

# Evaluation of a LFT pattern not typical of liver disease

(Elevated LD, AST >> ALT)

---

## Possible causes

Further investigations

---

### Muscle disorders

.....  
**Myocardial infarction**

CK, Troponin-T

.....  
**Myositis**

CK

Infections (especially viral)

Autoimmune (Poly-, Dermato-)

Drugs (e.g. statins, proton pump inhibitors)

.....  
**Metabolic conditions**

CK, ELFTs (if not done)

Hypokalaemia

Hypothyroidism

add TSH

Hypophosphataemia

.....  
**Rhabdomyolysis**

CK

Crush injury, Strenuous exercise

Hyperthermia, Seizures, Alcohol

.....  
**Sarcoidosis**

CK, ACE

.....  
**Inherited diseases of muscle**

CK, DNA tests if available

(e.g. muscular dystrophies)

.....  
**General investigations**

CK ± Troponin-T

(muscle)

---

### Haematological disorders

.....  
**Red cell disorders (haemolysis)** May see elevated bilirubin (unconjugated) in addition to elevated LD and AST >> ALT

.....  
**Collection artefact**

(e.g. difficult venepuncture)

.....  
**Acquired conditions**

**Autoimmune RBC destruction**

Blood film, Direct Coombs

Infections (e.g. EBV)

Autoimmune diseases (e.g. SLE)

**Physical red-cell damage**

Blood film

(e.g. prosthetic heart valve)

.....  
**Inherited conditions**

**Defects in RBC membrane**

Blood film

(e.g. hereditary spherocytosis)

(e.g. paroxysmal nocturnal haemoglobinuria)

**Abnormal RBC enzymes**

Blood film

(e.g. G6PD def. + oxidative stress)

**Haemoglobinopathies**

Blood film, Hb electrophoresis

.....  
**Other haematological conditions**

**Leukaemia, myelodysplasia**

Blood film, Bone marrow

**General investigations (RBC)**

FBC and film, Reticulocyte count, Direct Coombs Test, Haptoglobin

---

### Other source

.....  
**Chronic liver disease**

Clinical features of chronic liver disease, Imaging

(this pattern is seen in some forms of chronic liver disease, particularly alcohol-related)

.....  
**Malignancy**

Imaging, Tumour markers