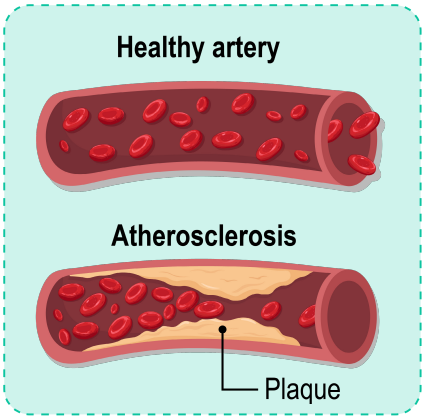
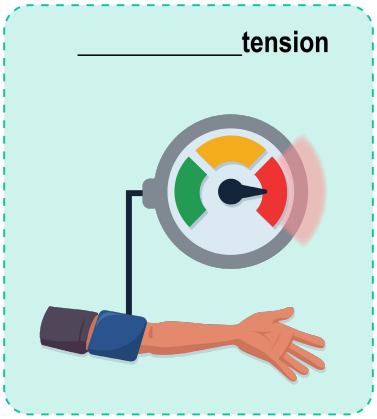
TOPIC: CARDIOVASCULAR DISEASE

Introduction to Cardiovascular Disease

- **Cardiovascular Disease (CVD):** any *abnormal* condition involving _____ & *blood vessel* dysfunction.
  - Includes coronary heart/artery disease, stroke, & heart failure (CVD accounts >30% of deaths in USA).
- CVD often develops as a result of two major risk conditions:
  - **Atherosclerosis:** build-up of fatty _____ that narrow & harden arteries, impairing blood flow.
  - **Hypertension (HTN):** consistently _____ blood pressure that increases risk of health problems.





Risk Factors for CVD
Obesity
Smoking
Unhealthy diet
Excess alcohol consumption
Age/genetics/stress

PRACTICE

Heart disease is currently the most common cause of death worldwide. How can people reduce the risk of heart disease?

a) Completely eliminate trans fats from their diet.

b) Excercise frequently.

c) Avoid smoking tobacco products.

d) All of the above.

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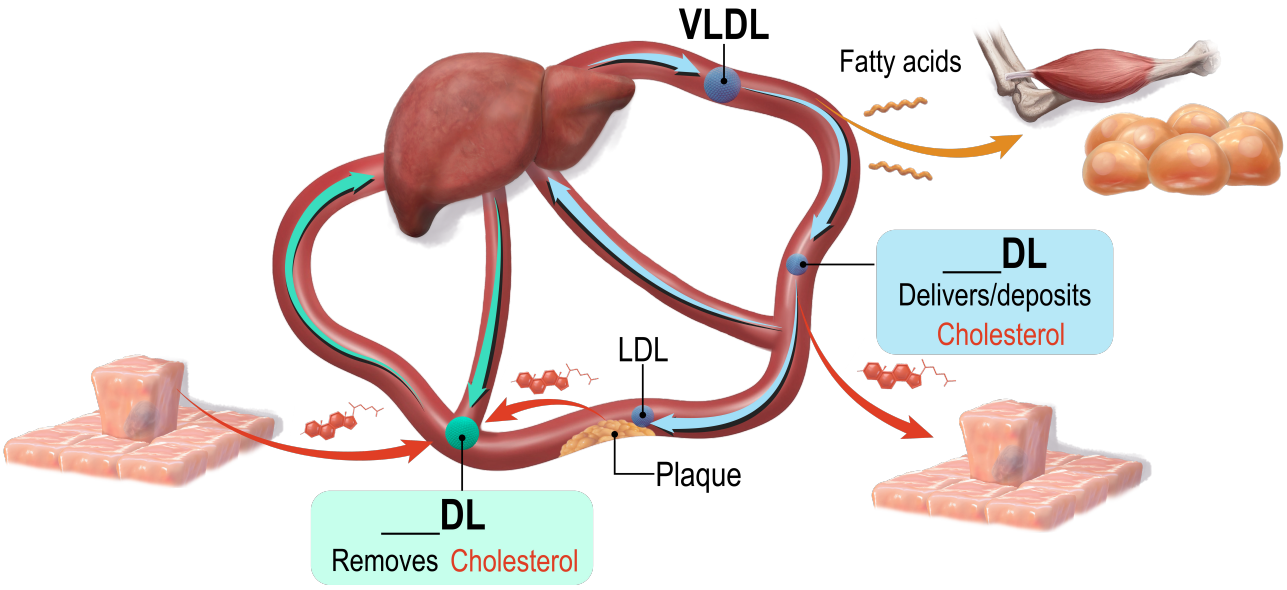
Abnormal Levels of Blood Lipids Contribute to

- The _____ produces several lipid-carrying lipoproteins, named based on protein content:
  - **V**ery-**L**ow-**D**ensity **L**ipoprotein (**VLDL**): delivers liver-produced lipids to our tissues, then develops into LDL.
  - ___ow-**D**ensity **L**ipoprotein (___**DL**): delivers cholesterol to cells & deposits it in blood vessels (___*ousy*).
  - ___igh-**D**ensity **L**ipoprotein (___**DL**): helps *remove* excess cholesterol from our tissues (___*ealthy*).
- Too _____ VLDL/LDL and/or too _____ HDL are risk factors for cardiovascular disease.



