Welcome to this month’s edition of NExTNet News. In addition to pertinent announcements, RFAs, and news stories, follow the exciting research advances of NExTNet members and their investigative teams with links to recent findings.

NExTNet News is prepared monthly by Jenny Martz, NExTNet Coordinator. For future editions, please send relevant stories, articles, scientific publications, or announcements to nextnet@uab.edu.

August 2016

Announcements

- Monthly NExTNet Teleconference – September 13, 2016 10am CST – If you are interested in presenting on this or a future teleconference please email nextnet@uab.edu.
- Position Openings
  - Exercise Physiology Research Assistant at the University of Virginia - see attached or email alw2v@virginia.edu
  - Researcher II, Exercise Clinical Trials Facility, UAB Center for Exercise Medicine at the University of Alabama at Birmingham - see attached or online https://uab.taleo.net/careersection/ext/jobdetail.ftl?job=T39772

Upcoming Meetings and Conferences

- European Initiative for Exercise in Medicine (EIEIM) 5th Annual Meeting September 5-6, 2016, Charlottehaven, Copenhagen, Denmark
- Indianapolis Regional EIM Professional Credential Workshop September 17, 2016, Indianapolis, Indiana
- UAB Center for Exercise Medicine Annual Symposium September 22, 2016, Birmingham, Alabama
- 2016 International Conference of Physiological Sciences September 25-28, 2016, Beijing, China
- APS Intersociety Meeting: The Integrative Biology of Exercise VII November 2-4, 2016, Phoenix, Arizona

New Findings from NExTNet Investigators

Aging

- Predictors of change in physical function among older adults in response to long-term, structured physical activity: The LIFE Study.
- Improved Single Muscle Fiber Quality in the Oldest-Old.
- An Ecosystem to Support Traditional Clinical Investigation: Lessons From Aging, Exercise, Blood Pressure, and Women.
- Body Composition Remodeling and Mortality: The Health Aging and Body Composition Study.
- Cardiovascular Events in a Physical Activity Intervention Compared With a Successful Aging Intervention: The LIFE Study Randomized Trial.
- Aging, not age-associated inflammation, determines blood pressure and endothelial responses to acute inflammation.
- Endothelial and Inflammatory Responses to Acute Exercise in Perimenopausal and Late Postmenopausal Women.

**Cancer**
- Relationships between mammographic density, tissue microvessel density, and breast biopsy diagnosis.
- The Association between Maximal Bench Press Strength and Isometric Handgrip Strength among Breast Cancer Survivors.
- Association between Body Mass Index and Physical Function among Endometrial Cancer Survivors.
- Exercise Promotion in Geriatric Oncology.

**Cardiovascular**
- Relation of Angina Pectoris to Outcomes, Quality of Life, and Response to Exercise Training in Patients With Chronic Heart Failure (from HF-ACTION).
- Short-term effects of air temperature on plasma metabolite concentrations in patients undergoing cardiac catheterization.
- Metabolomic Profiling Identifies Novel Circulating Biomarkers of Mitochondrial Dysfunction Differentially Elevated in Heart Failure With Preserved Versus Reduced Ejection Fraction: Evidence for Shared Metabolic Impairments in Clinical Heart Failure.
- Prognostic Utility of the Braden Scale and the Morse Fall Scale in Hospitalized Patients With Heart Failure.
- Sedentary Behavior and Cardiovascular Morbidity and Mortality: A Science Advisory From the American Heart Association.
- Exploratory Study of Heart Rate Variability and Sleep among Emergency Medical Services Shift Workers.
- High trans but not saturated fat beverage causes an acute reduction in postprandial vascular endothelial function but not arterial stiffness in humans.
- High-flow-mediated constriction in adults is not influenced by biomarkers of cardiovascular and metabolic risk.
- Hemodynamic Correlates of Blood Pressure in Older Adults: The Atherosclerosis Risk in Communities (ARIC) Study.
- Arterial Path Length for Arterial Stiffness: Methodological Consideration.

**Cell and Molecular Biology**
- Mitochondrial function assessed by 31P MRS and BOLD MRI in non-obese type 2 diabetic rats.
- Last Word on Viewpoint: On the rigorous study of exercise adaptations: why mRNA might not be enough?
- Hormesis, mithridatism and Paracelsus: A little oxidative stress goes a long way.
- Gut Microbiota: Modulation of Host Physiology in Obesity.
- Human and Mouse Brown Adipose Tissue Mitochondria Have Comparable UCP1 Function.

