



SPRING Seminar Series

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Physical Inactivity: The Biggest Public Health Problem of the 21st Century

- Steven N. Blair, Departments of Exercise Science and Epidemiology/Biostatistics, University of South Carolina
 - Former position at the Cooper Institute
 - Main editor of first Surgeon General report on physical activity
- Design of the ACLS study
 - 1970-2005, more than 80,000 patients
 - Cooper Clinic examinations - - including history, physical exam, clinical tests, body composition, EBT, and CRF
 - Mortality surveillance to 2003, more than 4000 deaths
 - Mail-back surveys for case finding and monitoring habits and other characteristics
- First paper on fitness and mortality, JAMA 1989
 - Huge difference in mortality rates between low fit and moderately fit
 - What is moderately fit?
 - 130-150 minutes of walking per week, now the U.S. recommendation for fitness
 - 90 minutes running per week
- Cardio Respiratory Fitness (CRF)
 - Get out of the low fit category and you reduce your risk of a number of diseases, including breast cancer, cardiovascular disease, etc.
- We all die eventually, BUT
 - Fitness and functional limitations, women and men, ACLS
 - In order to maintain function, you must maintain fitness
 - Risk of dementia substantially lower among moderate to high fit
- Do we have an obesity epidemic?
 - Energy balance
 - Energy in / energy out
 - Energy balance is poorly understood
 - Poor research:

- JAMA: nearly all NFL players are overweight (pages of JAMA used for this??)
 - Physical activity, diet, and obesity in American teens –reactions
 - “we are pretty sure they are eating too much, no matter what the data say”
 - “now you see kids whose longevity is less than their parents.” (To accept this as fact is nonsense, longevity can only be assessed when someone is dead)
 - obesity “cartel” spreads these messages, not necessarily correct
- AHA Summary and Recommendations
 - 3500 calories required to lay down 1 pound of fat
 - not convinced that these data on sugar sweetened beverage consumption are accurate
 - not convinced that the obesity epidemic is caused by soft drink consumption, alone
 - Is the average total daily caloric intake increasing?
 - The best data to show avg intake is NHANES, 1971 – 2000
 - Surveys are representative sample among men and women 20- 74 years
 - Measures of energy intake not accurate, flaws in methodology
 - No data to show energy balance, measure diet and energy expenditure – correctly.
 - **Physical activity reports are not the same as energy expenditure**
 - Prevention of unhealthy weight gain – what is required?
 - CDC – 30 minutes per day
 - WHO – 60 minutes per day
 - This is based on PAL, and measurements not logical.
 - Fitness and fatness research
 - Assessment of body weight, student estimated height and weight (validated – p=0.4**)
 - High BMI, fit lower mortality risk than low fit normal weight
 - E.g. fit men with a high BMI were not fat, but had a high level of muscular development

**junk science - - this is not true, we measure height and weight. But this demonstrates what much of the published research on fitness and fatness does – account for physical activity using inaccurate measures (“adjusted for physical activity”)
 - Mortality and Fitness
 - Even in men with diabetes, CVD mortality risk is much higher among unfit (4x) than moderate to fit people
 - Strength, adiposity, and cancer mortality – strong predictive quality
 - There have been thousands of papers published on interrelationships among the twin epidemics of obesity, fitness, and health
 - Obesity/fat distribution

- Activity/fitness
- Morbidity/mortality
 - “No grants should be awarded nor papers published on fitness or obesity, and a health outcome unless both exposures are accurately measured and taken into account in analyses”

How Should We Deal with the Obesity Epidemic?

- We have no data on energy balance - - energy intake (24 hr recall, online??) and accelerometers
- Design interventions to address the problem
 - Public policy
 - Educational programs
 - Clinical medicine
 - Technological lifestyle interventions
- Conduct research to test interventions
- Implement successful interventions

Final Message

- Focus on
 - Healthful eating habits
 - Fruits and vegetables
 - Whole grain
 - Regular physical activity
 - Three 10 minute walks per day

Summary

- Attributable fraction (%) is the estimated number of deaths due to a specific characteristic
 - Based on strength of association
 - Prevalence of the condition
- Physical inactivity and low fitness are highly prevalent in modern societies, we need to do something about it.