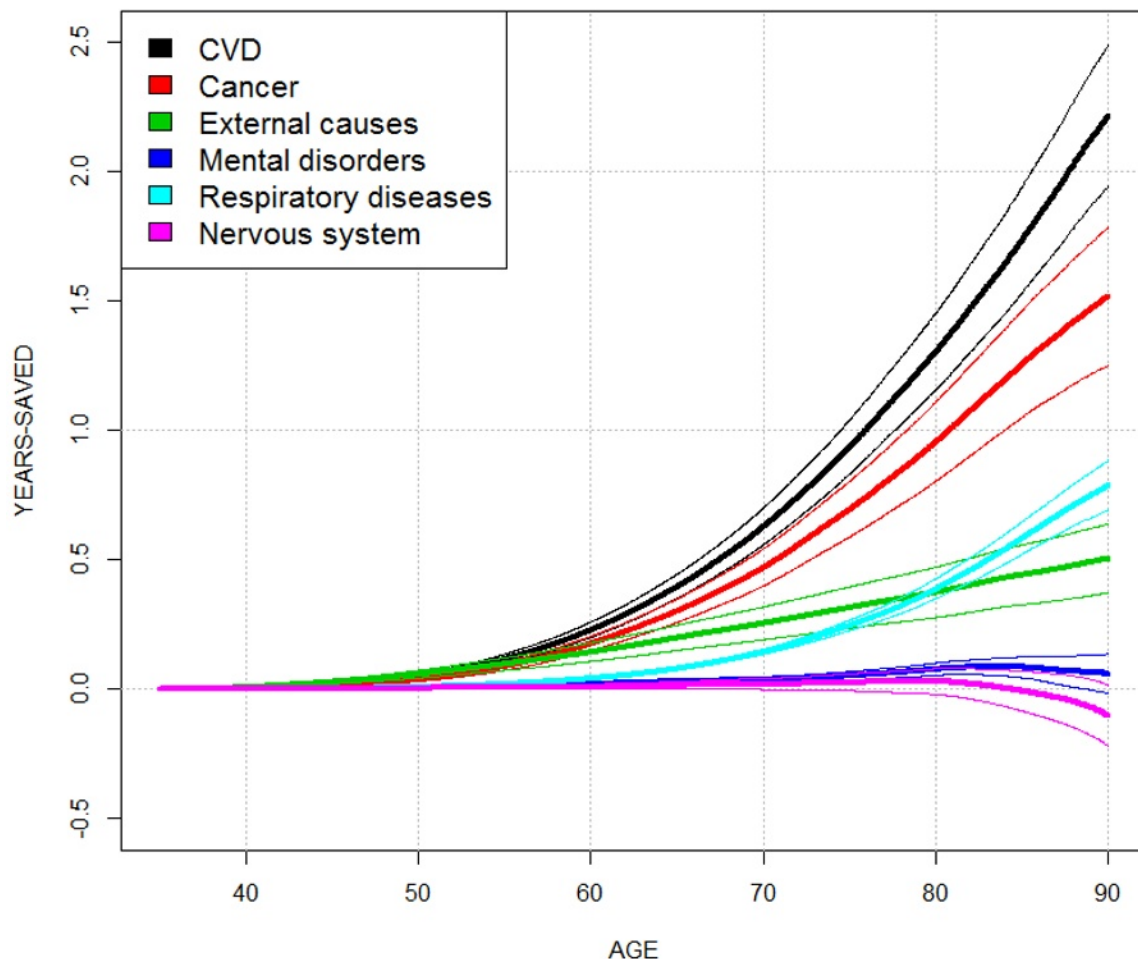## Years of life saved among US Olympic athletes per causes of death

---

1990   Board #146   May 30 3:30 PM - 5:00 PM

Elevated Serum Uric Acid And Heart Failure In U.S. Adults: 2007-2016 NHANES

Michelle L. Stone, Michael R. Richardson, Larry Guevara, Bethany G. Rand, James R. Churilla, FACSM. *University of North Florida, Jacksonville, FL.* (Sponsor: Dr. James Churilla, FACSM)

(No relationships reported)

There is limited evidence examining the relationship between elevated serum uric acid (UA) concentration and heart failure (HF) in U.S. adults.

PURPOSE: Examine the associations between elevated UA and HF using a nationally representative sample of U.S. adults.

METHODS: The final sample with complete data for this analysis (N=17,412) included men and women aged ≥40 years who participated in the 2007-2016 National Health and Nutrition Examination Survey. Self-reported diagnosis of HF was assessed via interview. Elevated UA was defined as values >6.0 mg/dL for women and >7.2 mg/dL for men. Multivariable gender-stratified logistic regression was utilized to examine the odds of HF.

