

# Video Presentation



# World Congress on ADVANCED NUTRACEUTICALS AND FUNCTIONAL FOODS

July 15-16, 2019 | London, UK

## Glucose toxicity – The worldwide problem and the all-natural solution

**John F Burd**  
Lysulin, Inc., USA

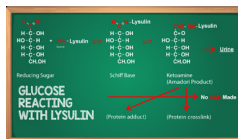
**G**lucose toxicity is a worldwide epidemic leading to the insulin resistance and the development of obesity and Type 2 diabetes in both children and adults. In addition to poor health and early death, this is costing our healthcare systems a fortune to treat diabetes and its complications.

Glucose is not a passive bystander in our bloodstream but is a toxic and reactive compound. Glucose reacts with all of the proteins in our body forming Glycated Proteins. These glycated proteins progress to become what is known as Advanced Glycation Endproducts (AGEs). These AGEs are known to be the culprits associated with kidney failure, blindness, amputations and cardiovascular disease. Protein glycation is also the cause of insulin resistance which can lead to insulin depletion. When this happens, we have to resort to injection of insulin in an attempt to keep our blood glucose levels in the normal range.

In over 20 years of R&D and clinical studies, nutritional supplements have been proven to combat glucose toxicity. Three important supplements having this ability are Lysine, Zinc and Vitamin C. These three supplements are now in one tablet, Lysulin® to combat glucose toxicity and protein glycation. Unlike the available prescription drugs for type 2 diabetes which are directed at the symptoms of diabetes (high blood glucose), Lysulin is directed at the problem, which is protein glycation. Clinical studies have proven that Lysulin supplementation lowers HbA1c better than most prescription drugs for diabetes.

Historically, supplements have had a bad reputation because many of them have made unsubstantiated claims. Conversely, Lysulin is firmly grounded on a foundation published literature and clinical studies proving that Lysulin will lower blood glucose and glycated proteins.

The history of studies proving the effectiveness of Lysulin will be presented along with recent data from double blind placebo-controlled studies.



### Biography

John F Burd is Founder & CEO of Lysulin, Inc, and has launched an all-natural, scientifically proven nutraceutical product proven to improve the health of people with diabetes. He also founded Wonder Spray, llc., making a natural antibiotic solution useful for a variety of ailments that kills all pathogens and yet is safe and non-toxic to human tissues. Prior to Lysulin, he was a General Partner of Windamere Venture Partners. He was previously President & CEO of Dexcom, now the leader in continuing glucose monitoring for people with diabetes. He has authored over 50 publications and holds 35 patents. He graduated from Purdue University with a B.S. in Biochemistry and earned an M.S. and Ph.D., from the University of Wisconsin. In 2010, he was inducted into the American Association of Clinical Chemistry Hall of Fame and received the Ullman Prize for innovation in clinical chemistry.

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# Posters



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**The anti-inflammatory activity of sinapinic acid containing phenolic extracts from Irish rapeseed meal**

**Leah Quinn<sup>1</sup>, Maria Hayes<sup>2</sup>, Steven Meaney<sup>3</sup>, Stephen Finn<sup>4</sup>, Steven G Gray<sup>1</sup>**

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Rapeseed meal is a low-economic value by-product of rapeseed oil production, which is commonly used as animal feed. However, rapeseed (*Brassica napus* L.) contains more phenolic compounds than any other oilseed plant. Sinapinic Acid (SA) has been identified as a major insoluble phenolic in rapeseed hulls and constitutes 70-90% of soluble esterified phenolic acids in rapeseed meal. Phenolic acids, including SA, have known bioactive properties, including anti-inflammatory activity. As part of this project, two phenolic extracts containing SA were generated from Irish rapeseed meal supplied by Donegal Rapeseed Oil Company, Donegal. The anti-inflammatory activity of the extracts and commercial SA were determined. Quantitative Polymerase Chain Reaction (QPCR) and Enzyme-Linked Immunosorbent Assays (ELISA) were performed using THP-1 cells, human primary monocytes and human derived peripheral blood mononuclear cells (PBMCs). The anti-inflammatory activities of SA containing extracts I and II were determined using two key inflammatory mediators: TNF-alpha and CXCL8. Extract I significantly increased CXCL8 expression but did not affect TNF-alpha expression. Extract II significantly reduced TNF-alpha expression when assayed at concentrations of 1 and 0.5 mg/mL. Extract II at 1 mg/mL also significantly reduced CXCL8 expression, while significantly increasing CXCL8 gene expression. The anti-inflammatory activity of extract II was also assessed using human monocytes over a period of 3 hours, with 1 mg/mL found to significantly reduce CXCL8, and also reduce TNF-alpha expression. This is also the first study to demonstrate the anti-inflammatory activity of SA in human PBMCs. Extracts containing SA from Irish rapeseed meal could be potentially valuable as an anti-inflammatory agent.

