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Research on cheerleading affects contemporary university students' physiological function

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ABSTRACT

Cheerleading as a kind of new sports events has gradually stepped into people's life, and especially is favored by majority female friends. The paper firstly analyzes attention that university students pay to cheerleading, by Spss and other software; it carries out processing and analysis of investigation data and gets attention that contemporary university students pay to cheerleading has been gaining momentum, besides it also researches on cheerleading affects university students' health, uses probability theory and statistics relative methods to make systematic research, the research will provide theoretical basis for cheerleading relative course organized in university.

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KEYWORDS

Cheerleading
Training way;
Constitution influence;
Physiological function;
Mathematical model.

PREFACE

With technological development, various industries are also accordingly fast developing, in order to improve students' physical fitness and provide comprehensive talents for country to adapt social development trend, universities respectively research each kind of sports event, from which cheerleading as a kind of new sports events has stepped into campus and attracted much attention.

For cheerleading correlation research, relative scholars have made certain efforts and meanwhile got certain achievements, such as: Qiu Lan in the research of dynamic cheerleading affects schoolgirls, she made analysis and research on university students by applying mathematical statistics, questionnaire and other ways, and proposed that school should strengthen dynamic cheerleading publicity in school, and cheerleading was

helpful for students' health that should be widely spread; Liu Xiao-Jing regarding cheerleading difficulty training method research, she presented during handspring kind relative high difficulty training, implemented action and speed combination to make training so as to promote high difficulty movement techniques mastering.

The paper just based on previous researches, makes further research on cheerleading to university students impact, and combines with comparison method, mathematical statistics, questionnaire survey and other ways to analyze, the research will build good theoretical foundation for sports undertakings development.

CHEERLEADING TO UNIVERSITY STUDENTS' COMPREHENSIVE QUALITIES IMPACT MODEL

Cheerleading has been paid more and more uni-

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versal attention in universities, due to its intense movement; it is favored by broad youth, as following Figure 1 show.

Meanwhile many education institutions also respectively establish relative associations, lots of universities add it into optional courses, due to its teachers and students understanding are relative fewer, so the paper makes an investigation on students for the status, as following TABLE 1 show:

In order to more clearly present above TABLE 1 people learning status about cheerleading, it draws bar chart, as following Figure 2 show.

By above Figure 2, we can see that above 90% students know cheerleading, so it shows attention that teachers pay to cheerleading has already improved more than past.

Beside, the paper also carries out correlation research on investigation channels, it mainly by cheerleading associations, clubs, school organized aerobics relative courses, network media, and televisions each kind of way, as following TABLE 2 show:

By above TABLE 2, we can see that cheerleading learning mainly by media, most of people have certain understanding on cheerleading, and many classmates can know it by network, media and other channels, improve cheerleading's impact has certain positive facilitation to school education.

In the following, the paper makes investigation on university students; the result is as following TABLE 3 show:

In order to more vividly present above changing status from favorite to dislike, it draws broken line chart, as following Figure 4 show:

By above Figure 4 Table, we can see that number of people favorite and like contacting with cheerleading account for above 90%, which proves cheerleading is quite loved by broad students, so universities should further improve cheerleading emphasis, and give students passions on cheerleading into full play so as to improve its impact.

CHEERLEADING TO HEALTH IMPACT MODEL

The paper according to Chinese education relevant departments' stipulation, it respectively selects physical quality, function, body shape influence test and derivative indicators, makes research on university students, its standard is as following TABLE 4 show:

Cheerleading to university students' body function influences research

Body function is human body system important part, it is the systemization of human body each constitutive



Figure 1: Cheerleading sports figure

TABLE 1: University students learning about cheerleading' sinvestigationom

Basic information	Very familiar		Relative familiar		Know a little		Just heard		Know nothing	
	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage
Learning	20	5.1%	325	67.8%	112	22.7%	27	4.3%	3	0.1%

