University of Florida IFAS Extension

- Institute of Food and Agricultural Sciences
  - Part of federal-state-county partnership dedicated to developing knowledge in agriculture, human and natural resources, and the life sciences, and enhancing and sustaining the quality of human life by making that information accessible.
  - IFAS includes:
    - Teaching
    - Research
    - Extension
- Extension
  - Outreach from IFAS at local level
  - All 67 counties in Florida have an Extension presence
  - Most have a Family & Consumer Sciences Agent

Webinar Team

Hypertension and Stress the Exercise Rx

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Effects on Blood Pressure

- Genetics
- Lifestyle
  - Dietary changes
  - Weight management
  - Physical activity
  - Stress management
  - Tobacco cessation

Hypertension and Stress the Exercise Rx

Objectives:
To address the importance of physical activity in the prevention and control of hypertension.
- Benefits of physical activity
- How your body responds to exercise
- Barriers of exercise

Hypertension and Stress the Exercise Rx

- Prevents the development of hypertension
- Promotes increased exercise capacity
- Reduces resting SBP and DBP

Hypertension and Stress the Exercise Rx

Inactivity Physiology - A New Paradigm
- Daily sitting time, independent of BMI, smoking, alcohol use and leisure time physical activity, was strongly related to cardiovascular disease and all cause mortality in a prospective 12 year study.

Katzmarzyk et al. 2009
Hypertension and Stress the Exercise Rx

Exercise helps to manage hypertension and more:
- Manage weight
- Strengthen heart
- Lower stress level

Definitions
- Physical Activity
- Exercise
- Physical Fitness

Cardiac Functional Definitions:
- Heart Rate (HR)
- Stroke Volume (SV)
- Cardiac Output (CO)
- Blood Pressure (systolic/diastolic)

Acute responses
- Chronic adaptations
Hypertension and Stress the Exercise Rx

Talk to Your Healthcare Provider
- Cardiovascular Disease
- Metabolic Disease
- Renal Disease
- Signs and Symptoms

Find your Pulse
- Heart rate
- Palpation is an underutilized SKILL in fitness.

Let’s Practice!

Hypertension and Stress the Exercise Rx

Heart rates
- Resting
- Maximum
- Target

FITT Recommendations for cardiovascular health
- Frequency
- Intensity
- Time
- Type

Source: https://phil.cdc.gov/Details.aspx?pid=13517
## Hypertension and Stress the Exercise Rx

### Moderate Aerobic Exercise
- Brisk walking
- Water Aerobics
- Ballroom Dancing
- General Gardening

### Vigorous Aerobic Exercise
- Jogging or Running
- Swimming Laps
- Jumping Rope
- Heavy Gardening (digging or hoeing)

### Hypertension and Stress the Exercise Rx

### Vigorous Aerobic Exercise
- Jogging or Running
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### Muscle Strengthening Activities
- Bicep curls
- Shoulder press
- Chair Dips
- Lunges
- Heel Raises
- Squats
- Sit to Stand

### Hypertension Exercise Guidelines:

#### Aerobic
- 30-60 min/day
- Moderate intensity (12-13 on 6-20 RPE)

#### Strength
- Avoid maximal contractions
- Valsalva maneuver
- Extended cool-down

### Hypertension and Stress the Exercise Rx

### Barriers to Physical Activity
- Various Factors
- Lack of motivation
- History of exercise
- Lack of social support
- Limited Time
Hypertension and Stress the Exercise Rx

Exercise Danger Signs
Symptoms angina
• Chest pain
• Radiating pain
• Shortness of breath

Reminders
• Exercise can have a powerful effect on your overall health as well as blood pressure management
• Take precautions based on your individual situation
• May need to consult with healthcare provider before beginning

What we’ll cover:
- Stress response and blood pressure
- Stress management techniques and blood pressure
STRESS RESPONSE AND BLOOD PRESSURE

Stress Response

- Many different issues lead to stress
- Thoughts impact experience
- Sometimes we can interpret physical symptoms as stress! Heart rate, blood pressure
- Life risk factors (e.g., low income, Neighborhood violence, racism, cities)

Stress Response

- Fight or flight response: adrenaline and cortisol
- “Tend and befriend”: Oxytocin, Endogenous opioid peptides

Stress Response

- Direct impact on blood pressure related to stress response short-term
- Research literature on long-term impacts of stress on blood pressure
- Indirect impacts related to coping: weight gain can increase blood pressure; self-medication
In other cultures

Feeling pressure/stress associated with blood pressure

Personality issues?

- Seeking to influence/control others ("agonistic striving") associated with higher blood pressure
  
  Ewart, Elder, Jorgensen, & Fitzgerald, 2017

- Trait anger and blood pressure related for overweight children (previous research demonstrated with adults).
  
  Nichols, Rice, & Howell, 2011

Coping with Stress

- Reduction in level of stress experienced helps reduce blood pressure, especially within non-clinical range
Coping with Stress

- Changing our thinking/thought challenging/self-talk
- Mindfulness
- Meditation

Coping with Stress

- Biofeedback (can directly target blood pressure)
- Exercise
- Other methods that reduce stress

How do you cope with stress?

- Mindfulness-based stress reduction and blood pressure, women with cancer showed changes in rumination, and lower BP with MBSR (Campbell, Labelle, Bacon, Faris, & Carlson, 2012)
- Yoga helpful, but not for everyone, takes a lot of effort. People want alternatives besides medication. (Wolff, Brorsson, Midlov, Sundquist, & Strandberg, 2017)
If you have high blood pressure

- Prevention is important.
- Once developed, stress management can serve to help, but likely need more treatment
- Review of research:
  - Found relaxation helpful, but not as good as other interventions (i.e., salt reduction, alcohol restrictions, increasing exercise, weight reduction), but may depend on what strategy you use. (Dickinson, et al., 2006)

Examples of Stress Reduction Techniques

- Breathing techniques
  - Abdominal breathing
    - [https://cmhc.utexas.edu/stressrecess/animations/diaphragmatic_breathing/diaphragmatic_breathing.html](https://cmhc.utexas.edu/stressrecess/animations/diaphragmatic_breathing/diaphragmatic_breathing.html)
  - Autogenic relaxation

- Body scan
  - [http://studenthealth.missouri.edu/services/healthpromotion/stressmanagement/bodyscanwilson.mp3](http://studenthealth.missouri.edu/services/healthpromotion/stressmanagement/bodyscanwilson.mp3)

- Progressive muscle relaxation
  - [http://media.dartmouth.edu/~healthed/p_muscle_relax.mp3](http://media.dartmouth.edu/~healthed/p_muscle_relax.mp3)
  - [http://cwfl.usc.edu/training/audio/relaxation/andrea_musicmuscles.mp3](http://cwfl.usc.edu/training/audio/relaxation/andrea_musicmuscles.mp3)

- Visualization
  - [http://cwfl.usc.edu/training/audio/relaxation/andrea_guidedimgforest.mp3](http://cwfl.usc.edu/training/audio/relaxation/andrea_guidedimgforest.mp3)

Check Out the Recording of the 2017 Sleep More, Stress Less Webinar
[https://vimeo.com/261211101](https://vimeo.com/261211101)