**Exercise – Drug/Diet/Device/Disease/Surgery/Cultural Interactions**
- The economic burden of physical inactivity: a global analysis of major non-communicable diseases.
- Occupational differences for nutrient intake and physical-activity levels in young and middle-aged men.
- Impact of Self-Preference Community Fitness Interventions in High-Risk African Americans.
- Empiric validation of a process for behavior change.
- Physical activity, mental health, and weight gain in a longitudinal observational cohort of nonobese young adults.
- A healthcare utilization cost comparison between employees receiving a worksite mindfulness or a diet/exercise lifestyle intervention to matched controls 5 years post intervention.
- Performance-based measures associate with frailty in patients with end-stage liver disease.
- Inverse association between carbohydrate consumption and plasma adiponectin concentrations in humans.
• **Physical Activity Counseling by Diabetes Educators Delivering Diabetes Self-Management Education and Support.**
• **Changes in regional body composition over 8 years in a randomized lifestyle trial: The look AHEAD study.**
• **Protein Supplementation Has Minimal Effects on Muscle Adaptations during Resistance Exercise Training in Young Men: A Double-Blind Randomized Clinical Trial.**
• **Frailty in HIV: Epidemiology, Biology, Measurement, Interventions, and Research Needs.**

**Metabolic**

• **Effects of Standing and Light-Intensity Walking and Cycling on 24-h Glucose.**
• **Deficiency in the Heat Stress Response Could Underlie Susceptibility to Metabolic Disease.**
• **PERFORMANCE OF A1C VERSUS OGTT FOR THE DIAGNOSIS OF PREDIABETES IN A COMMUNITY-BASED SCREENING.**
• **Four-Year Physical Activity Levels among Intervention Participants with Type 2 Diabetes.**

**Neuroscience and Stroke**

• **Enhanced motor function and its neurophysiological correlates after navigated low-frequency repetitive transcranial magnetic stimulation over the contralesional motor cortex in stroke.**
• **Commentary on "A Tandem Cycling Program: Feasibility and Physical Performance Outcomes in People With Parkinson's Disease".**
• **Resistance Training with Instability for Patients with Parkinson's Disease.**
• **Sarcopenia and Physical Function in Middle-Aged and Older Stroke Survivors.**
• **Affect Following First Exercise Session as a Predictor of Treatment Response in Depression.**

**Pediatric**

• **Maternal gestational diabetes and childhood obesity at age 9-11: results of a multinational study.**
• **Household-level correlates of children's physical activity levels in and across 12 countries.**
• **Relationships between Parental Education and Overweight with Childhood Overweight and Physical Activity in 9-11 Year Old Children: Results from a 12-Country Study.**
• **Active and strong: physical activity, muscular strength, and metabolic risk in children.**
• **Allometrically Scaled Children's Clinical and Free-Living Ambulatory Behavior.**

**Respiratory**

• **Age and Small Airway Imaging Abnormalities in Subjects With and Without Airflow Obstruction in SPIROMICS.**

**Additional New Findings**

• **Ecologically optimizing exercise maintenance in men and women post-cardiac rehabilitation: Protocol for a randomized controlled trial of efficacy with economics (ECO-PCR).**
• **Scaling up physical activity interventions worldwide: stepping up to larger and smarter approaches to get people moving.**
• **Does physical activity attenuate, or even eliminate, the detrimental association of sitting time with mortality? A harmonised meta-analysis of data from more than 1 million men and women.**
• **Physical Activity in Youth With Type 1 Diabetes: a Review.**
• **Infographic. Make physical activity a part of daily life at all stages in life: an infographic.**
• **Effects of Endurance-Focused Physical Activity Interventions on Brain Health: A Systematic Review.**
• **The Impact of Neighborhood on Physical Activity in the Jackson Heart Study.**
• **Response to comment on: Thomson et al. Muscle strength gains during resistance exercise training are attenuated with soy compared with dairy or usual protein intake in older adults: A randomized controlled trial.**
• **Clinical Nutrition 35:27-33, 2016.**
• **The clinical and EMG assessment of the effects of stabilization exercise on nonspecific chronic neck pain: A randomized controlled trial.**
• **The role of Nrf2 in skeletal muscle contractile and mitochondrial function.**
• **Unravelling the mechanisms regulating muscle mitochondrial biogenesis.**
Short- and long-term effects of exercise on neck muscle function in cervical radiculopathy: A randomized clinical trial.

Comparison of EMG Activity of the Superior and Inferior Portions of the Gluteus Maximus Muscle During Common Therapeutic Exercises.

Exercise improves depressive symptoms in older adults: An umbrella review of systematic reviews and meta-analyses.

Physical Activity and Nutrition in Primary and Tertiary Prevention of Colorectal Cancer.

Physical Activity and Alzheimer Disease: A Protective Association.

