

บทความที่น่าสนใจประจำเดือน เมษายน 2558

สาขาวิทยาศาสตร์สุขภาพ

Title :	The effects of tai chi on measures of stress and coping style
Author :	Robert-McComb, J. J., Chyu, M.-C., Tacón, A. and Norman, R.
Journal :	Focus on Alternative and Complementary Therapies: Article first published online: 14 APR 2015, DOI: 10.1111/fct.12179
Abstract :	<p>Background</p> <p>The biological response (heart-rate variability; HRV) to an acute psychological stressor, as well as cognitive changes in anxiety and coping style following tai chi (TC) in healthy male college students, has not been investigated in the literature.</p> <p>Objectives</p> <p>The purpose of this study was to examine the effects of TC on: (1) HRV biomarkers of acute psychological stress, (2) state anxiety, and (3) coping style in healthy male college students.</p> <p>Methods</p> <p>The study was an RCT, in which the experimental group (n=9) received TC (twice a week for 8 weeks) and the control (C) group (n=11) did not receive treatment. Reactions to an acute psychological stressor were measured by the HRV's standard deviation of normal to normal intervals (SDNN), and Spielberger's State-Trait Anxiety Inventory (STAI). Four 'trials' (baseline; stressor; recovery 1 and recovery 2) were conducted, with pre-tests/post-tests performed for both study groups. The Problem-Focused Styles of Coping (PFSOC) questionnaire was used to examine coping styles pre-test/post-test for both groups.</p> <p>Results</p> <p>Significant differences were found: (1) for group, test, and trial, the interaction of trial by group, and the interaction of test by trial for SDNN, $P<0.05$; (2) for test, trial, and the interaction of test by group for STAI ($P<0.05$); and (3) for the interaction of group and test for the suppressive coping style ($P<0.05$).</p> <p>Conclusions</p>

	Tai chi affects biological reactions to an acute psychological stressor, perceptions of anxiety to an acute stressor and coping styles in healthy male college students.
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Title :	Effects of a metabolic syndrome self-management programme for women with pre-diabetes
Author :	Youngwanichsetha, S., Phumdoung, S. and Cersosimo, E.
Journal :	Focus on Alternative and Complementary Therapies: Article first published online: 16 APR 2015, DOI: 10.1111/fct.12176
Abstract :	<p>Background</p> <p>Metabolic syndrome is known to be a risk factor for developing type-2 diabetes, cardiovascular disease and several health complications.</p> <p>Objective</p> <p>To examine the effects of a metabolic syndrome self-management programme for women with pre-diabetes.</p> <p>Methods</p> <p>The study was an RCT. Data were analysed for 170 participants, who had been randomly assigned to either an intervention (n = 85) or a control (n = 85) group. The participants in the intervention group practised a self-management programme composed of eating traditional southern Thai foods and 30-min brisk walking each day for 24 weeks; the control group received usual care. Main outcomes were evaluated at 12 and 24 weeks.</p> <p>Results</p> <p>At 12 weeks, there was a significant decrease in fasting plasma glucose and triglycerides in the intervention group (P < 0.05). At 24 weeks, there were statistically significant reductions in body-weight, body-mass index, waist circumference, blood pressure, fasting plasma glucose and triglycerides among participants in the intervention group (P < 0.05). No significant difference in HDL-cholesterol levels was found.</p> <p>Conclusions</p> <p>Traditional southern Thai foods and brisk walking appear to benefit glycaemic control and lipid profiles among women with pre-diabetes and metabolic syndrome.</p>

