



# ESPEN Congress Glasgow 2002

**The Impact of Obesity on Clinical Practice: Is  
there any Progress?**

**Current Insights into the Metabolic  
Changes in Obesity**

***Peter G. Kopelman***

# **Current insights into the metabolic changes in Obesity**

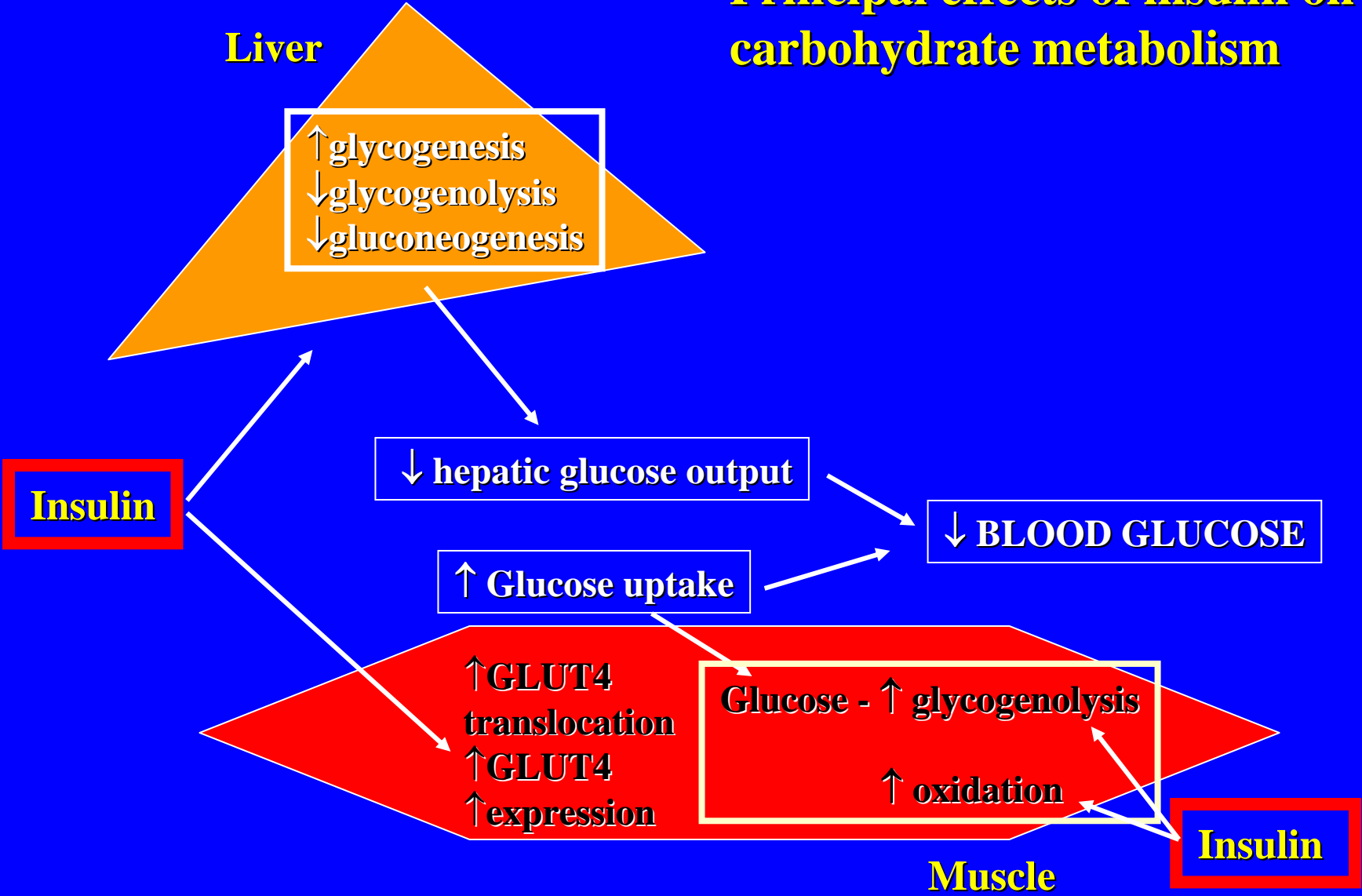
**Professor Peter Kopelman**

**Barts & The London**

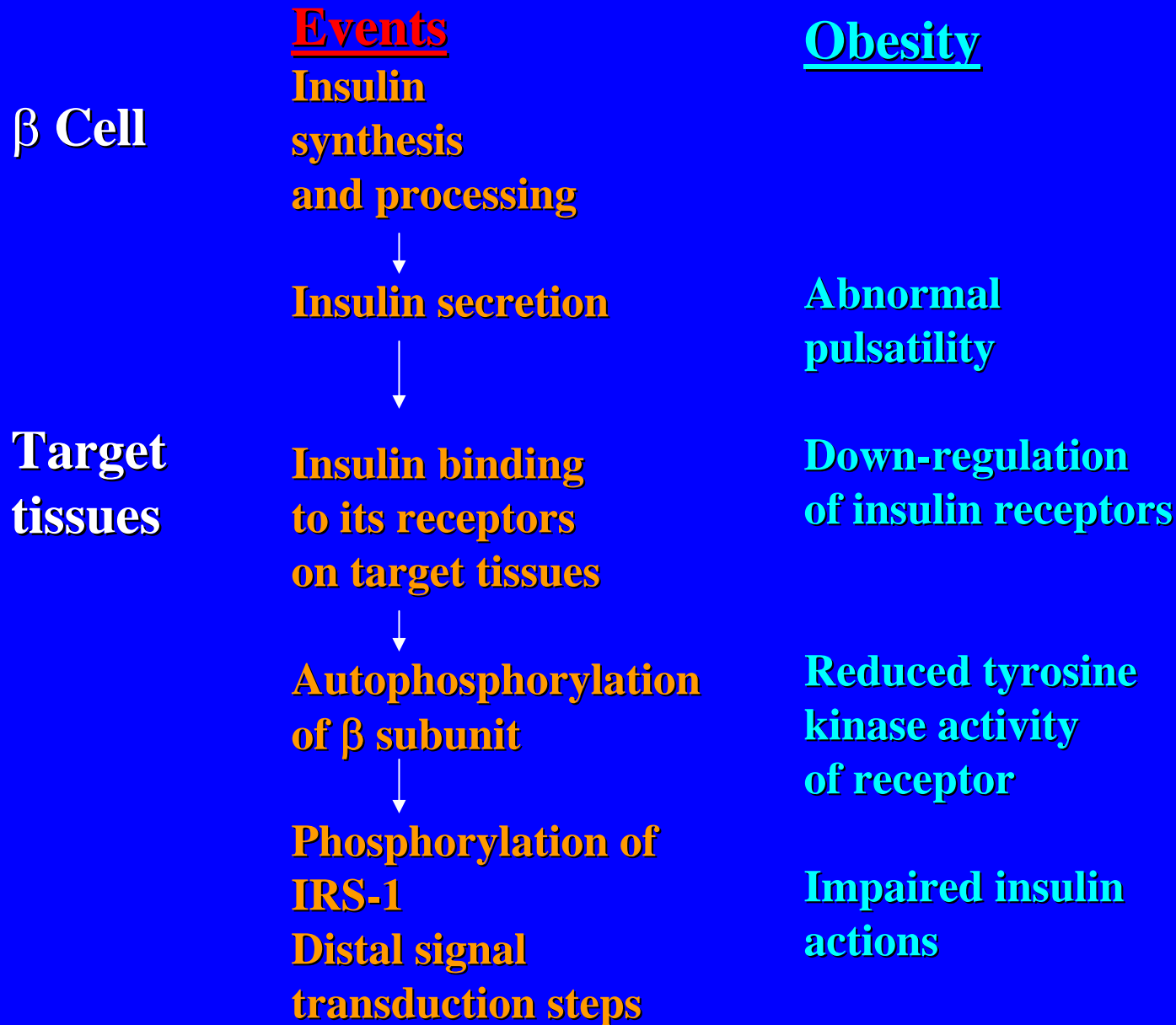
**Queen Mary's School of Medicine & Dentistry,  
University of London**

