

Anticoagulant Agents		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Warfarin	Coumadin
	Clopidogrel	Plavix
Recommended by Cardiac Rehab Specialist	Aspirin, Effient	
Treatment	Thromboembolic Conditions 1. Myocardial infarction 2. Rheumatic heart disease 3. Cerebrovascular disease	
Mechanism	Heparin inactivates thrombin and therefore prevents conversion of fibrinogen to fibrin. Coumadin inhibits synthesis of the vitamin K-dependent clotting factors.	
Adaptation for Exercise Prescription	Does not seem to interfere with graded exercise testing.	

Anti-Anxiety Agents		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Diazepam	Valium
Recommended by Cardiac Rehab Specialist	Alprazolam	
Treatment	Prescribe anti-anxiety agent.	
Mechanism	Varies.	
Effect at Rest	Mild hypertension, no significant effects on hemodynamics or ECG finding, with exception of possible lowering of HR and BP.	
Effect During Exercise	No effect on exercise capacity.	

Anti-Lipidemic Agents		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Nicotinic Acid	Niaspan
	Gemfibrozil	Lopid
	Atorvastatin	Lipitor
	Fluvastatin	Lescol
	Lovastatin	Mevacor
	Pravastatin	Pravachol
	Simvastatin	Zocor
	Ezetimibe	Zetia
Recommended by Cardiac Rehab Specialist	Gestor	
Treatment	Reduction fo elevated serum lipids to reduce morbidity and mortality in atheroscleroses and coronary artery disease.	

Mechanism	To reduce serum or plasma cholesterol.
Effect at Rest	With some exceptions, these agents have no effect on HR, BP, or ECG.
Effect During Exercise	These agents would not affect exercise tolerance in any direct fashion and would not intervene with graded exercise testing.

Anti-Arrhythmic Agents		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Digoxin	Lanoxin
	Propranolol	Inderal
	Amiodarone	Cordarone, Pacerone
Recommended by Cardiac Rehab Specialist		
Treatment	To regulate cardiac rhythms.	
Mechanism	All anti-arrhythmics are used to normalize rhythm disturbances through diverse mechanisms. 1. Inderal: Produces beta-adrenergic receptor blockage.	
Effect at Rest	Reestablishes normal heart rhythm, which results in more efficient functioning, which results in reduced damage for oxygen; resting values can be varied.	
Effect During Exercise	By restoring a normal sinus rhythm, anti-arrhythmics improve exercise tolerance by allowing the heart to function more efficiently. Each of the classes of drugs will also modify the ECG.	
Adaptation for Exercise Prescription	Exercise test for purpose of exercise prescription need not be performed because these agents do not significantly affect HR, but it is recommended that these drugs be used at time of test due to their effect on cardiac rhythm.	

Beta-Blocking Agents		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Metoprolol	Lopressor
	Atenolol	Tenormin
Recommended by Cardiac Rehab Specialist	Toprol	
Treatment	Angina pectoris, hypertension, previous MI patients, arrhythmias, migraine headaches.	
Mechanism	Molecules of drug attach to beta-receptor sites of sympathetic nervous system throughout body, blocking catecholamines from attaching to sites. Some cardioselective agents act primarily on beta-2 receptors in the heart (relaxation of vascular and smooth muscle), whereas others have more agonist activity, stimulating rather than blocking receptors. (Beta-1 moderates cardiac stimulation.) Decreases heart's oxygen demands (myocardial oxygen consumption) and therefore workload by a slowing of the heart and decrease in contractility and blood pressure. May delay onset of the ischemic response.	
Effect at Rest	Decreased HR, BP, and arrhythmias; pindolol does not affect resting hemodynamics.	
Effect During Exercise	Increased exercise capacity in patients with angina, decreased exercise capacity in patients without angina, decreased exercise ischemia, decreased HR and BP; VO ₂ max not affected.	

Adaptation for Exercise Prescription	Addition or withdrawal of beta-blocker to the therapeutic regimen of a patient necessitates a new graded exercise test. Relationship between %VO ₂ R and %HRR is not altered; therefore, usual methods to calculate THR for exercise prescription are still acceptable. HRmax and training HR will be lower in persons receiving beta-blockers. Use HRmax with beta-blocker therapy.
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Broncodilators/Antihistamines		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Beclomethasone	Beclovent, Ovar
	Budesonide	Pulmicort
	Albuterol	Proventil, Ventolin
	Montelukast	Singulair
Recommended by Cardiac Rehab Specialist		
Treatment	Asthma, chronic obstructive pulmonary disease (COPD).	
Mechanism	Inhibit bronchial smooth-muscle constriction in patients with asthma or COPD.	
Effect at Rest	May increase HR; may produce arrhythmia; BP effect will vary.	
Effect During Exercise	May increase HR; may increase BP; may produce PVCs and dysrhythmias. Increases exercise capacity in patients limited by bronchospasms. Antihistamines: No effects on hemodynamic variables, the findings of resting or exercise ECG's, or exercise capacity.	