RESULTS: The estimated prevalence of HF was 3.85% and 3.39% among men and women, respectively. Age adjusted analysis revealed significantly increased odds of HF in men (odds ratio [OR], 2.78; 95% confidence interval [CI] 2.09-3.71, *P*<0.01) and women (OR, 3.25; 95% CI 2.37-4.45, *P*<0.01) with elevated UA. Significance remained following adjustment for education, income, race, body mass index, alcohol consumption, hypertension, diabetes, physical activity, and creatinine in men (OR, 1.59; 95% CI 1.04-2.43 *P*=0.03) and women (OR, 2.03; 95% CI 1.33-3.08, *P*<0.01).

CONCLUSIONS: In a representative sample of U.S. adults, having an elevated UA concentration was associated with significantly increased odds of HF when compared to adults with normal UA.

1991   Board #147   May 30 3:30 PM - 5:00 PM

Modernization of a Developing Country: Effect on Body Mass Index

Cynthia Villalobos[1], William E. Herrin[1], J. Mark VanNess[1], Norah Madaya[2], Margaret E. Ciccolella[1], Courtney D. Jensen[1]. *[1]University of the Pacific, Stockton, CA. [2]Uganda Bureau of Statistics, Kampala, Uganda.*

(No relationships reported)

Modernization provides technology and resources that commonly displace physical activity (PA) from the daily routine; in time, body mass index (BMI) trends upward. Given the host of deleterious consequences precipitated by poor body composition, it may be helpful to isolate specific factors that predict the largest elevations in BMI. Uganda is an appropriate location to

535

evaluate this. Over 5 years, the percentage of women classified as overweight or obese increased from 19% to 24%; men increased from 4% to 9%. During this time, PA underwent considerable change while nutrition was relatively stable.

PURPOSE: To evaluate the impact of modernization on BMI in Uganda.

METHODS: We analyzed the 2016 Demographic and Health Surveys of Uganda, Household Members database. 11,577 subjects met inclusionary criteria. We conducted descriptive statistics to characterize this population, linear regression to examine the effect of modernization on BMI, and logistic regression to test these factors on the odds of overweight (BMI ≥ 25) or obesity (BMI ≥ 30).

RESULTS: Mean age was 28.7 ± 10.2 yr; BMI was 22.0 ± 3.7; 16.0% of subjects were either overweight (n=1,405) or obese (n=440). More subjects owned a bicycle (40.6%) than a motorcycle (12.6%) or car (4.3%); more subjects owned mobile phones (79.7%) than computers (4.3%); 28.8% of households had electricity and 16.2% had television. Linear regression (R^2=0.160; p<0.001) found BMI to be increased when a household had a refrigerator (β=0.483; p <0.004), electricity (β=0.409; p<0.001) and television (β=0.961; p<0.001). Additionally, ownership of a car (β=0.421; p<0.016) and a mobile phone (β=0.625; p<0.001) predicted increases in BMI, while ownership of a bicycle (β=-0.330; p<0.001) and a land-line phone (β=-0.657; p<0.034) predicted decreases in BMI. Logistic regression (pseudo R^2=0.21; p<0.001) found the odds of being overweight or obese increased when a household had electricity (79%; p<0.001) and television (107%; p<0.001). Additionally, ownership of an automobile (41%; p=0.002) and a mobile phone (147%; p<0.001) increased the odds of being overweight or obese.

CONCLUSIONS: Specific features of modernization associate with increases in BMI. As developing countries continue their development, public health interventions are warranted to promote the maintenance of PA.

1992   Board #148   May 30 3:30 PM - 5:00 PM

Effects of Division I Cross-Country Training on Iron Markers and Systemic Inflammation

Chandler McDonald, Noah John Erb, David Aguilar-Alvarez. *Weber State University, Ogden, UT.*

Email: cmcdonald.pt@gmail.com

(No relationships reported)

Inflammatory cytokine and immune cell production is modulated by iron status including storage measured by ferritin levels. Cross-country athletes have an elevated risk of iron depletion; the effects of long term cross country training on inflammatory cytokine profile and its relationship with iron storage markers have yet to be elucidated.

PURPOSE: To determine the influence of cross-country training on markers of inflammation and iron storage and to interpret potential mechanisms underlying these relationships.

METHODS: Twelve NCAA division 1 cross-country athletes, ages 18 to 25 years old, were followed for two years. Blood was collected at the beginning of the season and analyzed by complete blood count (CBC) and ferritin levels were assessed by enzymatic spectrophotometry. Cytokines IL-1β, IL-2, IL-4 IL-5, IL-6, IL10, TNF-α and IFN-γ were measured with the Luminex® MAGPIX® system. Dependent samples t-test was used to compare ferritin cytokines and CBC mean difference between first and second year measurements. Pearson correlations were conducted to assess associations between ferritin and immune cells/inflammatory cytokines. IBM® SPSS Statistics 22 software was used to analyze the data.

RESULTS: TNF-α levels increased from the 1st to the 2nd year (98.60 ± 11.17 vs. 121.41 ± 11.93 pg/dL, p=0.006). Platelets (253.63 ± 12.28 vs 267 ± 13.43 K/μL, p=0.041), Neutrophils (44.46 ± 1.26 vs 50.46 ± 2.70) K/μL, p=0.045) and Monocytes (8.58 ± 1.90 vs 10.61 ± 2.70 K/μL, p=0.003) also significantly increased from the 1st to the 2nd year. Ferritin levels were positively correlated with TNF-α both years (r=0.716 p=0.009, r=0.595 p=0.04).

