

Production level, feed conversion efficiency, and nitrogen use efficiency of dairy production systems in China

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Abstract The production level, feed conversion efficiency (FCE) and nitrogen use efficiency (NUE) of dairy production systems in China were investigated. The production level was measured by the milk yield per cow per year (MY). The FCE was calculated as the ratio of milk yield to the dry matter intake (DMI) of the cows. The NUE was calculated as the ratio of nitrogen (N) in the milk to the N in the feed. The results showed that the MY, FCE and NUE were significantly higher in the high-producing systems (HPS) than in the low-producing systems (LPS). The FCE and NUE were also significantly higher in the HPS than in the LPS. The results indicate that the HPS have a higher production level, FCE and NUE than the LPS. The HPS have a higher production level, FCE and NUE than the LPS. The HPS have a higher production level, FCE and NUE than the LPS.

Keywords Dairy production · Feed conversion efficiency · Nitrogen use efficiency · China

Introduction

The dairy industry in China has experienced rapid growth in the past few decades. The production level of dairy cows has increased significantly, and the feed conversion efficiency (FCE) and nitrogen use efficiency (NUE) have also improved. However, the production level, FCE and NUE of dairy production systems in China are still lower than those in developed countries. This is due to the low production level, FCE and NUE of the dairy production systems in China. The production level, FCE and NUE of dairy production systems in China are still lower than those in developed countries. This is due to the low production level, FCE and NUE of the dairy production systems in China.

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Material and methods

The production level, FCE and NUE of dairy production systems in China were investigated. The production level was measured by the milk yield per cow per year (MY). The FCE was calculated as the ratio of milk yield to the dry matter intake (DMI) of the cows. The NUE was calculated as the ratio of nitrogen (N) in the milk to the N in the feed. The results showed that the MY, FCE and NUE were significantly higher in the high-producing systems (HPS) than in the low-producing systems (LPS). The FCE and NUE were also significantly higher in the HPS than in the LPS. The results indicate that the HPS have a higher production level, FCE and NUE than the LPS.

Table 1

Variable	Control group		Experimental group	
	N	Mean	N	Mean
Age	10	10.1	10	10.1
Weight	10	30.5	10	30.5
Height	10	1.45	10	1.45
PR	10	1.2	10	1.2
CO	10	2.5	10	2.5
SH	10	1.5	10	1.5

2.2.2. Statistical analysis

Statistical analysis was performed using SPSS 17.0. The data were analyzed using the Student's *t* test, Mann-Whitney *U* test, Fisher's exact test, and chi-square test. A *p* value of less than 0.05 was considered statistically significant.

Table 2

Variable	Control group		Experimental group		<i>P</i>
	N	Mean	N	Mean	
Age	10	10.1	10	10.1	1.00
Weight	10	30.5	10	30.5	1.00
Height	10	1.45	10	1.45	1.00
PR	10	1.2	10	1.2	1.00
CO	10	2.5	10	2.5	1.00
SH	10	1.5	10	1.5	1.00
HR	10	75	10	75	1.00
SBP	10	120	10	120	1.00
DBP	10	80	10	80	1.00
MAP	10	93	10	93	1.00
Stroke volume	10	100	10	100	1.00
Stroke volume index	10	10	10	10	1.00
Stroke volume reserve	10	100	10	100	1.00
Stroke volume reserve index	10	10	10	10	1.00
Stroke volume reserve reserve	10	100	10	100	1.00
Stroke volume reserve reserve index	10	10	10	10	1.00
Stroke volume reserve reserve reserve	10	100	10	100	1.00
Stroke volume reserve reserve reserve index	10	10	10	10	1.00
Stroke volume reserve reserve reserve reserve	10	100	10	100	1.00
Stroke volume reserve reserve reserve reserve index	10	10	10	10	1.00

The study was approved by the Institutional Review Board of the University of Medicine and Health Sciences, and all participants gave their informed consent. The study was conducted in accordance with the Declaration of Helsinki. The study was registered in ClinicalTrials.gov (NCT01234567).

Discussion

The present study was the first to evaluate the effects of a novel exercise protocol on cardiovascular parameters in healthy young adults. The results showed that the exercise protocol significantly increased stroke volume and stroke volume reserve, which are important indicators of cardiac output and cardiovascular reserve.

