

Lipids can be classified as either ____ or ____ based on their source.

exogenous, endogenous

The primary function of triglycerides (TGs) is to ____ energy in ____ and muscle cells.

store, adipocytes

Cholesterol is a key component of cell membranes, ____ acids, and signaling ____.

bile, molecules

Exogenous sources of lipids include animal products like ____ and ____.

milk, butter



Vegetable sources of lipids include oils from ground nut, sunflower, and ____ seed.

cotton

The liver produces cholesterol from dietary sources and synthesizes it, with a daily output of ___ mg from bile and ___ mg from synthesis.

500, 250

Cholesterol is utilized in the liver for the production of ___ and is lost through bile at a rate of ___ mg per day.

bile salts, 500

The liver's cholesterol comes from dietary intake and synthesis, with a total daily production of ___ mg and loss through bile of ___ mg.

750, 500

In addition to dietary cholesterol, the liver synthesizes cholesterol, contributing to ___ mg per day, while also losing ___ mg through bile.

250, 500

Cholesterol in the liver is derived from dietary sources and synthesis, with contributions from ___ and losses to ___ mg per day.

extrahepatic tissues, bile



Lipids are primarily ___ and mostly ___ in blood, requiring transport within lipoproteins.

hydrophobic, insoluble

The metabolism of lipoprotein particles can occur via the ___ or ___ pathway.

exogenous, endogenous

Lipoproteins have a hydrophilic surface due to ___ and an inner ___ core.

apoproteins, lipid

The source of lipoproteins can be either dietary (___) or ___ (hepatic).

intestinal, liver

Lipoproteins are essential for transporting lipids because they are ___ and require ___ structures for transport.

hydrophobic, spherical



Hyperlipidemia is characterized by increased levels of ___ and ___ in the blood.

LDL, cholesterol

Familial hyperlipidemia is strongly correlated with ___ and ___ history.

family, medical

Secondary hyperlipidemia can be caused by conditions such as ___ and ___.

Diabetes mellitus, obesity

Increased levels of triglycerides and cholesterol may lead to ___ and ___ diseases.

atherosclerosis, coronary heart



YOUR BEST WAY

Chylomicrons transport ___ to cells from ___ in the digestive system.

TAG, enterocytes

To manage hyperlipidemia, one should focus on a diet that is low in _____ and _____ fat.

carbohydrate, saturated

The French paradox highlights low coronary heart disease rates despite high consumption of _____ and _____ fat.

dietary cholesterol, saturated

Non-drug therapies for hyperlipidemia include stopping _____ and reducing _____ to improve health.

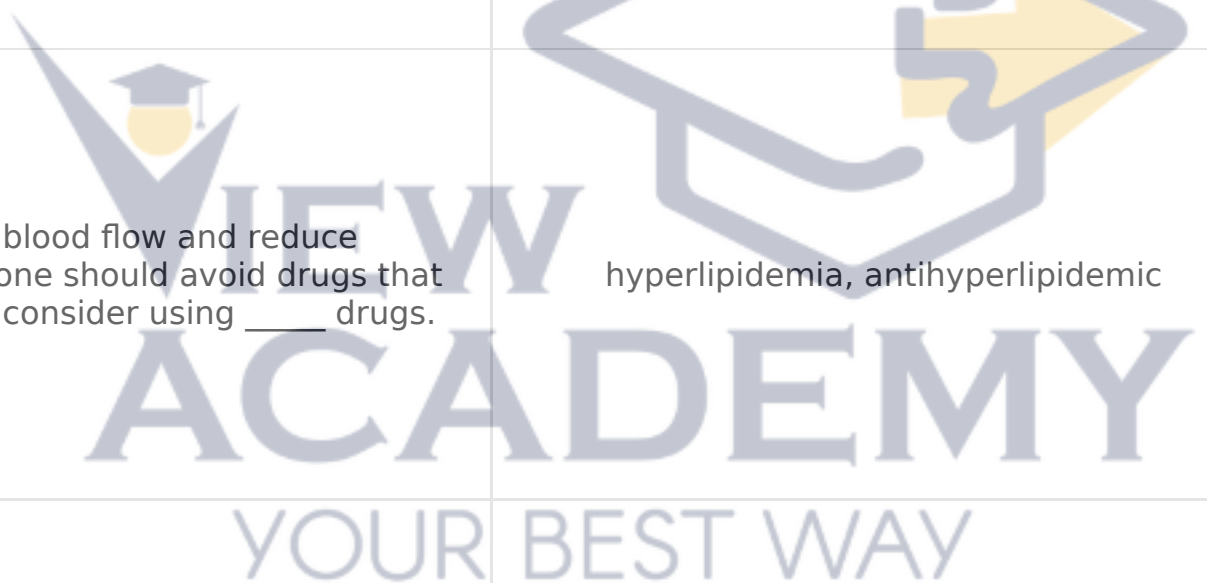
cigarette smoking, obesity

To improve blood flow and reduce atherosclerosis, one should avoid drugs that cause _____ and consider using _____ drugs.

