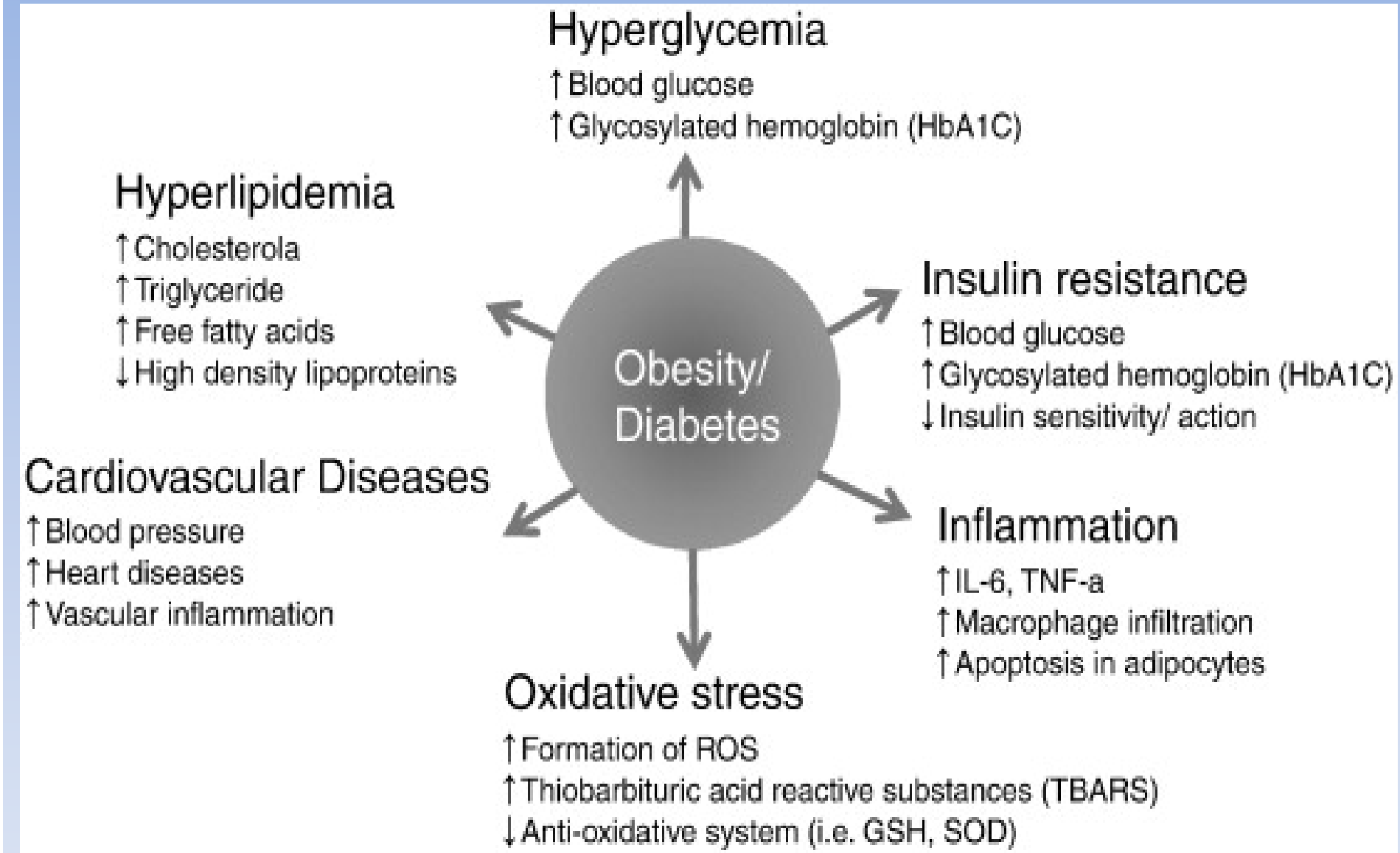
DIABETES- DYSLIPIDEMIA

Why Diabetes / Hyperlipidemia ?