**Insulin resistance - metabolic syndrome - visceral adipose tissue**

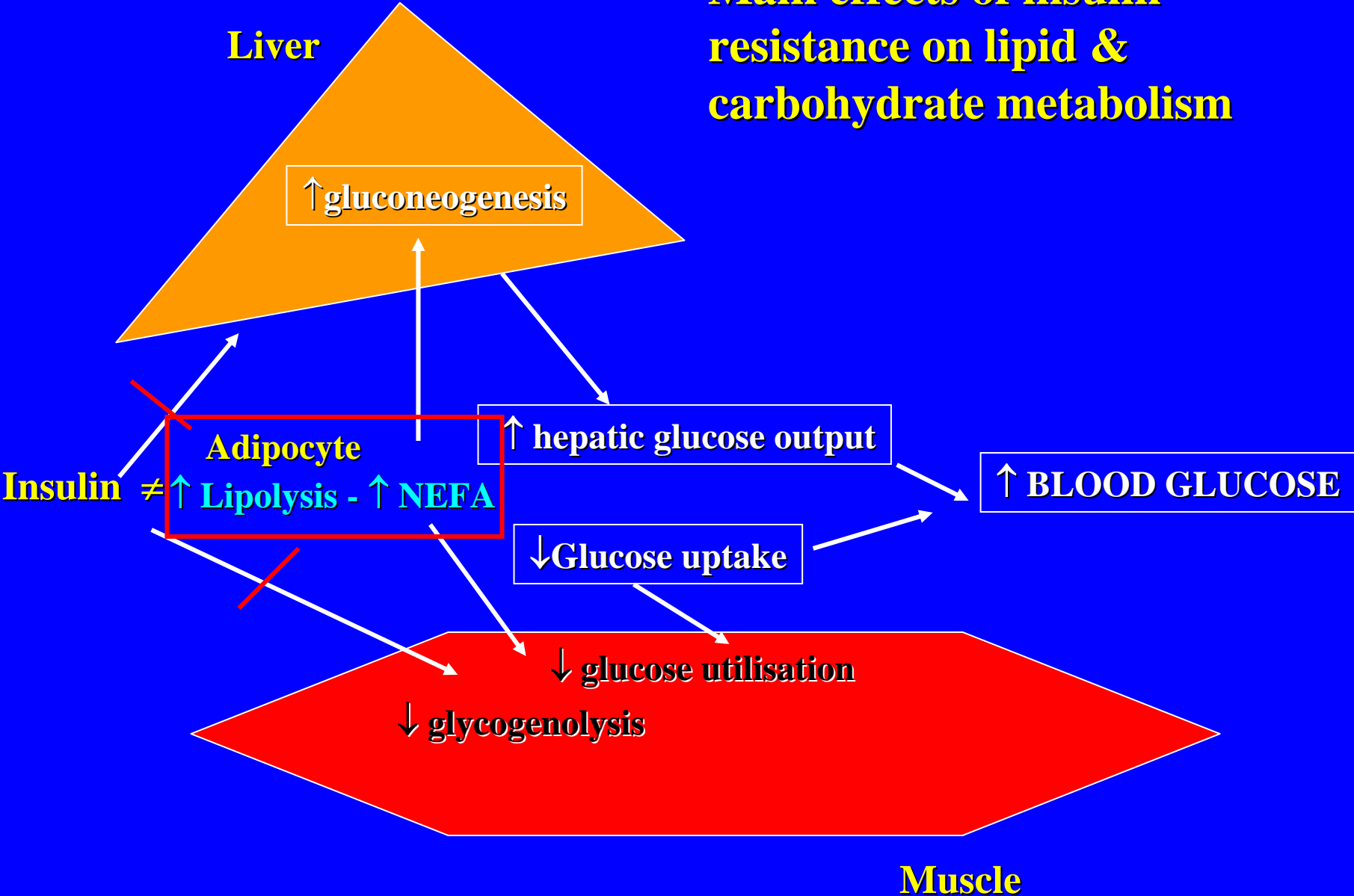
# Principal effects of insulin on carbohydrate metabolism

