S1 steatosis was found in 14 subjects (20.90%), S2 in 23 (34.32%), and S3 in 30 (44.78%). Of the alcohol damage group, 12 (38.70%) had S1, 5 (19.35%) S2 and 13 (41.95%) S3. 100% of donors with combined damage present S3 steatosis. Advanced fibrosis was found in 3 (4.47%) donors with metabolic damage, 1 (3.22%) with alcohol damage, and 2 (6.45%) with combined damage.

Discussion: One out of two healthy subjects had fatty liver disease. Non-alcoholic fatty liver disease was the most common, while alcohol and combined damage were equally prevalent. These subjects are a sample of the Mexican population that could represent the behavior of the population of our country.

Conclusions: Fatty liver disease was found in all three groups but with predominance in the metabolic damage group. Undiagnosed advanced fibrosis was found in a small percentage of the apparently healthy population.

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Changes in physical activity and its impact on MAFLD during the COVID-19 pandemic

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Introduction and Objectives: Multiple factors, such as diet and physical activity, are involved in the pathogenesis of fatty liver associated with metabolic dysfunction (MAFLD). After confinement by COVID-19, interest has arisen to study its effect on the population. This study aimed to describe the impact of changes in physical activity during the COVID-19 pandemic on the progression of MAFLD.

Materials and Methods: Observational, analytical, retrospective, longitudinal and comparative study in patients with MAFLD from the Instituto de Investigations Médico Biologicals of the Universidad Veracruzana. The information was obtained from a database from which values of steatosis, fibrosis and degree of physical activity measured by IPAQ were obtained. Student's t-test for related samples was used for numerical variables.

Results: Thirty-four patients were studied, of which 15 were excluded due to incomplete records. Nineteen patients were included; the mean age was 60.42±8.1 years, female sex was predominant (57.9%). Initial somatometric data are described in Table 1. A significant increase in physical activity in minutes per week was observed (p=0.037), as well as the reduction of intrahepatic fat after the pandemic (Fig.1).

Conclusions: The results demonstrate that during the COVID-19 pandemic, our population increased physical activity, which resulted in an improvement in hepatic steatosis significantly.

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Table 1. Baseline and two-years after pandemic characteristics in MALFD patients

	2019	2021
Weight (kg)	80.3632±13	81.2921±14.8
Height (m)	1.5853±0.1	1.5853±0.1
BMI	32.093±5.1	32.337±5.7
BMI scale		
Normal	1 (5.3)	1 (5.3)
Overweight	6 (31.6)	7 (36.8)
Obesity	12 (63.1)	11 (57.9)
Body fat (%)	**43.19±6.9**	**36.2±7.2****
Lean muscle mass (%)	**56.93±7.2**	**31.1±8.7**
kPa	8.079±4.0	7.016±5.4
CAP	**314.58±32.1****	**294.79±39.1****
Physical activity (min per week)	**130±26.5****	**349.4±99.5****

** p=0.05
Min per week: Minutes per week

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Association between hypothyroidism and non-alcoholic fatty liver disease

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Introduction and Objectives: Association between hypothyroidism and non-alcoholic fatty liver disease (NAFLD) is controversial. The aim of the study was to evaluate the association between levels of thyroid stimulating hormone (TSH) and NAFLD.

Material and Methods: This is a cross-sectional study of patients who attended at check-up unit. NAFLD was evaluated by the controlled attenuation parameter (CAP). Also, patients were classified by metabolic dysfunction-associated fatty liver disease (MAFLD) criteria. TSH levels were divided into three different cut-off points (>4.5, >3.1 y >2.5). Associations between THS, NAFLD and MAFLD were evaluated by univariate and multivariate logistic regression analysis.

Results: Three thousand seven hundred forty-one patients were included, 59% (n=2211) were male, mean of age and body mass index were 48 [43-55] years and 25.9 [23.6-28.6] kg/m2.44.5% (n=1664) of patients were diagnosed with NAFLD meanwhile, 1% (n=37) presented significant liver fibrosis. In multivariate analysis, TSH levels did not show an independent association with the presence of NAFLD or MAFLD (Table). According to different cut-off points, patients with high levels of TSH presented similar risks for NAFLD to the general population (presence of metabolic syndrome and high-fat percentage).

Discussion: There is evidence of an association between hypothyroidism and NAFLD. However, liver steatosis is diagnosed by abdominal ultrasound. This is the first study that evaluates steatosis by CAP.

Conclusion: TSH levels are not associated with NAFLD or MAFLD; patients with high TSH levels have the same risk for NAFLD as the general population.

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Table. Association between TSH and NAFLD/MAFLD.

