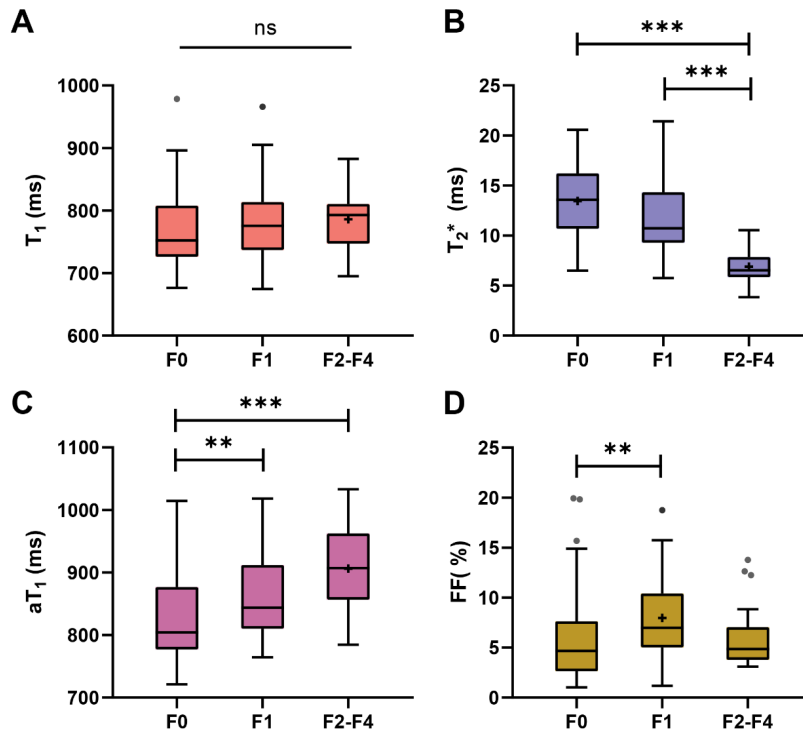**Figure S1** Schematic of ROI definitions. Yellow circles denoted the ROI on the left liver lobe for measurement. The ROIs on the T1, T2*, FF and aT1 maps were copied from T1WI imaging. ROI, region of interest; aT1, iron-adjustive T1; FF, fat fraction; T1WI, T1-weighted imaging.

Figure S2 The difference in magnetic resonance imaging measurements between groups with different NAS. (A) Boxplots of T1 values. (B) Boxplots of T2* values. (C) Boxplots of aT1 values. (D) Boxplots of FF values. Analysis of variance was performed with **, P<0.01, ***, P<0.001, and ns or blank for not significant. aT1, iron-adjustive T1; FF, fat fraction; NAS, non-alcoholic fatty liver disease activity score.

Table S1 Interobserver agreement of MRI measurements

MRI measurements	Observer 1	Observer 2	ICC	95% CI	P
T1 (ms)	781.43±5.95	781.22±6.29	0.947	0.924–0.962	<0.001
T2* (ms)	11.63±0.40	11.61±0.39	0.953	0.933–0.967	<0.001
FF (%)	7.28±0.40	7.17±0.39	0.948	0.927–0.963	<0.001
aT1 (ms)	857.01±7.48	858.36±7.75	0.862	0.808–0.902	<0.001

Data are shown as mean ± SD. MRI, magnetic resonance imaging; ICC, intraclass correlation coefficient; 95% CI, 95% confidence interval; FF, fat fraction; aT1, iron-adjustive T1; SD, standard deviation.

Table S2 Partial correlation of MRI measurements and fibrosis stage

Variables	r	P
aT1—fibrosis stage	−0.135	0.147
T1—fibrosis stage	−0.274	0.003
T2*—fibrosis stage	−0.319	<0.001

The control variable was NAFLD activity score (NAS). MRI, magnetic resonance imaging; aT1, iron-adjustive T1.

