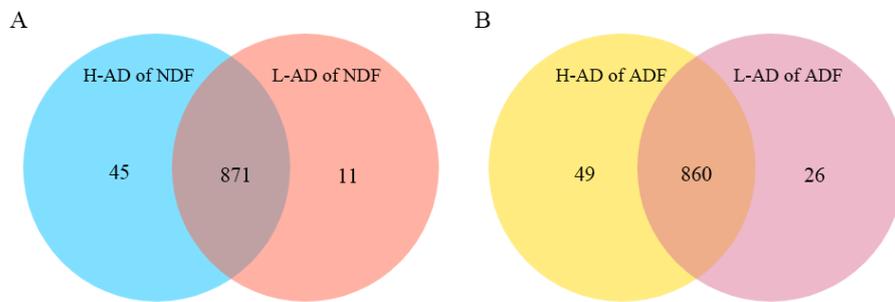
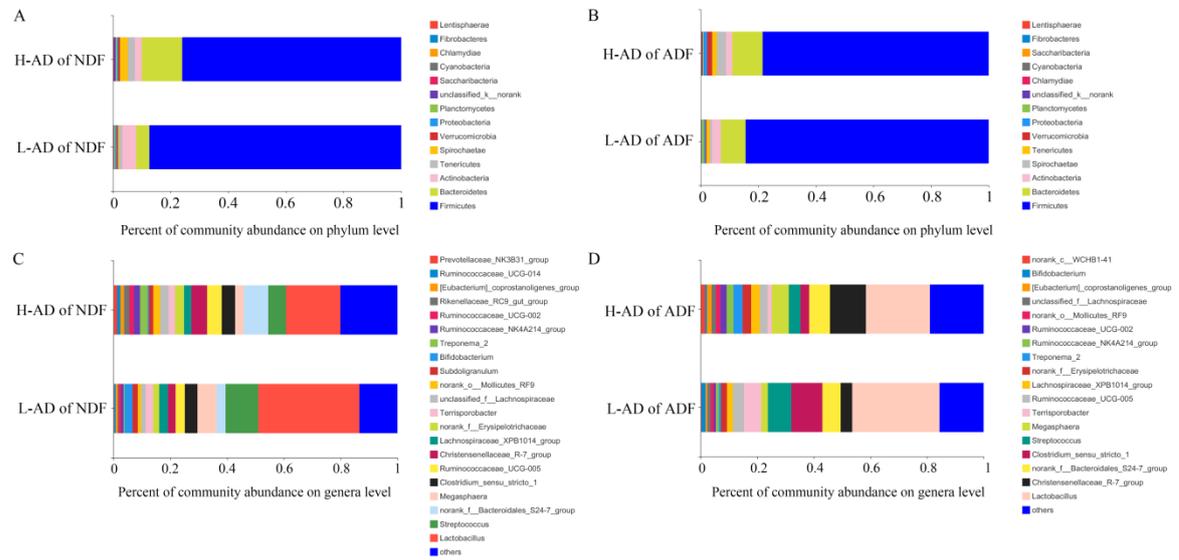


## Supplemental material

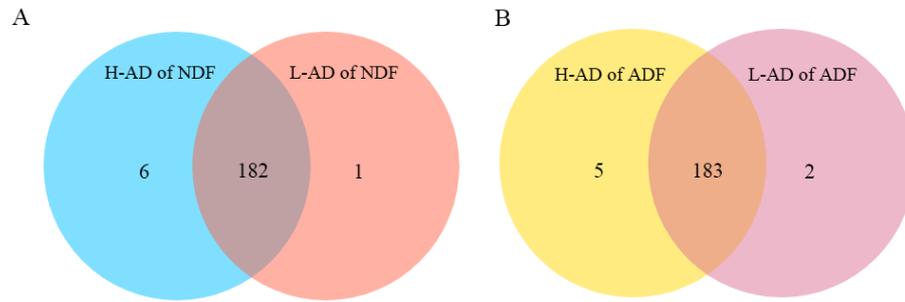
**Figure S1A,B** Venn diagrams of the OTUs between different groups.