Evaluation of a Laughter-based Exercise Program on Health and Self-efficacy for Exercise.

Automatic Identification of Physical Activity Intensity and Modality from the Fusion of Accelerometry and Heart Rate Data.

Application of the 6-Minute Walking Test and Shuttle Walking Test in the Exercise Tests of Patients With COPD.

A Survey and Analysis of Exercise Among Pregnant Women Conducted Using the Theory of Reasoned Action.

Beneficial effects of dark chocolate on exercise capacity in sedentary subjects: underlying mechanisms. A double blind, randomized, placebo controlled trial.

No evidence of adverse cardiac remodeling in former elite endurance athletes.

Enhanced exercise and regenerative capacity in a mouse model that violates size constraints of oxidative muscle fibres.

Test-Retest Reliability of Ratings of Perceived Exertion and Agreement With 1-Repetition Maximum in Adults.

Long Term Effects on Risk Factors for Cardiovascular Disease after 12-Months of Aerobic Exercise Intervention - A Worksite RCT among Cleaners.

Interrupting prolonged sitting with brief bouts of light walking or simple resistance activities reduces resting blood pressure and plasma noradrenaline in type 2 diabetes.

Physical activity to overcome the adversity of widowhood: Benefits beyond physical health.

Effect of a Trampoline Exercise on the Anthropometric Measures and Motor Performance of Adolescent Students.

EMG activity of the serratus anterior and trapezius muscles during the different phases of the push-up plus exercise on different support surfaces and different hand positions.

Autonomic cardiovascular control recovery in quadriplegics after handcycle training.

The effect of exercise intervention on frail elderly in need of care: half-day program in a senior day-care service facility specializing in functional training.

The blood pressure-lowering effect of a single bout of resistance exercise: A systematic review and meta-analysis of randomised controlled trials.

Eating habits and presence of cardiovascular risks in children.

Effectiveness of Periosteal Stimulation Therapy and Home Exercise Program in the Rehabilitation of Patients with Advanced Knee Osteoarthritis.

Severity of obesity and cardiometabolic risk factors in adults: Sex differences and role of physical activity. The HERMEX study.

Physical Activity for Cognitive and Mental Health in Youth: A Systematic Review of Mechanisms.
- Treadmill exercise improves fitness and reduces craving and use of cocaine in individuals with concurrent cocaine and tobacco-use disorder.
- Voluntary exercise rescues sevoflurane-induced memory impairment in aged male mice.
- Sex difference in substrate oxidation during low-intensity isometric exercise in young adults.
- Exercise is medicine for patients with major depressive disorders: but only if the "pill" is taken!
- Chronic stress and moderate physical exercise prompt widespread common activation and limited differential activation in specific brain regions.
- Effects of a multicomponent physical activity behavior change intervention on breast cancer survivor health status outcomes in a randomized controlled trial.
- Increased Flow, Dam Walls, and Upstream Pressure: The Physiological Challenges and Atrial Consequences of Intense Exercise.
- Atrial chamber remodelling in healthy pre-adolescent athletes engaged in endurance sports: A study with a longitudinal design. The CHILD study.
- Immediate and long term effects of endurance and high intensity interval exercise on linear and nonlinear heart rate variability.
- The Effects of Physical Activity in Parkinson’s Disease: A Review.
- High-intensity interval training reduces abdominal fat mass in postmenopausal women with type 2 diabetes.
- It Is Time to Invite Patients to the Physical Activity Party....
- Associations between demographic characteristics and physical activity practices in Nevada schools.
- Effect Of An Unstable Load On Primary And Stabilizing Muscles During The Bench Press.
- Feasibility of a Customized, In-Home, Game-Based Stroke Exercise Program Using the Microsoft Kinect® Sensor.
- Physical Activity Levels and Psychosis: A Mediation Analysis of Factors Influencing Physical Activity Target Achievement Among 204 186 People Across 46 Low- and Middle-Income Countries.
- The effects of different aerobic exercise intensities on serum serotonin concentrations and their association with Stroop task performance: a randomized controlled trial.

**RFAs / FOAs**

- Predictors and Determinants of Age-Related Changes in Resiliencies to Physical Stressors in Humans: (UH2/UH3) [http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-17-014.html](http://grants.nih.gov/grants/guide/rfa-files/RFA-AG-17-014.html)

**In the News**

- Solutions to integrating physical activity into health care
- Pilot exercise program for Parkinson’s disease is a knockout
- Use it or Lose it: UMD Study Shows Stopping Exercise Decreases Brian Blood Flow
- Even a Little Exercise May Help Stave Off Dementia
- Research Shows Links Between Obesity and 8 Additional Cancers
- Exercising after mentally demanding tasks could help prevent overeating

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