THE PROGRESSION OF NAFLD:

HEALTHY LIVER

FATTY LIVER
(SIMPLE FAT ACCUMULATION)

REVERSIBLE

NASH
(FAT PLUS INFLAMMATION & SCARRING)

REVERSIBLE

CIRRHOSIS
(SCAR TISSUE REPLACES LIVER CELLS)

IRREVERSIBLE

NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD)

If more than five to ten percent of your liver is made up of fat, you may have the fatty liver disease. The term ‘fatty liver’ usually refers to non-alcoholic fatty liver disease (NAFLD), distinguishing it from other liver diseases stemming from high alcohol consumption or other causes.

NAFLD affects people of all ages and is currently one of the leading causes of chronic liver disease. It is not related to alcohol consumption; in fact, obesity is the most common trait of people with fatty liver.

1) Non-alcoholic Fatty Liver (NAFL), which develops when the liver has difficulty breaking down fats, causing a fat build-up.

2) Non-alcoholic Steatohepatitis (NASH) develops when fat build-up causes liver cell inflammation, impairing liver functions. Left untreated, up to thirty percent of NASH patients will suffer from permanent scarring of the liver (cirrhosis), which can lead to liver failure and primary liver cancer.
Eating an excess of fatty or high-calorie foods can cause fat to build up in the liver.

• **Obesity**
  > Body mass index (BMI) indicates whether a person is a healthy weight for their height. The World Health Organization (WHO) recommends BMI of 23kg/m² and 27.5 kg/m² to define overweight and obesity respectively in Asians.

• **Diabetes**
  > Limit consumption of high-sugar food and drinks to prevent excessive caloric intake.

• **Metabolic Syndrome**
  > This is a combination of high blood pressure and blood sugar levels, obesity and high cholesterol; similar to risk factors for cardiovascular disease (CVD).

• **Elevated Triglyceride Levels**

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**HIGH ASSOCIATION WITH CARDIOVASCULAR DISEASE**

NAFLD is one of the most common forms of liver disease. It is often linked to insulin resistance but is more frequently associated with type 2 diabetes mellitus and obesity. NAFLD patients are at higher risk of CVDs such as coronary heart disease and stroke. However, the links between fatty liver and cardiovascular risk may vary after accounting for factors such as obesity, hypertension, or diabetes.

**SYMPTOMS**

While there are few observable symptoms, they become more pronounced at advanced stages, such as cirrhosis.

**DIAGNOSIS**

Most people only learn about their fatty liver disorder after testing for other medical conditions. To rule out the possibility of disease, consult a doctor to undergo one of these procedures:

- **Blood Tests** - an assessment of organ functions to identify specific causes of liver issues (e.g. viral hepatitis).

**TIPS FOR PATIENTS WITH FATTY LIVER**

Increased physical activity is a key component of managing NAFLD. Patients should do thirty minutes of moderate exercise five times a week and aim to lose between 1 and 1.6 kg per week.

Dietary alteration also plays an essential role in NAFLD treatment. Patients should take 600 calories less than their daily caloric requirement and reduce their intake of sugar – including fructose, or fruit sugar – as well as saturated and trans fats, such as those found in fast food. Patients are advised to increase their intake of polyunsaturated fat, especially omega-3 fatty acids. This can be achieved by consuming more fish and high-fibre food, as well as more soy protein and whey. Choline, fibre, coffee and green tea can also help stave off liver damage.

NAFLD patients with obesity should take steps to alleviate metabolic risk factors. On the other hand, patients with steatohepatitis and fibrosis are at highest risks of developing the progressive liver disease.

**TREATMENT**

1. Medications have a mild benefit.
2. Lifestyle modification including weight loss, dietary changes and physical exercise is first-line treatment.
3. Treatments of any associated metabolic disease are important: e.g. control of diabetes, hypertension and dyslipidaemia.

**CONCLUSION**

Prognosis depends on the extent of liver damage. Steatosis alone is not fatal, but asymptomatic NASH can progress to liver cirrhosis.

Cardiovascular disease is the leading cause of illness and death in NAFLD patients, who should minimise their overall risk by giving up smoking and reducing alcohol consumption.

In general, patients with NAFLD should:
- Get regular check-ups from a doctor specialising in liver care.
- Maintain a healthy diet and regular exercise to attain a normal BMI.
- Lower triglyceride and cholesterol levels through diet management and/or medication.
- Control any diabetes via diet management, insulin or medication.
- Eliminate or reduce alcohol consumption.