

## Research Article

### The Comparative Study on the Physique and Physical Training Situation between the Senior Citizens in Urban and Rural Areas in Tangshan City

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**Abstract:** In this study, we have a comparative study on the physique and physical training situation between the senior citizens in urban and rural areas in Tangshan city. This research is aimed at studying the physical conditions of 281 representative senior citizens (60-69 years old) in urban and rural areas of Tangshan city, Hebei Province, to get a complete insight into the current physical conditions of Tangshan senior citizens. With the help of correlation data of the second national physique monitoring organized by Hebei Sports Bureau and relative departments, this study analyses the factors affecting senior citizens' physique health based on their body shape and physical function and the physical qualities etc., by using methods of investigation and mathematical statistics. Furthermore, some rational proposals on Tangshan urban and rural senior citizens' sports exercise and physical health development are provided here, as a guide for senior citizens to take an active part in sports exercise and develop build up their body in an all-around way.

**Keywords:** Physique, senior citizens in urban and rural areas, sports exercise, Tangshan city

#### INTRODUCTION

In 2005, Hebei Minucipal Bureau of Sports organized second civil constitution monitoring with other related departments. Tangshan city of Hebei Province is a modern strong economy city which has a long history, specially now "the township dwellers basic medical insurance experiment unit" has chosen Tangshan city and integrates the physique monitor into social welfare safeguard system, which establishes a more comprehensive senior citizens' physique health file and has a more profound significance to the Tangshan national physique development in future. Wang (2005) have a research of the promotion of popular sports in china using the experience of popular sports in south Korea and Japan. Hebei National Physique Monitoring Center (2006) makes a communique of the second national physique monitoring in Hebei province. Fang and Ji (2003) make a study on the physical exercise motivation of the old in China.

This research is aimed at studying the physical conditions of 281 representative senior citizens (60-69 years old) in urban and rural areas of Tangshan city, Hebei Province, to get a complete insight into the current physical conditions of Tangshan senior citizens. With the help of correlation data of the second national physique monitoring organized by Hebei Sports Bureau and relative departments, this study analyses the factors affecting senior citizens' physique health based on their body shape and physical function and the physical qualities etc. by using methods of investigation and

mathematical statistics. Furthermore, some rational proposals on Tangshan urban and rural senior citizens' sports exercise and physical health development are provided here, as a guide for senior citizens to take an active part in sports exercise and develop build up their body in an all-around way.

#### MATERIALS AND METHODS

This object of study includes 281 urban and rural senior citizens (60-69 years) which attended the second nation physique monitor in Tangshan city, Hebei province. Investigation Method: Investigate the senior citizens' exercising status, body figure, body function, body conditions, etc. Method of Mathematical Statistics: Computerize the data of senior citizens of second civil constitution monitoring and use the SPSS13.0 mathematical statistic software to analyze the result.

#### RESULTS AND DISCUSSION

**The Tangshan city and countryside senior citizen participates in the physical training condition research:** Revealed in an investigation on the basic situation of the senior citizens participated in the second "monitoring of national people's health", 203 people had experienced of the "monitoring of national people's health", which accounted 72.24% of the people who accepted the investigation. The number of old men is 97 which accounted for 47.78% and the number of elder women is 106 which accounted for 52.22%. This

Table 1: Body shape comparison between urban and rural elderly population in Tangshan

Classification	Statistics	Body height (cm)	Body weight (kg)	Chest circumference (cm)	Waist circumference (cm)	Button circumference (cm)	Upper arm skin-fold thickness (mm)
The rural male elderly (N = 48)	m	165.63	60.02	85.29	79.61	91.09	12.35
	sd	5.70	8.57	5.34	7.68	6.20	3.92
The urban male elderly (N = 96)	m	167.37	68.40	95.17	93.24	95.94	14.22
	sd	5.40	9.58	9.59	9.90	6.78	5.84
	p	0.47	0.66	0**	0.04*	0.94	0.10
The rural female elderly (N = 49)	m	155.00	60.35	89.92	86.46	96.00	23.67
	sd	5.81	8.98	6.87	8.99	6.38	6.44
The urban female elderly (N = 88)	m	156.82	59.14	89.52	89.52	94.85	17.70
	sd	4.93	8.92	9.72	9.72	7.12	5.67
	p	0.21	0.61	0.01**	0.14	0.27	0.64

  