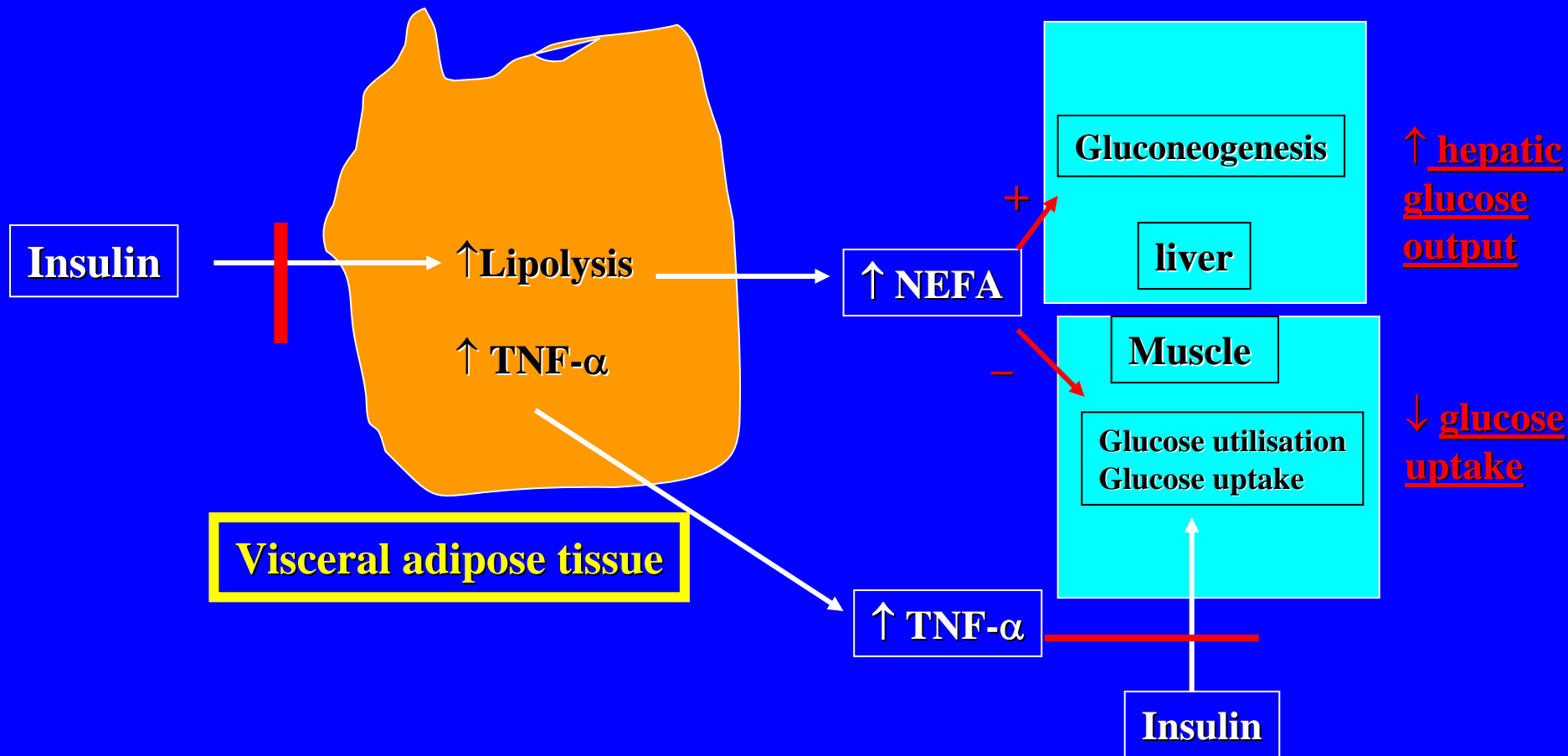


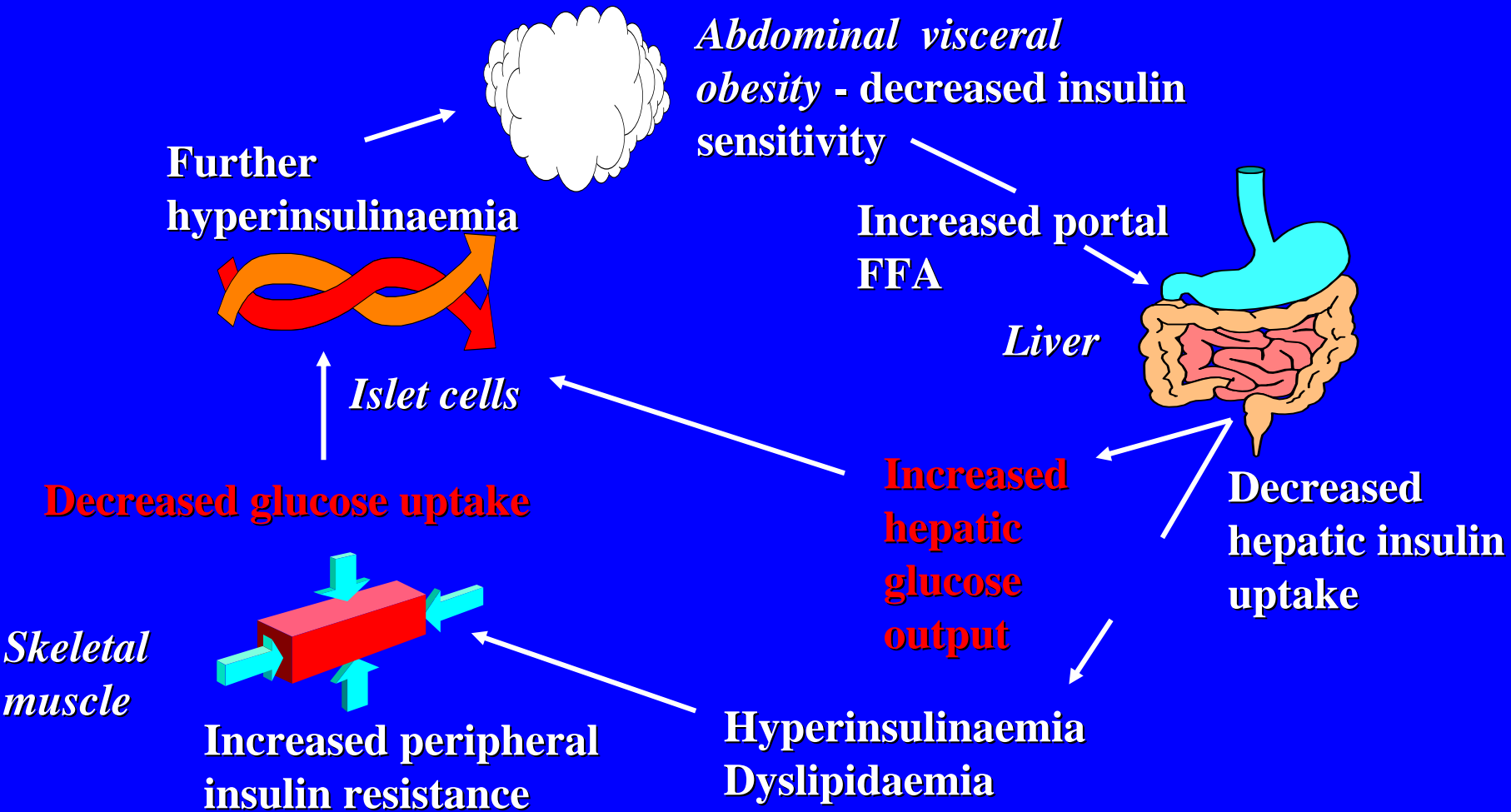
# Key Steps in insulin secretion and action



# Main effects of insulin resistance on lipid & carbohydrate metabolism







# Diagnosis of the Metabolic Syndrome – investigations

## Lipid profile:

↑ ↑ triglycerides

↑ Cholesterol

↓ HDL cholesterol

↑ Small dense LDL

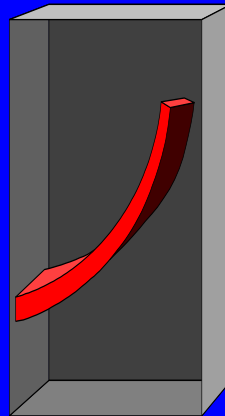
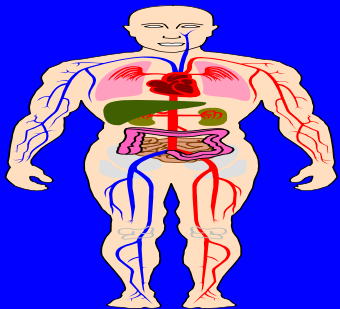
## Liver function tests:

↑ ALT

↑ AST

↑ GGT

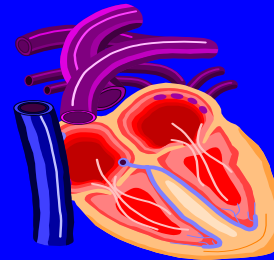
Normal Alk Phos



**Increased total  
blood volume**



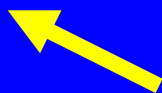
**Increased pre-load = LV dilatation  
Increased after load  
= LV eccentric hypertrophy**



**Increased stroke volume  
& cardiac  
output**



**Increase in systemic  
vascular resistance  
Increase in BP =  
LV concentric hypertrophy**



**Increase in lean  
&  
fat mass, surface  
area - increase in  
total body O<sub>2</sub>  
consumption**

## Summary: clinical problems caused by obesity

- ❑ Increased adipocyte mass and insulin resistance result in the metabolic syndrome & associated diseases
- ❑ Early weight reduction will result in alleviation of many of these problems