Table S3 Difference of MRI measurements among different fibrosis stage

MRI measurements	F=0	F=1	F≥2	F/H	P
T1 (ms)	752.29 (724.57, 803.48)	775.62 (736.85, 813.48)	807.14±11.13	4.080	0.130
T2* (ms)	13.83±0.55	10.73 (9.27, 14.33)	7.60±0.33	45.617	<0.001
aT1 (ms)	799.31 (776.62, 867.78)	843.80 (810.31, 911.90)	915.50±11.08	24.564	<0.001
FF (%)	4.18 (2.61, 7.39)	7.20±0.49	4.85 (3.79, 7.04)	13.345	0.001

Data are shown as mean ± SD or median (P25, P75). MRI, magnetic resonance imaging; FF, fat fraction; aT1, iron-adjustive T1; SD, standard deviation.

Table S4 Difference of T1, T2*, aT1 and FF between left and right liver lobe

MRI measurements	Left liver lobe	Right liver lobe	Z	P
Normal mice				
T1	759.20 (733.60, 773.29)	732.11±32.69	1.956	0.050
T2*	15.56±2.12	11.07 (10.68, 13.87)	2.667	0.008
aT1	772.87 (765.33, 783.65)	788.94±31.38	1.784	0.074
FF	2.48±0.89	2.70±1.25	0.724	0.485
NAFLD mice				
T1	760.53±48.02	795.56±51.92	4.802	<0.001
T2*	12.96±4.48	8.55 (7.09, 9.94)	4.859	<0.001
aT1	839.02±53.22	894.95±65.10	6.134	<0.001
FF	5.57 (4.27, 8.37)	6.78 (4.42, 10.15)	1.417	0.157

Data are shown as mean ± SD or median (P25, P75). FF, fat fraction; aT1, iron-adjustive T1; NAFLD, non-alcoholic fatty liver disease; SD, standard deviation.

Table S5 Difference of histogram characters of aT1 between normal and NAFL groups

Histogram features	Normal	NAFL (0< NAS <4)	Z	P
10th percentile	716.67 (690.37, 746.62)	747.92 (718.18, 790.94)	2.873	0.004*
90th percentile	915.95 (882.27, 949.47)	955.28 (897.24, 996.52)	2.295	0.022*
Maximum	1,043.41 (1,009.64, 1,075.31)	1,077.19 (1,007.77, 1,139.15)	1.128	0.259
Mean	806.13 (786.58, 828.07)	849.23 (802.29, 895.86)	2.826	0.005*
Minimum	625.77 (585.49, 677.41)	695.93 (649.70, 734.90)	3.674	<0.001*
Median	800.08 (785.16, 826.20)	835.54 (800.08, 891.62)	2.709	0.007*
Root mean square	808.55 (790.22, 836.34)	853.41 (806.69, 899.21)	2.815	0.005*
Entropy	2.60 (2.47, 2.74)	2.58 (2.34, 2.81)	0.492	0.623
Interquartile range	93.34 (85.25, 104.67)	104.42 (82.32, 127.14)	0.893	0.372
Kurtosis	2.98 (2.84, 3.56)	2.78 (2.41, 3.45)	1.705	0.088
Mean absolute deviation	59.44 (53.47, 63.50)	62.95 (51.35, 72.86)	0.526	0.599
Range	402.91 (362.63, 465.42)	366.30 (320.59, 448.45)	1.488	0.137
Robust mean absolute deviation	42.88 (38.68, 45.49)	44.55 (36.01, 54.57)	0.767	0.443
Skewness	0.36 (0.20, 0.59)	0.31 (0.06, 0.55)	0.458	0.647
Uniformity	0.19 (0.18, 0.21)	0.19 (0.16, 0.23)	0.160	0.873
Variance	5,540.84 (4,616.76, 6,836.05)	6,000.17 (3,996.81, 8,216.97)	0.126	0.900

Data are shown as median (P25, P75). *, P<0.05. aT1, iron-adjustive T1; NAFL, non-alcoholic fatty liver.

Table S6 Results of logistic regression analysis

Variables	b	S_b	Wald χ^2	P	OR	95% CI
Entropy	1.653	0.654	6.387	0.011	5.223	1.449–18.826
Content	−4.908	1.769	7.696	0.006	–	–

OR, odds ratio; 95% CI, 95% confidence interval.