

# Hot Articles

“September|2020”

Health Science



**Title:** [Therapeutic effects of açai seed extract on hepatic steatosis in high-fat diet-induced obesity in male mice: a comparative effect with rosuvastatin](#)

**Author:** Thamires Barros Tavares, Izabelle Barcellos Santos, Grazielle Freitas de Bem, et.al.

**Journal:** Journal of Pharmacy and Pharmacology

**Volume:** First published: 27 August 2020 (Early View)

**Doi:** <https://doi.org/10.1111/jphp.13356>

### Abstract

**Objectives:** Obesity is considered a risk factor for the development of non-alcoholic fatty liver disease (NAFLD). The hydroalcoholic extract obtained from the açai seed (ASE), rich in proanthocyanidins, has been shown a potential body weight regulator with antioxidant properties. This study aimed to investigate the therapeutic effect of ASE in obesity-associated NAFLD and compare it with Rosuvastatin.

**Methods:** Male C57BL/6 mice received a high-fat diet or standard diet for 12 weeks. The treatments with ASE (300 mg/kg per day) or rosuvastatin (20 mg/kg per day) began in the eighth week until the 12th week.

**Key findings:** Our data show that the treatments with ASE and rosuvastatin reduced body weight and hyperglycaemia, improved lipid profile and attenuated hepatic steatosis in HFD mice. ASE and Rosuvastatin reduced HMGCoA-Reductase and SREBP-1C and increased ABGC8 and pAMPK expressions in the liver. Additionally, ASE, but not Rosuvastatin, reduced NPC1L1 and increased ABCG5 and PPAR- $\alpha$  expressions. ASE and rosuvastatin increased SIRT-1 expression and antioxidant defence, although only ASE was able to decrease the oxidative damage in hepatic tissue.

**Conclusions:** The therapeutic effect of ASE was similar to that of rosuvastatin in reducing dyslipidemia and hepatic steatosis but was better in reducing oxidative damage and hyperglycaemia.

### Database

Wiley Online Library

**Title:** [Effects of biophysical cues of 3D hydrogels on mesenchymal stem cells differentiation](#)

**Author:** Yutong Guo, Shufang Du, Shuqi Quan, Fulin Jiang, Cai Yang, Juan Li

**Journal:** Journal of Cellular Physiology

**Volume:** Version of Record online: 04 September 2020

**Doi:** <https://doi.org/10.1002/jcp.30042>

### Abstract

For stem cell research, three-dimensional (3D) hydrogels are increasingly recognized as more physiological systems than two-dimensional culture plates due to bidirectional and 3D interaction of stem cells and surrounding matrix. Among various stem cells, mesenchymal stem cells (MSCs) are one of the most widely applied from bench to bedside. In 3D hydrogels, MSCs are allowed to actively remodel the surrounding matrix through proteolytic degradation and cell-exerted force, which highly resembles in vivo situation. Notably, factors affecting hydrogel modifiability including matrix viscoelasticity and matrix degradability have been found to regulate adhesion, morphology, and fate decision of MSCs. In addition, MSCs within 3D hydrogels have been found to employ multiple mechanotransduction mechanisms including not only the classic integrin-actomyosin cytoskeleton system but also ion channels, microtubule cytoskeleton, and self-secreted proteinaceous matrix. This review summarizes the effects of biophysical cues on MSCs differentiation in 3D hydrogels and underlying mechanobiology in a hope to update our readers' understanding of stem cell biology and guide tissue engineering.

### Database

Wiley Online Library

**Title:** [Slow Accumulation and Elimination of Diazepam and Its Active Metabolite With Extended Treatment in the Elderly](#)  
**Author:** David J. Greenblatt, Jerold S. Harmatz, Qingchen Zhang, Yuxi Chen, Richard I. Shader  
**Journal:** The Journal of Clinical Pharmacology  
**Volume:** First published: 27 August 2020  
**Doi:** <https://doi.org/10.1002/jcph.1726>

