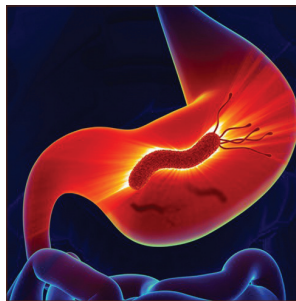
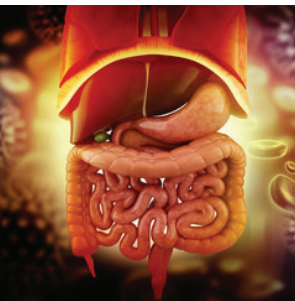

Scientific Tracks & Sessions

May 23, 2019

Nutrition Health & Gastroenterologists 2019



Joint Event
17th International Conference on
Nutrition and Fitness
&
2nd International Conference on
Gastroenterology and Digestive Disorders
May 23-24, 2019 | Vienna, Austria

Coloscape – A new liquid biopsy based Colorectal Cancer detection assay

Michael J Powell

DiaCarta, Inc., USA


Colorectal cancer is a highly preventable disease as early detection increases rates of patient survival to near 100%. Herein will be reported the development and validation of a novel liquid biopsy based multigene mutation biomarker real-time qPCR assay for qualitative detection of colorectal cancer associated biomarkers that comprise tumor specific mutations in the following genes: APC (Exon 15), KRAS (Exon 2), BRAF (Exon 15) and CTNNB1 (Exon 3) in patients circulating cell-free DNA which is called ColoScape™. The assay allows the sensitive detection of the presence or absence of mutations in the targeted regions of the genes interrogated. The assay was evaluated on prospectively collected whole-blood samples obtained from FIT+ patients enrolled in the CRC screening program of ASL NAPOLI 3 SUD, using colonoscopy as confirmation. The assay's sensitivity for advanced adenomas was evaluated as well as its specificity and other clinical performance criteria. Based on these results which will be reported in this presentation ColoScape™ is a highly promising oncology molecular diagnostic tool and further clinical studies are underway in order to validate its use for the triage of FIT+ patients. The ColoScape™ assay

demonstrates high sensitivity and specificity in detection of colon cancer and advanced adenomas based on the set of biomarkers involved in colorectal cancer genesis and disease progression.

Speaker Biography

Michael J Powell is a highly recognized scientific and business leader with more than 30 years experience in R&D, technology, business and corporate development. He has held R&D Director positions at IGEN, Inc., Microgenics, Inc., Boehringer Mannheim GmbH and Roche. He was a pioneer and lead scientist and inventor of the electrochemiluminescence (ECL) assay technology and also developed catalytic antibodies at IGEN, Inc. which was acquired by Roche for \$1.4B in 2003. He has held several other R&D senior management positions at Integrated Genetics Inc., Medisense and Celltech PLC, in the UK. Medisense was acquired by Abbott in 1996 for \$900M and Celltech was acquired by UCB Pharma in 2004 for \$1.9B. He has extensive expertise in the fields of molecular diagnostic assay research and development, qPCR and other nucleic acid amplification technologies, high sensitivity detection of cancer biomarkers in body fluids so called 'liquid biopsy' for cancer diagnosis and therapy management and automated in-vitro diagnostics instrumentation platforms. He is currently Chief Scientific Officer at DiaCarta, Inc. a precision diagnostics company.

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 Notes:

Nutritional supplements use in physically active Italian adults: What do they use and how are they influenced?

Roberto Cannataro

University of Magna Graecia of Catanzaro, Italy


Nutritional Supplements (NS) are widely used by the athletic community despite lack of evidence to support claims related to performance enhancement. A thematic forum was used to gather data from Italian athletes over the age of 18 to determine NS use, source of NS information, and sex of the participant. Of the participants, 92.2% were male and 7.8% were female. Forty-one different supplements were reported and the most commonly reported source (42%) of NS information was the internet. The results of this study suggest that the Italian athlete community would benefit from education on NS from credible sources such as physicians, nutritionists or dietitians rather than other sources in order to guarantee that they are properly informed. This should result in athletes being more likely to only take NS that would most benefit their health and to help dispel faulty advertising claims.

Speaker Biography

Roberto Cannataro gets his first master degree in chemical engineer, spending 6 months in Wales and 1 month in Germany on stages on biochemical reactor and nutritional supplements; then he got bachelor degree in Nutritional Sciences and Food Technology; last he got master degree in Human Nutritional Sciences; at present he is student at the Medicine and Surgery Faculty of University of Magna Graecia of Catanzaro. He works as a nutritionist in 8 different towns in Italy. He is involved in several projects on nutritional supplements development and characterization. He is the director of MC on nutritional supplements and nutrition in the sport.