Prof.Dr.Nuray ARI, 2018



https://www.sciencedirect.com/science/article/pii/S0963996911002250

Dyslipidemia in Diabetes

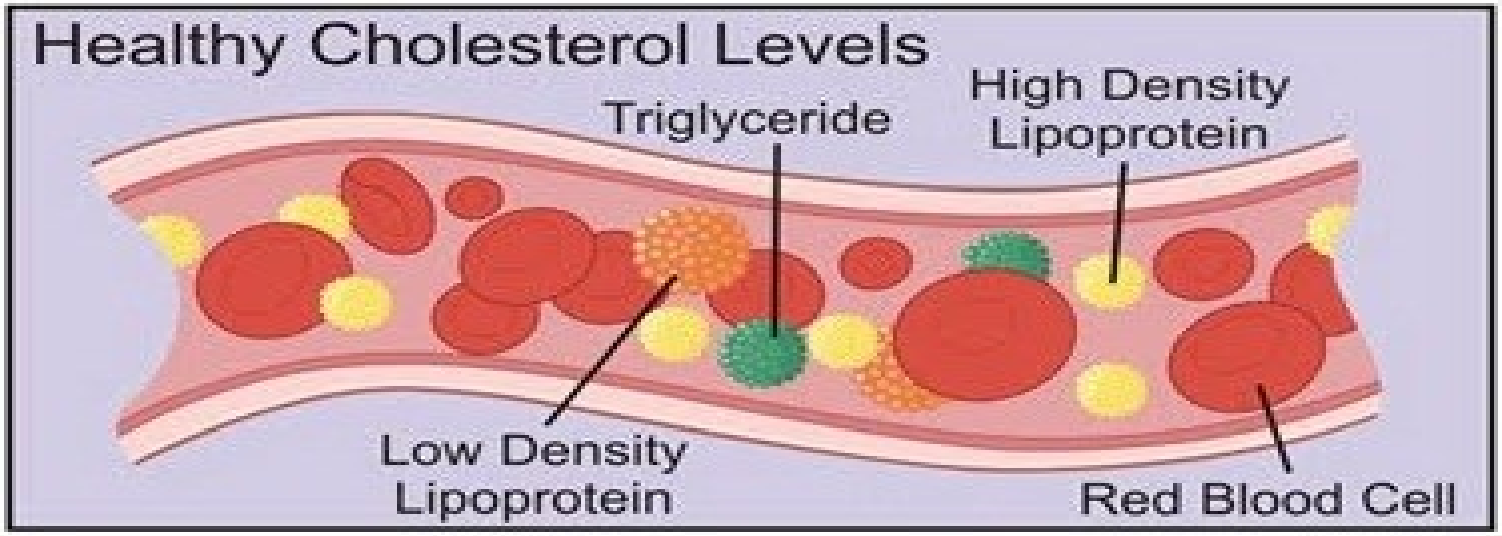
Increased

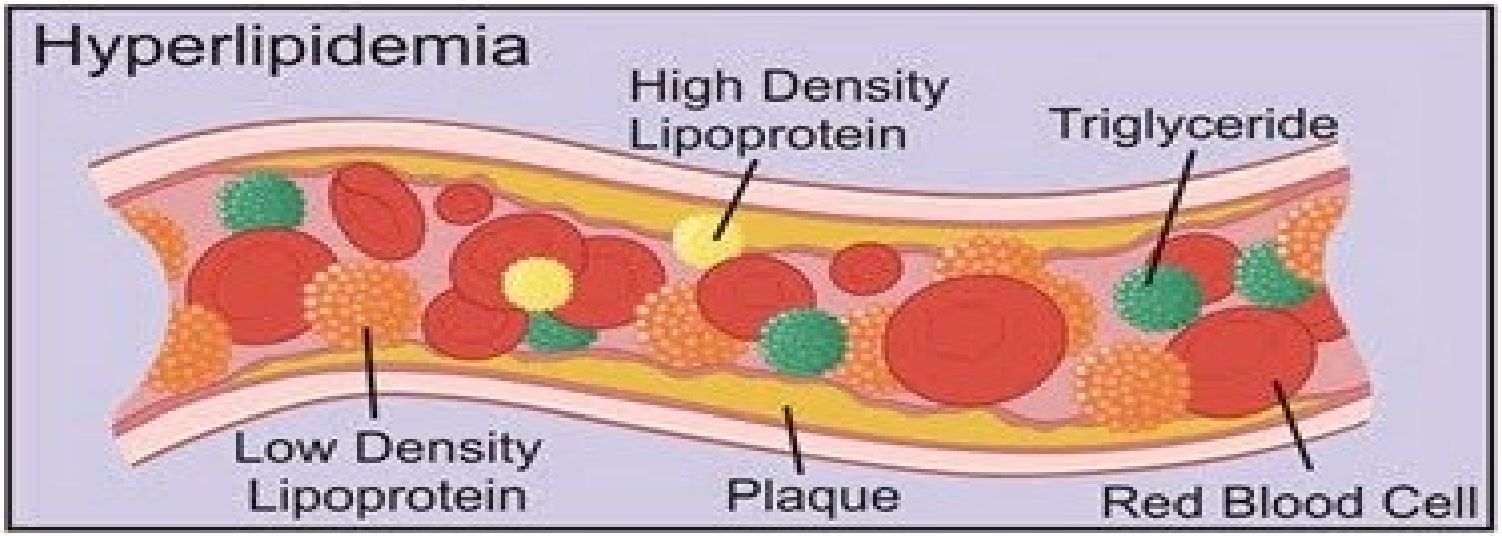
- Triglycerides
- VLDL
- LDL and small dense LDL
- Apo B

