patients were enrolled from centers in the Netherlands over a five-year period. All subjects were 18 years of age or older, had a temperature of between 36°C and 39°C within 12 hours of stroke, and had a clinical diagnosis of ischemic stroke or intracerebral hemorrhage. The treatment group was randomized to receive a total of 6 g per day of paracetamol (acetaminophen) for three days, while a control group received a placebo. Temperature was measured upon enrollment and at 24 hours. Functional status was assessed with the modified Rankin scale and the Barthel index at enrollment, at 14 days and at three months.

Thirty percent of the participants did not complete the three-day treatment. No significant functional differences were found between the paracetamol group and the placebo group. After adjusting for age, gender, National Institutes of Health Stroke Scale, stroke type and ischemic stroke subtype, baseline body temperature was not found to be related to functional improvement. The frequency of adverse events was similar between the groups.

**Conclusion:** This study of patients with acute stroke found that three days of high-dose paracetamol given to those admitted with an elevated body temperature did not significantly improve functional outcome.

Den Hertog, H., et al. The Paracetamol (Acetaminophen) in Stroke (PAIS) Trial: A Multicenter, Randomized, Placebo-Controlled, Phase III Trial. **Lancet Neurol**. 2009; May 8(5): 434-440.

#### PREDICTING UPPER EXTREMITY FUNCTION AFTER POST-STROKE

Upper extremity paresis affects approximately 80% of patients with stroke. Clinicians currently have few available tools for predicting the extent of functional recovery of arm movement. These authors developed a paradigm for measuring active range of motion and function in the acute phase of stroke recovery, using that paradigm to trace the pattern of motor recovery and predict the degree of recovery.

Subjects were 33 patients with stroke and related upper extremity hemiparesis, each of whom had no prior history of stroke and no pre-existing conditions which would affect the movement of the impaired arm. Patients were excluded if they had hemi-spatial neglect, complete hemianopsia and/or severe aphasia. Active range of motion was measured at the shoulder, elbow, wrist, thumb, middle finger, index finger and ring finger using kinematic techniques. A functional measure was derived from principal component analysis of six tests of upper extremity motor function.

Regression analysis indicated that active range of motion of the shoulder and middle finger at one month post-onset predicted 71% of the variance in upper extremity function at three

months. The authors found no evidence of a difference in the extent of recovery of proximal versus distal arm function at three months post-stroke.

**Conclusion:** This study of patients with ischemic or hemorrhagic stroke found that active range of motion of the shoulder and middle finger at one month predicts motion of the arm at three months.

Beebe, J., et al. Active Range of Motion Predicts Upper Extremity Function Three Months after Stroke. **Stroke**. 2009, May; 40(5): 1772-1779.

#### CLIPPING VERSUS COILING OF INTRACRANIAL ANEURYSM

Endovascular coiling for the treatment of intracranial aneurysm was first introduced in the early 1990s. Since the introduction of this technique, concerns have arisen regarding the durability of this treatment and its ability to prevent subsequent re-bleeding of the treated aneurysm. In the initial findings of this study, coiling was associated with a greater decrease in mortality at one year than was aneurysm clipping. This prospective study reviewed long-term risks of those procedures.

A total of 2,004 patients with ruptured intracranial aneurysms were enrolled between 1994 and 2002. Of those, 1,073 were randomly assigned to endovascular treatment (coiling), and 1,070 to neurosurgical treatment (clipping). The patients were sent yearly questionnaires regarding disability, quality of life, hospitalizations and/or treatments related to the hemorrhage or aneurysms. Follow-up was conducted for between six and 14 years.

During the course of the study, 13 re-bleeds occurred among those in the treatment groups, ten among the coiling group and three among the clipping group (p=0.06). By five years, 11% in the coiling group and 14% in the clipping group had died (p=0.03). The independence levels of the five-year survivors did not differ between the groups.

**Conclusion:** This prospective study of patients with intracranial aneurysms demonstrates that the risk of recurrent bleeding and death following a coiled aneurysm is higher than that of a clipped aneurysm,

although the risk of either was found to be small.