Calcium Channel Blockers		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Verapamil	Isoptin, Calan
	Diltiazem	Cardizem
Recommended by Cardiac Rehab Specialist		
Treatment	Angina pectoris, coronary artery spasm, arrhythmias, hypertension.	
Mechanism	Inhibits inward flow of calcium into cardiac and vascular smooth muscle, so calcium cannot pull troponin off actin to expose active site for crossbridge of myosin. Results in potent vasodilation, which increases coronary blood flow and supply and decreases slow-channel conductance of cardiac impulses. Affects strength of contraction.	
Effect at Rest	Decreased HR (except for nifedipine/Procardia) and decreased BP.	
Effect During Exercise	Same as rest; may increase exercise capacity. Normal ischemic response generally not blunted. Agents (except nifedipine) prolong the PR interval (delay the electrical conduction through the atrioventricular node in the heart), with few other ECG effects.	

Adaptation for Exercise Prescription	Addition or withdrawal of a calcium blocker to the therapeutic regimen of patient necessitates a new graded exercise test. Exercise prescription should be calculated by using data from an exercise test performed with the patient following the usual medicine regimen.
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Digitalis		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Digoxin	Lanoxin
Recommended by Cardiac Rehab Specialist		
Treatment	Congestive heart failure (CHF), atrial fibrillation, atrial flutter.	
Mechanism	Improves myocardial contraction by altering the calcium utilization of the myocardial cell.	
Effect at Rest	No significant change in HR, BP, or exercise capacity, except for a decrease in HR due to vagal effect.	
Effect During Exercise	May decrease HR; will improve exercise capacity only in patients with atrial fibrillation or chronic heart failure (CHF). May produce false-positive results on the ECG, or ST segment depression in patients without coronary artery disease or ischemia. Use should be stopped 10 to 14 days prior to exercise test if possible.	

Diuretics		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Furosemide	Lasix, Furoside
	Spironolactone	Aldactone
Recommended by Cardiac Rehab Specialist		
Treatment	Hypertension, edema (swelling-cardiac, renal, hepatic).	

Mechanism	Most diuretics alter renal function, resulting in increased excretion of electrolytes and fluid by the following means; 1. Benzothiazides inhibit reabsorption of sodium and chloride in the distal tubule. 2. Loop diuretics inhibit sodium and chloride reabsorption in the ascending loop of Henle. 3. Potassium-sparing diuretics are antagonist of aldosterone, or inhibit sodium reabsorption and potassium excretion.
Effect at Rest	No effect on HR; may decrease BP.
Effect During Exercise	May decrease BP; may affect CHF patient, may induce arrhythmias (PVCs due to hypokalemia), HR or exercise capacity is typically not affected; however, hypovolemia may result in decreases in cardiac output, renal perfusion, and blood pressure.
Adaptation for Exercise Prescription	Check for hypokalemic conditions in patients receiving diuretics. Hypotension possible in postexercise period caused by hypovolemia; avoid dehydration before and after exercise; increase cool-down period.

Nitrates		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Isosorbide Mononitrate	Isno, Imdur, Monoket
	Nitroglycerin	Nitro-bid, Nitrostat, Nitrolingual, Nitrogard, Nitrong, Nitro-Dur, Nitrol
Recommended by Cardiac Rehab Specialist		
Treatment	Angina pectoris (used with beta-blocker or calcium channel blocker to reduce workload).	
Mechanism	Nitrates relax the smooth muscle of blood vessels by a direct effect, causing vasodilation. Decreased venous return causes decreased preload; arterial dilation decreases vascular resistance and arterial blood pressure.	
Effect at Rest	Increased heart rate, decreased blood pressure, decreased workload and O ₂ consumption of heart.	
Effect During Exercise	Increased heart rate, decreased blood pressure, increased anginal threshold, increased exercise capacity, but decreased arterial pressure may result in hypotension.	
Adaptation for Exercise Prescription	Use of medication prior to reduce anginal occurrence. Longer for cool-down in postexercise period to reduce possibility of postural hypotension. Prescription involving target heart rate needs no alteration.	