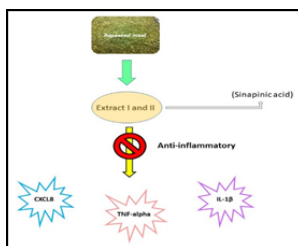


Figure 1. Extracts containing sinapinic acid, generated from Irish Rapeseed meal, inhibit pro-inflammatory cytokines including TNF- $\alpha$ , CXCL8 and IL-1 $\beta$

**Biography**

Leah Quinn completed his undergraduate degree at Dublin City University (DCU) in B.Sc. (Hons) 'Genetics and Cell Biology' in 2013. She obtained his master's degree from Trinity College Dublin in 'Translational Oncology' in 2015. In the final year of his PhD, She completed a Teagasc Walsh Fellowship in Trinity College Dublin. She has 3 publications to date in the journals: Lung Cancer; Journal of Agriculture and Food Chemistry and The Irish Journal of Agricultural and Food Chemistry.

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## Green tea epigallocatechin gallate regulates the growth and autophagy protein expression in white fat cells

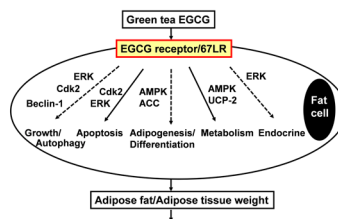
**Yung-Hsi Kao, Batubara, Siao AC, Lin and YY, Kuo YC**  
National Central University, Taiwan

**Statement of the Problem:** Green tea catechins, particularly (-)-epigallocatechin gallate (EGCG), have been reported to regulate obesity and white fat cell activity. This study investigated the effects of EGCG on the expression of autophagy pathway proteins in 3T3-L1 white preadipocytes.

**Methodology & Theoretical Orientation:** 3T3-L1 preadipocytes were treated with EGCG and then cell number and autophagy pathway proteins were measured by the dye exclusion method and Western blot analysis, respectively.

**Findings:** EGCG was found to inhibit preadipocyte growth in a dose- and time-dependent manner, as indicated by decreased cell number. Pretreatment with the respectively early staged and late-staged autophagy inhibitors, such as 3-methyladenine (3-MA) and chloroquine (CQ), suppressed preadipocyte growth and enhanced further EGCG-decreased cell number. This suggests that a functional process of autophagy is necessary for preadipocytes to grow and that EGCG may act differently from 3-MA and CQ in regulating levels of autophagy pathway proteins. Indeed, EGCG was found to time- and dose-dependently reduce the expression of autophagy pathway proteins, such as Beclin-1, ATG3, ATG5, ATG7, ATG16L1, and ERK proteins, while it increased the level of late-staged autophagy proteins, p62 and LC3 $\beta$ -II. Interestingly, 3-MA tended to increase levels of Beclin-1, ATG3, ATG5, ATG7, ATG16L1, p62, LC3 $\beta$ -II, and ERK proteins, while CQ significantly increased levels of Beclin-1, ATG3, ATG16L1, p62, LC3 $\beta$ -II, and ERK proteins, decreased ATG5, and unaltered ATG7. Pretreatment with 3-MA generally reversed EGCG-induced changes in levels of autophagy proteins. Moreover, pretreatment with CQ enhanced the EGCG-increased levels of p62 and LC3 $\beta$ -II proteins.

**Conclusion & Significance:** These data suggest that EGCG exerts its anti-growth action on preadipocytes via regulation of multiple autophagy proteins and its effects may act differently from autophagy inhibitors 3-MA and CQ. Results of this study possibly support that EGCG can be a therapeutic agent to regulate obesity by autophagy mechanism.



### Biography

Kao, PhD (1997) in Zoology at North Dakota State University in US, Postdoc Research Associate (1997-2000) at University of Chicago, and a distinguished professor of the National Central University in Taiwan, has his expertise in functional green tea catechin in improving the health. His used animal and cell systems based on responsive body weight changes, fat cell function, and prostate cancer activity discover signalling pathways of epigallocatechin gallate for improving obesity and prostate cancer. He has discovered the results after years of experience in research, evaluation, teaching and administration both in research and education institutions.