Molyneaux, A., et al. Risk of Recurrent Subarachnoid Hemorrhage, Death, or Independence and Standardized Mortality Rates after Clipping or Coiling of an Intracranial Aneurysm in the International Subarachnoid Aneurysm Trial (ISAT): Long-Term Follow-Up. *Lancet Neurol.* 2009, May; 8(5): 427-433.

### COGNITIVE BEHAVIOR THERAPY FOR ANXIETY IN THE ELDERLY

Generalized anxiety disorder is common late in life, with prevalence of up to 7.3% in the general community and 11.2% in primary care. Pilot studies have suggested that cognitive behavior therapy (CBT) may be effective in treating that condition. This study further explored this treatment technique.

This randomized, clinical trial included 134 adults with a mean age of 66.7 years, recruited from two primary care locations. Potential subjects were screened for anxiety. The subjects were randomized to receive either CBT or enhanced usual care. CBT treatment included education and awareness, motivational interviewing, relaxation training, cognitive therapy, exposure, problem-solving skills training, and behavioral sleep management.

Patients in the control group were telephoned biweekly during the first three months to provide support and ensure patient safety. Outcome measures included worry severity, as measured with the Penn State worry questionnaire, and anxiety, as measured with the Generalized Anxiety Disorder Severity Scale. Secondary outcome measures included anxiety ratings, depressive symptoms, and physical and mental health quality of life.

Compared with enhanced usual care, CBT reduced worry severity ( $p < 0.01$ ) and depressive symptoms ( $p < 0.02$ ) and enhanced general mental health ( $p < 0.008$ ). No significant difference occurred between the groups in the severity of generalized anxiety disorder.

**Conclusion:** This randomized, clinical trial found that cognitive behavior therapy may be effective for reducing worry and depressive symptoms as well as improving

general mental health in elderly individuals with generalized anxiety disorder. However, this treatment did not produce improvement in anxiety.

Stanley, M., et al. Cognitive Behavior Therapy for Generalized Anxiety Disorder among Older Adults in Primary Care. *JAMA.* 2009, April 8; 301(14): 1460-1467.

### ANTIBODIES TO CHLAMYDIA AND INTIMA MEDIA THICKNESS

A number of studies of the past decade have incriminated chronic infection as a cause of myocardial infarction and stroke. Among those infections, chlamydia pneumoniae has been implicated, although the exact mechanism is not clear. This study investigated whether elevated titers of antibodies to chlamydia pneumoniae are associated with increased intima media thickness.

One hundred asymptomatic individuals over 40 years of age were studied. All subjects were without history of stroke or transient ischemic attack. All underwent evaluations of blood pressure, height, weight, fasting blood lipids, serum homocysteine and chlamydia pneumoniae antibodies, and all also underwent electrocardiography. Color Doppler determined intima thickness. Data were compared between those with normal and those with abnormal intima media thickness.

The data revealed a significant association between intima media thickness, hypertension and chlamydia pneumoniae antibodies. Multiple logistic regression established chlamydia pneumoniae as an independent risk factor for increased intima media thickness. Erythrocyte sedimentation rates and C-reactive protein levels were significantly higher in patients with abnormal intima media thickness and positive chlamydia pneumoniae antibodies than among those with normal intima media thickness who were antibody negative.

**Conclusion:** This study of asymptomatic individuals demonstrates a clear association between seropositivity for chlamydia pneumoniae and increased intima media thickness.

Bandaru, V., et al. Antibodies to Chlamydia Pneumoniae Are Associated with Increased Intima

Media Thickness in Asymptomatic Indian Individuals. *J Stroke Cerebrovasc Dis.* 2009, May-June; 18 (3): 190-194.

### PREOPERATIVE QUADRICEPS STRENGTHENING AND ACL RECONSTRUCTION

Surgical reconstruction of the anterior cruciate ligament (ACL) is performed to reestablish the ligamentous stability of the knee joint. As quadriceps weakness may negatively influence knee function over time, this study sought to determine whether preoperative quadriceps strengthening is related to knee function after ACL reconstruction.