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Title :	The influence of ruthenium on vascular tone
Author :	Pauwels, B., Boydens, C. and Van de Voorde, J.
Journal :	Journal of Pharmacy and Pharmacology: Article first published online: 13 APR 2015, DOI: 10.1111/jphp.12417
Abstract :	<p>Objectives</p> <p>Over the past few years, ruthenium has been under attention for development of organometallic drugs with various therapeutic applications. Because of its favourable characteristics, ruthenium is perfectly suitable for drug design. Ruthenium-containing complexes exert a wide range of biological effects. However, so far, the influence of ruthenium itself on vascular tone has never been studied.</p> <p>Methods</p> <p>The effect of ruthenium was analysed through organ bath studies measuring isometric tension on mice thoracic aorta. After obtaining a stable contraction plateau, cumulative concentration-response curves of the ruthenium-compounds (RuCl₃, Ruthenium Red, [RuCl₂(CO)₃]₂ and RuCl₂(DMSO)₄) (30–600 μmol/l) were performed. The effect of RuCl₃ after contraction with different contractile agents was evaluated. Furthermore, the influence of ruthenium-containing molecules on endogenous (acetylcholine) and exogenous (sodium nitroprusside) NO-mediated relaxations was determined.</p> <p>Key findings</p> <p>All studied ruthenium compounds elicit, to some extent, a decrease of the contraction level. Looking further into the underlying mechanism, we found that RuCl₃ relaxes aortic rings only when contracted with norepinephrine. This RuCl₃-induced relaxation can be prevented by the antioxidants ascorbic acid and N-acetyl-L-cysteine. In addition, ruthenium compounds may diminish acetylcholine- or sodium nitroprusside-induced relaxations.</p> <p>Conclusions</p> <p>Ruthenium-containing molecules can influence vascular tone induced by norepinephrine due to oxidative inactivation. Moreover, they can undermine NO-</p>

	mediated responses. This should be considered when developing ruthenium-containing drugs.
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Title :	Coenzyme q10 in combination with triple therapy regimens ameliorates oxidative stress and lipid peroxidation in chronic gastritis associated with H. pylori infection
Author :	Asghar Rahmani, Ghobad Abangah, Atefeh Moradkhani, Mohammad Reza Hafezi Ahmadi and Khairollah Asadollahi
Journal :	The Journal of Clinical Pharmacology Accepted Article (Accepted, unedited articles published online and citable. The final edited and typeset version of record will appear in future.), DOI: 10.1002/jcph.508
Abstract :	<p>Chronic Gastritis associated with H. pylori infection causes oxidative stress in the stomach. This study aimed to evaluate the therapeutic effects of coenzyme q10 among gastric patients infected by H. pylori. By a clinical trial, chronic gastric patients infected by H. pylori were divided into two groups of intervention and placebo, randomly. The placebo group received standard triple therapy regimen and the intervention group received triple regimen + Coq10. Symptoms and mean inflammation score, serum levels of three serum markers were then compared.</p> <p>A total of 100 participants including 67% female were evaluated. The mean age of participants was 59.4 ± 11.4 years. The mean inflammation score and symptoms were considerably decreased at the end of the study, in intervention group. The mean levels of TAC and GPx, at the end of the study, reduced among triple therapy group ($p < 0.05$, $p = 0.03$ respectively). The mean levels of TAC and GPx were significantly higher among intervention group at the end of the study compared to that at the initial of study. The combination of triple therapy with Coq10 demonstrated an effective outcome on the mucosal inflammation, symptom score and stress oxidative in patients with chronic gastritis.</p>
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Title :	Impact of anticholinergic load of medications on the length of stay of cancer patients in hospice care
Author :	Komal P. Gupte and Wenchen W.
Journal :	International Journal of Pharmacy Practice: Volume 23, Issue 3, pages 192–198, June 2015
Abstract :	<p>Objectives</p> <p>An important goal of hospice care is to relieve pain and suffering of terminal cancer patients. Anticholinergic medications are effective in the symptom palliation among terminal cancer patients. However, use of these medications has been associated with increased risk of side effects, which might lead to premature mortality. Short lengths of stay in hospice care leave patients with a higher level of unmet needs. The study was conducted to examine the effect of increasing anticholinergic load on the length of stay of cancer patients in hospice care in the USA.</p> <p>Methods</p> <p>The National Home and Hospice Care Survey 2007 was used as the data source. The Cox proportional hazards model was used to investigate the risk of death among users of moderate and high anticholinergic load compared with users of low anticholinergic load in presence of other prognostic factors.</p> <p>Key findings</p> <p>Cancer patients on a moderate anticholinergic load had a 12.7% lower hazard of death ($P = 0.0244$), while those on a high anticholinergic load had a 15.6% lower hazard of death ($P = 0.0071$) as compared with those patients on a low anticholinergic load. Among other prognostic factors, non-elderly age group, male gender, white race, metropolitan hospice agency, non-profit hospice agency, severe activities of daily living dependency and cognitive impairment were significantly associated with a higher probability of death.</p> <p>Conclusions</p> <p>These results provide no evidence for increasing anticholinergic load increasing mortality in cancer patients using hospice care. Thus, high anticholinergic load might have conferred a protective effect on the patients because of better symptom control.</p>
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Title :	An amphetamine isomer whose efficacy and safety in humans has never been studied, β-methylphenylethylamine (BMPEA), is found in multiple dietary supplements
Author :	Pieter A. Cohen, Clayton Bloszies, Caleb Yee and Roy Gerona
Journal :	Drug Testing and Analysis: Article first published online: 7 APR 2015, DOI: 10.1002/dta.1793
Abstract :	<p>The amphetamine isomer β-methylphenylethylamine (BMPEA) was first synthesized in the early 1930s, but its efficacy and safety in humans has not been studied. Recently, the United States Food and Drug Administration (FDA) detected BMPEA in dietary supplements labelled as containing <i>Acacia rigidula</i>. Over a year after the FDA reported its findings, we analyzed <i>Acacia rigidula</i> dietary supplements to determine if BMPEA had been removed. Supplements were analyzed using liquid chromatography-quadrupole time-of-flight mass spectrometry. Diluted methanolic extract from each supplement was run three times and each data set obtained was analyzed using Agilent MassHunter Qualitative Analysis. The presence of BMPEA was confirmed by accurate mass, retention time and mass spectra match against a reference standard. Quantification of BMPEA was determined using an eight-point calibration curve of spiked standard to a matrix blank. Twenty-one brands of <i>Acacia rigidula</i> supplements were analyzed. More than half (11/21; 52.4%) of the <i>Acacia rigidula</i> supplement brands contained BMPEA. The stimulant was present at quantities such that consumers following recommended maximum daily servings would consume a maximum of 93.7 mg of BMPEA per day. Consumers of <i>Acacia rigidula</i> supplements may be exposed to pharmacological dosages of an amphetamine isomer that lacks evidence of safety in humans. The FDA should immediately warn consumers about BMPEA and take aggressive enforcement action to eliminate BMPEA in dietary supplements.</p>
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Title :	GRAIN: a computer program to calculate ancestral and partial inbreeding coefficients using a gene dropping approach
Author :	Baumung, R., Farkas, J., Boichard, D., Mészáros, G., Sölkner, J. and Curik, I.