### Abstract

Age-related changes in disposition of diazepam and its principal active metabolite, desmethyldiazepam (DMDZ), during and after extended dosage with diazepam were studied in healthy volunteers. Eight elderly subjects (ages 61-78 years) and 7 young subjects (21-33 years) received 2.5 mg of diazepam twice daily for 15 days. Predose (trough) concentrations of diazepam and DMDZ were measured during the 15 days of dosing, and in the postdosage washout period. Kinetic properties were determined by nonlinear regression using a sequential drug-to-metabolite pharmacokinetic model. Steady-state plasma concentrations of diazepam and DMDZ were 30% to 35% higher in elderly subjects compared to young volunteers, and steady-state clearances correspondingly lower, though differences did not reach significance. Large and significant differences were found between young and elderly groups in mean half-life of diazepam (31 vs 86 hours;  $P < .005$ ) and DMDZ (40 vs 80 hours;  $P < .02$ ). Half-life values from the multiple-dose study were closely correlated with values from previous single-dose studies of diazepam ( $R^2 = 0.85$ ) and DMDZ ( $R^2 = 0.94$ ) in the same subjects. With extended dosing of diazepam in the elderly, slow accumulation and delayed washout of diazepam and DMDZ is probable. After discontinuation, withdrawal or rebound effects are reduced in likelihood, but delayed recovery from sedative effects is possible due to slow elimination of active compounds. Safe treatment of elderly patients with diazepam is supported by understanding of age-related changes in pharmacologic and pharmacokinetic properties.

### Database

Wiley Online Library

**Title:** [Regret Me Not: Examining the Relationship between Alcohol Consumption and Regrettable Experiences](#)

**Author:** Andrew Jones , Joel Crawford , Abi Rose , Paul Christiansen & Richard Cooke

**Journal:** Substance Use & Misuse

**Volume:** Published online: 13 Sep 2020 (Pages: 1-10)

**Doi:** 10.1080/10826084.2020.1817084

### Abstract

Alcohol use is a considerable public health concern, leading to negative health and adverse social consequences. Despite widespread knowledge and acceptance of these consequences many individuals continue to drink excessively. Lack of regret for these consequences may partially explain this. Objectives: To examine the prevalence of regrettable experiences and their role in future intentions to drink. Methods: In two studies (Study 1: cross-sectional; Study 2: longitudinal) participants reported on 18 regrettable experiences; from common regrets (e.g. hangover), to risky behaviors (e.g. drug taking), and serious regrets (e.g. driving under the influence), over a two-week period. Results: Prevalence of regrettable experiences was high (e.g. 79.0% of individuals in study 1 and 66.9% of individuals in study 2 experienced a hangover). Prevalence was greater for common regrets compared to risky behaviors and serious regrets. In study one, alcohol consumed over the previous fortnight predicted the number of different regrettable experiences over the same period. In study two, units consumed on a day-to-day basis predicted the number of regrets on that same basis. Neither study demonstrated evidence for the predictive utility of regrets for intentions to consume alcohol in the future. Conclusions: These findings suggest high prevalence of regrettable experiences, that are predicted by increased alcohol consumption. However, there was little evidence that increased number of experiences predicted future drinking intentions. Regrettable experiences are prevalent following consumption, however a focus on these regrets to deter future alcohol consumption may not be an effective psychological intervention.

### Database

Taylor & Francis Online Journals

**Title:** [Combining oncolytic virus with FDA approved pharmacological agents for cancer therapy](#)  
**Author:** Wei Zhang , Clark C. Chen & Jianfang Ning  
**Journal:** Expert Opinion on Biological Therapy  
**Volume:** Published online: 14 Sep 2020 (Pages: 1-7)  
**Doi:** 10.1080/14712598.2020.1811848

### Abstract

**Introduction:** Oncolytic viruses (OVs) have been engineered to selectively replicate in cancer cells. While initially thought to exert its anti-cancer effects through direct cytolysis, it is increasingly appreciated that OVs interact with a multitude of cellular processes during its life cycle; FDA approved pharmacologic agents that modulate these cellular processes have been shown to augment the anti-neoplastic effects of OVs. Moreover, because of the release of tumor antigens as well as the innate immuno-stimulatory nature of viruses, OVs induce potent immune responses that augment the anti-tumor effects of FDA approved immunotherapies. There is mounting interest in OV as a platform for combinational anti-cancer therapy in this context.

**Areas covered:** We will review pre-clinical and clinical data that demonstrate proof-of-principle and potential efficacy for OV-based combination therapies with FDA approved anti-cancer agents.

**Expert opinion:** While the cytolytic activity of OV remains a key driver for its anti-neoplastic effects, understanding the virus–host interactions may afford opportunities for potential synergism with FDA approved therapeutics that target these interactions. Most intriguingly, the immune stimulatory effects of OVs renders combination with FDA approved immunotherapies more potent. While there are growing clinical trials employing such combination therapy, meaningful advances in this paradigm will require improved understanding of virus–host interactions.