This prospective cohort study included 73 ACL deficient subjects scheduled for reconstructive surgery. All subjects participated in one of two specific and well monitored rehabilitation programs. Data collection included self-assessment of knee function, using the Cincinnati Knee Score, a visual analogue scale of pain, the Short Form-36 (SF-36) questionnaire and tests of muscle performance. The first of the two rehabilitation programs emphasized neuromuscular training beginning the second week after reconstruction, while the second emphasized muscle strength training of the lower extremities.

Preoperative quadriceps strength, calculated as the percent difference between the injured and uninjured sides, meniscus injury, and the Short Form-36 bodily pain subscores, were found to significantly predict knee function at two years post-surgery. The most significant predictor of Cincinnati Knee Scores at two years post-surgery was quadriceps strength ( $p = 0.005$ ). Preoperative quadriceps strength deficits, combined with meniscus injury and SF-36 scores, explained 37% of the outcome variance.

**Conclusion:** This study of patients undergoing anterior cruciate ligament reconstruction demonstrates that preoperative quadriceps muscle strength negatively impacts long-term recovery.

Eizen I., et al. Preoperative Quadriceps Strength Is a Significant Predictor of Knee Function Two Years after Anterior Cruciate Ligament Reconstruction. *Br J*

### LACUNAR LOCATION AND COGNITION

Lacunar infarctions and cerebral white matter hyperintensities (WMH) are known to affect cognition. However, the relative contribution of each to cognitive dysfunction is unknown. These authors investigated which subcortical structures with lacunar infarctions are most likely to adversely impact cognitive performance.

This study was one part of a prospective, multinational, European investigation, tracking the relationship between cerebral radiologic changes and cognition in nondisabled elderly individuals. Six hundred thirty-three, nondisabled participants, ranging in age from 65 to 84 years, were studied. All underwent baseline and repeat brain MRIs, as well as neuropsychological testing. The MRIs were rated for degree and location of WMHs and lacunar infarctions. The data were analyzed to identify the effects of the locations of lacunar infarctions, independent of WMHs.

The locations of the lacunar infarctions were found to be independently related to cognitive performance. Those with lacunar infarctions in the thalamus experienced the greatest overall effect, with lower Mini-Mental Status Exam scores ( $p=0.043$ ), poorer speed and motor control scores ( $p=0.006$ ) and more impaired executive function ( $p=0.022$ ). Lacunar infarctions in the putamen/pallidum had a significant negative effect on memory ( $p=0.038$ ).

**Conclusion:** This three-year study of nondisabled elderly individuals demonstrates that the locations of lacunar infarctions in subcortical structures are related to cognitive impairments. Lacunar infarctions in the thalamus are most significantly associated with deficits, while those in the caudate and the internal/external capsule have little impact on cognition.

Benisty, S., et al. Location of Lacunar Infarcts Correlates with Cognition in a Sample of Nondisabled Subjects with Age-Related White Matter Changes: The LADIS Study. **J Neurol**

### GENETIC RISK FOR ANTERIOR CRUCIATE LIGAMENT RUPTURE

Injury to the anterior cruciate ligament (ACL) has been described as one of the most severe injuries sustained in the sporting population. Recent studies have suggested that a genetic element may be an intrinsic factor in ACL rupture. Research has found that the gene encoding for the Alpha 1 chain of type 1 collagen (COL1A1) is associated with shoulder dislocation and ACL rupture. This study further explored whether the functional SP 1 binding site polymorphism within intron 1 of the COL1A1 gene is associated with ACL rupture.

A total of 117 patients with surgically diagnosed ACL rupture and 130 controls without any previous ligament or tendon injury were studied. All participants were genotyped for the functional SP 1 binding site polymorphism within intron 1 of the COL1A1. These results were compared between groups.

The ACL rupture group was significantly older and heavier than the control group at the time of rupture. The incidence of a history of a blood relative with ligamentous injury was significantly higher in the ACL group than in the control group ( $p<0.001$ ). No significant difference was found between the groups in the distribution of the genotype or allele frequencies of the SP 1 binding site polymorphism within intron one of the COL1A1. However, the rare TT allele was significantly more underrepresented in the ACL group than in the control group ( $p<0.01$ ).

