

**Name of Journal:** *World Journal of Gastroenterology*

**Manuscript NO:** 59110

**Manuscript Type:** REVIEW

**Experimental models of metabolic and alcoholic fatty liver disease**

Buyco DG *et al.* Metabolic and alcoholic liver disease models

### Abstract

Non-alcoholic fatty liver disease (NAFLD) is a multi-systemic disease that is considered the hepatic manifestation of metabolic syndrome (MetS). Because alcohol consumption in NAFLD patients is common, there is a significant overlap in the pathogenesis of NAFLD and alcoholic liver disease (ALD). Indeed, MetS also significantly contributes to liver injury in ALD patients. This “syndrome of metabolic and alcoholic steatohepatitis” (SMASH) is thus expected to be a more prevalent presentation in liver patients, as the obesity epidemic continues. Several pre-clinical experimental models that couple

### Match Overview

Match Number	Source	Words	Similarity
1	Internet	49 words crawled on 06-May-2020 <a href="http://www.wjgnet.com">www.wjgnet.com</a>	1%
2	Crossref	40 words "ABSTRACTS?POSTERS", <i>Alcoholism Clinical and Experimental Research</i> , 6/2007	1%
3	Internet	39 words crawled on 24-May-2020 <a href="http://link.springer.com">link.springer.com</a>	1%
4	Crossref	36 words "AASLD Abstracts", <i>Hepatology</i> , 2012.	1%
5	Internet	27 words crawled on 19-Sep-2020 <a href="http://scielo.conicyt.cl">scielo.conicyt.cl</a>	<1%
6	Internet	27 words crawled on 14-Aug-2020 <a href="http://tgh.amegroups.com">tgh.amegroups.com</a>	<1%
7	Internet	19 words crawled on 20-Aug-2020 <a href="http://www.spandidos-publications.com">www.spandidos-publications.com</a>	<1%
8	Internet	16 words crawled on 08-Aug-2015 <a href="http://comorbidity.edu.au">comorbidity.edu.au</a>	<1%



ALL

IMAGES

VIDEOS

2,870,000 Results

Any time ▾

## An Accessible and Pragmatic Experimental Model of ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4885609>

These **animal** models are designed to simulate the clinical and **hepatocellular** features of human NAFLD/NASH. **8 Lack** of proper experimental models has hindered the investigation on pathogenic and therapeutic factors involved in fatty liver disease and the underlying liver metabolisms which lead to fat accumulation in the liver tissue. 9, 10

**Cited by:** 13

**Author:** Hadi Emamat, Maryam Noori, Forough F...

**Publish Year:** 2016

## Animal models of nonalcoholic fatty liver disease

<https://pubmed.ncbi.nlm.nih.gov/21119613>

NASH is a subset of a larger spectrum of **diseases** termed **fatty liver disease** (including **alcoholic** and nonalcoholic **fatty liver disease**; AFLD and NAFLD, respectively). NAFLD and NASH are linked to visceral adiposity, insulin resistance, dyslipidemia and type 2 diabetes, and are increasing due to the prevalence of the **metabolic** syndrome.

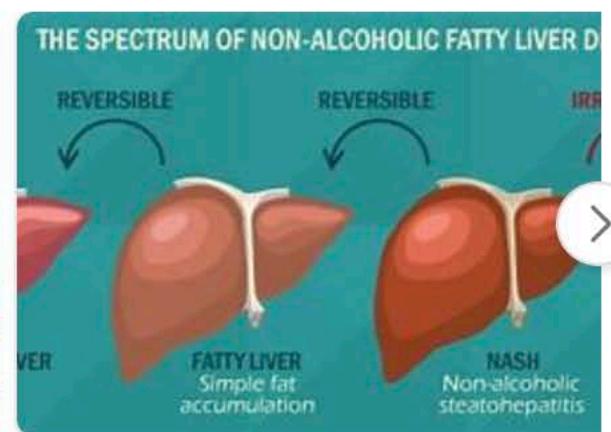
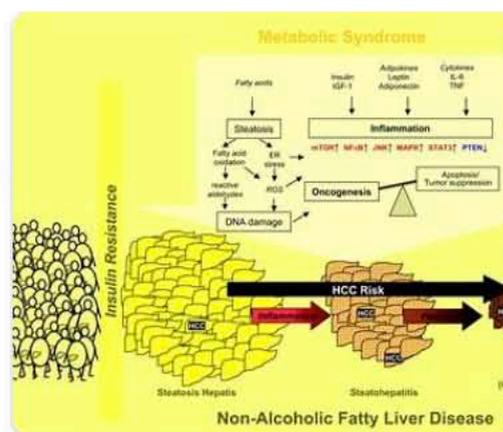
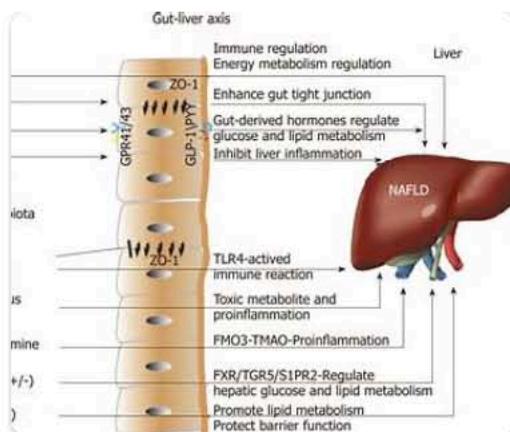
**Cited by:** 405