hyperlipidemia, antihyperlipidemic

A diet high in _____ fat, such as olive oil, is recommended for managing atherosclerosis and improving heart health.

unsaturated



The primary class of drugs used to lower cholesterol by inhibiting HMG-CoA reductase includes ___ and ___.

lovastatin, atorvastatin

Two examples of bile-acid binding resins used in hyperlipoproteinemia treatment are ___ and ___.

cholestyramine, colestipole

Fibric acid derivatives that help manage lipid levels include ___ and ___.

clofibrate, gemfibrozil

In addition to statins, another type of medication that can be used for hyperlipoproteinemia is ___ and ___.

niacin, estrogens

Dietary and cholesterol absorption inhibitors include drugs like ___ and new medications that are being developed.

Ezetimibe, new drugs



Statins are known to inhibit the rate limiting step in cholesterol synthesis by blocking ____ and increasing ____ receptors in the liver.

HMG-CoA reductase, LDL

The use of statins leads to a decrease in LDL levels in the blood by approximately ____ percent, while HDL levels may increase by ____ percent.

40, 10

Members of the statin family include Simvastatin, Lovastatin, and ____; they primarily work by inhibiting ____ synthesis.

Pravastatin, cholesterol

In addition to lowering LDL, statins can also reduce triglycerides by about ____ percent and increase HDL by ____ percent.

25, 10

The mechanism of action for statins involves the conversion of HMG-CoA to L-Mevalonate, which is crucial for the production of ____ and ____ in the liver.

cholesterol, prenylated proteins



Statins can improve endothelial function and modulate ___ responses, but they may also cause ___ resistance.

inflammatory, insulin

The pleiotropic effects of statins include maintaining plaque stability and preventing ___ formation, along with improving ___ function.

thrombus, endothelial

Inhibition of HMG-CoA reductase leads to the production of ___ proteins, which can have both beneficial and harmful effects, including ___ and hyperglycemia.

prenylated, myopathy

Statins are known to prevent certain types of cancers, including esophageal and ___ carcinomas, while also providing cardiovascular benefits through ___ actions.

colorectal, pleiotropic

The double-edged sword of statin use includes cardiovascular benefits like improved endothelial function and risks such as ___ and insulin ___.

myopathy, resistance



Statins are primarily used for the treatment of ___ and the prevention of ___ diseases.

Familial hypercholesterolemia, coronary heart

The best time to take statins is in the ___ because cholesterol synthesis occurs after ___.

evening, midnight

Statins are known for their ability to reduce both ___ and ___ while increasing HDL.

LDL, TGs

One of the advantages of statins is their effectiveness in ___ protection and their role as hypolipidemic agents.

cardiac



VIEW
ACADEMY

YOUR BEST WAY

Statins are contraindicated during ___ and in cases of ___ failure.

pregnancy, hepatic

Statins have low oral bioavailability due to an extensive ___ effect at the intestinal and/or ___ level.

first pass, hepatic

Lovastatin and simvastatin are given as inactive ___ prodrugs, while all statins except ___ show highly active metabolites.

lactone, pravastatin

The active metabolites of statins are metabolized and then ___ excreted, with atorvastatin having the longest terminal ___ (11-14 hours).

renally, half-life

Pharmacokinetic interactions with statins are likely to occur, especially for those that are ___ substrates and have a high ___ effect.

CYP3A4, first pass

Most statins target the ___ organ, which is advantageous due to their low oral bioavailability and extensive ___ effect.

liver, first pass



Statins can lead to muscle pain and fatigue, known as ____, which may result in ____ if not addressed.

myopathy, renal failure

The combination of statins with ____ or ____ increases the risk of myopathy.

fibrates, niacin

One proposed mechanism for statin-induced myopathy is impaired protein ____, which affects muscle function and health.

prenylation

Statins are associated with a slightly increased risk of ____, ranging from 2% ____%.

diabetes, 17

If a patient continues taking statins despite symptoms, they may experience ____ and potentially ____ failure.

myoglobinuria, renal



Statins can cause ___ harm if taken during ___ and may lead to serious side effects.

fetal, pregnancy

Monitoring liver enzymes is crucial because statins can lead to ___ dysfunction if levels are ___ or more than normal.

hepatic, 5 folds

Combining statins with a fibrate increases the risk of ___ which can lead to ___ damage.

rhabdomyolysis, muscle

Consumption of grapefruit juice inhibits ___ which affects the metabolism of most ___ leading to increased levels.