**Conclusion:** This genetic study of patients with anterior cruciate ligament rupture demonstrates that a rare genotype of the COL1A1 Sp 1 binding site's polymorphism is underrepresented in that group, as compared with controls. The authors suggest that this may be the first genetic element to be included in models used to understand the etiology and risk of ACL injury.

Posthumus, M., et al. Genetic Risk Factors for Anterior Cruciate Ligament Ruptures: COL1A1 Gene

### FAMILIAL AGGREGATION OF PSORIATIC ARTHRITIS

Psoriatic arthritis (PA) is an inflammatory arthritis associated with psoriasis, and is usually negative for the rheumatoid factor. The prevalence of PA is estimated to be approximately 0.25%. This study sought to determine the recurrence risk ratio of PA and uncomplicated psoriasis among first-degree relatives of patients with PA.

This longitudinal, open dynamic, cohort study followed 100 patients at six- to 12-month intervals. Consecutive patients with PA were approached to participate in a family investigation. A total of 100 probands were recruited. All of their first-degree relatives were evaluated for the presence of psoriasis and inflammatory arthritis. A standard protocol was used consisting of a screening questionnaire, clinical examination, laboratory tests and radiographs if clinically indicated.

Two hundred eighty-nine first-degree relatives participated in the study. The recurrence risk ratio was calculated, assuming that the population prevalence of PA was 0.25% and that of psoriasis two percent. The prevalences of PA and psoriasis among first-degree relatives were 7.6% and 15.2%, respectively, while the recurrence risk ratios were 30.4 for PA and 7.6 for psoriasis.

**Conclusion:** This family study of patients with psoriatic arthritis demonstrates that recurrence risk ratios for both PA and psoriasis are high among the first-degree relatives of those patients.

Chandran V., et al. Familial Aggregation of Psoriatic Arthritis. **Ann Rheum Dis.** 2009, May; 68: 664-667.

### OLIGOCLONAL BANDS AND PROGNOSIS IN MULTIPLE SCLEROSIS

Approximately 95% of patients with multiple sclerosis (MS) have cerebral spinal fluid immunoglobulins in oligoclonal patterns or bands. Multiple sclerosis without those bands

is unusual. This study reviewed oligoclonal band negative MS in a large patient sample, in order to further study this population.

This collaborative cohort included well documented patients in southern England and Wales. Each were diagnosed with oligoclonal band negative MS. The patients' records were retrospectively scrutinized for data including diagnostic features, with typical and atypical symptoms of all subjects classified according to the criteria of Poser and colleagues. These findings were compared with the records of oligoclonal band positive controls.

A record review of 100 patients revealed that three percent of the patients with MS were oligoclonal band negative. Those individuals were significantly more likely to exhibit atypical features of MS, including headaches and/or psychiatric features and skin changes. However, the prognosis with regard to neurologic disability was better for the oligoclonal band negative cases than for controls.

**Conclusion:** This study demonstrates that patients with multiple sclerosis who have negative cerebral spinal fluid oligoclonal band findings have a better prognosis with regard to disability, and are more likely to have atypical symptoms, than are patients who are positive for oligoclonal bands.

Joseph, F., et al. CSF Oligoclonal Band Status Informs Prognosis in Multiple Sclerosis: A Case Control Study of 100 Patients. *J Neurol Neurosurg Psychiatry*. 2009, March; 80: 292-296.

#### **HYPERGLYCEMIC MANAGEMENT AFTER SAH**

Hyperglycemia occurs in 70 to 90% of patients with aneurysmal subarachnoid hemorrhage (aSAH). Aggressive management of hyperglycemia has previously been found to improve outcomes in non-selected, intubated, intensive care unit patients. This study sought to further explore whether good glycemic control can improve the outcome of those with aSAH.

This retrospective study evaluated 332 patients hospitalized with aSAH and hyperglycemia. Those admitted

before 2003 had been treated with standard hyperglycemia management (SHM), targeting blood glucose levels of below 200 mg/dL, while patients admitted after 2003 were treated with aggressive hyperglycemic management (AHM), targeting levels between 80 and 140 mg/dL. Outcomes were compared between the two groups. Separate, within group analyses were also performed, comparing patients who achieved good glycemic control to those who did not.

