

**Supplementary Table 1 Differences in microRNA levels in teen-longitudinal assessment of bariatric surgery participants with non-alcoholic fatty liver disease compared with no non-alcoholic fatty liver disease**

<b>miRNA</b>	<b>Log odds ratio</b>	<b>SE</b>	<b>P value</b>	<b>FDR P value</b>
hsa-miR-4685-5p	1.15	0.35	0.001	0.686
hsa-miR-193b-5p	1.04	0.36	0.004	0.686
hsa-miR-3158-5p	1.10	0.41	0.007	0.686
hsa-miR-23a-5p	-0.50	0.20	0.012	0.686
hsa-miR-4322	1.42	0.57	0.013	0.686
hsa-miR-4261	0.71	0.29	0.014	0.686
hsa-miR-6893-5p	0.64	0.26	0.015	0.686
hsa-miR-125b-2-3p	0.92	0.38	0.016	0.686
hsa-miR-6734-5p	-1.19	0.50	0.018	0.686
hsa-miR-1275	-0.58	0.25	0.018	0.686
hsa-miR-1296-5p	0.75	0.32	0.018	0.686
hsa-miR-2682-3p	0.76	0.33	0.021	0.686
hsa-miR-6750-3p	1.11	0.48	0.021	0.686
hsa-miR-1301-5p	0.82	0.36	0.022	0.686
hsa-miR-629-5p	-0.52	0.23	0.025	0.686
hsa-miR-7150	-0.44	0.20	0.026	0.686
hsa-miR-6723-5p	-0.27	0.12	0.027	0.686
hsa-miR-3197	-0.32	0.15	0.027	0.686
hsa-miR-4461	-0.26	0.12	0.027	0.686
hsa-miR-584-5p	-0.33	0.15	0.028	0.686
hsa-miR-29c-5p	-0.68	0.32	0.034	0.686
hsa-miR-7111-3p	1.17	0.55	0.034	0.686
hsa-miR-1343-5p	0.88	0.42	0.035	0.686

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hsa-let-7e-3p	0.44	0.21	0.036	0.686
hsa-miR-193a-3p	0.79	0.38	0.036	0.686
hsa-miR-204-5p	0.69	0.34	0.040	0.686
hsa-miR-185-3p	-0.37	0.18	0.041	0.686
hsa-miR-1282	-0.93	0.46	0.041	0.686
hsa-miR-4306	-0.33	0.16	0.042	0.686
hsa-miR-146a-5p	-0.25	0.13	0.043	0.686
hsa-miR-339-5p	-0.32	0.16	0.044	0.686
hsa-miR-181b-5p	-0.47	0.23	0.045	0.686
hsa-miR-22-3p	-0.30	0.15	0.045	0.686
hsa-miR-181a-5p	-0.30	0.15	0.045	0.686
hsa-miR-6131	-0.31	0.16	0.048	0.686
hsa-miR-320d	-0.32	0.16	0.048	0.686
hsa-miR-221-3p	-0.25	0.13	0.049	0.686
hsa-miR-4429	-0.33	0.17	0.049	0.686

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All models were adjusted by age, body mass index, sex, weight loss prior to surgery, race, parents' income, and clinical site of surgery.

**Supplementary Table 2 Differences in microRNA levels in teen-longitudinal assessment of bariatric surgery participants with nonalcoholic steatohepatitis compared with non-alcoholic fatty liver**

<b>miRNA</b>	<b>Log odds ratio</b>	<b>SE</b>	<b>P value</b>	<b>FDR P value</b>
hsa-miR-7845-5p	2.51	0.73	0.001	0.540
hsa-miR-6885-3p	-2.55	0.84	0.002	0.703
hsa-miR-1226-3p	-1.39	0.47	0.003	0.703
hsa-miR-652-5p	-1.44	0.49	0.004	0.703
hsa-miR-150-3p	-1.68	0.61	0.006	0.703
hsa-miR-193a-5p	0.73	0.27	0.007	0.703
hsa-miR-7111-5p	0.72	0.27	0.007	0.703
hsa-miR-6771-5p	2.06	0.78	0.008	0.703
hsa-miR-6741-5p	0.59	0.24	0.013	0.703
hsa-miR-199b-5p	-0.90	0.37	0.014	0.703
hsa-miR-4640-3p	0.99	0.41	0.015	0.703
hsa-miR-411-5p	-0.92	0.38	0.015	0.703
hsa-miR-6845-5p	0.71	0.30	0.017	0.703
hsa-miR-6085	0.58	0.25	0.020	0.703
hsa-miR-6727-5p	0.56	0.24	0.021	0.703
hsa-miR-6824-5p	1.81	0.80	0.023	0.703
hsa-miR-122-5p	0.44	0.19	0.024	0.703
hsa-miR-1296-5p	-1.32	0.59	0.026	0.703
hsa-miR-6875-5p	0.55	0.25	0.026	0.703
hsa-miR-6795-3p	0.89	0.40	0.027	0.703
hsa-miR-6794-5p	1.28	0.58	0.027	0.703
hsa-miR-4430	1.13	0.51	0.027	0.703
hsa-miR-3940-5p	0.53	0.24	0.027	0.703
hsa-miR-4534	0.73	0.33	0.028	0.703

