

Research on Health Related Physical Fitness of Chinese Li Nationality Students

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Abstract. To study the health related physical fitness of Chinese Li nationality students of 7-18 years old, the work began with literature, survey, measurement and statistics, at last by independent samples T-test to compare the health related physical fitness of Chinese Li nationality students, there were three compare methods, first is a compare with the whole students of Li nationality, the second was concerned with the Li nationality school boys or Li nationality school girls, the third was concerned with the compare of gender. The results show that Li nationality students' health related physical fitness appears a decrease tendency in ten years, especially the pulse, the grip strength. The Li nationality school boys appear a rapid decrease than the girls, and the difference between gender changes into bigger in pulse and crook before the seat body. So, to improve the whole educational environment which surrounding these children, and to concern with their nutrition, habitation, and traditional nationality sports is the meaningful thing to do.

Introduction

From 1985, Chinese government began an investigation which about the physical fitness and health of Chinese school students, which started the next investigation per 5 years. Now begins the study with an opened data of Chinese government about physical and health research, try to learn the characteristic of Chinese Li nationality students' status of health related physical fitness.

Research Objects and Methods

Research Objects. The objects include 7-18 years old Li nationality students, which the general number is 12217, among them, the school boy is 6315, the school girl is 5902, and 4783 in 2005, 7434 in 2015.

Research Methods. The main methods include literature, survey, measurement and statistics. and the measurement indexes are pulse, grip strength, and crook before the seat body etc.

In the comparison of data, the main comparison object is average level, the statistics is independent samples T-test. which the original data comes from 2005 Chinese government's opened reports of physical fitness and health research of Chinese school students or recently[1][2].

Results

Changes of Health Related Physical Fitness of Li Nationality Students from 2005 to 2015. Ten years after, Li nationality students' fitness appears decrease. Such as, the pulse, the grip strength. in ten years, the pulse increased by 4.515 time per one minute, and the grip strength decreased by 4.6943kg, only the crook before the seat body cannot see the obviously change. We can see clearly from the Table 1.

Table 1 Comparison on Health Related Physical Fitness of Li Nationality Students (2005-2015)

Index	Equal variances assumed or not assumed (Y or N)	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pulse	Y	1.302	.254	-9.121	4676	.000	-4.515	.495	-5.485	-3.544
	N			-9.138	3442.071	.000	-4.515	.494	-5.484	-3.546
Grip strength	Y	699.661	.000	9.848	4650	.000	4.6943	.4767	3.7598	5.6288
Crook before the seat body	Y	4.144	.042	-1.762	4671	.078	-.3281	.1863	-.6933	.0371

Health Related Physical Fitness of Li Nationality School Boys From 2005 to 2015. For nationality school boys, the tendency of decreased is more obviously. From the Table 2, in ten years, the pulse increased by 6.122 time per minute, the grip strength decreased by 5.2936kg, and the crook before the seat body cannot see more change.

Table 2 Comparison on Health Related Physical Fitness of Li Nationality School Boys(2005-2015)

Index	Equal variances assumed or not assumed (Y or N)	Levene's Test for Equality of Variances		t-test for Equality of Means				95% Confidence Interval of the Difference		
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Pulse	Y	92.804	.000	-6.968	2402	.000	-6.122	.879	-7.845	-4.400
Grip strength	Y	392.701	.000	6.947	2402	.000	5.2936	.7620	3.7993	6.7878
Crook before the seat body	Y	5.613	.018	.616	2407	.538	.1588	.2577	-.3465	.6641

Changes of Health Related Physical Fitness of Li Nationality School Girls From 2005 to 2015. Perhaps the Li nationality school girls' performance are not awful than the boys. From the table 3, we can see that the pulse increased by 2.579 times per minute, and the grip strength decreased by 2.9679kg, but the crook before the seat body, it's obviously increased by 0.6195 cm.

Table 3 Comparison on Health Related Physical Fitness of Li Nationality School Girls(2005-2015)

Index	Equal variances assumed or not assumed (Y or N)	Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error	95% Confidence Interval of the Difference	
									Lower	Upper
Pulse	Y	221.258	.000	-6.620	2272	.000	-2.579	.390	-3.343	-1.815
Grip strength	Y	388.500	.000	6.190	2246	.000	2.9679	.4795	2.0277	3.9082
Crook before the seat body	Y	1.262	.261	-2.380	2262	.017	-.6195	.2602	-1.1298	-.1091
	N			-2.368	1444.092	.018	-.6195	.2616	-1.1326	-.1063

Comparison on Health Related Physical Fitness of Li Nationality Students between Gender.

When compare between gender, we can see, the difference between gender changes into bigger, except the grip strength, from 9.6346kg to 7.3089kg. The pulse, from 3.352 time per minute to 3.7649 time per minute. And the crook before the seat body, from 1.7642cm to 2.5425cm, they all can see obvious test significant.

Table 4 Comparison on Health Related Physical Fitness of Li Nationality Students Between Gender

Index		Equal variances assumed	Levene's Test for Equality of Variances		t-test for Equality of Means						
			F	Sig.	t	df	Sig.(2-tailed)	Mean Difference	Std. Error	95% Confidence Interval of the Difference	
										Lower	Upper
Pulse	2015	Y	142.542	.000	-19.485	3030	.000	-3.7649	.1932	-4.1438	-3.3860
	2005	Y	32.557	.000	-4.235	1660	.000	-3.352	.792	-4.905	-1.800
Grip strength	2015	Y	800.890	.000	18.096	3028	.000	7.3089	.4039	6.5170	8.1009
	2005	Y	198.137	.000	9.521	1620	.000	9.6346	1.0119	7.6497	11.6194
Crook before the seat body	2015	N	.646	.421	-11.863	3016.672	.000	-2.5425	.2143	-2.9627	-2.1222
	2005	N	2.919	.088	-5.862	1617.272	.000	-1.7642	.3010	-2.3545	-1.1739

Conclusion

Li nationality students' health related physical fitness appears a decrease tendency in ten years. Especially the pulse, the grip strength. To compare with the girls, the Li nationality school boys appear a rapid decrease. Only in the crook before the seat body, only the Li nationality school girl has a silly increase.

To compare between the genders, the difference between gender changes into bigger in pulse and crook before the seat body.

Perhaps the tendency of fitness decrease is a common phenomenon to Chinese students. So, to improve the whole educational environment which surrounding these children is the first thing to do. And to concern with the nutrition, habitation and traditional nationality sports, maybe the meaningful thing to the Li nationality students.

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