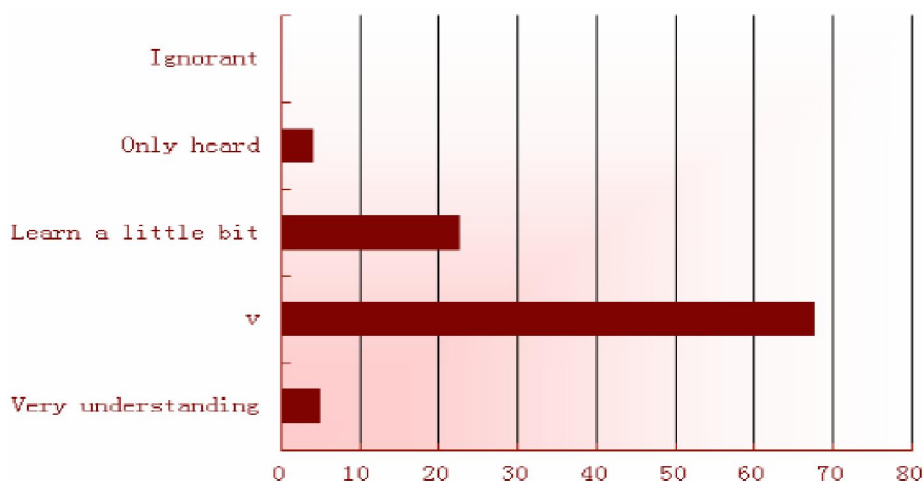


Figure 2 : Cheerleading sports figure

TABLE 2 : Cheerleading learning path investigation table

Basic information	Physical education class		School organization		Journals		Media		School health club	
	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage
Learning path	123	25.1%	55	10.7%	43	8.1%	254	49.6%	39	6.5%

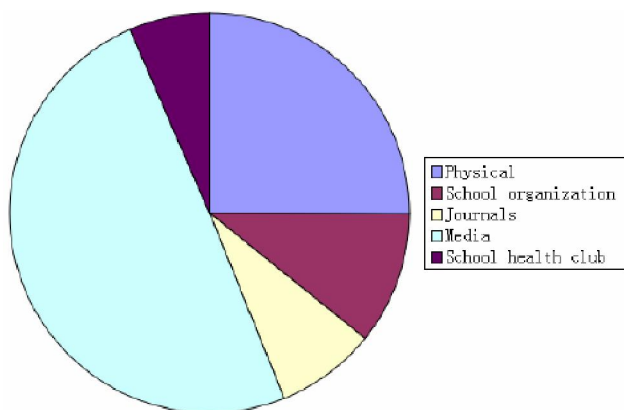


Figure 3: Learn ways survey figure cheerleading

TABLE 3 : Subject cheerleading accept level invest i gat I on status table

Basic information	Favorite		Like		Normal		Dislike	
	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage	Number of people	Percentage
Students cheerleading acceptance level	336	67.2%	114	23.1%	46	7.9%	11	1.8%

Cheerleading to university students’ body shape influence research

Human body muscular movement basic ability is called physical quality, it is a kind of reflection that body each part muscle’s integration that contains flexibility, sensitivity, speed, as well as strength and other function abilities. Test on cheerleading to university students’

organ, meanwhile is also body health core hinge, from which lung capacity is an important part, so in this case, the paper researches on university students’ lung capacity, its result is as following TABLE 5 show:

In order to more clearly present university students’ before and after cheerleading training lung capacity changing status, it draws bar chart, as following Figure 5 show:

By comparison, university students after cheerleading training, their lung capacity has been greatly improved, which will have larger changes on whole body function, so it proves that cheerleading has a strong positive effect on university students’ body function.

physical quality influence, the result is as following Table 6 show:

In order to more clearly present university students before and after exercising each indicator changing status, it draws bar chart as following Figure 6 show:

By above figure, we can see that in strength aspect, university students’ grip not only reflects their strengths sizes but also reflects their body health status, and