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## Association between soft drink consumption and asthma among Qatari students

**Tamara Al Abdi**  
Qatar University, Qatar

We aimed to examine the association between soft drink consumption and asthma and lung function among Qatari adults. In the cross-sectional study, we used data from 986 Qatari participants aged 20 years and above attending the Qatar Biobank Study. Usual consumption of soft drink was assessed using a food frequency questionnaire. Lung function was measured by spirometry and asthma was based on self-report. The associations between soft drink consumption and asthma and lung function were assessed using multivariable logistic and linear regression, respectively. In total, 65 participants out of 986 (6.6%) reported having asthma. A clear dose-response relationship between soft drink consumption and asthma was found. High soft drink consumers ( $\geq 7$  times/week) were 2.60 (95% CI 1.20–5.63) times more likely to have asthma as compared to non-consumers. The association was partly mediated by BMI and inflammation. Diet soft drink consumption was positively associated with asthma (OR 1.12 (95% CI 1.02–1.23)) but not with lung function. Regular soft drink consumption was inversely associated with FEV<sub>1</sub>, but not with FVC. In conclusion, soft drink consumption is positively associated with asthma in Qatari adults. The association is partly mediated by obesity and inflammation. Limiting soft drink consumption should be taken into consideration for asthma prevention.

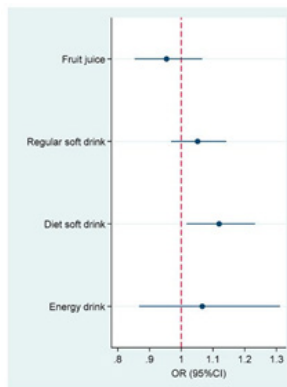


Figure 1. Association between different types of soft drink consumption and asthma. Model adjusted for age, gender, smoking, education, leisure time physical activity, intake of fruit and vegetable, and BMI (normal, overweight and obese). All the soft drinks were mutually adjusted. Soft drinks were used as continuous variables (times/week) in the logistic model

### Biography

Tamara Al Abdi has completed her postgraduate studies in 2006 from Leeds Metropolitan University in the U.K and is a qualified state registered dietitian with the Academy of nutrition and dietetics and the British Dietetic Association. She has been the lecturer and clinical coordinator of the supervised practice program at the human nutrition department in college of health sciences at Qatar University since 2010. Her research interest is in clinical dietetics and practice in the Middle East as well as promoting the role of dietitians in Qatar

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# E-Posters



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**Effect of Thioflavin-T on leptin, adiponectin levels, biochemical parameters and liver histological on male NMRI with high fat diet**

**Nafiseh Amani Ekhtesar**  
University of Tehran, Iran

**Introduction:** Obesity is considered to be a major risk factor for chronic diseases such as CHD and hypertension, type 2 diabetes, and some types of cancer. Obesity is a chronic disease of multifactorial origin and can be defined as an increase in the accumulation of body fat. Effect of Thioflavin-T was evaluated on body weight and blood glucose, insulin, insulin resistance, leptin, adiponectin, cholesterol, LDL, HDL, triglyceride, aspartate amino transferase, alanine amino transferase, alkaline phosphatase and liver histological in male NMRI mice with high fat diet.

**Materials and methods:** The mice were randomly divided into five groups: The normal group, sham group, Experimental group 1: mice were given Thioflavin-T 5mg/kg, Experimental group 2: Thioflavin-T 10 mg/kg, Experimental group 3: Thioflavin-T 15 mg/kg via intragastric gavage for 4weeks.

**Results:** In the present study the amount of body weight of experimental groups treated compared to Sham group statistically significant decrease. The amount of leptin, insulin and blood glucose, cholesterol, serum LDL, TG of the experimental groups compared to sham group showed a significant decrease. Serum adiponectin levels and serum HDL levels in the experimental groups compared to the sham group was increased. Administration of thioflavin-T in different doses, causes finding polymorphonuclear cells in liver of the experimental groups, which the amount of these cells was more in the experimental group3.

**Conclusion:** It could be suggested that Thioflavin-T may be potentially effective candidates in obesity treatment and diabetes.

### **Biography**

Nafiseh Amani Ekhtesar is a graduate of the Science and Research university of Tehran. She got her M.A in physiology. She was researching about the relation between food and health in the during of the years. In addition, the effect of them on blood parameters and diseases. She has presented some seminars in the related subjects. Unfortunately graduates in the major of physiology are not supported enough. In addition, the related jobs in the mentioned field are very limited in Iran.