He is the Vice CEO of Spin-off Gala screen that works on epigenetic molecules, particularly miRNA linked to a nutritional regimen and sports performance.

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 Notes:

Relationship between nutrition-related knowledge and nutrition behavior of students in Czech Republic

Jana Kočí^{1,2}

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Objectives: The purpose of this study was to determine the relationship between dietary habits and healthy nutrition knowledge of high school students in Czech Republic. This study was also aimed to design a Nutrition Education Program for the second-grade students of primary schools in Czech Republic inspired by The Nutrition Education Program developed by Nebraska Extension of University of Nebraska – Lincoln, a part of USDA's Supplemental Nutrition Assistance Program and Expanded Food & Nutrition Education Program.

Methods: A validated Nutritional survey and Nutritional knowledge quiz were designed. The validity of both methods was tested using analytical analysis of all survey and test items and examining internal consistency. It was examined 1,028 grade nine students from 25 different high schools between the age range of 14-16 years within the school year 2015/2016. The study included 504 girls with an average age of 14.74 years, an average height of 166.2 cm (5 ft 4 in), and an average weight of 56.32 kg (124.16 lb) and 524 boys with an average age of 14.83 years, an average height of 174.76 cm (5 ft 7 in), and an average weight of 64.84 kg (142.95 lb).

Results: Pearson's correlation coefficient between nutrition related knowledge and nutritional habits of examined respondents (0.327 at the reached level of significance of the p test was less than 0.001) confirmed the relatively high association of variables (the null hypothesis was rejected at 0.01% significance level). Study shows that 14% of respondents never eat breakfast, 20% of respondents never drink pure

water, 25% of the participants consume fruits in a very limited quantities and there is at least one student consuming energy drinks or alcoholic drinks on a daily basis in every average examined school class. The least successful quiz item (properly identified only by 34% of respondents) was the question examining the knowledge of the current national nutrition guide – the Food Pyramid content.

Conclusions: The relatively high association between nutrition-related knowledge and nutrition behavior of Czech students was examined. A comprehensive curriculum for teachers and the kit of educational and didactic materials for Czech middle schools and high schools appears to be an effective way to health strengthening of children and adolescents in Czech Republic.

Speaker Biography

Jana Kočí is a young researcher, and was a PhD student (major in Education) of Charles University in Prague and a professor of Charles University in Prague and Palestra University, Czech Republic. She completed her studies with honors for outstanding achievements, and was honored as a talented young researcher by the EFSA European Food Safety Authority committee at the International conference in 2015, and has studied and undergone series of internships at the American University where she participated at the international research project for many years. She has been publishing regularly in European and American Journals in the field of nutrition and wellbeing.

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 Notes:

Analysis of HCC incidence among HBV- and HCV-related liver transplant recipients and comparison by HOMA-IR index: Single center study

Ayfer Serin

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Introduction: HBV-associated liver disease has represented an important indication for liver transplantation (LT) (5–10% in Europe and the United States over the last 20 years. Chronic HCV infection is the leading cause for the development of liver fibrosis, cirrhosis, hepatocellular carcinoma (HCC) and is the primary cause for liver transplantation in the western world. HCV infection increases the risk of HCC by 14- to 22-fold when compared with HCV-negative patients. Insulin resistance plays an important role in the development of various complications associated with HCV infection. Recent evidence indicates that HCV associated insulin resistance may result in hepatic fibrosis, steatosis, HCC and resistance to anti-viral treatment. Ten-to-15% of NASH patients develop inflammation and fibrosis, which may eventually progress to cirrhosis and hepatocellular carcinoma (HCC). Metabolic syndrome (obesity, diabetes mellitus, and insulin resistance) is known to be one of the risk factors for development of HCC. Well-defined pathophysiological mechanisms linking obesity, diabetes and HCC have been described. The purpose of this study is to investigate whether HCC incidence in HBV and HCV patients varies according to BMI and HOMA-IR values.

Materials and methods: Between 2004 and 2018, cases of 878 liver transplant recipients were retrospectively reviewed. Data collection included demographic variables, MELD scores, BMI, HOMA IR, and presence of HCC. Adherence to Milan criteria, as determined at the time of listing for transplantation and assessed by pre-operative radiological imaging [computed tomography (CT) scan, ultrasound (US) and magnetic resonance imaging], was also noted. Tumor characteristics were established using explant histopathology: histological grade of the tumour (2 and less versus more than 2), the number of tumors (3 and less versus more than 3), total tumour size (less than 5 cm versus 5 cm and larger) and presence of micro-vascular invasion. For comparison between groups, chi-squared test, Fisher exact test, Student's t-test were used, as appropriate. P-value of < 0.05 was considered statistically significant. A total of 468 patients had a viral infection (HBV or HCV) were

included in the study. These patients were divided into two groups according to viral etiology [HBV (Group A) or HCV (Group B)].