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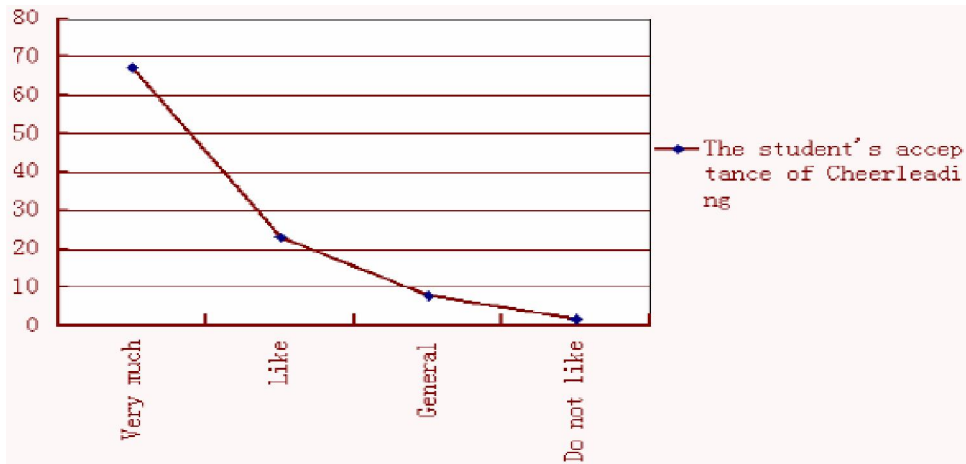


Figure 4 : Cheerleading measured by the degree of acceptance for investigation Cheerleading

TABLE 4: Select test indicator and derivative indicators

Test contents	Test indicators	Derivative indicators
Physical quality	Standing long jump	Grip weight coefficient: $\text{grip (kg)/weight (kg)} \times 100$
	800m	
	Sit and reach	
	Grip	
	Sit-up	
Body shape	Height	BMI:
	Weight	$\text{Weight (kg)/height (m)}$
Body function	Lung capacity	Lung capacity weight index:
		$\text{Lung capacity(ml)/weight(kg)}$

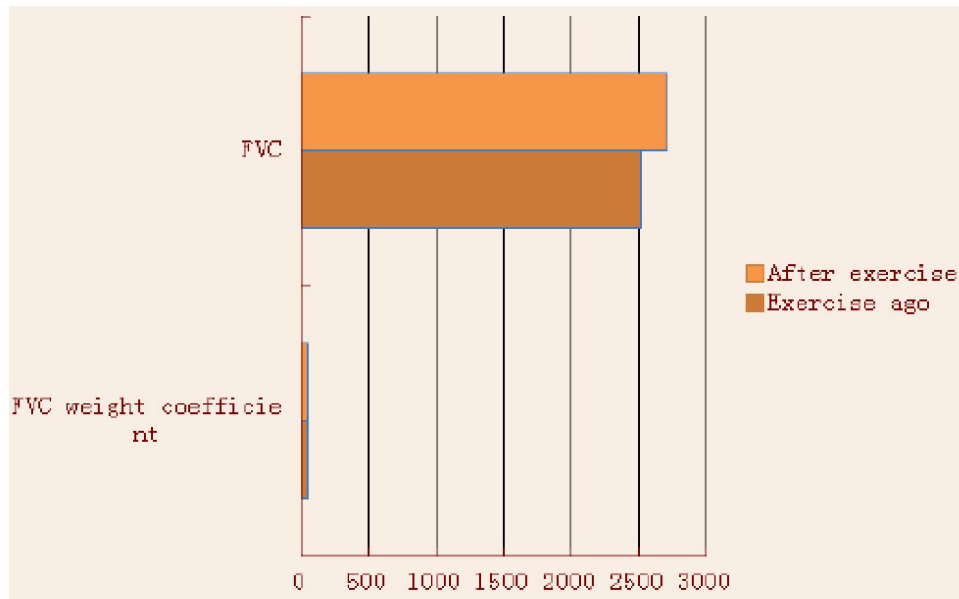


Figure 5 : Students' physical function before and after the exercise test results Figure Cheerleading

cheerleading hasn't greatly improved in university students' strength improvements aspect, which is related to cheerleading itself movement emphasis, cheerleading

mainly moves position is in legs and application in upper limbs is very little, but compared to weight loss, it plays certain positive roles in its strength aspect; in the

TABLE 5 : University students’ body function before and after cheerleading testing results table