Decreased

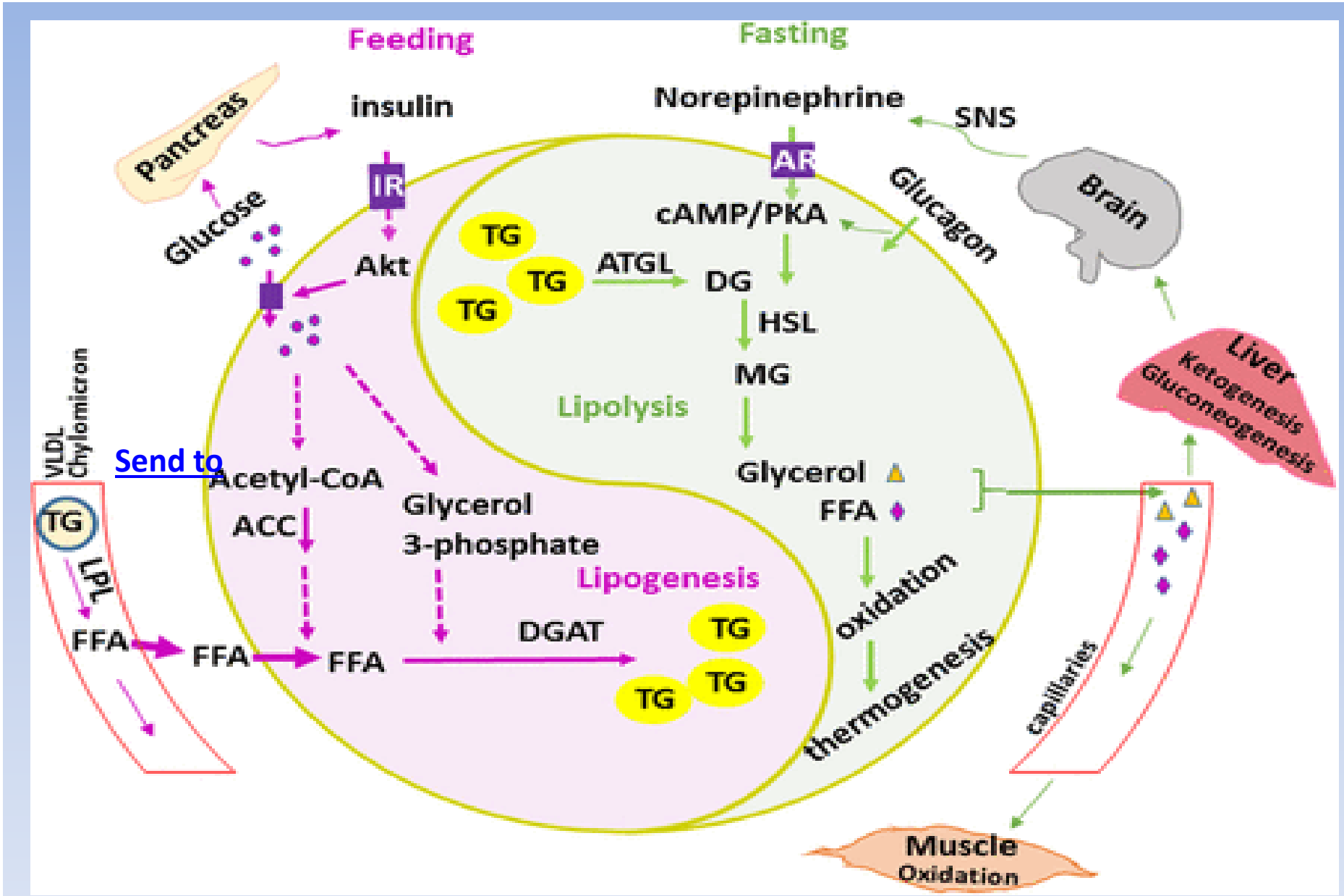
- HDL
- Apo A-I

https://www.medscape.org/viewarticle/586792