CYP3A4, statins

Rare side effects of statins include ___ and ___ problems, which can affect daily functioning.

confusion, memory



Bile-acid binding resins like cholestyramine and colestipol are used to ___ bile acids and ___ cholesterol absorption.

bind, decrease

The mechanism of action for bile-acid resins involves binding bile acids in the ___ and increasing their ___ excretion.

intestine, fecal

The net loss of bile acids and cholesterol in stool leads to an increase in the number of ___ receptors and an increase in the activity of ___ reductase.

LDL, HMG-COA

Bile-acid resins are not absorbed due to their large size, which means they primarily act in the ___ and affect ___ recycling.

intestine, entero-hepatic

The use of bile-acid resins results in increased conversion of cholesterol to bile acids in the ___ and decreased absorption of ___ in the intestine.

liver, cholesterol



Bile acid binding resins can decrease LDL levels by ___ to ___ percent without affecting HDL levels.

20,30

The efficacy of bile acid resins is increased when combined with ___ inhibitors like statins.

HMG-CoA

Resins are used therapeutically to treat hypercholesterolemia and protect against ___ diseases.

CV

One of the therapeutic uses of resins is to treat diarrhea related to ___ or after bowel resection.

bile-acid



VIEW
ACADEMY

YOUR BEST WAY

Cholestyramine is effective in managing hyperthyroidism due to ___ and toxicity from drugs with high enterohepatic recycling.

thyroiditis

The powdered forms of acid binding resins include cholestyramine and colestipol, which come in packets of ___g and ___g respectively.

4, 5

Adverse effects of acid binding resins can include nausea, indigestion, and ___ discomfort, as well as ___.

abdominal, constipation

Patients typically take acid binding resins mixed with ___ or ___ before breakfast and supper.

water, juice

Fibrates, such as ___ and ___, primarily lower serum triglyceride levels by activating PPAR-alpha in the nucleus.

Gemfibrozil, bezafibrate

The major effect of fibrates is to lower serum triglyceride levels by ___ to ___ percent.

35, 50



Fibrates increase the activity of lipoprotein lipase in fat cells, leading to increased ____ of triglyceride and decreased ____ synthesis.

lipolysis, VLDL

In clinical trials, gemfibrozil reduced the incidence of myocardial infarction by ____ percent in patients with ____.

34, hyperlipidemia

Fibrates can lead to a moderate elevation of HDL by ____ to ____ percent while affecting LDL levels variably.

15, 25

Adverse effects of fibrates may include ____ syndrome with severe muscle cramps, tenderness, and ____.

myopathy, weakness

Common gastrointestinal disturbances associated with fibrates include ____, rash, and ____.

GIT, headache



Fibrates are used to treat familial hypertriglyceridemia to prevent ___ complications and ___.

cardiovascular, pancreatitis

Precautions for using fibrates include avoiding statins due to increased risk of ____, and a history of ___ gall stones.

rhabdomyolysis, cholesterol

Fibrates should be avoided in patients with ___ failure and ___ failure.

hepatic, renal

Niacin is a water soluble vitamin B3 complex needed in doses of ___ to ___ mg per day.

11, 12

The mechanism of action of Niacin includes inhibiting VLDL secretion and decreasing production of ___ by ___%.

LDL, 20-35



Niacin increases the clearance of VLDL via the lipoprotein lipase, contributing to a reduction of ___ by ___%.

triglycerides, 35

Niacin decreases Lipoprotein a, which is implicated in the pathogenesis of ___ diseases.

fatal CVS

The catabolic rate for HDL is decreased by Niacin, leading to an increase in HDL by ___ to ___%.

35, 40

Niacin can cause ___ and ___ when given in high doses due to prostaglandin mediation.

flushing, itching

To prevent flushing from Niacin, one should start with a ___ dose and consider taking ___ before each dose.

low, NSAIDs



Niacin may lead to ___ toxicity and can cause ___ resistance in patients.

hepatic, insulin

Elevated uric acid levels from Niacin can precipitate ___ attacks and may lead to ___ in elderly patients.

gouty, atrial arrhythmias

Pregnant women should avoid Niacin as it can cause ___ defects in animals and may lead to ___ complications.

birth, serious

Ezetimibe is often used with ___ to enhance its effects, leading to a decrease in LDL-cholesterol by ___ and ___ percent.

statins, 25, 40

The active metabolite of Ezetimibe is primarily metabolized in the ___ and ___ before being excreted.

liver, small intestine



Ezetimibe has a long half-life of ____ hours due to entero-hepatic recycling, allowing it to be taken ____ daily.

22, once

Common adverse effects of Ezetimibe include ____, ____, and ____ reactions.

headache, diarrhea, hypersensitivity

Ezetimibe is used to treat primary ____ and ____, helping to manage cholesterol levels.

hypercholesterolemia, atherosclerosis

The process of transporting cholesterol from the liver to target cells involves the uptake of ____ and the distribution of ____.

esters, cholesterol

In the exogenous pathway, dietary lipids are processed by ____ and transported via ____ to the liver.

chylomicrons, lymphatics

