

Supplementary Table S1. ITT of glycated hemoglobin (%) between the two groups.

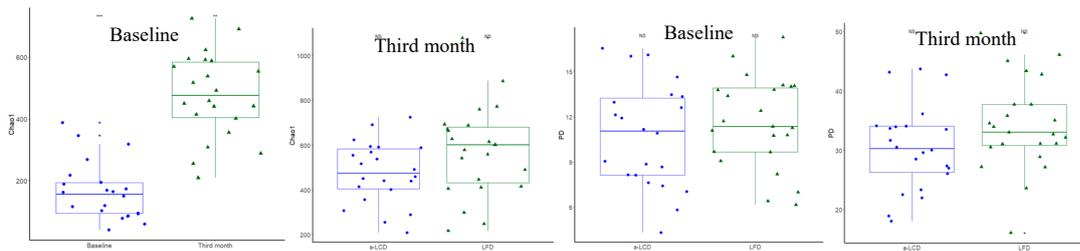
Study period	a-LCD (n=25)	LFD (n=25)	t/F	p
Baseline	7.64±1.50	7.54±1.25	-0.246 ^a	0.807
Third month	6.91±1.00(adjusted:6.88±0.12)	7.38±1.24(adjusted:7.42±0.12)	9.997 ^b	<0.01**
t	3.911 ^c	2.587 ^c		
p	<0.01**	0.016*		

^a Independent-samples T test for between-group differences at the baseline; ^b covariance analysis for between-group differences at the third month, with adjusted data presented as mean ± standard error (covariate: age, baseline HbA1c, protein, the rate of change of anti-diabetics); ^c paired sample T test for within-group difference. * $p < 0.05$; ** $p < 0.01$; ITT: intention-to-treat.c

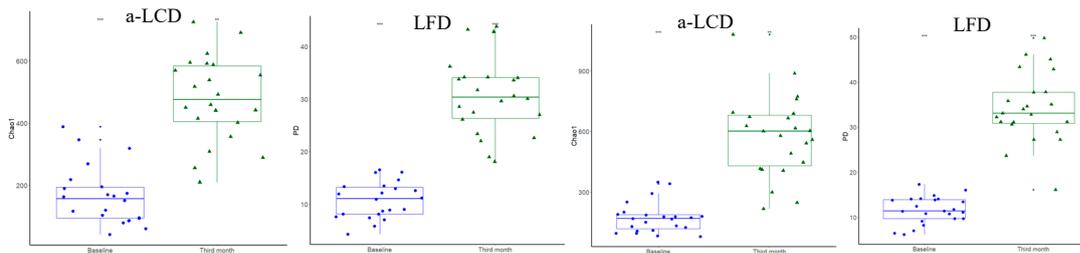
Supplementary Table S2. ITT of depression scores between the two groups .

Study period	a-LCD (n=25)	LFD (n=25)	t/F	p
Baseline	48.38±7.53	49.59±8.10	0.544 ^a	0.589
Third month	42.81±5.79(adjusted:43.22±0.89)	48.74±7.37(adjusted:48.33±0.89)	15.596 ^b	<0.01**
t	5.627 ^c	0.839 ^c		
p	<0.01**	0.410		