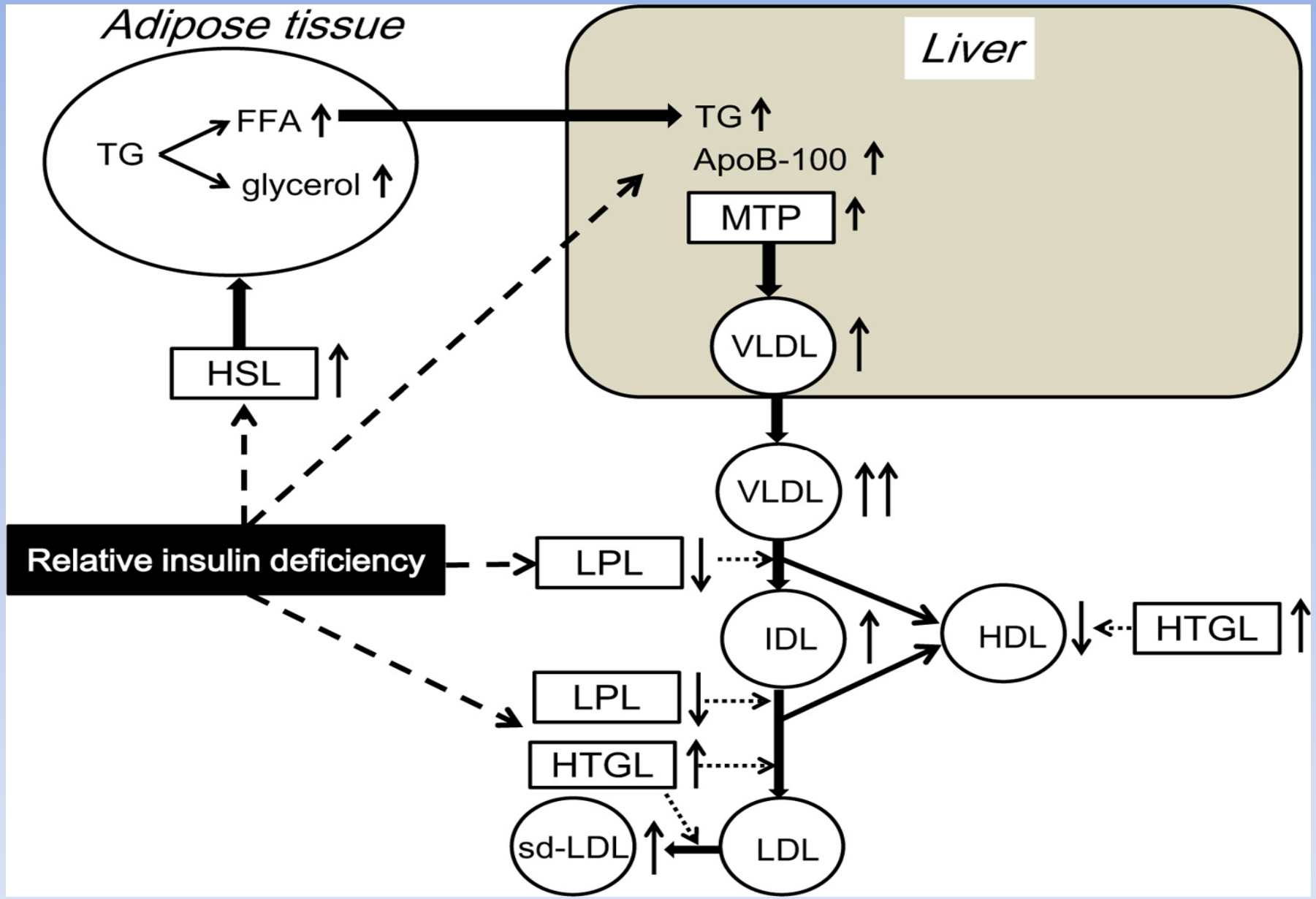


http://www.diabetestreatmentguide.org/5-most-common-symptoms-of-hyperlipidemia-and-diabetes/



