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Original Article

Measuring physical performance in university students

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Abstract: Physical activity could be an effective way to prevent obesity and cardiovascular disease. Objective: The aim of our study was to evaluate physical performance in Chinese university students to offer a basis for preventing obesity. Methods: A cross-sectional study was conducted for evaluate physical performance, including the standing long jump, 50-meter dash, and pull-up/sit-up test. Results: The overall mean time of the 50-meter dash, standing long jump distance, and mean number of pull-ups was 7.98 seconds, 2.2773 meters, and 4.1041, respectively. For female students, the overall mean time for the 50-meter dash, standing long jump distance, and mean number of sit-ups was 9.89 seconds, 2.6191 meters, and 26.7997, respectively. Conclusion: Our study suggests that physical performance in Chinese university students is poor; related departments should pay more attention to the physical health of university students.

Keywords: Cross-sectional study, obesity, physical activity, descriptive analysis

Introduction

Recent epidemiologic studies have shown that male students have a poor physical fitness level compared with female students [1]. Additionally, a high prevalence of obesity was reported in our previous study [2]. Physical activity has an impact on body weight [3] and cardiovascular disease [4]. Physical activity is an effective method to prevent chronic diseases.

Little is known, however, about the current status of physical performance among university students. Knowing the level of physical performance is the basis for improving the mental and physical health of university students.

The purpose of this study was to evaluate the physical performance among students from a university in China.

Material and methods

Participants

A school-based cross-sectional study was conducted among university students who were recruited for physical fitness testing in 2013. A total of 2723 students were recruited in the present study, including 1185 male and 1538 female students.

Physical fitness testing

All students took part in the physical performance test, which included the standing long jump, the 50-meter dash, and pull-ups or sit-ups. We recorded the 50-meter dash time and the number of pull-ups and sit-ups. For the standing long jump, students were given three attempts and only the best result was recorded.

Statistical analysis

R software was used to describe physical performance among university students. GraphPad 5 was used to plot the needed charts. Only descriptive analyses were used in the current study.

Results

The physical performance status for male students is shown in **Table 1**. The overall mean

Table 1. Mean physical performance for male students

Item	Years	N	Mean	Std. Deviation
50-meter dash (seconds)	17	2	7.5	0.42426
	18	2	7.35	1.3435
	19	64	7.8953	1.1779
	20	323	7.9697	1.14732
	21	356	7.9694	1.12337
	22	192	8.0521	1.42759
	23	67	8.1343	1.29691
	24	20	7.87	0.98574
	25	6	7.9167	1.2123
	Total	1032	7.9866	1.20294
Standing long jump (m)	2	2.25	0.21213	2
	3	2.27	0.28478	3
	71	2.2527	0.22206	71
	341	2.2753	0.21075	341
	394	2.2905	0.20248	394
	212	2.2663	0.21746	212
	73	2.2749	0.20895	73
	20	2.2402	0.30417	20
	6	2.3717	0.17736	6
	1122	2.2773	0.21147	1122
Pull-ups test	17	2	5	5.65685
	18	3	3	2.64575
	19	72	4.2222	3.90818
	20	341	3.5308	3.31792
	21	394	3.934	3.41016
	22	213	4.7465	4.43948
	23	73	5.411	4.01676
	24	20	5.25	3.58175
	25	6	4.1667	2.31661
	Total	1124	4.1041	3.70589

time for the 50-meter dash, standing long jump distance, and mean number of pull-ups was 7.98 seconds, 2.2773 meters, and 4.1041, respectively. For female students, the overall mean time of the 50-meter dash (**Table 2**), standing long jump distance, and mean number of sit-ups was 9.89 seconds, 2.6191 meters, and 26.7997, respectively. **Figures 1-3** show that the physical performance status remained stable over time in both the male and female groups.

Table 2. Mean physical performance for female students

Item	Years	N	Mean	Std. Deviation
50-meter dash (seconds)	17	4	9.75	0.71414
	18	11	9.2727	0.80136
	19	102	9.8401	1.04836
	20	409	10.089	4.53989
	21	503	9.7811	1.07088
	22	254	9.8403	1.07595
	23	80	9.8675	1.20555
	24	20	10.105	1.20895
	25	3	10.1667	0.89629
	26	1	9.4	.
	Total	1387	9.8932	2.62763
Standing long jump(m)	17	4	1.8225	0.20023
	18	13	1.7669	0.14597
	19	104	1.6333	0.1714
	20	437	1.6648	0.17019
	21	529	1.6767	0.1838
	22	273	6.7749	84.14602
	23	87	1.6863	0.14994
	24	20	1.747	0.13727
	25	3	1.7367	0.21079
	26	1	1.64	.
	Total	1471	2.6191	36.25061
Sit-up test	17	4	26.25	5.90903
	18	13	29.3077	8.54775
	19	103	26.7476	7.03314
	20	435	26.708	7.42891
	21	530	27.3094	8.85861
	22	272	26.4338	6.47185
	23	87	24.977	7.76243
	24	20	26.45	8.43848
	25	3	33	1
	26	1	18	.
	Total	1468	26.7997	7.83805

