

Physical Fitness and the Development of Mass Sport

體適能與大眾體育的發展

Frank H. FU

Faculty of Social Sciences,
Hong Kong Baptist University, HONG KONG

傅浩堅

香港浸會大學社會科學院



Abstract

As a city became more urbanized and industrialized, the health and quality of life of the residents changed. As a result of changing lifestyle and eating habits, coronary heart disease (CHD) has become a leading cause of death in many countries. It was found that among the various behavior-related CHD risk factors, physical inactivity was the most important independent factor. Although some researches indicated that the correlation between physical fitness and physical activity was low in children, this relationship increased with age. Current consensus suggests that people are aware of the importance of good health and the need to develop an active lifestyle as a primary prevention program against CHD. The present paper will attempt to discuss the importance of promoting physical fitness and developing mass sport in light of current research findings in this area.

摘要

城市日益都市化及工業化，而居民的健康及生活質數也隨之改變，因生活的方式及飲食習慣的改變，在很多發達國家，冠心病更成為死亡的頭號殺手。研究所得，在眾多與冠心病連上關係的危基因素之中，身體不常活動是其中一個最主要的因素。雖然，有部份研究顯示，兒童身體適能與身體活動量之相關性很底。而此關係亦隨著年齡而增長。基於此概念，人們應有注重身體健康的意識及在日常生活當中，盡能安排可提高身體活動量之活動，以防止出現冠心病危基。此研究內容討論推廣體適能與重要運動之發展。

Introduction

Coronary heart disease (CHD) is the leading cause of death in most developed and developing countries. Among the various behaviour-related risk factors of CHD, physical inactivity remains one of the most important factors – physical inactive people are almost twice as likely to develop CHD as people who engage in physical activity (Pate, Dowda & Ross, 1990). Recent surveys suggested that people were very conscious of their health and quality of life but remained quite sedentary (Fu et al., 1998; Kavanagh, 2001, Naul et al., 1998; Telama, 2002). Thus, there is a dire need to promote the development of an active lifestyle

through purposeful physical activity as a primary prevention programme against CHD (Mensink et al., 1997; Morgan, 2001; Wannamethee & Shaper, 2001).

Physical Fitness, Health and Wellness

While the traditional objectives to attain health are to avoid disease and to delay death, current trends are towards a more holistic approach –to have quality of life and wellness (Francis, 1999; U.S. Department of Health and Human Service, 1998). It is accepted that physical fitness is the basic requirement for health, quality of life and wellness and includes six areas. (see Table 1)

Table 1. Components of Physical Fitness.

Components of Physical Fitness
Cardiovascular endurance (stamina)
Muscular strength and endurance
Flexibility
Body composition (percent body fat and ideal body weight)
Stress management and relaxation
Bone density

(Sources: Fu, 1994; Fu, et al., 1998; President Council on Physical Fitness and Sports, U.S. Department of Health and Human Service, 1998)

Physical Fitness and Physical Activity

Previous studies suggested that the correlations between physical fitness and physical activity were significant but low

and that children were generally fit (Naul et al., 1998; Pate, Dowda & Ross, 1990).

Pate (1998) indicated that it would be important to better understand factors associated with physical activity behavior in children and youth from the demographic, physiological, psychological and environmental perspectives. He believed that making substantial changes in the practices of parents, schools, communities and health-care providers were essential in encouraging young people to be physically active and providing them with enjoyable and successful physical activity experiences. Telama et al. (2001) found that correlations between physical activity and fitness of European youth revealed significant relationships (p. 132). In the US, physical activity and fitness were regarded as important in health promotion and disease prevention. It was suggested that the highest quality of life is an active lifestyle and guidelines for specific types and intensities of physical activity for all individuals have been developed (President Council on Physical Fitness and Sports, 2001).

Table 2. Correlations between Physical Activity and Fitness of European Students (Naul et al., 1998, p. 67).

	Non-org. Activity	Participation in Competition	Intensity Activity	Phy. Activity Index
Boys 15				
Standing broad jump	-	.18	.16	.19
Shuttle run (endurance)	-	.36	.36	.40
Curl-ups (abd. muscle endurance)	-	.27	.31	.32
Standing five-jump	-	.24	.21	.22
Sit and Reach	-	.19	-	.19
Girls 15				
Standing broad jump	-	.35	.31	.34
Shuttle run (endurance)	-	.37	.39	.50
Curl-ups (abd. muscle endurance)	-	.42	.40	.50
Standing five-jump	-	.35	.27	.35
Sit and Reach	-	.16	.28	.27
Boys 12				
Standing broad jump	-	.25	-	.17
Shuttle run (endurance)	.15	.21	.23	.24
Curl-ups (abd. muscle endurance)	-	.20	.16	.21
Standing five-jump	-	.17	-	-
Sit and Reach	.16	.17	.20	.24
Girls 12				
Standing broad jump	.21	.31	-	.32
Shuttle run (endurance)	-	.41	.23	.34
Curl-ups (abd. muscle endurance)	-	.36	.24	.39
Standing five-jump	.15	.37	.15	.35

Correlation coefficients in the table are significant at least 0.05% level

Table 3. Factors associated with Physical Activity Behaviour in Children and Youth (Pate, Dowda & Ross, 1990).

