ABSTRACTS

CLINICAL NUTRITION

Functional training and timed nutrition intervention in infectious medical patients.

Holst M, Sondergaard L, Bendtsen M, Andreasen J. *Eur J Clin Nutr*. 2016; http://dx.doi.org/10.1038/ejcn.2016.72.

The study seeks to assess the ability to improve muscle function in acutely ill patients by incorporating a combination of evidence-based nutritional support techniques and early physiotherapy into daily activities. A secondary goal is to improve health-related quality-of-life measures and improve associated indicators for clinical nutrition. The authors developed a prospective intervention study to investigate the issue. The study utilized 204 participants, 47.5% of whom were female with a mean body mass index of 25.6. The study was undertaken in a medical specialty ward for Infectious Diseases at Aalborg University Hospital in Denmark during the 10-month period from September 2013 to May 2014. Inclusion criteria were: inpatients expected to be hospitalized for at least 2 days, no severe cognitive defects, ability to collaborate in Danish. Exclusion criteria included contraindication as assessed by staff, critical metabolic conditions or severe illnesses, patients with terminal stage illness, and patients routinely referred to physiotherapy and occupational therapy. The study utilized 59 patients for the intervention group and 145 for the retrospective control group, which included patients discharged from the same department the 3 months prior. The intervention group received a comprehensive program incorporating functional training three times weekly, a daily individual training program, and oral supplementation of 5 to 10 g of whey protein post-training twice daily. The primary outcome measure was the number of repetitions performed in a 30-second sit-to-stand test, at admission vs upon discharge, as well as nutritional energy and protein intake. The De Mortons Mobility Index and Grip Strength tests were also employed upon at the baseline against discharge. To evaluate the effectiveness of the program, the intervention group was compared with the historic control and differences in variables were evaluated using Fisher's exact test. Statistical analyses were performed with Stata Version 13 (Stata Corporation, 2013).

DIABETES CARE

Short- and long-term effects of wholegrain oat intake on weight management and glucolipid metabolism in overweight type-2 diabetics: A randomized control trial.

Li X, Xiaxia C, Xiaotao M, et al. *Nutrients*. 2016;8(9):549.

Researchers compared the short- and long-term integrative effects of oat intake combined with a low-fat/high-fiber diet on the bodyweight, blood glucose control, and lipid profile of clinically overweight patients with type 2 diabetes. A randomized control trial was designed to address the question. The study sampled 298 subjects from a larger pool of 445 adult patients with type 2 diabetes who had participated in a 30-day centralized diet management program. The sample was drawn from adults living in Inner Mongolia, China. The sample was 52% male with a mean age of 59 years. Exclusionary criteria included: heavy smoking and/or alcohol consumption; recent changes in diet or physical exercise; severe cardiovascular, renal, or hepatic complications; mental illness; recently accepted glucocorticoid treatment; and a recent switch to regular consumption of oats or oat products. Participants were randomly assigned into one of four groups: control (n-60); the low-fat/high-fiber diet group (n=79); a low-fat/high-fiber group that consumed 50 g of oats per day (n=80); and a low-fat/high-fiber group that consumed 100 g of oats per day (n=79). The control group took meals on their own. The low-fat/high-fiber diet used by the three intervention groups contained 2,275 kcal for men and 1,890 kcal for women with 60% carbohydrate/22% fat/18% protein mix, in addition to 30 g of dietary fiber. The intervention groups using oats were given an additional serving of either 50 or 100 g of oats per day. All meals were taken in-residence at a clinical facility where participants stayed. During the 30-day trial, anthropometric, blood glycemic and lipid variables were measured daily. Statistical analyses were conducted with the IBM SPSS Statistics 22 (IBM Corp, 2013).

GERONTOLOGY

Probiotic administration among free-living older adults: A double-blinded, randomized, placebo-controlled clinical trial.

Lagerstrom-Ostlund L, Kihlgren A, Repsilber D, et al. *Nutr J*. 2016; http://dx.doi.org/10.1186/s12937-016-0198-1.