CONCLUSIONS: One year of cross-country training seems to influence increases in pro-inflammatory cytokines and immune cell concentrations in NCAA Division 1 Athletes. Although there were no significant changes on ferritin levels over the years of study, ferritin increases were linked to increases in pro-inflammatory cytokine TNF-α.

1993   Board #149   May 30 3:30 PM - 5:00 PM

Relationship Between Weight History and Depression in U.S. Adults

Larry Guevara, Michael R. Richardson, Robert J. Zeglin, Christopher J. Joyce, Bethany G. Rand, Michelle L. Stone, Tammie M. Johnson, James R. Churilla, FACSM. *University of North Florida, Jacksonville, FL.*

(No relationships reported)

PURPOSE: Explore the relationship between changes in weight over time and subsequent depression status using a nationally representative sample of U.S. adults.

METHODS: The study sample (n=20,505) included male and female adults (≥36 years of age) who participated in the 2007-2016 National Health and Nutrition Examination Survey. Weight history examined fluctuations of weight, mainly gain in weight, from self-reported current weight and self-reported weight 10 years ago. Depression status was assessed using the PHQ-9 utilizing a cut point of ≥10 to assign a depression score. Logistic regression analysis was utilized to examine odds of depression across ranges of weight gain.

RESULTS: Overall prevalence of depression among U.S. adults aged 36 years and older was found to be at 7.5% (95% Confidence Interval [CI] 6.9-8.2). Following adjustment for gender, race, education, smoking, and physical activity, those who gained 20 or more lbs. had significantly greater odds of having depression (OR 1.45; 95% CI, 1.26-1.67) compared to those gaining <5 lbs. (referent). A similar relationship was not revealed for other weight gain ranges: 5-9lbs. (OR 0.84; 95% CI, 0.62-1.14), 10-14lbs. (OR 0.90; 95% CI, 0.70-1.15), 15-19lbs. (OR 0.93; 95% CI, 0.66-1.31).

CONCLUSION: Findings revealed that weight gain of 20lbs. or more resulted in significantly greater odds of a PHQ-9 score indicative of depression.

1994   Board #150   May 30 3:30 PM - 5:00 PM

Cardiorespiratory Fitness, Serum 25-hydroxyvitamin D, and Risk of Metabolic Syndrome Among Men: The Cooper Center Longitudinal Study

Stephen W. Farrell, FACSM, Carolyn E. Barlow, Benjamin L. Willis, David Leonard, Andjelka Pavlovic, Laura F. DeFina, William L. Haskell, FACSM. *The Cooper Institute, Dallas, TX.*

(No relationships reported)

PURPOSE: We examined the individual and joint associations among cardiorespiratory fitness (CRF), serum vitamin D [25(OH)D], and metabolic syndrome (MetSyn).

METHODS: Between 2006 and 2018, 14349 apparently healthy men completed a comprehensive health examination. Measures included CRF based on a maximal treadmill exercise test, components of MetSyn, and 25(OH)D. Participants were classified into categories of low (quintile 1), moderate (quintiles 2-3), and high (quintiles 4-5) CRF by age group, as well as by clinical cut points for MetSyn and 25(OH)D. We examined mean 25(OH)D levels in men with and without MetSyn. We calculated odds ratios (OR) of MetSyn across levels of CRF and 25(OH)D, and also examined joint associations among these three variables.

RESULTS: The prevalence of 25(OH)D deficiency and MetSyn was 16.9% and 22.2%, respectively. Mean 25(OH)D levels were 30.9 ± 11.6 and 26.3 ± 10.7 ng/mL in men without and with MetSyn, respectively (p<.001). Prevalence of MetSyn was inversely associated with ordered categories of CRF and 25(OH)D (p for trend <0.001 for both). Men with normal 25(OH)D had lower odds of MetSyn than men who were vitamin D deficient (OR=0.29, 95% CI=0.26-0.33). Men with moderate (OR=0.31, 0.27-0.35) or high CRF (OR=0.08, 0.07-0.09) had lower odds of MetSyn than men with low CRF. Joint associations between CRF, 25(OH)D, and MetSyn revealed significantly greater prevalence of MetSyn in unfit men when compared to fit men within each category of 25(OH)D (p<0.001). Each 5 ng/mL increment of 25(OH)D, and 1 MET increment of CRF was associated with a 16.0% and 31.3% lower prevalence of MetSyn, respectively.

CONCLUSION: There are strong individual and joint associations between CRF, 25(OH)D, and MetSyn. Although these observed associations are cross-sectional, it seems prudent to recommend increased levels of physical activity and vitamin D intake in men with low CRF, vitamin D deficiency, and/or MetSyn.

536