

How Do Medications Affect Heart Rate and Blood Pressure?

ANTIDEPRESSANTS

Mechanism of action:

- Block the uptake of norepinephrine (hormone) into the central nervous system synapses

Commonly used to treat:

- Depression

Effect at rest:

- Increase HR, may cause hypotension (abnormally low BP)

Effects during exercise:

- Increase HR, decrease or maintain BP, and increase the risk for arrhythmias (irregular heart beats)

Caution:

- Careful with cardiac rehabilitation

Examples:

- Prozac
- Norpramin
- Elavil

BETA BLOCKERS

Mechanism of action:

- Blocks beta-receptors of the sympathetic nervous system. Some agents act primarily on beta-receptors in the heart. These are called *cardioselective*. Beta-blockers decrease HR, BP, and contractility of the heart, thus reducing the demand for oxygen by the heart.

Commonly used to treat:

- Angina pectoris, hypertension (high blood pressure), previous myocardial infarction (heart attack), arrhythmias (irregular heartbeats), migraine headaches

Effect at rest:

- Decreased HR, decreased BP, decreased arrhythmias (irregular heartbeats)

Effect during exercise:

- Increased exercise ability in patients with angina (chest pain), exercise ability decreased in patients without angina (chest pain), decreased exercise ischemia (not enough blood getting to a place, causing lack of oxygen), decreased HR, decreased BP

Examples:

- Inderal
- Lopressor

BRONCHODILATORS/ANTIHISTAMINES

Mechanism of action:

- Inhibit bronchial smooth muscle constriction in patients with asthma or Chronic Obstructive Pulmonary Disease (COPD)

Sources:

Pronsky, Z.M. (2008). *Food–medication interactions* (15th ed.). Birchrunville, PA: Food Medication Interactions.
 Durstine, K.L., & Moore, G.E. (2003). *ACSM's exercise management for persons with chronic diseases and disabilities* (2nd ed.). Champaign, IL: Human Kinetics.

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BRONCHODIALATORS/ANTIHISTAMINES *(continued)*

Commonly used to treat:

- Asthma, COPD

Effect at rest:

- May produce arrhythmia (irregular heart beat), bronchodilators may increase HR or BP

Effect during exercise:

- May produce Premature Ventricular Contractions (PVCs) and dysrhythmias (abnormal heart rhythm), bronchodilators may increase HR or BP

Examples:

- Theo-Dur
- Theophylline

Note: The decongestant pseudoephedrine (sometimes combined with certain antihistamines) can increase HR and BP. This effect may lessen after continued use.

CALCIUM CHANNEL BLOCKERS

Mechanism of action:

- Causes a vasodilation (widening of blood vessels) and a lower resting BP

Commonly used to treat:

- Angina pectoris (chest pain), coronary artery spasm, arrhythmias (irregular heart beats), hypertension (high blood pressure)

Effect at rest:

- *Nifedipine (Procardia)*—increased HR and BP
- *Other calcium channel blockers*—decreased HR, decreased BP, decreased ischemia (not enough blood pressure getting to a place, causing lack of oxygen). Check individual medication!

Effect during exercise:

- Same as rest, may increase exercise ability

Examples:

- Cardizem
- Procardia

DIGITALIS

Mechanism of action:

- Improves myocardial (heart) contraction by altering the calcium utilization of the myocardial cell.

Commonly used to treat:

- Congestive heart failure (CHF), atrial fibrillation (complex irregular heart beat), atrial flutter (irregular beat)

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DIGITALIS (*continued*)

Effect at rest:

- May decrease HR

Effect during exercise:

- May decrease HR, will improve exercise ability only in people with atrial fibrillation or CHF

Examples:

- Lanoxin
- Digitalis

DIURETICS

Mechanism of action:

- Most diuretics alter renal (kidney) function, causing an increase in the excretion of fluid.
- CAUTION: Sodium and potassium levels may be depleted. Calcium supplement may also be necessary.

Commonly used to treat:

- Hypertension (high blood pressure), edema (swelling)

Effect at rest:

- Decreased BP

Effect during exercise:

- May decrease BP, may affect congestive heart failure (CHF) patients, may cause arrhythmias (irregular heart beat)

Examples:

- Lasix
- Hydro-Diuril
- Dyazide

THYROID MEDICATION (ONLY LEVOTHYROXINE)

Mechanism of action:

- Hormonal regulation

Commonly used to treat:

- To correct abnormal and irregular release of hormones due to thyroid dysfunction

Effect at rest:

- Increase HR and BP, may increase ischemia (not enough blood getting to a place, causing lack of oxygen)

Effect during exercise:

- Same effects as rest may be exaggerated

Examples:

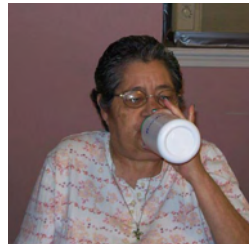
- Syntrox

Week 5 News

NEWSLETTER FOR THE EXERCISE AND NUTRITION HEALTH EDUCATION CLASS

How Can We Make Sure that We Drink Enough Water Every Day?

- Start and end your day with a glass of water.
- Do not substitute coffee, tea, or soda for water. They contain caffeine that causes dehydration.
- Drink water before and during meals.
- Carry a water bottle wherever you go.
- While exercising, drink water every 15 minutes.
- Freeze a bottle of water so you have cold water all day.
- Get some of your water supply from foods such as watermelon, cantaloupe, grapes, oranges, cucumbers, lettuce, and celery.



We talked about the importance of nutrition on exercise/physical activity, physical and emotional well-being, stress, and long-term exercise/physical activity.



Good and Bad Influences

We talked about things that help us exercise and things that make it hard for us to exercise regularly. We also talked about having our friends or family encourage us to exercise or to exercise with us.

How Do My Medications Make Me Feel When I Exercise?

Medications may make us:



More hungry—
weight gain



Less hungry—
weight loss



More thirsty



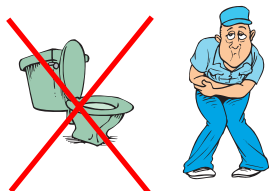
Tired/sleepy



Dizzy



Shaky



Bloated/
constipated



Nauseated

Medications may change sense of smell, taste, and texture (how things feel):

- Cotton or dry mouth
- Metallic taste
- Things may smell differently or you may lose your sense of smell.



You may experience the following:

- Diarrhea
- Constipation
- Dehydration
- Vomiting