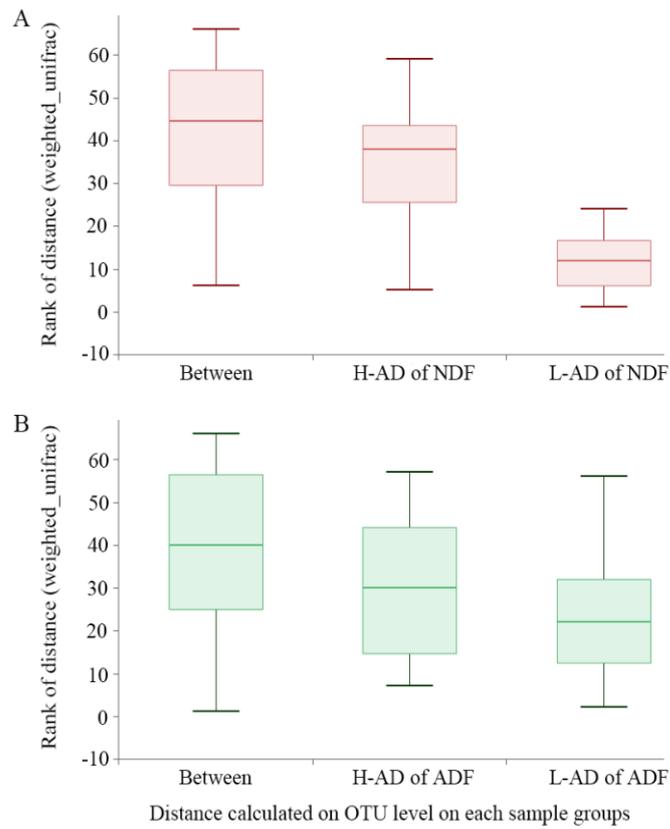
**Figure S2A–D** Phyla and genera distribution. Phyla and genera distributions as a percentage of the total number in NDF (A and C) and ADF (B and D) groups, respectively.



**Figure S3A,B** Venn diagrams of the genera between high and low groups of NDF and ADF, respectively.



**Figure S4A,B** Adonis/PERMANOVA analysis. Distance box plot in NDF (A) and ADF (B) groups, respectively.



**Table S1** Composition and nutrient level of experimental diet.

Diet composition	Content (%)
Corn	52.9
Wheat Bran	24
Soybean meal	15.9
Fish meal	2
Yeast powder	2
Premix	1
Salt	0.3
Stone powder	0.5
Lysine	0.1
Calcium hydrogen phosphate	0.12
Multivitamins	0.02
<b>Analyzed nutrient composition (%)</b>	
Crude protein	16.60
NDF	19.83
ADF	5.90
digestibleenergy(MJ/kg)	12.51

Premix: VA (KIU/kg): 500-700; VD3 (KIU/kg): 100-200; VE (IU/kg):  $\geq 2000$ ;  
VK3 (mg/kg): 75-800; VB1 (mg/kg):  $\geq 75$ ; VB2 (mg/kg):  $\geq 400$ ; VB6 (mg/kg):  $\geq 100$ ;  
VB12 (mg/kg):  $\geq 2.5$ ; Niacin (mg/kg):  $\geq 3000$ ; Pantothenic acid (mg/kg):  $\geq 1000$ ;

Folic acid (mg/kg):  $\geq 50$ ; Choline (g/kg):  $\geq 10$ ; Iron (g/kg): 5-10; Copper (g/kg): 0.6-1.2; Manganese(g/kg): 2.5-5.0; Zinc(g/kg):6-12; Iodine(mg/kg): 60-120; Selenium (mg/kg): 20-40; Water (%):  $\leq 10$ .

**Table S2** OTU richness and diversity indexes were compared between the two types in NDF and ADF groups.

	NDF		ADF	
	H-AD	L-AD	H-AD	L-AD
Shannon	4.74±0.21 <sup>A</sup>	4.01±0.25 <sup>B</sup>	4.46±0.26	4.05±0.30
Simpson	0.03±0.01 <sup>b</sup>	0.06±0.02 <sup>a</sup>	0.04±0.02	0.06±0.02
Ace	721.87±48.42	686.46±48.10	719.70±28.50	672.47±48.50
Chao	725.85±48.27	697.96±53.94	734.42±36.46	681.62±53.68

<sup>AB</sup> The mean difference is significant at a level of 0.01; <sup>ab</sup> the mean difference is significant at a level of 0.05.