Journal :	Journal of Animal Breeding and Genetics- - Special Issue: Quantitative genetics and genetic improvement - papers in honour of John James: Volume 132, Issue 2, pages 100–108, April 2015
Abstract :	<p>GRain is freely available software intended to enable and promote testing of hypotheses with respect to purging and heterogeneity of inbreeding depression. The program is based on a stochastic approach, the gene dropping method, and calculates various coefficients from large and complex pedigrees. GRain calculates, together with the 'classical' inbreeding coefficient, ancestral inbreeding coefficients proposed by Ballou, (1997) J. Hered., 88, 169 and Kalinowski et al., (2000) Conserv. Biol., 14, 1375 as well as an ancestral history coefficient (AHC), defined here for the first time. AHC is defined as the number that tells how many times during pedigree segregation (gene dropping) a randomly taken allele has been in IBD status. Furthermore, GRain enables testing of heterogeneity and/or purging of inbreeding depression with respect to different founders/ancestors by calculating partial coefficients for all previously obtained coefficients.</p>
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Title :	Development of an Experimental Animal Model for Lower Back Pain by Percutaneous Injury-Induced Lumbar Facet Joint Osteoarthritis
Author :	Jae-Sung Kim, Kasra Ahmadiania, Xin Li, John L Hamilton, Steven Andrews, Chris A. Haralampus, Guozhi Xiao, Hong-Moon Sohn, Jae-Won You, Yo-Seob Seo, Gary S. Stein, Andre J Van Wijnen, Su-Gwan Kim and Hee-Jeong Im
Journal :	Journal of Cellular Physiology: Accepted Article (Accepted, unedited articles published online and citable. The final edited and typeset version of record will appear in future.), DOI: 10.1002/jcp.25015
Abstract :	We report generation and characterization of pain-related behavior in a minimally-invasive facet joint degeneration (FJD) animal model in rats. FJD was produced by a non-open percutaneous puncture-induced injury on the right lumbar FJs at three consecutive levels. Pressure hyperalgesia in the lower back was assessed by measuring the vocalization response to pressure from a force transducer. After hyperalgesia was established, pathological changes in lumbar FJs and alterations of intervertebral foramen size were assessed by histological and imaging analyses.