Results: Between 2004 and 2018, cases of 878 liver transplant recipients were retrospectively reviewed. Chronic hepatitis B infection (HBV) with a rate of 37% was the leading cause of LT in the overall cohort, followed by HCV (11%), alcoholic liver disease (9.5%) and NASH (7.5 %). A total of 465 patients were included in the study. There were 361 patients in Group A and 114 patients in Group B. The mean age of the patients was 55.7 ± 7 years in Group A and 47.31 ± 10.97 years in Group B. In terms of BMI [$26.9 (17.9-41)$ in Group A, $27.1(18.5-41.9)$ in Group B] were slightly higher in group B ($p=0.038$). HOMA IR was significantly higher in Group B [$5.2 (0.6-36)$ in Group A, $4.2 (0.2-85.0)$ in Group B] ($p=0.001$). Presence of HCC was similar: 38% in Group A and 37 % in Group B ($p>0.05$).

Conclusion: HBV and HCV are important risk factors in development of HCC. Our study revealed similar HCC occurrence in both HBV and HCV patients. HOMA IR and BMI values, however, were significantly higher in patients with HCV as compared to HBV patients.

Speaker Biography

Ayfer Serin is an Internal Medicine Specialist and Gastroenterologist. She graduated from Trakya University School of Medicine in 1995. Between 1998 and 2002 she completed her residency in gastroenterology at Dokuz Eylul University and from 2006 to 2011, she served as a specialist in gastroenterology in several leading government and University Hospitals in Turkey. From 2011 to 2016 she worked as a faculty physician at Ege University School of Medicine. In 2014, she gained experience as an observer at Johns Hopkins University Hospital, Liver Transplantation Department. Since 2016, she has been working at Şişli Florence Nigthingale Hospital Liver Transplantation Unit as a gastroenterologist and hepatologist. Her primary interests include liver diseases, viral hepatitis B and C diseases, liver cirrhosis, liver neoplasms, NASH, liver transplantation, living-donor evaluation, preparation and treatment.

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Effects of acute nitrate supplementation on repeated sprint performance in collegiate soccer players

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Background: Acute (1.5-3 hours pre-exercise) dietary nitrate (NO_3) has been shown to improve blood flow to active muscle tissue under hypoxic conditions (which occurs during repeated sprints). Additionally, multiday (≥ 3 days) supplementation improves mitochondrial efficiency (less O_2 is used to produce the same amount of ATP) and less ATP necessary for muscle contractions. Dietary NO_3 improves ATP turnover, reduces PCr generation (less Pi), and improves type II force production, which can improve repeated sprint performance. The study aimed to determine the effect of acute NO_3 supplementation on repeated sprint performance in trained collegiate athletes during field-based sprint tests.

Methods: A single-blinded, randomized crossover study was performed over one week on eight healthy collegiate male soccer players (ages 21.1 ± 1.4 years). Participants completed a warm-up, a protocol consisting of 6x40m max sprints, followed by 30s active recovery. An electronic timing system was used. Immediately afterwards, subjects took 140mL of a placebo or a beet root juice (BRJ) shot. After 2 hours they performed the prior warm-up and sprint protocol.

Results: A trend towards significant condition effect (pre-to-post) was demonstrated for BRJ group in sprint time ($p = 0.10$) with an average reduction of 0.3% (-0.017 s), whereas placebo increased by 1.96% ($+0.117$ s). Likewise, for overall

power ($p = 0.06$) with an average increase of 1.5% ($+9.68$ watts) for BRJ, whereas placebo decreased by 4.29% (-26.12 watts). Also, a trend was discovered regarding a significant interaction effect for RPE during the trials ($p = 0.08$), suggesting RPE decreased to a greater extent (-30.3% or -2.1 units) during the BRJ post trial versus placebo.

Conclusions: In summary, this study demonstrated a trend towards a significant effect in the enhancement of repeated sprint performance when acutely supplementing NO_3 (800mg); mostly by improving sprint times, power output, and RPE in collegiate soccer players.

Speaker Biography

Gloria Velasquez is a licensed dietitian with a Master of Science in Exercise and Nutrition Science from Tampa University, USA, as well as degrees in Nutrition from Long Island University in New York, De Leon University in Spain and Del Valle University in Guatemala. She published her research papers in Columbia and United States which was presented at the American College of Sports Medicine World Congress and at the International Society of Sports Nutrition Conference (ISSN). She is a graduate level professor at Mariano Galvez University in Guatemala for the master's program in Sports Nutrition and has worked as a Certified Sports Dietitian with the Autonomous Sports Confederation/Olympic Committee of Guatemala for the past 12 years. She is also the President and Director of the Organizing Committee for the ISSN annual conference in Guatemala.