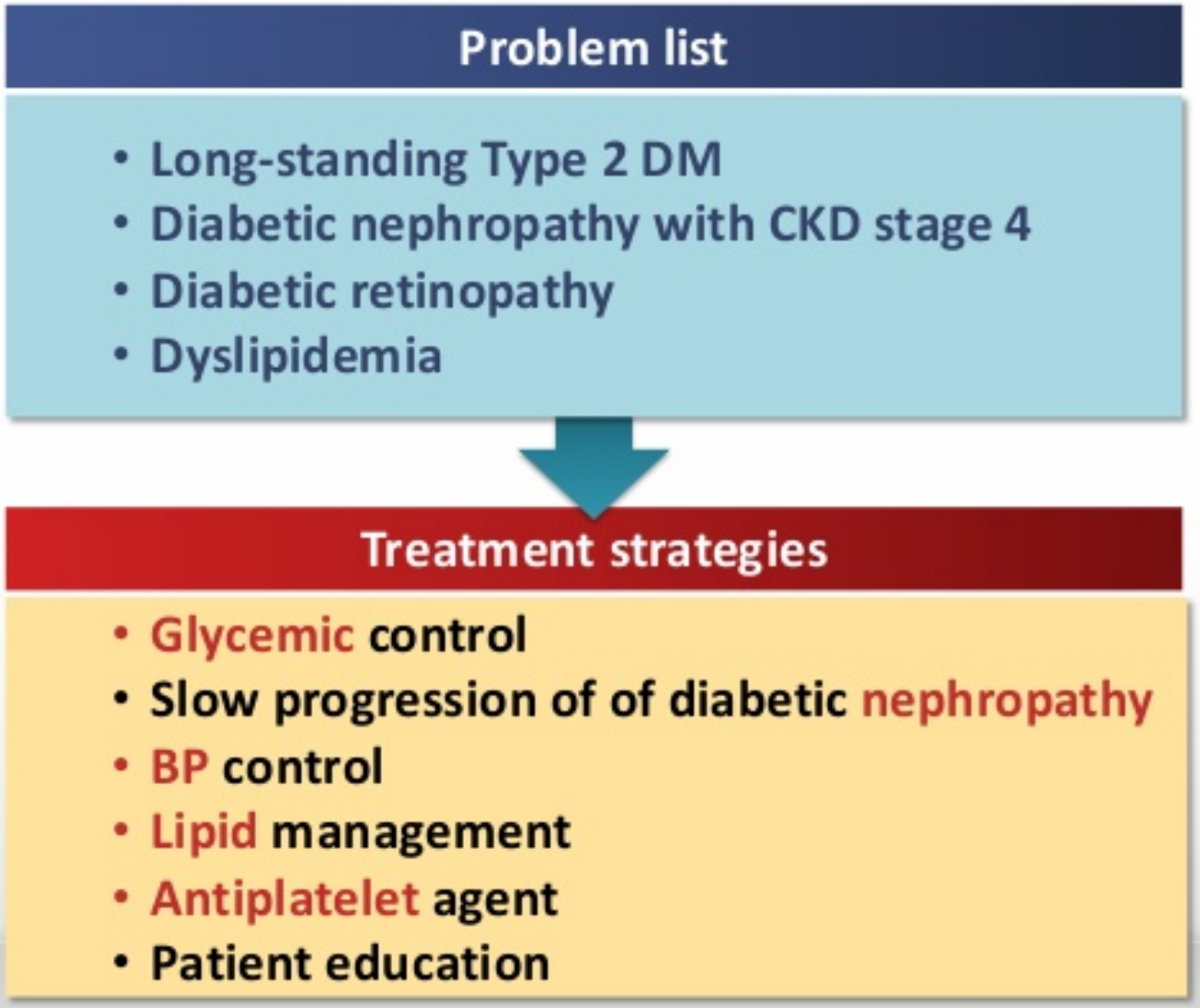
Lipid metabolism and mobilization controlled by adipose tissue.