	<p>To investigate treatment options for lumbar FJ osteoarthritis-induced pain, animals with established hyperalgesia were administered with analgesic drugs, such as morphine, a selective COX-2 inhibitor, a non-steroidal anti-inflammatory drug (NSAID) (ketorolac), or pregabalin. Effects were assessed by behavioral pain responses. One week after percutaneous puncture-induced injury of the lumbar FJs, ipsilateral primary pressure hyperalgesia developed and was maintained for at least 12 weeks without foraminal stenosis. Animals showed decreased spontaneous activity, but no secondary hyperalgesia in the hind paws. Histopathological and microfocus X-ray computed tomography analyses demonstrated that the percutaneous puncture injury resulted in osteoarthritis-like structural changes in the FJs cartilage and subchondral bone. Pressure hyperalgesia was completely reversed by morphine. The administration of celecoxib produced moderate pain reduction with no statistical significance while the administration of ketorolac and pregabalin produced no analgesic effect on FJ osteoarthritis-induced back pain. Our animal model of non-open percutaneous puncture-induced injury of the lumbar FJs in rats shows similar characteristics of low back pain produced by human facet arthropathy. This article is protected by copyright. All rights reserved</p>
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Title :	Protein Adsorption, Desorption, and Aggregation Mediated by Solid–Liquid Interfaces
Author :	Perevozchikova, T., Nanda, H., Nesta, D. P. and Roberts, C. J.
Journal :	Journal of Pharmaceutical Sciences: Article first published online: 2 APR 2015, DOI: 10.1002/jps.2442
Abstract :	<p>Adsorption of proteins to solid–fluid interfaces is often empirically found to promote formation of soluble aggregates and larger, subvisible, and visible particles, but key stages in this process are often difficult to probe directly. Aggregation mediated by adsorption to water–silicon oxide (SiO_x) interfaces, akin to hydrated glass surfaces, was characterized as a function of pH and ionic strength for alpha-chymotrypsinogen (αCgn) and for a monoclonal antibody (IgG1). A flow cell permitted neutron reflectivity for protein layers adsorbed to clean SiO_x surfaces, as well as after successive “rinse” steps. Aggregates recovered in solution after gently</p>

	<p>“rinsing” the surface were characterized by neutron scattering, microscopy, and fluorescence spectroscopy. IgG1 molecules oriented primarily “flat” against the SiOx surface, with the primary protein layer desorbed to a minimal extent, whereas a diffuse overlayer was easily rinsed off. aCgn molecules were resistant to desorption when they appeared to be unfolded at the interface, but were otherwise easily removed. For cases where strong binding occurred, protein that did desorb was a mixture of monomer and small amounts of HMW aggregates (for aCgn) or subvisible particles (for IgG1). Changes in adsorption and/or unfolding with pH indicated that electrostatic interactions were important in all cases.</p>
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Title :	An Impedance-Based Method to Determine Reconstitution Time for Freeze-Dried Pharmaceuticals
Author :	Werk, T., Huwyler, J., Hafner, M., Luemkemann, J. and Mahler, H.-C. (2015)
Journal :	Journal of Pharmaceutical Sciences: Article first published online: 8 APR 2015, DOI: 10.1002/jps.24443
Abstract :	<p>The reconstitution of freeze-dried products is usually determined by visual inspection with the naked eye. This can inevitably lead to significant variability in the ability to detect complete reconstitution of the dried solid. It was thus the goal of our study to assess an automated method to monitor reconstitution of a freeze-dried protein drug product in its primary packaging. A newly developed measuring device was used to measure impedance. This was achieved by detecting minor changes in impedance of the reconstitution medium, which occurred because of solid material dissolving during the dissolution process. This measurement system was capable of consistently detecting the dissolution of the last visible residues of freeze-dried lyophilisates. The endpoint of reconstitution was defined at an impedance change of less than 1 Ω for at least 7 s. Finally, we compared reconstitution times determined by the automated impedance method with results obtained by a visual method. In contrast to human operators, the new method delivered both accurate and precise results. Besides detection of the reconstitution endpoint, the impedance method and apparatus can monitor reconstitution endpoints as well as reconstitution</p>

	kinetics. This standardized method can therefore advantageously be used for the determination of the reconstitution endpoint.
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