**Author:** Lionel Hebbard, Jacob George

**Publish Year:** 2011

## Images of Experimental Models of Metabolic and Alcoholic fatty live...

<bing.com/images>



3,340,000 Results Any time

### An Accessible and Pragmatic Experimental Model of ...

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4885609>

High fat diet induced models show the NAFLD/NASH associated metabolic abnormalities such as obesity, insulin resistance, hyperglycemia, and dyslipidemia; 8-10, 12, 13, 15 however, some of them do not show all characteristics of human NAFLD. 8-10, 12, 13, 15 Our model of experimental NAFLD has the advantage of showing all NAFLD and metabolic syndrome features resembling the human disease.

Cited by: 13 Author: Hadi Emamat, Maryam Noori, Forough For...  
Publish Year: 2016

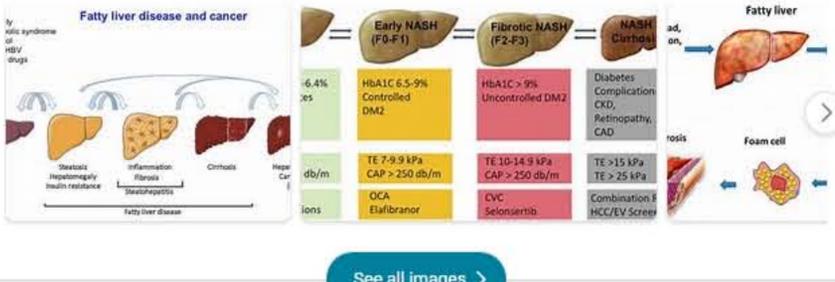
### Experimental assessment of the specific efficiency of new ...

<https://www.researchgate.net/publication/316688198...>

Request PDF | Experimental assessment of the specific efficiency of new metabolic drug runikhol on models of non-alcoholic fatty liver disease | We present results of preclinical evaluation of the ...

### Images of Experimental models of Metabolic and alcoholic fatty liv...

<bing.com/images>



### Animal models of nonalcoholic fatty liver disease

<https://pubmed.ncbi.nlm.nih.gov/21119613>

NASH is a subset of a larger spectrum of diseases termed fatty liver disease (including alcoholic and nonalcoholic fatty liver disease; AFLD and NAFLD, respectively). NAFLD and NASH are linked to visceral adiposity, insulin resistance, dyslipidemia and type 2 diabetes, and are increasing due to the prevalence of the metabolic syndrome.

Cited by: 415 Author: Lionel Hebbard, Jacob George  
Publish Year: 2011

### Strategies, models and biomarkers in experimental non ...

<https://www.sciencedirect.com/science/article/abs/pii/S0163782715000260>

Experimental diagnostic biomarkers of non-alcoholic fatty liver disease, such as (epi)genetic parameters and 'omics'-based read-outs are still in their infancy, but show great promise. In this paper, the array of tools and models for the study of liver steatosis is discussed.

Cited by: 112 Author: Joost Willebrords, Isabel Veloso Alves Pere...  
Publish Year: 2015

### Strategies, models and biomarkers in experimental non ...

<https://www.sciencedirect.com/science/article/pii/S0163782715000260>

Jul 01, 2015 · Experimental non-alcoholic fatty liver disease models rely on the application of a diet or the administration of drugs to laboratory animals or the exposure of hepatic cell lines to these drugs. More recently, genetically modified rodents or zebrafish have been introduced as non-alcoholic fatty liver disease models.