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hsa-miR-1915-3p	0.57	0.26	0.029	0.703
hsa-miR-193b-5p	0.91	0.42	0.030	0.703
hsa-miR-2355-5p	-1.09	0.50	0.030	0.703
hsa-miR-182-5p	-1.23	0.57	0.030	0.703
hsa-miR-1237-5p	0.50	0.23	0.031	0.703
hsa-miR-4505	0.87	0.40	0.031	0.703
hsa-miR-6780b-5p	0.48	0.22	0.032	0.703
hsa-miR-6124	0.49	0.23	0.033	0.703
hsa-miR-877-5p	-1.36	0.64	0.033	0.703
hsa-miR-542-5p	-0.93	0.44	0.034	0.703
hsa-miR-4292	0.85	0.40	0.034	0.703
hsa-miR-496	-0.68	0.33	0.037	0.703
hsa-miR-1301-5p	-1.10	0.53	0.037	0.703
hsa-miR-323a-3p	-0.96	0.46	0.038	0.703
hsa-miR-744-3p	-0.78	0.38	0.039	0.703
hsa-miR-7114-3p	0.65	0.31	0.039	0.703
hsa-miR-4646-5p	1.93	0.94	0.040	0.703
hsa-miR-2861	0.49	0.24	0.041	0.703
hsa-miR-1228-3p	0.82	0.40	0.042	0.703
hsa-miR-1291	1.31	0.65	0.042	0.703
hsa-miR-6887-5p	0.83	0.41	0.043	0.703
hsa-miR-6126	0.46	0.23	0.043	0.703
hsa-miR-664a-5p	-0.74	0.37	0.044	0.703
hsa-miR-6798-5p	0.41	0.20	0.044	0.703
hsa-miR-6803-5p	0.42	0.21	0.045	0.703
hsa-miR-7108-5p	0.78	0.39	0.046	0.703
hsa-miR-301b	-0.69	0.35	0.047	0.703
hsa-miR-6782-5p	0.59	0.30	0.047	0.703

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All models were adjusted by age, body mass index, sex, weight loss prior to surgery,

race, parents' income, and clinical site of surgery.

**Supplementary Table 3 Differences in microRNA levels in teen-longitudinal assessment of bariatric surgery participants with fibrosis compared with no fibrosis**

<b>miRNA</b>	<b>Log odds ratio</b>	<b>SE</b>	<b>P value</b>	<b>FDR P value</b>
hsa-miR-193b-5p	1.58	0.44	0.000	0.247
hsa-miR-193a-5p	0.86	0.25	0.001	0.267
hsa-miR-34a-5p	1.30	0.40	0.001	0.315
hsa-miR-122-5p	0.59	0.19	0.001	0.315
hsa-miR-193b-3p	1.00	0.33	0.002	0.392
hsa-miR-411-5p	-0.96	0.35	0.007	0.937
hsa-miR-224-5p	-0.81	0.31	0.008	0.990
hsa-miR-539-5p	-0.68	0.30	0.025	0.993
hsa-miR-7845-5p	0.84	0.39	0.031	0.993
hsa-miR-6885-3p	-1.39	0.65	0.032	0.993
hsa-miR-452-5p	-0.71	0.34	0.035	0.993
hsa-miR-1236-5p	-0.42	0.20	0.037	0.993
hsa-miR-485-5p	-0.49	0.25	0.047	0.993
hsa-miR-375	0.53	0.27	0.047	0.993
hsa-miR-199b-5p	-0.44	0.22	0.050	0.993
hsa-miR-1303	0.65	0.33	0.050	0.993

All models were adjusted by age, body mass index, sex, weight loss prior to surgery, race, parents' income, and clinical site of surgery.

**Supplementary Table 4 Differences in microRNA levels in teen-longitudinal assessment of bariatric surgery participants with lobular inflammation compared with no lobular inflammation**

<b>miRNA</b>	<b>Log ratio</b>	<b>odds</b>	<b>SE</b>	<b><i>P</i> value</b>	<b>FDR <i>P</i> value</b>
hsa-miR-1244	1.22		0.42	0.003	0.999
hsa-miR-2276-3p	-1.38		0.62	0.027	0.999
hsa-miR-323b-3p	-0.50		0.23	0.028	0.999
hsa-miR-136-3p	-0.74		0.34	0.030	0.999
hsa-miR-323a-3p	-0.73		0.34	0.032	0.999
hsa-miR-6799-3p	-1.12		0.53	0.033	0.999
hsa-miR-365b-5p	0.94		0.46	0.040	0.999
hsa-miR-125b-2-3p	0.83		0.41	0.044	0.999
hsa-miR-154-5p	-0.36		0.18	0.049	0.999

All models were adjusted by age, body mass index, sex, weight loss prior to surgery, race, parents' income, and clinical site of surgery.

**Supplementary Table 5 Differences in microRNA levels in teen-longitudinal assessment of bariatric surgery participants with ballooning compared with no ballooning**

<b>miRNA</b>	<b>Log odds ratio</b>	<b>SE</b>	<b>P value</b>	<b>FDR P value</b>
hsa-miR-6741-5p	0.98	0.34	0.003	0.984
hsa-miR-6782-5p	0.98	0.35	0.005	0.984
hsa-miR-6088	0.74	0.29	0.009	0.984
hsa-miR-8069	0.70	0.27	0.010	0.984
hsa-miR-411-5p	-0.88	0.35	0.013	0.984
hsa-miR-6762-3p	1.60	0.68	0.018	0.984
hsa-miR-6869-5p	1.05	0.46	0.023	0.984
hsa-miR-6780b-5p	0.58	0.28	0.036	0.984
hsa-miR-369-5p	-0.66	0.32	0.038	0.984
hsa-miR-1224-5p	-1.20	0.58	0.040	0.984
hsa-miR-193a-5p	0.53	0.26	0.041	0.984
hsa-miR-6516-5p	-0.65	0.32	0.041	0.984
hsa-miR-500b-5p	-1.24	0.61	0.043	0.984
hsa-miR-7150	0.49	0.24	0.044	0.984
hsa-miR-1343-5p	0.92	0.46	0.044	0.984

All models were adjusted by age, body mass index, sex, weight loss prior to surgery, race, parents' income, and clinical site of surgery.