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# Accepted Abstracts



# World Congress on ADVANCED NUTRACEUTICALS AND FUNCTIONAL FOODS

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**Health and nutrition: Eat foods to help reduce inflammation, improve disease management, and heighten quality of life**

**Abby Black**

AB Nutrition Solutions, USA

**Statement of the Problem:** The likelihood of diagnosis of an autoimmune condition or inflammatory response continues to increase routinely across the globe. The National Institutes of Health (NIH) most recent estimates of autoimmune disease states that up to 23.5 million Americans suffer from these diseases and conditions are increasing. Autoimmune conditions aren't the only diseases that impact inflammation. Migraines also occur due to inflammation. As well as atopic dermatitis too.

**Methodology & Theoretical Orientation:** People with different inflammatory diseases and conditions agreed to the Mediator Release Test and then placed on the LEAP (Lifestyle Eating and Performance) food plan to reduce inflammation, calm immune system, and reintroduce foods back into food selections as soon as possible. Through research studies and case studies, various diseases/conditions will be discussed, reviewed, and analyzed.

**Conclusion & Significance:** People with inflammation may not understand or know the connection between fueling our bodies with nutrients and the impact those nutrients have on our quality of life and wellbeing. However, once they were tested and utilized the LEAP plan via a certified LEAP therapist, their symptoms improved and they regained a quality of life, they had forgotten could be achieved and maintained.

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## **A case study: LCHF diet combined with fried food in patient with type 2 diabetes and central obesity reduces need for exogenous insulin injection**

**Cristian Baldini**

Sapienza University of Rome, Italy

**D**iabetes is a term for diabetes occurring in the context of obesity.

The positive effect of LCHF diets (Low Carb, High Fat diets) is well documented: LCHF diets are at least as effective as other dietary strategies for reducing body weight, improving glycaemic control and reducing both hyperinsulinaemia and blood glucose (reduction of HbA1c) in type 2 diabetes and have unique positive effects on blood lipid concentrations and cardiovascular risk factors. Also, in obese insulin-resistant women, food fried in extra-virgin olive oil significantly reduced both insulin and C-peptide responses after a meal.

In this case study, I show how combining both dietary strategies produce a strong effect on blood glucose, resulting in a “forced” reduction of exogenous insulin injection to avoid the problem of hypoglycaemia. Blood tests after 3 months of this dietary treatment show how HbA1c, triglycerides and blood lipid profile (LDL, HDL, total Cholesterol) are improved despite reduction of exogenous insulin injection of 80%. Also, body weight decreases of 15%. For Continuous Glucose Monitoring (CGM) the patient used Freestyle Libre before and after the dietary treatment. In order to check general body functions and glycosuria the patient used the urine test Multistix 10 SG Siemens.

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## The beneficial effect of antioxidant therapy with vitamins C and E in chronic diseases

**Danilo Wilhelm Filho, Rozangela Curi Pedrosa, Ariane Zamoner and Eduardo Benedetti Parisotto**

UFSC, Brazil

**Statement of the Problem:** Numerous pathological conditions have an important contribution of Oxidative Stress (OS), usually associated with a chronic inflammation process. However, most of the clinical trials published failed to reveal benefit of antioxidant intervention either by dietary antioxidants or by antioxidant supplementation. The purpose of this study is to describe the positive results obtained in the last years regarding the effect of daily supplementations of vitamin E and C (vitamin E 800mg plus vitamin C 500mg) for 6 months in different chronic diseases such as in chronic cardiopathy in chagasic patients, in children with Down Syndrome, in workers exposed to coal extraction and combustion, as well as in workers of incineration of Solid Residues of Health Services (SRHS). In all these subjects the previous severe systemic OS detected at baseline levels was significantly attenuated after the antioxidant intervention.

**Methodology & Theoretical Orientation:** Daily supplementations of vitamin E and C (vitamin E 800mg plus vitamin C 500mg) for 6 months in subjects (n=40) displaying different chronic diseases such as in chronic cardiopathy in chagasic patients, in children with Down Syndrome, in workers exposed to coal extraction and combustion, as well as in workers of incineration of solid residues of health services were compared with healthy subjects.

**Findings:** In all these subjects the previous severe systemic OS detected at baseline levels was significantly attenuated after the antioxidant intervention. Moreover, even after an interruption of 6 months of the antioxidant intervention, a significant and persistent effect (approximately half the values considering baseline values compared to 6 months after the supplementation) were also detected, indicating the persistent benefit of such antioxidant intervention.

**Conclusions and significance:** The combined use of vitamins E and C in an antioxidant intervention significantly attenuated the OS associated with chronic diseases, which surprisingly is not in line with the results of the majority of other related clinical trials.