Cited by: 112 Author: Joost Willebrords, Isabel Veloso Alves Pere...  
Publish Year: 2015

### Hydrogen inhalation alleviates nonalcoholic fatty liver ...

<https://www.spandidos-publications.com/10.3892/mmr.2020.11364>

Valenzuela R and Videla LA: The importance of the long-chain polyunsaturated fatty acid n-6/n-3 ratio in development of non-alcoholic fatty liver associated with obesity. Food Funct. 2:644-648. 2011. View Article: Google Scholar: PubMed/NCBI. 16 Kim D, Touros A and Kim WR: Nonalcoholic fatty liver disease and metabolic syndrome.

### Elevated Fructose and Uric Acid Through Aldose Reductase ...

<https://aasldpubs.onlinelibrary.wiley.com/doi/abs/10.1002/hep.31197>

Alcohol-associated liver disease (ALD) is a common chronic liver disease worldwide with high morbidity and mortality, and no Food and Drug Administration-approved therapies. Fructose (dietary or endogenous), its metabolite uric acid, and aldose reductase (AR, the only endogenous enzyme that produces fructose) are strongly associated with ...

### Mouse models in non-alcoholic fatty liver disease and ...

<https://onlinelibrary.wiley.com/doi/abs/10.1111/j.0959-9673.2006.00465.x>

Melina Ribeiro Fernandes, Priscila Silva Figueiredo, Karoline Silva Rezende, Karine de Cássia Freitas, Priscila Aiko Hiane, Rita de Cássia Avellaneda Guimarães, Animal Models of Obesity Characterized by Non-alcoholic Fatty Liver Disease (NAFLD), Experimental Animal Models of Human Diseases - An Effective Therapeutic Strategy, 10.5772/66030 ...

### Development and characterization of an experimental model ...

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0178315>

May 23, 2017 · Metabolic syndrome (MetS) has become one of the main concerns for public health because of its link to cardiovascular disease. Murine models have been used to study the effect of MetS on the cardiovascular system, but they have limitations for studying cardiac electrophysiology. In contrast, the rabbit cardiac electrophysiology is similar to human, but a detailed characterization of the ...

### Medicina | Free Full-Text | Oxidative Stress and ...

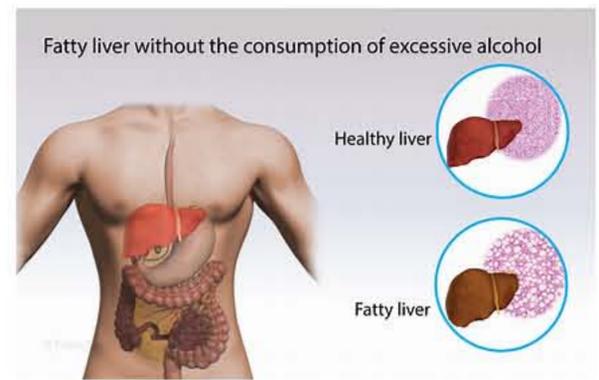
<https://www.mdpi.com/1010-660X/55/2/26>

Non-alcoholic fatty liver disease (NAFLD) is a term that covers a range of hepatic disorders involving fat deposits in the liver. NAFLD begins with simple steatosis and progresses into non-alcoholic steatohepatitis (NASH) characterised by inflammation, fibrosis, apoptosis, oxidative stress, lipid peroxidation, mitochondrial dysfunction and release of adipokines and pro-inflammatory cytokines.

Some results are removed in response to a notice of local law requirement. For more information, please see here.

## Non-Alcoholic Fatty Liver Disease

Medical Condition



A condition in which fat accumulates in the liver in people who drink little or no alcohol.

- Very common (More than 3 million cases per year in US)
- Requires lab test or imaging
- Treatments can help manage condition, no known cure
- Can last several years or be lifelong

The cause of non-alcoholic fatty liver disease is not clearly understood. It is associated with obesity, insulin resistance, hyperglycemia, and high levels of fat in blood. The condition does not usually cause symptoms. In some cases, fatigue, enlarged liver, and pain in the upper right abdomen is seen. Non-alcoholic fatty liver disease has no specific treatment. It involves treating underlying conditions such as obesity.

### Symptoms

Usually asymptomatic. Symptoms may include:

- Fatigue
- Enlarged liver
- Pain the upper right abdomen
- Ascites (swelling in the belly)
- Jaundice
- Enlarged spleen

If it progresses to cirrhosis, the following symptoms are seen:

- Enlarged breasts in men
- Red palms
- Internal bleeding
- Fluid retention

### Treatments

Non-alcoholic fatty liver disease has no specific treatment. Treat the underlying conditions and make lifestyle changes.