### Database

Taylor & Francis Online Journals

**Title:** [“Earth angels” and parking spots: qualitative perspectives on healthy aging with spinal cord injury](#)  
**Author:** Elizabeth Riedman , Haley Scott , Philippa Clarke , Michelle Meade , Martin Forchheimer & Denise Tate  
**Journal:** Disability and Rehabilitation  
**Volume:** Published online: 13 Sep 2020 (Pages: 1-100)  
**Doi:** 10.1080/09638288.2020.1817987

### Abstract

**Purpose:** People aging with spinal cord injury (SCI) can experience the premature onset of comorbid conditions, as well as the development and progression of secondary health conditions. The aim of this study was to understand the subjective experiences of persons aging with SCI in relation to their surrounding social and physical environments, including the impact of barriers and facilitators.

**Material/Methods:** Eleven individuals who had an SCI for more than ten years and were 45 years or older participated in a semi-structured phone interview about their experiences with healthy aging, social participation, social supports, and community barriers.

**Results:** Four main themes emerged in the qualitative data that captured the subjective experience of aging with SCI. These were: (1) Maintaining Physical Independence; (2) Importance of Resources and Special Equipment; (3) Planning Ahead; and (4) Finding Ways to Adapt.

**Conclusions:** The findings from this study highlight the importance of looking beyond individual factors to consider the social and environmental factors that support continued independence and participation in society as people living with long term SCI experience their aging process. Qualitative research that delves further into the dynamics behind this process is needed to fully anticipate the needs of this growing population.

### Database

Taylor & Francis Online Journals

**Title:** [DNA methylation changes in promoter region of CDKN2A gene in workers exposed in construction environment](#)

**Author:** Isana Rodrigues Silva, Luiza Flavia Veiga Francisco, Cassia Bernardo, Marco Antônio Oliveira, Fernando Barbosa Jr & Henrique César Santejo Silveira

**Journal:** Biomarkers

**Volume:** Published online: 13 Sep 2020 (Pages: 1-9)

**Doi:** 10.1080/1354750X.2020.1817981

### Abstract

**Purpose:** Construction workers are exposed to a mixture of substances in the workplace considered carcinogenic. This study aimed to characterise gene-specific changes in DNA methylation over the workweek in this population as this type of environmental exposure has not been studied extensively.

**Materials and methods:** We evaluated their DNA methylation in 4 gene-promoter regions (CDKN2A, RASSF1A, MLH1 and APC) and 2 repeat elements (ALU and LINE-1) in blood samples obtained on the first and fifth day of the same workweek of a group of 39 male construction workers. DNA methylation was measured by bisulphite-PCR-Pyrosequencing. We also measured the levels of trace elements in the whole blood by ICP-MS.

**Results:** Only the CDKN2A gene had significant differences in the average methylation level between the first and fifth day of the workweek. We also observed that the levels of Cu, Pb, Se, Mn, and Ti decreased during the fifth day of exposure, and only lead, titanium and copper showed a low significant correlation with the methylation level mean for three specific CpG sites of the CDKN2A.

**Conclusions:** In summary, the data suggest that altered levels of CDKN2A methylation in construction workers may be a potential biomarker of recent exposure in this environment.

### Database

Taylor & Francis Online Journals

**Title:** [Assessing the impact of high blood pressure referrals on hypertension awareness and management, BMI, and blood pressure values in adult Samoans 2010-2019](#)

**Author:** Anna C. Rivara, Alys Pomer, Take Naseri, Muagututia Seifuiva Reupena, Satupaitea Viali, Courtney C Choy, Stephen T McGarvey & Nicola L Hawley

**Journal:** Annals of Human Biology

**Volume:** Accepted author version posted online: 13 Sep 2020 (Pages: 1-10)

**Doi:** 10.1080/03014460.2020.1822914

### Abstract

**Background:** The Samoan population has experienced rapid increases in the prevalence of non-communicable diseases (NCDs) and NCD risk factors over the last 30 years. However, understanding how increased awareness and treatment of these conditions in reducing disease burden remains understudied.

**Aim:** Using data from a longitudinal study (2010-2019) of cardiometabolic health among Samoan adults, we assess the impact of a referral for elevated blood pressure (BP) on changes in BP, physician's diagnoses of hypertension and medication use, body mass index (BMI), and other risk factors for elevated BP.

**Subjects and methods:** Analyses compared adult Samoans ( $n = 328$ ) who in 2010 either (1) received a referral for elevated blood pressure ( $BP \geq 140/90$  mmHg) or (2) had measured BP indicative of pre-hypertension ( $BP \geq 120/80$  mmHg) but were not referred. Data were analysed using linear and logistic regression, paired T- and McNemar's tests, and Wilcoxon Rank Sum assessments.