Discussion

This study showed that the physical performance status remained stable over time in both the male and female groups. The physical performance status was poor in the present study, which is consistent with a previous study [5]. Although the study was preliminary, the

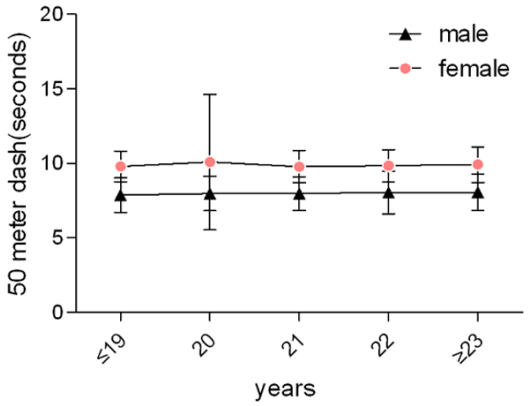

Figure 1. Comparison of the 50-meter dash time between males and females.

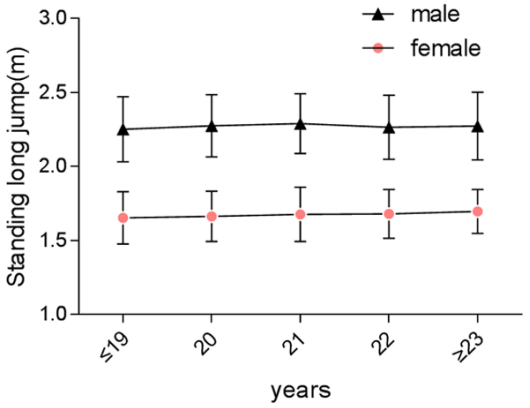

Figure 2. Comparison of the standing long jump distance between males and females.

study filled the gap in information for physical performance in Chinese university students.

There were also some imitations to our study. This study was a cross-sectional design and failed to include additional data regarding the general characteristics of the students, such as the level of education of students and the economic status of parents.

Thus, we should explore the risk factors for poor physical performance among students. Additionally, interesting physical items should be developed to guide more students taking part in physical activities.

Conclusion

Our study suggests that physical performance in Chinese university students is still poor and

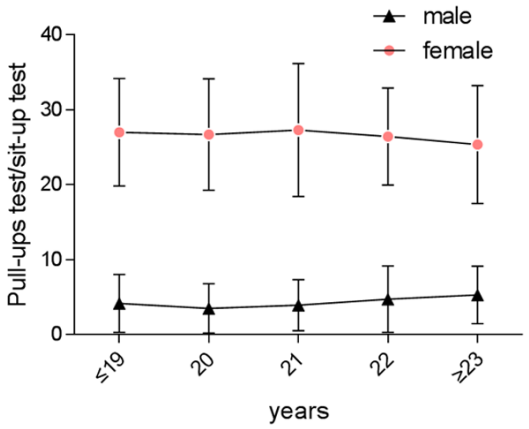

Figure 3. The number of pull-up for males and sit-up tests for females.

related departments should pay more attention to the physical health of university students.

Disclosure of conflict of interest

None.

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References

[1] Hao W, Yi H, Liu Z, Gao Y, Eshita Y, Guo W, Zhang H and Sun J. Gender comparisons of physical fitness indexes in Inner Mongolia medical students in China. Glob J Health Sci 2014; 7: 220-227.

[2] Ren X, Chen Y, He L, Jin Y, Tian L, Lu M, Lu W, Ding L, Guo D, Wang L, Nie Z and Yao Y. Prevalence of underweight, overweight and obesity in university students from the region of Anhui (China). Nutr Hosp 2014; 31: 1089-1093.

[3] Jakicic JM, Powell KE, Campbell WW, Dipietro L, Pate RR, Pescatello LS, Collins KA, Bloodgood B, Piercy KL; 2018 Physical Activity Guidelines Advisory Committee. Physical activity and the prevention of weight gain in adults: a systematic review. Med Sci Sports Exerc 2019; 51: 1262-1269.

[4] Tian D and Meng J. Exercise for prevention and relief of cardiovascular disease: prognoses, mechanisms, and approaches. Oxid Med Cell Longev 2019; 2019: 3756750.

[5] Du T, Zhu E and Jiao S. Poor physical performance is associated with obesity among university students in China. Med Sci Monit Basic Res 2017; 23: 173-178.