#### Medication

- Insulin sensitizers: Controls blood sugar (given to patients of Type 2 diabetes).  
Metformin
- Supplements: Improves liver histology in nondiabetic adults.  
Vitamin E
- Statins: Lipid-lowering drugs to treat abnormal blood lipids.  
Atorvastatin

- Self care:** Adopting a healthy lifestyle is the main way to manage NAFLD.
- Weight loss: Losing more than 10% of your weight can remove fat from the liver and improve the condition.
  - Physical exercise: Exercise for at least 30 minutes every day. It improves symptoms even if you don't lose weight.
  - Have a balanced diet including plenty of fruits and vegetables.
  - Controlling diabetes and cholesterol levels.
  - Avoid alcohol.

**Medical procedures:** Liver transplantation

### Causes

The cause of non-alcoholic fatty liver disease is not clearly understood. It is associated with:

- Obesity
- Insulin resistance
- Hyperglycemia
- High levels of fat in blood

Risk factors include hypothyroidism, hypopituitarism, and polycystic ovary syndrome.

### People also search for

- Cirrhosis of the Liver
- Fatty Liver
- Hepatitis
- Steatohepatitis
- Alcoholic liver disease
- See more >

Data from Focus Medica. Reviewed by a panel of doctors. Learn more  
Consult a medical professional for advice

Suggest an edit

### Search Tools

Turn off Hover Translation (关闭取词)

ALL

IMAGES

VIDEOS

MAPS

NEWS

SHOPPING

3,410,000 Results

Any time ▾

### [An Accessible and Pragmatic Experimental Model of ...](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4885609)

<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4885609>

High fat diet induced models show the NAFLD/NASH associated metabolic abnormalities such as **obesity, insulin resistance, hyperglycemia, and dyslipidemia**; 8-10, 12, 13, 15 however, some of them do...

Cited by: 13

Author: Hadi Emamat, Maryam Noori, Forough For...

Publish Year: 2016

### [Experimental models of non-alcoholic fatty liver disease ...](https://pubmed.ncbi.nlm.nih.gov/25024595)

<https://pubmed.ncbi.nlm.nih.gov/25024595>

Non-alcoholic fatty liver disease (NAFLD) is the most common chronic liver disease in the Western world, and it persists at a high prevalence. NAFLD is characterised by the accumulation of triglycerides i...

### [Animal models for liver disease – A practical approach for ...](https://www.sciencedirect.com/science/article/pii/S0168827820302233)

<https://www.sciencedirect.com/science/article/pii/S0168827820302233>

Aug 01, 2020 · **Rodent models** are often characterised by relatively mild hepatic damage and an impaired ability to obtain and maintain a high blood alcohol concentration (BAC), which can be explained by certai...

Cited by: 6

Author: Yulia A. Nevzorova, Yulia A. Nevzorova, Zoe...

Publish Year: 2020

### [Strategies, models and biomarkers in experimental non ...](https://www.sciencedirect.com/science/article/pii/S0163782715000260)

<https://www.sciencedirect.com/science/article/pii/S0163782715000260>

Jul 01, 2015 · **Experimental non-alcoholic fatty liver disease models** rely on the application of a diet or the administration of drugs to laboratory animals or the exposure of hepatic cell lines to these drugs....

Cited by: 112

Author: Joost Willebrords, Isabel Veloso Alves Pere...

Publish Year: 2015

### [Animal models of nonalcoholic fatty liver disease](https://pubmed.ncbi.nlm.nih.gov/21119613)

<https://pubmed.ncbi.nlm.nih.gov/21119613>

NASH is a subset of a larger spectrum of **diseases** termed **fatty liver disease** (including **alcoholic** and nonalcoholic **fatty liver disease**; AFLD and NAFLD, respectively). NAFLD and NASH are linked to visceral...

Cited by: 415

Author: Lionel Hebbard, Jacob George

## Non-Alcoholic Fatty Liver Disease

Medical Condition

A condition in which fat accumulates in the liver in people who drink little or no alcohol.

 Very common (More than 3 million cases per year in US)

 Requires lab test or imaging

 Treatments can help manage condition, no known cure

 Can last several years or be lifelong

The cause of non-alcoholic fatty liver disease is not clearly understood. It is associated with obesity, insulin resistance, hyperglycemia, and high levels of fat in blood. The condition does not usually cause symptoms. In some cases, fatigue, enlarged liver, and pain in the upper right abdomen is seen. Non-alcoholic fatty liver disease has no specific treatment. It involves treating underlying conditions such as obesity.

### Symptoms

Usually asymptomatic. Symptoms may include:

- Fatigue
- Enlarged liver
- Pain the upper right abdomen
- Ascites (swelling in the belly)
- Jaundice
- Enlarged spleen

If it progresses to cirrhosis, the following symptoms are seen:

- Enlarged breasts in men
- Red palms
- Internal bleeding
- Fluid retention

### Treatments