Characteristic	NAFLD				MAFLD			
	Univariate OR (IC 95%)	p	Multivariate OR(IC 95%)	p	Univariate OR (IC 95%)	p	Multivariate OR (IC 95%)	p
Male	2.1 (1.8-2.4)	**			1.5 (1.2-1.82)	**		
MetS	5.1 (4.2-6.1)	**	1.6 (1.2-2.1)	**	3.1 (2.5-3.8)	**	1.6 (1.2-2.1)	**
TSH >4.5	1.2 (0.9-1.5)	0.11			1.3 (0.9-1.8)	0.09		
TSH >2.5	1.1 (1.0-1.3)	**0.01**			1.2 (1.0-1.4)	**0.03**		
TSH >3.1	1.2 (1.0-1.4)	**0.002**			1.2 (1.0-1.5)	**0.01**		
% fat >29.8	2.2 (1.9-2.6)	**	2.2 (1.6-2.9)	**	1.8 (1.5-2.1)	**	2.0 (1.4-2.8)	**

** p≤0.001; NAFLD non-alcoholic fatty liver disease; MAFLD metabolic dysfunction-associated fatty liver disease; MetS metabolic syndrome; TSH thyroid stimulating hormone.

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Prevalence of high-risk non-alcoholic steatohepatitis according to the fast® index in a group of diabetic patients

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Introduction and Objectives: Diabetes is a high-risk condition for the progression of metabolic fatty liver disease (MAFLD). The FAST index combines the result of transition elastography (Fibroscan®) and AST levels and is used to predict the risk of suffering from non-alcoholic steatohepatitis (NASH) with a high risk of progression (NAS >4, F>2). This study aimed to know what proportion of diabetic patients is at risk of suffering from high-risk NASH according to the FAST® index.

Materials and Methods: Observational, transversal study to estimate prevalence. Diabetic patients who agreed to perform Fibroscan® and liver biochemical profile were included, and the FAST® index was calculated (<0.35 without risk; ≤ 0.35 to <0.67 indeterminate; ≥ 0.67 high-risk NASH). Descriptive statistics were used.

Results: One hundred fifty diabetic patients were included; 106 (70.7%) women; mean age 56.5±10.5 years. According to the steatosis degree by controlled attenuation parameter (CAP): S0=71(47.3%), S1=14(9.3%), S2=29(19.3%), S3=36(24%). According to the fibrosis degree (KPa): F0=82(54.7%), F1=4(2.7%), F2=8(5.3%), F3=9(6.0%), F4=47(31.3%). According to the FAST index: without risk= 96 (64%), indeterminate= 24 (16.0%), and with high risk= 30 (20%). There was no correlation between the HbA1c levels, diabetes evolution, obesity degree, or the presence of dyslipidemia.

Conclusions: The NASH high-risk progression's prevalence is high in diabetic patients; The factors that determine this risk in this population are still not clear, but timely detection strategies are required to efficiently identify this subgroup of patients. The FAST index is a relatively accessible tool that, due to its non-invasive nature, could be an alternative to liver biopsy for decision-making when starting specific therapy with action at histological liver changes in NASH.

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Manifestations of SARS-COV-2 in patients with chronic liver disease

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Introduction and Objectives: This study aimed to analyze the degree of severity of SARS-CoV-2 infection in patients with the previous chronic liver disease through clinical, laboratory and histological variables.

Materials and Methods: From November 2021 to July 2021, at the Valentín Gómez Farías Hospital, a Gastroenterology service, 70 patients were treated with prior informed consent and endorsed by the ethics committee. For this study, 51 individuals with chronic liver disease and diagnosis of SARS-CoV-2 were included: 25 with steatohepatitis and 26 with liver cirrhosis. The following findings were observed:

Results: Histological findings:

- Micro vesicular steatosis.
- Mild mortal and lobular inflammatory activity.
- High viral load in the vascular endothelium (48 to 53%) and cytopathic effect of the SARS-CoV-2 virus.
- Ischemia due to hypoperfusion mainly due to myocardial injury.
- Immune hyperactivation.
- Drug-reactive liver injury.
- Apoptosis

Discussion: The COVID-19 pandemic is more severe in vulnerable patients, mainly older adults, male gender and comorbidities such as hypertension, diabetes, nephropathy, heart disease, lung disease, immunosuppression and patients with liver disease. Of these, 60% have severe symptoms and a mortality of 34%.

Conclusions: COVID-19 is the leading cause of death in Mexico. High-risk entities in this viremia are of great global prevalence. Steatohepatitis (NASH) and liver cirrhosis predispose high mortality and complications, possibly evidenced by these clinical evaluations and hepatic laboratory tests.

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Table 1. Demographic, biochemical and symptomatology characteristics of the two groups

Previous pathologies	Steatohepatitis	Liver cirrhosis
Age	55.64	60,84
Gender	72% women - 28% men	42% women – 58% men
BMI	30.76	27.84
Comorbidities		
Overweight/obesity	100%	100%
DM 2	31%	20%
Alcoholism	0%	27%
Autoimmune disease	0%	4%
Laboratory		
AST	42.24	56.76
ALT	50.25	69.90
DHL	308.2	315.6
Platelets	170	100.38
Ferritin	496.24	592.5
D-dimer	530.54	1,064
Lymphocytes	35.2	29.96
ESR	32.32	30.06
PCR	49	47.03
Oxygen saturation	85.24	85.69
Clinic:		
Cough	16 (64%)	14 (54%)

(*continued*)