The authors investigate the effect of a supplemental probiotic on the digestive health of adults over 65 years in age. A double-blinded, randomized, placebo-controlled study was employed to address this question. The study utilized a sample of 290 participants drawn from senior living homes in Sweden, with 41 failing to follow through to completion, leaving a pool of 249 studied. The sample was randomized into a probiotic intervention group (n=125) and a control placebo group (n=124). The intervention group was 57% female with a mean age of 72.6 years. The control group was 65.6% female with a mean age of 72 years. Inclusion criteria included consent to participate, age 65 years or greater, and deemed mentally and physically fit. Exclusionary criteria included known gastrointestinal disease, strictures, malignances, and ischemia; inflammatory bowel disease; or participation in another clinical trial within the past 3 months. The intervention group received a stick-pack containing freeze-dried *L. reuteri*

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DSM 17938 (1×108 colony per unit/stick pack), rhamnose, galactooligosaccharide, and maltodextrin to a weight of 1 g. The placebo product contained maltodextrin and was identical in appearance. Both groups consumed the sticks twice per day, at breakfast and lunch, in addition to their normal diet. The 12-week trial featured an evaluation of intervention parameters at 0, 8, and 12 weeks. Researchers measured outcomes using the Gastrointestinal Symptoms Rating Scale (GSRS), the Hospital Anxiety and Depression Scale (HADS), the health status tool EQ-5D-5L, the Perceived Stress Scale (PSS), and number of stools per day as monitored in a self-administered study diary. All analyses were performed blinded and all data were stored in a common database using r version 3.0 (R Foundation for Statistical Computing, 2013).

NUTRITION SUPPORT

Effects of exchanging carbohydrate or monounsatured fat with saturated fat on inflammatory and thrombogenic responses responses in subjects with abdominal obesity: A randomized controlled trial.

Teng K-T, Chang L, Vethakkan S, Nesaretnam K, Sanders T. *Clin Nutr*. 2016; http://dx.doi.org/10.1016/j.clnu.2016.08.026.

The authors investigate the replacement of saturated fat with monounsatured fat or refined carbohydrates on subclinical inflammation, the thrombogenic state, as well as lipid subfractions in overweight patients at risk for cardiovascular disease. A prospective cross-over design, single-blind trial was used. Of 54 subjects recruited, 47 completed the study. The study was performed between March and July 2012 at a clinical facility of the Malaysian Palm Oil Board. Inclusionary criteria included abdominal obesity defined as waist circumference greater than 90 cm for males and 80 cm for females, and adults aged 20 to 60 years. Exclusionary criteria included history of cardiovascular disease, diabetes, dyslipidemia, use of antihypertensive or lipid-lowering medication; plasma cholesterol level under 6.5 mmol/L; triaclglycerol level greater than 4.5 mmol/L; heavy alcohol consumption; pregnancy; smoking; and breastfeeding. The sample was 74% female with a mean age of 32.8 years and body mass index of 28.7. The trial lasted 6 weeks. The sample was randomly divided into three groups comparing an isocaloric 2,000-kcal monounsatured fat with a carbohydrate-enriched diet and a control group given a saturated fat-enriched diet. The control saturated fat-enriched diet consisted of 15% protein, 53% carbohydrate and 32% fat (12% saturated fat and 13% monunsatured fat). A total of 7% of the monunsatured fat or carbohydrate was exchanged with the saturated fat in the intervention groups, respectively. Subjects were blinded and randomly assigned to three consecutive 6-week treatments using an orthogonal allocation process. Blood samples were collected at baseline and at the 5th and 6th weeks. Radial pulse wave analysis was taken at baseline and the 6th week. Fasting plasma was the primary outcome with secondary outcomes determined to be interleukin-1β, C-reactive protein, E-selectin, PAI-1, D-dimer, lipid subfractions, and radial pulse wave analyses. Statistical analyses were calculated using SPSS version 18 (SPSS Inc, 2009) and GraphPad Prism software version 5.02 (Graph Pad Software, Inc, 2007).