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## Exploring the potential of bioactive peptides from *Lamellidens marginalis* for nutraceutical therapy

**Jana Chakrabarti, Madhushrita Das and Ankhi Halder**

A.P.C Roy Government College, India

University of Calcutta, India

University of Calcutta, India

**Statement of the Problem:** World Health Organization attributes hypertension as the leading cause of cardiovascular mortality. Reports suggest that nearly 26% of the adult populations have hypertension worldwide. Dietary changes and life-style modifications are essential to plan preventive strategies and promote the health of these populations. Dietary proteins have long been recognized for their nutritional and functional properties. They are good sources of bioactive peptides with broad spectrum of pharmacological activities. Currently, bioactive peptides from fish and vegetable proteins are gaining importance for their anti-hypertensive and anti-inflammatory properties. Molluscs, as a group are regarded as under-exploited source of health-benefit molecules and have good prospects. The freshwater edible mussel *Lamellidens marginalis* is considered as an unconventional cheap protein source.

**Objective:** Evaluation of the potential of bioactive peptides from *Lamellidens marginalis* against hypertension and oxidative stress.

**Methodology:** Proximate analyses for nutritive value were done. Protein hydrolysates were prepared using commercially available protease - Alcalase 2.4L. Degree of hydrolysis (DH %) was calculated.  $\leq 3$ kDa peptides of alcalase hydrolysates (AlcH120) were prepared by ultra-filtration for further study. Anti-oxidative activity was studied with hydroxyl radical and DPPH radical scavenging activities. Angiotensin Converting Enzyme [ACE] inhibitory activity was performed to determine anti-hypertensive activity. MALDI-TOF was performed to determine the amino acid sequence of the ultra-filtrate of AlcH120.

**Findings:** Mussel meat contains moderate amount of protein and carbohydrate but less amount of fat. Mussel protein hydrolyzed by Alcalase 2.4L at 120-minute gives maximum peptide bond cleavage. Progressive antioxidant activity has been demonstrated with 10mg/ml protein concentration (AlcH120). A novel ACE inhibitory peptide of anti-hypertensive nature has been identified.

**Conclusion & Significance:** Present investigation has demonstrated that bioactive peptides derived from *Lamellidens marginalis* can be used for nutraceutical therapy. However, the observations are preliminary and therefore should be viewed as a prelude to what future holds.

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## Nutritious butter like products

**Sameera A Rege<sup>1</sup>** and **Shamim A Momin<sup>2</sup>**

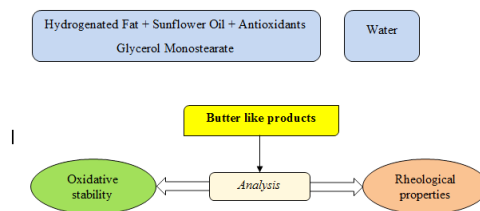
<sup>1</sup>Dwarkadas J. Sanghvi College of Engineering, India

<sup>2</sup>Institute of Chemical Technology, India

**Statement of the problem:** Nutraceuticals are biologically active phytochemicals that provide medicinal benefits. Essential fatty acids such as linoleic, linolenic acid are considered as nutraceuticals, as they are involved in number of crucial functions in human body. However, they cannot be synthesized in the body. Hence, needs to be provided through certain diet products such as butter like products, fish oil, linseed oil etc. These essential fatty acids are highly unstable and undergo oxidation due to their chemical structure. Hence antioxidants needs to be used to prevent the oxidation. Natural antioxidants are preferred over synthetic antioxidants because of their medicinal benefits. Moreover, natural antioxidants are safe and does not have limit for its use unlike synthetic antioxidants. So far no work has been reported to use essential fatty acids and natural antioxidants in formulating butter like products, hence a detailed investigation was done in formulation such products, which can provide supplements and micronutrients to the consumers.

**Methodology & Theoretical Orientation:** In our study, butter like products were formulated using hydrogenated fat, water and vegetable oil containing essential fatty acids. Sunflower oil was used as a source of essential fatty acids. Natural antioxidants were added to restore the nutritive value of essential fatty acids. Glycerol monostearate was used as an emulsifier. The effect of variation of sunflower oil and hydrogenated fat as well as the added natural antioxidants was studied. The products were analysed for the rheological properties such as slipping point, dropping point, spreadability along with their oxidative stability.

**Conclusion & Significance:** The study indicates that butter like products containing essential fatty acids and natural antioxidant showed remarkable oxidative stability. Moreover, the products displayed acceptable rheological properties. Thus, consumers can gain advantage of essential fatty acids and the therapeutic benefits of the added natural antioxidants by consuming such product.



**Figure 1:** Formulation and analysis of Butter like products