

Pharmacology Treatments (including Agents Available in the USA and the UK)

Medication Class and Name	Primary Effects	Exercise Effects	Important Considerations
β₂-agonist short- and long-acting bronchodilators <ul style="list-style-type: none"> • Salbutamol (albuterol), arformoterol, fenoterol, formoterol, indacaterol, levalbuterol, olodaterol, salmeterol, terbutaline, tulobuterol 	<ul style="list-style-type: none"> • Bronchodilation (selectively stimulate β₂ adrenoreceptors to relax airway smooth muscle) 	<ul style="list-style-type: none"> • May increase or have no effect on HR, ECG; may increase, decrease, or have no effect on BP; increases exercise capacity by limiting bronchospasm 	<ul style="list-style-type: none"> • May increase resting HR and produce cardiac dysrhythmias; may cause palpitations and tremulousness; may decrease potassium levels in the blood
Anticholinergic short- and long-acting bronchodilators <ul style="list-style-type: none"> • Aclidinium bromide, glycopyrronium bromide, ipratropium bromide, oxitropium bromide, tiotropium, umeclidinium 	<ul style="list-style-type: none"> • Bronchodilation (selectively inhibit muscarinic receptors to prevent or reduce bronchoconstriction) 	<ul style="list-style-type: none"> • May increase or have no effect on HR, ECG; no change in BP 	<ul style="list-style-type: none"> • May cause mouth dryness; may increase risk of cardiac events; may lead to acute glaucoma when administered using a face mask
Methylxanthine bronchodilators <ul style="list-style-type: none"> • Aminophylline, theophylline SR 	<ul style="list-style-type: none"> • Bronchodilation (non-selectively inhibit the phosphodiesterase enzymes) 	<ul style="list-style-type: none"> • May increase or have no effect on HR, ECG; no change in BP 	<ul style="list-style-type: none"> • May produce cardiac dysrhythmias; may increase risk of intentional or accidental overdose and seizures; may cause nausea, headaches, heartburn, and insomnia; may increase respiratory drive
Inhaled corticosteroids <ul style="list-style-type: none"> • Beclomethasone, budesonide, fluticasone 	<ul style="list-style-type: none"> • Anti-inflammatory 	<ul style="list-style-type: none"> • May increase exercise capacity when used in combination with long-acting bronchodilators 	<ul style="list-style-type: none"> • May cause oral candidiasis, skin bruises, and hoarseness; increases risk of pneumonia
Oral corticosteroids <ul style="list-style-type: none"> • Methyl prednisolone, prednisone 	<ul style="list-style-type: none"> • Anti-inflammatory (systemic) 	<ul style="list-style-type: none"> • May decrease muscle strength 	<ul style="list-style-type: none"> • May cause fragility, osteoporosis, and skin atrophy; may cause respiratory failure in very severe COPD patients
Thiazide and loop diuretics <ul style="list-style-type: none"> • Furosemide, hydrochlorothiazide 	<ul style="list-style-type: none"> • Diuresis (control right heart failure in COPD patients with cor pulmonale) 	<ul style="list-style-type: none"> • Decreases BP 	<ul style="list-style-type: none"> • May cause fragility, osteoporosis, and skin atrophy; may cause respiratory failure in very severe COPD patients

Phosphodiesterase-4 inhibitors <ul style="list-style-type: none">• Roflumilast	<ul style="list-style-type: none">• Anti-inflammatory	<ul style="list-style-type: none">• No effect on exercise capacity	<ul style="list-style-type: none">• Should be combined with one or more long-acting bronchodilators; should not be combined with theophylline; may cause nausea, decrease in appetite, abdominal pain, headaches, diarrhoea, and disturbed sleep
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