J Endocrinol. 2016 231(3):R77-R99. ***Adipose tissue in control of metabolism.*** *Luo L, Liu M.*



Diabetes / Adipose tissue. J Clin Med Res 8(5): 424-426, 2016

Formulating a Management Plan of Diabetes



https://www.slideshare.net/satanicala/diabetes-mellitus-and-hyperlipidemia-18925439

Table 3

Drugs for Managing Hyperlipidemia

Type of Drug	Mechanism of Action	Major Effects	Example(s)	Adverse Reactions
HMG CoA reductase inhibitors (statins)	Inhibits cholesterol synthesis in hepatic cells, resulting in upregulation of hepatic LDL receptors	Lowers LDL-C and triglycerides, raises HDL-C	Atorvastatin, fluvastatin, lovastatin, pravastatin, simvastatin, rosuvastatin	Raised hepatic enzymes, raised CPK, myopathy (possibly progressing to rhabdomyolysis)
Bile acid–binding resins	Binds intestinal bile acids interrupting enterohepatic re-circulation, which in turn results in LDL receptor upregulation	Lowers LDL-C, raises triglycerides	Cholestyramine, colestipol, colesevelam	Limited to GI tract: gas, bloating, constipation, cramps
Fibric acid derivatives	Probably inhibits hepatic synthesis of VLDL	Mainly lowers triglycerides and raises HDL-C, with less effect on LDL-C	Fenofibrate, gemfibrozil	Dyspepsia, constipation, myositis, anemia
Nicotinic acid (extended release)	Upregulates hepatic LDL receptors	Lowers triglycerides and LDL-C	Niacin	Flushing, hepatic toxicity
Cholesterol absorption inhibitors	Inhibits intestinal absorption of cholesterol and plant sterols	Lowers LDL-C	Ezetimibe	Myopathy, GI upset

HMG CoA: 3-hydroxy-3-methylglutaryl coenzyme A; LDL-C: low-density lipoprotein cholesterol; HDL-C: high-density lipoprotein cholesterol; CPK: creatine phosphokinase; GI: gastrointestinal; VLDL: very low-density lipoprotein. Source: Reference 3.

https://www.uspharmacist.com/article/high-cholesterol-in-childhood

TABLE 2: PREVIOUS TARGET CHOLESTROL LEVELS IN HYPERLIPIDEMIA

Type of Cholesterol	Target Level
Total	<200 mg/dL
Low-density lipoprotein	<70 mg/dL for those with heart disease <100 mg/dL for those at risk for heart disease 100-129 mg/dL (considered ideal)
High-density lipoprotein	>40 mg/dL for men, >50 mg/dL for women ≥60 mg/dL (considered ideal)

Adapted from reference 5.

Zanni G.R. , Pharmacy Times, 2014

TABLE 3: CURRENT PATIENT GROUPINGS FOR HYPERLIPIDEMIA PREVENTION WITH STATINS

Patient Group Characteristics	Target Reduction of LDL	Recommended Statin Therapy
Atherosclerotic cardiovascular disease	By ≥50%	High intensity
LDL cholesterol ≥190 mg/dL	By ≥50%	High intensity
Age 40–75, diabetes, LDL cholesterol 70–189 mg/dL	By 30%-49%	Moderate intensity
No atherosclerotic cardiovascular disease or diabetes, 10-year risk for cardiovascular disease ≥7.5%, LDL cholesterol 70–189 mg/dL	By 30%-50%	Moderate to high intensity

LDL = low-density lipoprotein.

Adapted from reference 6.

Zanni G.R. , Pharmacy Times, 2014

TABLE 4: INTENSITY OF STATIN THERAPY

Intensity	Target Reduction of LDL	Drug Dosing
High	By ≥50%	Atorvastatin (40)-80 mg Rosuvastatin 20 (40) mg
Moderate	By 30%–50%	Atorvastatin 10 (20) mg Rosuvastatin (5) 10 mg Simvastatin 20-40 mg Pravastatin 40 (80) mg Lovastatin 40 mg Fluvastatin XL 80 mg Fluvastatin 40 mg twice daily Pitavastatin 2-4 mg
Low	By <30%	Simvastatin 10 mg Pravastatin 10-20 mg Lovastatin 20 mg Fluvastatin 20-40 mg Pitavastatin 1 mg

LDL = low-density lipoprotein.
Adapted from reference 6.

Zanni G.R. , Pharmacy Times, 2014