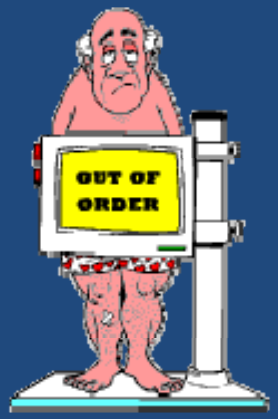
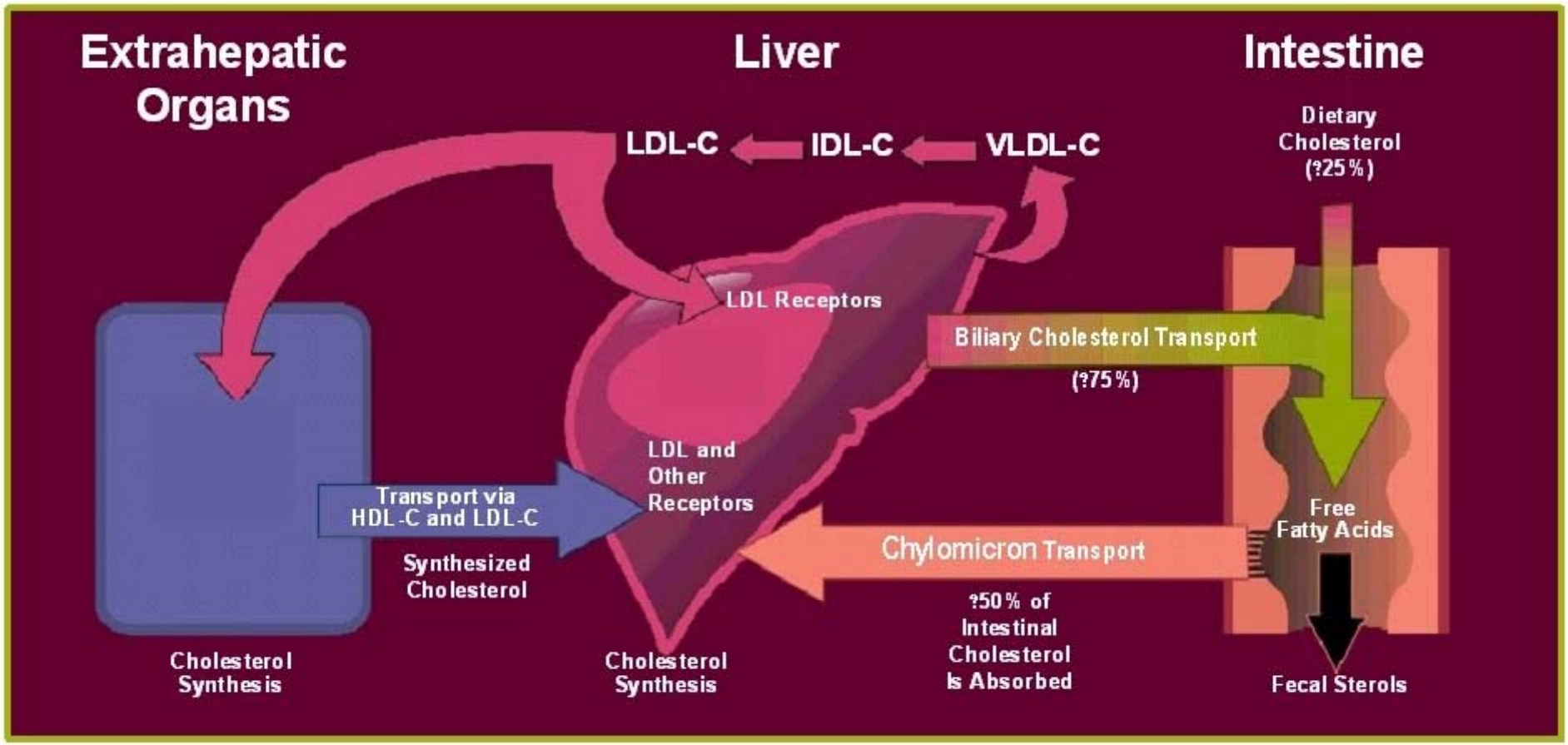
Exercise and Dyslipidemia




Extrahepatic Organs
Liver
Intestine
LDL-C
IDL-C
VLDL-C
Dietary Cholesterol (?25%)
LDL Receptors
Biliary Cholesterol Transport
(?75%)
LDL and Other Receptors
Transport via HDL-C and LDL-C
Synthesized Cholesterol
Free Fatty Acids
Chylomicron Transport
?50% of Intestinal Cholesterol Is Absorbed
Cholesterol Synthesis
Cholesterol Synthesis
Fecal Sterols

Classification of Serum lipids

Total cholesteral (mg/dl), (mmol/L)	Category
< 200 (< 5.2)	Normal
200-239 (5.2-6.1)	Borderline high
≥ 240(≥ 6.2)	High
LDL (mg/dl), (mmol/L)	**Category**
< 100 (< 2.6)	Normal
100-129 (2.6-3.3)	Above, near normal
130-159 (3.4-4.0)	Borderline high
160-189(4.1-4.8)	High
≥ 190(≥ 4.9)	Very high

HDL (mg/dl), (mmol/L)	Category
< 40 (< 1.0)	Low
≥ 60 (≥ 1.6)	High
Triglycerides (mg/dl), (mmol/L)	**Category**
< 150 (< 1.7)	Normal
150-199 (1.7-2.2)	Borderline high
200-499 (2.3-5.6)	High
≥ 500 (≥ 5.6)	Very high

Lipid Goal for patients at risk for CAD

	mg/dl
Total cholesteral	< 200
LDL - C	< 100 , < 70 (very high risk)
HDL - C	At least > 40 both men & women
Triglyceride	< 150

Treatment recommendation

1. **Life style change :**
   physical activity, medical nutrition therapy, risk factor modification
2. **Pharmacotherapy**

Benefits of exercise

- **Regular exercise may reduce LDL-C, triglyceride, increase HDL-C**

Exercise threshold

- Exercise **volume** is more important than exercise intensity
- Threshold : caloric expenditure **> 1000 kcal/week**
- Moderate dose-response relationship

AACE Recommendation 2012

Aerobic exercise

- At least 30 minutes of moderate intensity (4-7 kcal/min), 4-6 times weekly, expenditure of at least **200 kcal/day**
- Type: brisk walking, riding, a stationary bike, water aerobics, cleaning, scrubbing, mowing the lawn, sport activities
- Weight loss or weight maintenance

  ≥ 60-90 minutes / day

- Bouts of activity : 10 minutes minimum, multiple sessions
- Muscle strengthening activity : at least 2 days a week


HELP!