Indicator	Lung capacity weight coefficient	Lung capacity
Before exercising	47.12 ± 5.09	2512 ± 345
After exercising	53.87 ± 4.96	2714 ± 351
P	0.003	0.0023

aspect of flexibility, cheerleading has larger impact on it, which proves that cheerleading has certain improvements in university students body joint activity, it can improve its structure and property to increase ligament and muscular extension, and improve its intense; except for that, other items respectively have certain impact on body, so it proves cheerleading exactly has

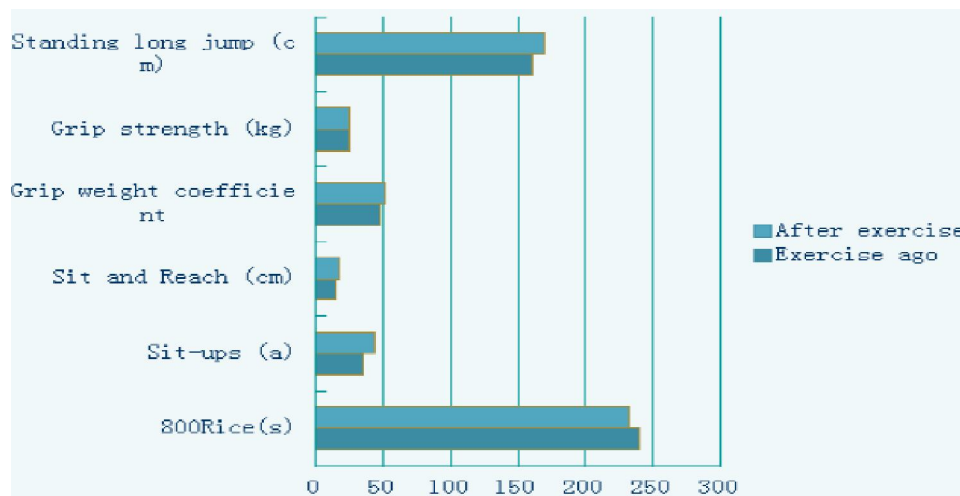


Figure 6 : University of physical exercise before and after the test results comparison

TABLE 6 : University students’ physical quality before and after testing results comparison

Indicator	800m (s)	Sit-up (piece)	Sit and reach (cm)	Grip weight coefficient	Grip(kg)	Standing long jump(cm)
Before exercising	240.5 ± 7.2	35.98 ± 3.89	15.23 ± 6.02	48.2 ± 3.91	25.8 ± 5.32	160.5 ± 15.97
After exercising	232.4 ± 6.21	44.53 ± 4.62	18.12 ± 4.78	52.4 ± 3.84	25.9 ± 5.47	169.2 ± 16.08
P	0.002	0.002	0.0031	0.0512	0.0498	0.002

TABLE 7 : BMI reference standard values

BMI classification	WHO standard	Asian standard	Chinese reference standard	Relative diseases incidence risk
Severe obesity	≥ 40.0			very seriously increase
Moderate obesity	35.0~39.9	≥ 30	≥ 30	Seriously increase
Overweight	≥ 25	≥ 23	≥ 24	
Mild obesity	30.0~34.9	25~29.9	27~29.9	Moderate increase
Normal range	18.5~24.9	8.5~22.9	18.5~23.9	Average level
Low weight	<18.5	<18.5	<18.5	Low
Obesity earlier stage	25.0~29.9	23~24.9	24~26.9	Increase

TABLE 8 : University students body shape before and after cheerleading testing results comparison

Indicator	BMI	Weight (kg)	Height (m)
Before exercising	22.41 ± 0.64	52.6 ± 4.98	156.7 ± 4.85
After exercising	20.78 ± 0.59	51.7 ± 4.86	155.1 ± 4.89
P	0.0023	0.0074	0.454

certain positive effects on improving physical quality.

influence research

Cheerleading to university students’ body shape

According to international body shape criterion, it

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TABLE 9 : Each optional class schoolgirls' first time testing physical quality comparison