Classification	Scapular skin-fold thickness (mm)	Abdominal skin-fold thickness (mm)	BMI (index)	Quetelet (index)	Vervaeck (index)	Waist-hip ratio	Chest-waist ratio
The rural male elderly (N = 48)	11.25	15.67	21.82	361.70	88.90	87.36	91.15
	4.37	6.40	2.46	44.87	6.64	5.38	6.10
The urban male elderly (N = 96)	14.72	17.80	24.37	408.05	97.61	97.29	98.23
	7.17	8.43	2.82	50.72	8.74	8.49	8.70
	0**	0.04*	0.19	0.33	0.01**	0**	0.21
The rural female elderly (N = 49)	19.63	38.34	24.74	386.12	96.27	89.99	96.08
	5.31	8.90	2.91	49.64	8.35	6.35	5.85
The urban female elderly (N = 88)	14.27	24.09	24.06	377.06	98.11	94.42	94.62
	6.73	10.17	3.55	54.98	9.99	7.91	5.96
	0.01**	0.60	0.01**	0.10	0.01**	0.01**	0.98

N: Sample number; m: Mean number; sd: Standard deviation; p: Significant difference; \*: 0.01<p≤0.05; \*\*: p≤0.01

situation happened due to the large population of our country, insufficiency of publicity for "monitoring of national people's health", etc.

Among the senior citizens who filled the questionnaire forms in Tangshan City, 52.6% (148 persons) of the people who accepted the investigation take physical exercise less than twice per week on average and 48.33% (133 persons) take exercise for more than 3 times per week on average, accounting for 48.33 and 76.16% of the testees averagely work less than 20 h every week, which means that most of the senior citizens have enough time to do exercises but they fail to do so. According to the investigation, the first five main barriers for taking part in physical exercise are respectively listed as follows: 109 people choose not interested, 75 people choose lacking of time, 74 people choose laziness, 61 people choose lacking of guidance and 58 people choose not necessary because they think they are very well. This is because the senior citizens do not have good command of the advantage of taking part in physical training as well as how to carry out physical exercise.

The survey shows that the purpose of senior citizens who taking part in the exercise is very clear. For more than half of them, the purpose is keeping fit and healthy. On choosing physical exercise, for elderly

men, long distance walking is most liked, while for elderly women, bodybuilding exercise (dance) and Chinese Yangge are preferred. On choosing of the physical exercise places, the first choice is park, followed by highways, streets, communities and open space, etc. We think we shall continuously increase the place and equipment for physical exercise for senior citizens by the help of government and social media.

**The research on physique condition of senior citizens in Tangshan:**

**The research on bodily shape target:** It is can be seen from the Table 1 that the average values of the index such as the chest circumference, waist circumference, scapular skin-fold thickness, abdominal skin-fold thickness, vervaeck index, waist-hip ratio and so on of the elderly men in urban in Tangshan are higher than that in rural areas (0.01<p≤0.05 or p≤0.01). This shows that since reform and open, the lives of the people have been better gradually, the living condition of the urban elderly men in Tangshan is relatively good. This is because the majority senior citizens do not have the practical training, the body starts to put on weight, the fat content starts to advance. It is easy to induce such chronic disease, for example hypertension,

Table 2: Body function comparison between urban and rural elderly population in Tangshan

Classification	Statistics	Quiet pulse (times/min)	Systolic blood pressure (mmHg)	Diastolic blood pressure (mmHg)	Vital capacity (mL)
The rural male elderly (N = 48)	m	85.19	132.17	80.19	2438.42
	sd	11.68	13.13	7.79	671.31
	p				
The urban male elderly (N = 96)	m	79.64	135.03	84.00	2863.41
	sd	12.25	16.89	7.52	778.59
	p	0.34	0.50	0.99	0.58
The rural female elderly (N = 49)	m	85.57	135.78	80.57	2034.81
	sd	12.13	20.99	10.07	1035.85
	p				
The urban female elderly (N = 88)	m	75.55	129.69	78.50	1902.57
	sd	8.47	13.53	7.79	703.04
	p	0.01	0	0.03	0.10
		**	**	*	

N: Sample number; m: Mean number; sd: Standard deviation; p: Significant difference; \*: 0.01<p≤0.05; \*\*: p≤0.01

Table 3: Body quality comparison between urban and rural elderly population in Tangshan

Classification	Statistics	Crook before the seat body (cm)	Grip strength (kg)	Standing on one foot with eyes closed (sec)	Choice reaction time (sec)
The rural male elderly (N = 48)	m	4.14	34.54	4.73	0.69
	sd	6.04	8.08	3.84	0.19
	p				
The urban male elderly (N = 96)	m	5.68	35.37	5.80	0.56
	sd	8.04	8.06	3.35	0.30
	p	0.34	0.50	0.99	0.58
The rural female elderly (N = 49)	m	8.84	21.79	4.43	0.73
	sd	8.80	5.92	3.71	0.20
	p				
The urban female elderly (N = 88)	m	7.24	23.66	5.10	0.66
	sd	8.76	6.07	3.86	0.34
	p	0.75	0.34	0.64	0.19