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EXAMPLE

Fill in all of the blanks throughout the table to review the blood lipids:

Blood Lipid	Primary Function	Health Implications & Notes
Chylomicron	_____ *dietary* fats from small intestine to cells.	Enters lymphatic system before bloodstream. Not linked to CVD.
VLDL (Very Low-Density Lipoprotein)	Delivers liver-produced fat to cells.	Converts into LDL after triglycerides are delivered.
LDL (Low-Density Lipoprotein)	Transports cholesterol to cells & may deposit it in arteries (forms plaques).	Known as _____ cholesterol. High LDL = _____ CVD risk.
HDL (High-Density Lipoprotein)	_____ excess cholesterol from cells & transports it to liver for excretion.	Known as _____ cholesterol. High HDL = _____ CVD risk.
Cholesterol	Component of cell membranes & precursor to hormones, bile, vitamin D.	_____ essential in the diet.

PRACTICE

Which of the following answers explains how atherosclerosis develops?

a) Over time, VLDLs cause plaque buildup on blood vessel walls, reducing the width of the vessel.

b) Over time, LDLs cause plaque buildup on blood vessel walls, reducing the width of the vessel.

c) Over time, HDLs are deposited on blood vessel walls, reducing the width of the vessel.

d) All of the above.

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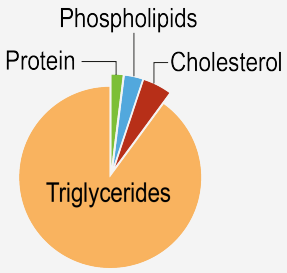
PRACTICE

Which of the following pie charts corresponds best with HDL?

a)



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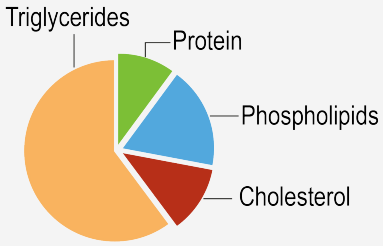

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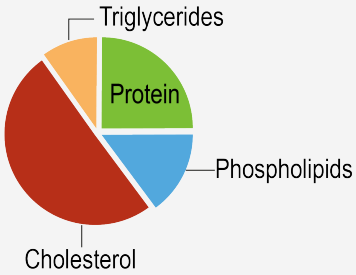

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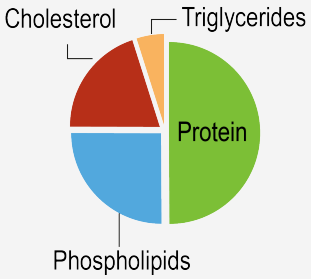

PRACTICE

Which of the following statements regarding lipoproteins & CVD is true?

a) Increased HDL levels & decreased LDL levels are both risk factors for CVD.

b) VLDLs can directly cause CVD when they are deposited on blood vessel walls.

c) VLDLs can indirectly cause CVD, because they develop into LDLs which could then deposit cholesterol on blood vessels walls, causing them to narrow.

d) While scientists believe there is a link between lipoprotein levels & associated risk of heart disease, there is still not enough conclusive evidence.

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PRACTICE

John recently had his blood cholesterol levels checked. His total cholesterol was 225 mg/dL, his LDL cholesterol was 155 mg/dL, and his HDL cholesterol was 35 mg/dL. Based on the cholesterol classification table below, which of the following statements most accurately describes John's cholesterol status?

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a) John's total cholesterol is considered fabulous, but his LDL and HDL levels are borderline high.

b) John's LDL cholesterol is too high, but his HDL is in good range, so his overall cholesterol health is balanced.

c) John's total cholesterol & LDL cholesterol are borderline high while his HDL cholesterol is too low, indicating a higher risk for cardiovascular disease.

d) John's HDL cholesterol is good, which compensates for his slightly elevated LDL, so he's at low risk for CVD.

If Your Total Cholesterol Level Is:	Then You Are:
<200 mg/dL	Heart-healthy!
200-239 mg/dL	Borderline CVD risk
>240 mg/dL	High CVD risk
If Your LDL Cholesterol Level Is:	**Then You Are:**
<130 mg/dL	Heart-healthy!
130-160 mg/dL	Borderline CVD risk
>160 mg/dL	High CVD risk
If Your HDL Cholesterol Level Is:	**Then You Are:**
>60 mg/dL	Heart-healthy!
40-60 mg/dL	Borderline CVD risk
<40 mg/dL	High CVD risk