Indicator	Sit and reach	Grip	Grip weight index	Sit-up	Standing long jump	800meters
Dynamic cheerleading	15.60 ± 5.93	26.2 ± 5.42	48.5 ± 3.90	36.09 ± 4.02	160.0 ± 16.47	240.3 ± 6.8
Martial arts	15.64 ± 5.89	26.4 ± 5.39	48.3 ± 3.89	36.02 ± 4.00	160.3 ± 16.50	238.8 ± 6.4
Volleyball	15.61 ± 5.95	26.3 ± 5.41	48.6 ± 3.91	35.98 ± 4.06	159.8 ± 16.42	240.4 ± 6.1
Table tennis	15.63 ± 5.94	26.0 ± 5.40	48.1 ± 3.92	35.86 ± 3.97	159.7 ± 16.59	239.5 ± 6.9
Badminton	15.66 ± 5.97	25.8 ± 5.45	48.4 ± 3.84	36.04 ± 3.95	159.6 ± 16.54	239.6 ± 6.7

TABLE 10 : Each optional class schoolgirls' first time testing body shape and body function comparison

Indicator	Height	Weight	BMI	Lung capacity	Lung capacity weight coefficient
Dynamic cheerleading	160.1 ± 5.14	54.2 ± 4.96	21.02 ± 0.63	2504 ± 361	46.38 ± 4.82
Martial arts	158.9 ± 4.87	53.8 ± 5.06	21.06 ± 0.61	2496 ± 360	46.29 ± 4.84
Volleyball	159.7 ± 4.98	53.9 ± 4.91	21.05 ± 0.65	2491 ± 368	46.27 ± 4.81
Table tennis	161.2 ± 4.81	53.8 ± 4.84	21.01 ± 0.62	2688 ± 362	46.35 ± 4.88
Badminton	160.2 ± 4.95	54.2 ± 5.14	21.04 ± 0.60	3498 ± 365	46.40 ± 4.83

makes classification on university students that include normal, obesity and other status, as following Table 7 show:

The paper defines university students' body shape according to above TABLE 7, and based on this it tests university students body changes status, subjects status is as following TABLE 8 show:

Corresponding bar chart to above table as following Figure 7:

By above TABLE 8, we can see that university students before and after cheerleading BMI and weight aspect changes are relative obvious, it shows that university students after cheerleading training, body fat,

muscles and others occur to changes, therefore it let university students body shape change, and there is no big change in height that is due to university students basically have already being shaped and it will happen to obvious change by cheerleading training.

Cheerleading and other sports events comparative analysis

Make twice tests on university students that take cheerleading training, and compare with table tennis, volleyball, martial arts, badminton sports events, comparison on physical quality from testing is as following TABLE 9 show :

TABLE 11 : Cheerleading, table tennis, volleyball, badminton, martial arts to body shape influence table

No.	Course	Height	Weight	BMI	F	P
1	Dynamic cheerleading	160.2 ± 5.02	51.1 ± 4.90	20.06 ± 0.60		
2	Table tennis	158.9 ± 5.01	51.7 ± 4.92	20.19 ± 0.59		
3	Volleyball	160.3 ± 4.98	51.9 ± 4.97	20.23 ± 0.63	0.84	P>0.06
4	Badminton	159.7 ± 4.93	51.3 ± 4.94	20.14 ± 0.62		
5	Martial arts	159.8 ± 4.95	51.0 ± 4.95	20.17 ± 0.61		

And relative events university students' body function and shape comparison is as following TABLE 10 show:

By above TABLE 10, we can get relations among physical quality, function and shape aspects each item, by comparing, we can see when $p > 0.05$, first time testing has no larger changes, each item has no larger differences.

Make second time testing on above each item relative university students; its result is as following TABLE 11 show:

By above TABLE 11 we can get $p > 0.05$, it proves that cheerleading, volleyball, table tennis, badminton, martial arts are proper in exercising, meanwhile it also proves above kinds of items have no great differences, it still is a steady state on a whole.

CONCLUSIONS

The paper analyzes cheerleading emphasis in universities and its impact on body, by investigation and mathematical statistics applying, it proves that university students fondness level's proportion on cheerleading is relative deeper, and understanding cheerleading by network accounts for maximum proportion; besides, it also gets cheerleading to physical quality impact, and builds theoretical basis for universities' cheerleading fostering and improving its team spirits, which provides evidence and guarantee for universities improving cheerleading teaching relative exercise system construction and reform.

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