N: Sample number; m: Mean number; sd: Standard deviation; p: Significant difference; \*: 0.01<p≤0.05; \*\*: p≤0.01

hyperlipidemia, hyperglycaemia and so on. Besides the two index of vervaeck index, waist-hip ratio of the elderly women in urban Tangshan are higher than the elderly women in rural area, the average value of the index such as the chest circumference, scapular skin-fold thickness and the BMI index is lower than the elderly women in rural area (0.01<p≤0.05 or p≤0.01). It has the obvious difference. The above results show that Tangshan as a developed economic city, the quality of life of the rural population has a distinct enhance, the mechanization of the farmland work causes a decrease of the artificial practical training opportunity. And the decrease of the activity amount of the elderly women in rural area causes the increase of the fat content of the body and the body puts on weight. It can be seen from the above analysis that the Tangshan senior citizens needed restraining the body of changing fat urgently at present, which is the key of the senior citizen to preventing disease. The bodily organ of senior citizen is becoming weak gradually with age increase, the body's putting on weight can induce each kind of old disease's occurrence. We through the research thought that the senior citizens should always maintain the gentle point of view, participate in the exercise positively and achieve alternate work with rest, nutrition matching to be reasonable.

**Research of bodily function target:** Main discovery from Table 2 is that there is no significant difference in the Tangshan city's old age man's peaceful pulse, the

systolic pressure, the diastolic pressure, the vital capacity. The city old age man's peaceful pulse of 79.64±12.25/min is lower than the village old age man of 85.19±11.68/min. The systolic pressure and the diastolic pressure are respectively 135.03±16.89 and 84±7.52 mmHg, those are higher than the village old age man's 132.17±13.13 and 80.19±7.79 mmHg. The Pulse and blood pressure have relatively great relation with the work, the rest condition and many other factors. For the old age man in countryside of Tangshan city, their vital capacity function has some difference but in normal range. The Tangshan City's old age female's peaceful pulse, systolic pressure and diastolic pressure targets have significant difference (0.01<p≤0.05 or p≤0.01). And the Tangshan village senior citizen's peaceful pulse, systolic pressure, diastolic pressure and vital capacity targets are higher than that of the Tangshan City's old age female.

**Research of physical quality target:** It can be seen from analytical Table 3 that the target of seat body anteflexion (5.68±8.04 cm) (4.14±6.04 cm) of the Tangshan city's old age man has the significant difference with the village old age man. Power of gripping and selective reaction these two targets of Tangshan City's old age man are higher than the village old age man. For the target value of the single foot stand with closing eyes of the Tangshan village old age man is higher than the city old age man. But these three targets still belonged to the normal range. It suggested

that the village old age man should strengthen the strength of arm, the balanced state and the bodily coordinative training. The Tangshan city's old age female's seat body anteflexion target is higher than the village old age female's. The power of gripping, close one's eyes single foot stand and the selective reaction targets of both have no obvious difference.

### **CONCLUSION**

- The senior citizens in Tangshan city and countryside should know more about "national physique monitor", which could attract more senior citizens to join sports exercise.
- Sports items of the senior citizens in Tangshan city and countryside are becoming more and more, so the sports arena cannot meet the requirement of local people.
- The aspect of senior citizens body shape in Tangshan city and countryside: fat should be an important problem which should be focused by senior citizens.
- The aspect of senior citizens' physical function in Tangshan city and countryside: men's pulse frequency is higher in countryside than the men's in city, men's systolic pressure, diastolic pressure, vital capacity in city is higher than the men's in countryside.
- The aspect of senior citizens' physical quality in Tangshan city: strength and balance and flexibility.
- Of the old man in countryside are not so good, flexibility of the old woman in countryside is higher than woman's in city.

### **RECOMMENDATIONS**

- To promote propaganda of "nation physique monitor", strengthen the senior crowd health check and physique monitor and announce result to society and raise a solution.
- Tangshan city government should increase investment in the area of the senior citizens' health. In urban communities, there should be some special place for sports exercise in village where the building of sports equipment should be increased. In every community they should invite some special sports supervisor to give guidance to people.
- The senior citizen in Tangshan city and countryside should optimize the item of the sports exercise, which should be suitable for themselves, in order to improve health and keep fit.
- The senior citizens in Tangshan city should focus on body shape, physical function and physical quality, so that they can keep fit for ever.

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