Stepping Strong to Control Blood Pressure , Weight, and Fatigue – Risks for Stroke

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UNCW

Hypertension (HTN)

- One of the primary causes of premature death in the world
  - Kills nearly 8 million people worldwide every year
- HTN primary modifiable risk factor for stroke
  - Worldwide stroke is the second leading cause of death and leading cause of disability.

Hypertension [HTN] in the United States (US)

- 1 in 3 US adults has HTN
  - 76,400,000 ≥ 20 years of age
  - 28.6% North Carolina (NC) population (11th highest in US)
- HTN more common
  - women aged 65 years and older
  - blacks in US is among highest in the world (41.4%)
- Costs $76.6 billion in health care services, medications, and missed days of work.

Worldwide Obesity

- More than doubled since 1980
- In 2008, 1.5 billion adults 20 y/o >
  - 200 million men, 300 million women
- 65% of the world's population live in countries where overweight and obesity kills more people than underweight
- Nearly 43 million children < 5 y/o were overweight in 2010

Obesity in United States

- 68% US adults overweight or obese (72% men, 64% women)
- Blacks and Hispanics more likely to be overweight or obese than whites
- Obesity most powerful predictor of diabetes in the Nurses' Health Study
- Overweight & obesity increase risk for cardiovascular disease in Framingham Heart Study

Fatigue – What is it?

- Fatigue is physical and/or mental exhaustion that can be triggered by stress, medication, overwork, or mental and physical illness or disease.
- Everyone experiences fatigue occasionally. It is the body's way of signaling its need for rest and sleep.
  - When fatigue becomes a **persistent feeling** of tiredness or exhaustion that goes beyond normal sleepiness, it is usually a sign that something more serious is amiss.

Women & Fatigue

- Number of conditions to consider:
  - Anemia
  - Underactive thyroid (hypothyroidism)
  - Undiagnosed urinary tract infection (UTI)
  - Caffeine overload
  - Food intolerances
  - Sleep apnea
  - **Undiagnosed heart disease**

High-Risk Lifestyle: Increases Fatigue & Risk for Heart Disease and Stroke

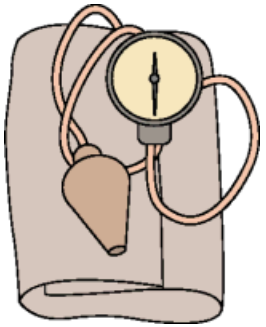
- Cigarette smoking
- Heavy alcohol use
- Obesity
- Sedentary lifestyle
- Diet high in red and processed meats, refined grains, and sweets
- Stress

"STRESS"

Barriers to Physical Activity or Regular Moderate Exercise

- Health
- Pain
- Physical Environment
  - Neighborhood Safety
- Health Care Provider Advice
  - Respect/Relationship
- Knowledge
- Childhood Exercise

Physical Activity (PA) & Hypertension (HTN)



- PA effective in controlling HTN
- Maintenance of quality of life
- BP increases with age while daily PA tends to decrease
- 70% older adults do not engage in any regular PA
  - Only 1/3 of those who do exercise achieve AHA recommended 120-150 minutes moderate exercise each week

Potential Mediating Variable to Regular Physical Activity

Fatigue ---

- Complex
- Individual
- Interpersonal
- Environmental

Research Study
Fall 2010-Spring 2011

- UNCW-IRB approval
- Examine the impact of a 10-week walking and wellness educational program on a southeast North Carolina community-dwelling adult population's
  - blood pressure
  - weight
  - perception of fatigue

Study Participants

- 52 adults
- 47 (90.4%) women
- Mean age 54.27 years
- 33 white
- 38 married
- 40 working
- 45 had private insurance; 6 Medicare

Research Methods

- Fitness Ambassadors (FA) recruited
  & trained
- Pedometer
- Daily Calendar
- Week #1 and Week #10
  - Completed two surveys – Stroke Recognition Questionnaire© and Multidimensional Assessment of Fatigue©
  - Physiological Measures assessed – BP, weight
- Weekly Meetings with FA – used wellness workbook

Steps Walked

- Week #1
  - Mean number of steps/day = 5533.67
- Week #10
  - Mean number of steps/day = 7408.16
- 1,874.49 more steps per day or a 33.87% increase
- **Gain in average number of steps walked each day was significant (t(39)= -5.42, p<.001)**

Study Results – Blood Pressure [BP]

- Week #1 Mean Systolic BP
  - Right arm = 125.37; Left arm 126.30
- Week #10 Mean Systolic BP
  - Right arm = 121.81; Left arm = 124.30
    - These changes were not statistically significant for this group

- However, a 2mm Hg systolic BP decrease = a 10% decrease in stroke mortality and a 7% overall reduction in CVD causes of death.

Study Results - Weight

- Week #1
  - Mean weight 173.27 lbs
- Week #10
  - Mean weight 170.10

- **Weight loss average across the ten weeks was significant (t (45)= 3.86, p<.001)**

Multidimensional Assessment of Fatigue Scale [MAF] (Belza, 1994)

- Overall "fatigue score"
  - Assesses the degree to which fatigue interferes with doing household chores, cooking, bathing, dressing, work, visit/socialize with friends or family, engage in sexual activity, engage in leisure or recreational activities, shop & do errands, walk, and exercise other than walking
  - Scale of 1 no distress to 10 great deal of distress
  - Over past week
  - Administered in Week #1 and Week #10

Study Results – MAF Fatigue Scores

- Fatigue – overall score
  - Score 1 = no fatigue to Score 50 = severe fatigue
- Week #1 Mean Score = 21.86
- Week #10 Mean Score = 17.78

- Interesting difference but not statistically significant for this group

MAF Specific Fatigue Scores Scale of 1 to 10

- Impact of fatigue on walking
  - Week #1 = 3.77
  - Week #10 = 2.86
    - Significant finding comparing pre & post (r=.654, p<.001)
- Impact of fatigue on exercise, other than walking
  - Week #1 = 4.28
  - Week #10 = 3.34
    - Significant finding comparing pre & post (r=.541, p<.001)

Study Results – Stroke Knowledge

- Knowledge of stroke warning signs and symptoms improved from Week #1 = 8.88 (out of 10) to Week #10 = 9.67

- Knowledge of stroke risk factors improved from Week #1 = 7.93 (out of 10) to Week #10 = 8.18

Discussion

- Results are encouraging
- Use of a community-based
  group program positive
- Walking
- Wellness education
  - Improved stroke knowledge
- Better understanding of fatigue and its "mediating" impact on regular exercise

Need to Look at Factors Impacting Regular Physical Activity

- Self-Efficacy – individual ability to successfully perform a specific behavior
- Perceived social support
- Value of physical health
- Affective response to exercise
- Deteriorating Health
- Exercise persistence
- Self-Regulatory Skills
  - Goal setting
  - Monitoring progress
  - Self-reinforcement

Future Studies

- Use additional surveys
  - assess self-efficacy
  - social support for exercise
- Physiologic measures
  - waist-to-hip measurement
  - calculate BMI

- Sitting-to-Standing stands completed in 30 seconds
- Number of Steps walked in six-minutes
- Follow participants over time to assess “exercise persistence” (habit)