PEDIATRIC

Partly fermented infant formulae with specific oligosaccharides support adequate infant growth and are well-tolerated.

Huet F, Abrahamse-Berkeveld M, Tims S, et al. *J Pediatr Gastroenterol Nutr*. 2016;63(4):e43-e53.

Researchers compare the safety and tolerance of different partly-fermented infant milk formulas. A prospective double-blind trial was designed for the study. A total of 432 infants were recruited from mothers who were not breast-feeding. Mothers were invited to participate via 24 European health centers (France, n=7; Belgium, n=10; Ireland, n=7). Inclusion criteria included gestational age 37 to 42 weeks, birth weight 2.5 to 4.5 kg., and postnatal age under 28 days. Infants were excluded if determined to have a congenital condition or illness, a risk for allergy to cow's milk, or if their mothers had had gestational diabetes. Infants were randomly assigned to one of four groups: formula supplemented with (short-chain galacto-oligosaccharides and long-chain fructo-oligosaccharides) scGOS/lcFOS; scGOS/lcFOS plus 15% fermented *Bifidobacterium breve* and *Strepococcus*; scGOS/lcFOS plus 50% fermented *Bifidobacterium breve* and *Strepococcus*; or 50% fermented formula without the probiotics. The formula base used was isocaloric and contained 100 mL of 66 kcal energy, 1.35 g protein, 8.2 to .8.4 g carbohydrate, 3.0 to 3.1 g lipids. During the intervention period, infants were fed ad libitum exclusively with their allocated formula starting at enrolment through 17 weeks of age. The study consisted of a baseline visit and four sequent hospital visits at 4-, 8-, 13- and 17-week periods. Follow-up phone calls were performed with the mothers 2 weeks post-study. Parents logged in diaries the formula intake, gastrointestinal symptoms, crying, sleeping, and stool characteristics during the study. Each visit included anthropometric measures taken of the infant and compliance review. Fecal samples were collected pre-baseline and at the final analysis for physiological measures and microbiological composition. Primary outcome measured was daily weight gain during the intervention with secondary measurements taken of body length, head circumference and mid-upper arm circumference. The statistical analyses were computed by Nutricia Research using SAS Enterprise Guide 4.3 for Windows (SAS Institute, 2015).

PUBLIC HEALTH

How does poverty affect children's nutritional status in Nairobi slums? A qualitative study of the root causes of undernutrition.

Goudet S, Kimani-Murage E, Wekesah F, et al. *Public Health Nutr*. 2016; http://dx.doi.org/10.1017/S1368980016002445.

Researchers explore community members' views on the causes of child undernutrition in urban poor settings within Nairobi, Kenya, as well as their perceptions on how this issue can best be remedied. A focus-group model was developed for the purpose of gathering and analyzing qualitative data on the subject. A total of 90 individuals comprised the overall sample, with 80 divided into 10 focus groups and an additional 10 interviewed individually. The sample was drawn from two neighborhoods in Nairobi identified as low-income and containing approximately 57,000 residents each. The population was 56% male, 87% Christian, and 13% Muslim. Interviews and focus groups were conducted in the communities during April 2012. Trained interviewers facilitated discussions which were audiotaped and transcribed verbatim. Interviews were conducted in Swahili and concurrent transcription and translation was done by graduate students experienced in anthropology and translation. Word transcripts were imported into Nvivo 10 software (QSR International Pty Ltd) to identify primary and meta-codes and major themes. These were coded by extracting concepts and using a constant comparison of the data across different participant groups to track similarities and variations. Two team members coded and interpreted the materials to check for objectivity, and a third team member performed a separate check for understanding and consistency of the codes.

RESEARCH

BMI-specific associations between health-related behaviors and overweight — A longitudinal study among Norwegian adolescents.

Oellingrath I, Svendsen M. *Public Health Nutr*. 2016; http://dx.doi.org/10.1017/S1368980016002536.