Psychotropic Agents		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	(major tranquilizer)	
	phenothiazine	Thorazine, Mellaril
Recommended by Cardiac Rehab Specialist		
Treatment	Prescribe antipsychotic medications, major tranquilizers.	
Mechanism	Anticholinergic and direct myocardial depressant alpha-adrenergic blockade.	
Effect at Rest	May result in elevated HR, decreased BP, or orthostatic hypertension. The following ECG changes occur: increased PR and QT intervals (electrical conduction abnormalities), QRS widening, ST segment depression, blunting of T-wave.	
Effect During Exercise		
Adaptation for Exercise Prescription		

Sympatholytics (Drugs Interfering with SNS)		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Carvedilol	Coreg
Recommended by Cardiac Rehab Specialist		
Treatment	Treatment of hypertension.	
Mechanism	A variety of mechanisms exist, but all agents interfere with the effects of the SNS on the blood vessels or the heart by depleting or preventing the release of NE, reducing HR and contractility, decreasing activity of the SNS in the brain, or blocking alpha receptors in the vessels causing vasodilatation.	
Effect at Rest	May decrease resting HR, decreases resting BP. Reserpine may cause depression, fatigue, and decreased desire for exercise.	
Effect During Exercise	May decrease HR; decreases BP. No effect noted on ECG or exercise capacity.	
Adaptation for Exercise Prescription	Some medications may produce orthostatic hypotension, especially immediately after exercise. Gradual cool-down recommended.	

Tricyclic Antidepressants		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Imipramine, Amitriptyline	Tofranil, Elavil
	Desipramine	Norpramin
Recommended by Cardiac Rehab Specialist		
Treatment	Prescribe antidepressant.	
Mechanism	Block intake of NE in CNS.	
Effect at Rest	May have increased HR, lower BP, increased tendency for arrhythmias, orthostatic hypotension, inversion or flattening of T-wave, possible false-positive test results.	

Effect During Exercise	
Adaptation for Exercise Prescription	

Vasodilators		
Category	Medication Information	
Common Drugs	<i>Generic Name</i>	<i>Brand Name</i>
	Ramipril	Altace
Recommended by Cardiac Rehab Specialist	Lisinopril - Ace Inhibitors	
Treatment	Hypertension. CHF.	
Mechanism	Hydralazine and minoxidil act directly on vascular smooth muscle to cause relaxation and dilation. Captopril inhibits angiotensin-converting enzyme (ACE), which indirectly results in vasodilation (inhibits conversion of AI to vasoconstrictor AII). This vasodilation reduces blood pressure (decreases afterload). Results in decreased blood pressure and workload of the heart. Undesirable effects include increased HR and contractility, which impose a greater workload on the heart.	
Effect at Rest	Decrease in BP, possible increase in HR.	
Effect During Exercise	Reflex tachycardia, which may bring on anginal response. Postexercise hypotension may be	

	accentuated by any of these medications.
Adaptation for Exercise Prescription	Gradual cool-down for prevention of hypotension after exercise. Effects of medications on exercise prescription are related to their effects on HR. Exercise prescription should be based on exercise test results while medicated.

Other Agents	
Category	Medication Information
Alcohol	Depresses heart indirectly by acting within the CNS. Recent studies show chronic excessive use has a deleterious effect on the heart (may produce myocardial damage). Not a coronary vasodilator. Alcohol may prevent the sensation of anginal pain, probably due to central depressant effects. Alcohol will not suppress the ECG changes that occur with exercise testing in patients with coronary atherosclerosis, but it may suppress associated anginal pain.
Thyroid Medications	When used to correct thyroid abnormality, and maintain state of euthyroidism, no abnormal cardiovascular effects. Levothyroxine (Synthrox) - may produce elevations of HR and BP at rest and during exercise; cardiac arrhythmias, possible ischemia and angina.
Cold Remedies	Phenylpropanolamine, phenylephrine, pseudoephedrine These agents may transiently increase HR and BP
Nicotine	Ganglionic stimulant causing vasoconstriction, elevated blood pressure, and tachycardia, resulting in increased cardiac workload. Because of release of epinephrine and NE, resulting effects include increases in HR and SBP, DBP, and pulse pressures. Excessive use may cause premature systole, atrial tachycardia, decrease in amplitude and inversion of T-wave, or angina and myocardial ischemia, atrial or ventricular arrhythmias.