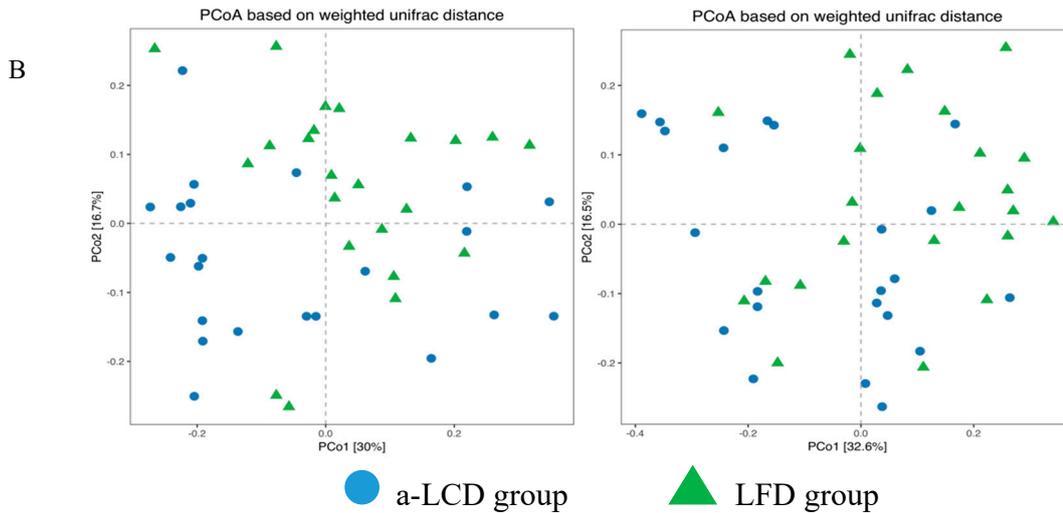
^a Independent-samples T test for between-group differences at the baseline; ^b covariance analysis for between-group differences at the third month, with adjusted data presented as mean ± standard error (covariate: age, baseline depression scores, protein); ^c paired sample T test for within-group difference. * $p < 0.05$; ** $p < 0.01$; ITT: intention-to-treat.



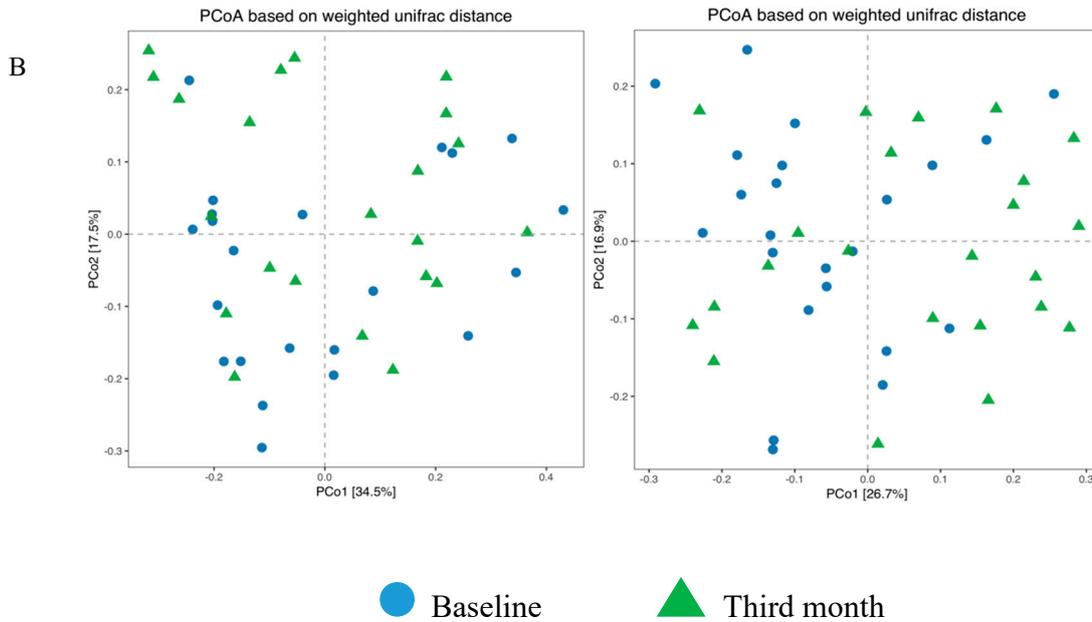
Supplementary Figures S1. The Comparison of Chao 1 and PD between the two groups (NS: no significant difference)



Supplementary Figures S2. The Comparison of Chao 1 and PD within the groups (** $p < 0.05$; *** $p < 0.01$)



Supplementary Figure S3. Comparison of beta-diversity of gut microbiota between two groups (A:Baseline; B:Third month).



Supplementary Figure S4. Comparison of Beta-diversity of gut microbiota within the group (A: a-LCD group; B: LFD group). The abscissa represents the first principal component, and the percentage represents the contribution value of the first principal component to the sample difference; the ordinate represents the second principal component, and the percentage represents the contribution value of the second principal component to the sample difference. Each point in the graph represents a sample, and the samples of the same group are represented by the same color.