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 Notes:

Complementary feeding practices associated with wasting of children 6-23 months old in Dilala, Lualaba province, DRC, 2017

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¹University of Lubumbashi, Democratic Republic of the Congo (DRC)

²University of Kwazulu Natal, South Africa

³University of Kinshasa, Democratic Republic of the Congo

Background: Malnutrition is in high prevalence in some developing countries, like Democratic Republic of the Congo (DRC) mostly among children from 6 to 23 months. Complementary Feeding is among the main causes of malnutrition worldwide.

Objectives: The present study aimed to assess the complementary feeding practices associated with acute malnutrition in DRC.

Methodology: A community-based cross-sectional study was conducted from October 23 to November 25, 2017 in DILALA Health Zone, using a three-stage stratified cluster-sampling technique. In 10 Health Areas, 698 children 6-23 months old were assessed on nutritional status and their mothers interviewed on complementary feeding practices. Household questionnaire pretested and revised, standardized anthropometry equipment and World Health Organization recommendations were used with trained data collectors. ENA for SMART and Logistic regression on SPSS 23 were used to data analysis.

Results: Wasting was associated with lack of knowledge on minimum meal frequency (a adjusted odds ratio=2.4, CI 1.14-5.11), minimum dietary diversity (a adjusted odds


ratio=0.23, CI 0.055-0.981) and protected source of drinking water (a adjusted odds ratio=0.50, CI 0.26-0.93).

Conclusion: Wasting was more increased among children whose mothers were without knowledge on minimum meal frequency of complementary feeding, but more prevented in children having met minimum dietary diversity and in children from household with protected source of drinking water.

Speaker Biography

Ngoy Bulaya Emmanuel, a Nutritionist in Public Health (2005). He obtained his MPH in Epidemiology, Preventive Medicine and Disease Control at the School of Public Health, Lubumbashi University (2007). He obtained his MPH in Nutritional Epidemiology at the School of Public Health, Kinshasa University (2017). He was elected and became the provincial president of the DRC nutritionist's association in the entire Katanga Province from (2009 - 2012). In September 2009, University of Lubumbashi, at the School of Public Health, appointed him as Assistant Professor in Nutrition Unit while the DRC Health Ministry designated him as Provincial Coordinator of National Nutrition Program (2009 – 2015). He worked at the School of Agronomic Studies as Secretary of the Manager Committee (2003 - 2006).

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 Notes:

In vitro antioxidant activity of sesame milk fermentation in human Low-Density Lipoprotein (LDL)

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³Gadjah Mada University, Indonesia

Sesame milk contains sesaminol triglucoside that showed higher antioxidant activity when it is hydrolyzed by β -glucosidase. The objectives of this study were to determine in vitro antioxidant activity of fermented sesame milk (FSM) extract and sesame milk (SM) extract against DPPH and LDL oxidation and to examine phenolic, sesaminol triglucoside content and β -glucosidase activity. Antioxidant activity was examined using DPPH and TBARS assay with LDL as the oxidation substrate. Sesaminol triglucoside was identified with HPLC diode array detector and β -glucosidase activity was determined by measuring hydrolysis rate of *p*-nitrophenyl- β -D-glucopyranoside (pNPG). After fermentation of sesame milk with *L. plantarum* Dad 13, the β -glucosidase activity was 70.3 ± 0.023 mU/ml fermented sesame milk, the sesaminol triglucoside content of SM and FSM were 5.65 to 2.56 mg/100 ml of sesame milk, respectively, the phenolic content of SM and FSM were 3.81 ± 0.10 and 7.9 ± 0.08 mg GAE/g dry

sesame seed, respectively, radical scavenging activity of SM and FSM 18 ± 0.64 , and $45.5 \pm 0.37\%$ respectively. Fermented sesame milk inhibited human plasma LDL oxidation by 1.82 compared to unfermented sesame milk. This result related to hydrolysis of sesaminol triglucoside by β -glucosidase which was produced by *L. plantarum* Dad 13 that resulted in sesaminol. This results suggest that fermented sesame milk extract has in vitro antioxidant activity in human LDL better than sesame milk extract.

Speaker Biography

Ulyatu Fitrotin is a researcher in Assesment Institutes for Agricultural Technology of West Nusa Tenggara, Indonesia. She has completed her PhD from food science doctoral program of Gadjah Mada University Yogyakarta, Indonesia. Her research focuses on antioxidant activity and food processing.

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