The proportion of poor outcomes among patients treated with AHM was significantly lower than that among patients treated with SHM ( $p < 0.01$ ). However, that difference could not be entirely explained by the aggressive hyperglycemia protocol. Subjects treated with AHM who achieved good glycemic control had a significantly greater chance of a good outcome than did those treated with AHM who did not achieve good control ( $p = 0.02$ ).

**Conclusion:** This study suggests that tight glycemic control is associated with improved functional outcome after aneurysmal subarachnoid hemorrhage.

Latorre, J., et al. Effective Glycemic Control with Aggressive Hyperglycemia Management Is Associated with Improved Outcome in Aneurysmal Subarachnoid Hemorrhage. *Stroke*. 2009, May; 40 (5): 1644-1652.

#### **ACUPUNCTURE FOR LOW BACK PAIN**

Many patients with back pain are dissatisfied with medical care and seek care from complementary and alternative medical providers. Back pain is the leading reason for visits to licensed acupuncturists. Several recent, well-designed European trials have suggested that real acupuncture and sham acupuncture are equally effective. This study further explored that issue.

A total of 638 adults with chronic low back pain were randomized to one of four treatment groups, receiving individualized acupuncture, standardized acupuncture, simulated acupuncture, or usual care. All subjects were treated twice weekly for three weeks, and then weekly for

four weeks. The participants were visually shielded during the treatments. The primary outcome measures were back related dysfunction, measured with the Roland Morris Disability Questionnaire and Symptom bothersomeness, measured from eight to 52 weeks after the end of treatment.

By eight weeks, all groups had improved in function, with decreased symptoms, according to both adjusted and unadjusted analyses. The mean values of the primary outcomes remained relatively stable from eight to 52 weeks. The usual care group continued to have greater dysfunction than the real or simulated acupuncture groups through week 52. The real and simulated acupuncture groups did not differ significantly on multiple comparisons. After one year, participants in the treatment groups were more likely than those receiving usual care to experience clinically meaningful improvements in function ( $p = 0.02$ ).

**Conclusion:** This study demonstrates that both acupuncture and simulated acupuncture treatments significantly improve function in patients with chronic low back pain. Real acupuncture was of no greater benefit than non-inserted simulation.

Cherkin, D., et al. A Randomized Trial Comparing Acupuncture, Simulated Acupuncture, and Usual Care for Chronic Low Back Pain. *Arch Intern Med*. 2009, May 11; 169(9): 859-866.

#### **WEIGHT GAIN AFTER DBS IMPLANTATION IN PD**

Subthalamic deep brain stimulation (DBS) has proved a safe procedure for patients with Parkinsons disease (PD). However, over the past decade, numerous teams have reported marked weight gains after implantation of those devices. This study sought to better determine the effects of DBS stimulator placement on weight gain.

Twenty-two patients with PD, with an average age of 60.5 years, were studied. The history of PD averaged 9.8 years. The subjects were systematically studied one month before surgery and three months after. Of the 22 enrolled patients, 15

(Continued from page 2)

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underwent evaluation at one year post-surgery, and seven were assessed at two years post-surgery. Body mass index and total and regional body fat composition were reviewed at each evaluation.

Prior to surgery, 50% of the participants were overweight. At three months post-surgery, 68% were overweight or obese, and, by 16 months, 82% fell into one of those categories. The weight gain was significantly related to increased fat mass in both men and women.

**Conclusion:** This study of patients with Parkinson's disease demonstrates that those undergoing deep brain stimulator implantation often experience significant weight gain within the first few months post-surgery.

Bannier, S., et al. Overweight after Deep Brain Stimulation of the Subthalamic Nucleus in Parkinson Disease: Long-Term Follow-Up. *J Neurol Neurosurg Psychiatry*. 2009; 80: 484-488.

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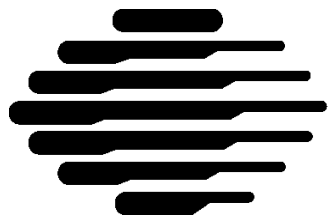
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