**Results:** Referrals in 2010 significantly increased the odds of reporting a physician's diagnosis of hypertension (OR 2.16; 1.18, 3.95) and hypertension medication use (OR 3.52; 1.86, 6.73) in 2018; however, referrals, medication use and diagnoses were not associated with BP values or reduced odds of having elevated BP.

**Conclusion:** Despite the referral having positive effects on hypertension-related health care, our results demonstrate that other factors are influencing effective BP/hypertension control. We advocate for greater engagement of health researchers with local health sector actors to improve the probability that researcher-provided health referrals will result in long-term health improvements.

### Database

Taylor & Francis Online Journals

**Title:** [Measuring quality of life for people with common mental health problems](#)

**Author:** Nyantara Wickramasekera & Sandy Tubeuf

**Journal:** Journal of Mental Health

**Volume:** Published online: 11 Sep 2020 (Pages: 1-8)

**Doi:** 10.1080/09638237.2020.1818190

### Abstract

**Background:** It is important to identify valid and acceptable outcome measures so that interventions evaluating common mental health problems can be assessed appropriately. Some advocate the use of generic preference-based measures claimed to be applicable for all health interventions, but others argue that they are insensitive for common mental health problems. The aim of this paper is to evaluate the Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM), to be used in cost-effectiveness studies in people with common mental health problems.

**Method:** The CORE-OM measure was tested for completeness, acceptability and responsiveness in a pilot study. Analyses for missing data, distribution of scores, and standardised response means (SRMs) were calculated.

**Results:** Missing data did not exceed 5% for any of the CORE-6D items both at baseline and follow-up. The overall comprehension rate was high, and only 19 participants (14%) requested clarifications to complete the questionnaire. As expected in a feasibility study, there was a small and non-significant SRM.

**Conclusion:** CORE-OM is a valid and acceptable instrument to evaluate quality of life for people with common mental health problems. More research is needed with larger sample sizes to compare CORE-6D with other condition specific quality of life instruments.

### Database

Taylor & Francis Online Journals

**Title:** [Original Research. Low Utility of Screening Hematologic Testing for Image-Guided Biopsies in Patients Without Bleeding Risks](#)

**Author:** Monica M. Matsumoto, Ashley Altman, Balaji Jothishankar, Brian Funaki, Paul J. Chang

**Journal:** American Journal of Roentgenology

**Volume:** Posted online on 9 Sep 2020. (Pages: 1-7)

**Doi:** 10.2214/AJR.19.22414

### Abstract

**OBJECTIVE.** This study evaluates the prevalence of an abnormal international normalized ratio (INR) and platelet count before image-guided percutaneous needle biopsies over a 10-year period, comparing data from patients with and those without known conditions predisposing to coagulopathy.

**MATERIALS AND METHODS.** A review of electronic medical records identified patients who were scheduled for a biopsy in a single institution's radiology department for the period of 2007–2016. The following information was recorded: demographic data, patient history of conditions that predispose to bleeding (e.g., liver disease, anticoagulant therapy, history of coagulopathy), and INR and platelet values within 30 days before biopsy. Data were stratified by biopsies that were performed versus those that were cancelled.

**RESULTS.** Over 10 years, 3864 percutaneous biopsies were performed, and 6371 were cancelled. Approximately half of the biopsies (48.2%) were performed in patients without a predisposing condition; of those patients, 0.8% and 0.1% had an INR greater than 1.5 and greater than 1.8, respectively, and 0.4% had a platelet count of 50,000/ $\mu$ L or less ( $\leq 50 \times 10^9/L$ ). In patients with no known predisposing condition, 0.6% and 0.0% of biopsies cancelled were in patients who had an INR greater than 1.5 and greater than 1.8, respectively, and 0.1% of biopsies cancelled were in patients who had a platelet count of 50,000/ $\mu$ L or less. Ordering prebiopsy testing of patients with no predisposing conditions for the 1864 percutaneous biopsies performed over the 10-year study period resulted in more than \$850,000 in laboratory-related health care costs. Our results suggest that the cost of identifying one abnormal INR is nearly \$700,000.

**CONCLUSION.** For patients without any known bleeding risks who are scheduled to undergo image-guided percutaneous biopsies, identifying an abnormal INR or abnormal platelet count is rare. Eliminating this testing in patients without predisposing conditions has the potential to create savings in costs and time for both physicians and patients.

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