1.	Demographic determinants	-	age, gender, race.
2.	Physiological determinants	-	aerobic fitness, obesity, motor-skill development, heredity.
3.	Psychosocial determinants	-	self-efficacy, perceived benefits, perceived barriers, enjoyment and attitude toward physical activity, beliefs about physical activity, intentions to be active, social norms.
4.	Environment determinants	-	Parental activity, parental support for physical activity, peer support, access to facilities and equipment, TV watching, time spend outdoors.

Table 4. Correlations between Physical Activity and Fitness by Gender and Age of European (Telama et al., 2002, p. 132).

<i>12-years-old boys</i>	Fitness Index	Board Jump	5-jump	Sit & Reach	Curl-Up	Shuttle Run
1. Physical activity index	.27**	.13**	.11**	.09**	.24**	.26**
2. Activity in ECA or club	.19**	.07*	.08**	.04	.23**	.17**
3. Activity outside club	.11**	.08**	.04	.07*	.08**	.12**
4. Frequency of PA	.19**	.10**	.07*	.09**	.15**	.19**
5. Hours of intensive PA	.20**	.11**	.06	.08**	.16**	.17**
6. Participation in competition	.28**	.16**	.14**	.06*	.24**	.26**
<i>15-years-old boys</i>	Fitness Index	Board Jump	5-jump	Sit & Reach	Curl-Up	Shuttle Run
1. Physical activity index	.37**	.22**	.26**	.12**	.27**	.34**
2. Activity in ECA or club	.27**	.15**	.18**	.06*	.22**	.18**
3. Activity outside club	.15**	.09**	.09**	.09*	.10**	.18**
4. Frequency of PA	.26**	.15**	.15**	.11**	.20**	.26**
5. Hours of intensive PA	.30**	.16**	.17**	.13**	.24**	.28**
6. Participation in competition	.38**	.22**	.28**	.11**	.23**	.32**
<i>12-years-old girls</i>	Fitness Index	Board Jump	5-jump	Sit & Reach	Curl-Up	Shuttle Run
1. Physical activity index	.38**	.25**	.25**	.15**	.29**	.29**
2. Activity in ECA or club	.28**	.17**	.17**	.08**	.26**	.16**
3. Activity outside club	.17**	.12**	.12**	.05	.10**	.19**
4. Frequency of PA	.26**	.16**	.16**	.12**	.19**	.23**
5. Hours of intensive PA	.23**	.14**	.15**	.12**	.20**	.17**
6. Participation in competition	.40**	.26**	.26**	.16**	.25**	.33**
<i>15-years-old girls</i>	Fitness Index	Board Jump	5-jump	Sit & Reach	Curl-Up	Shuttle Run
1. Physical activity index	.42**	.26**	.22**	.18**	.33**	.39**
2. Activity in ECA or club	.33**	.19**	.13**	.13**	.30**	.28**
3. Activity outside club	.14**	.10**	.08**	.04	.12**	.20**
4. Frequency of PA.	.27**	.15**	.13**	.17**	.19**	.24**
5. Hours of intensive PA	.34**	.19**	.16**	.19**	.27**	.29**
Participation in competition	.41**	.31**	.28**	.13**	.25**	.38**

Correlation is significant at the 0.01 level (**), at the 0.05 level (*)

Frequency of PA. = Frequency of physical activity

Current Researches

Recent studies on the lifestyle of urban residents indicated that 50-60% of them were sedentary (Fu et al., 1998; Kavanagh, 2001; U. S. Department of Health and Human Service, 1998),

especially female teenagers. It was believed that promoting active lifestyle would improve health and that daily exercise of 30 min should be an achievable target for everyone (Beighle, Pangrazi & Vincent, 2001).

Table 5. The Prevalence of CHD Risk Factors (expressed in percentages) of Hong Kong Chinese Subjects (Fu, 2001).

	<u>Male subjects (N= 553)</u>	<u>Female subjects (N= 879)</u>
CHD Risk Factors		
High Blood pressure	8.2%	5.1%
High Serum Cholesterol	12.5%	6.7%
Low Level of HDL	42.3%	13.7%
Cigarette Smoking	21.9%	4.4%
Overweight (BMI)	15.6%	8.2%
(Percent body fat)	17.5%	6.1%
Lack of Exercise Habit	61.7%	68.5%
Alcohol Consumption	0.4%	0.0%
Family History	9.5%	8.1%

Table 6. Physical Fitness Test Scores of Chinese Male and Female Subjects (Fu, 1993).

		<u>Age Groups</u>							
Sex		18-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55
Male		27.50	27.67	27.50	28.83	26.59	22.29	19.80	19.17
		±3.96	±1.86	±4.15	±4.36	±4.60	±2.56	±4.44	±3.43
		(n= 18)	(n= 6)	(n= 12)	(n= 6)	(n= 17)	(n= 7)	(n= 5)	(n= 6)
Classifications		Good	Good	Good	Good	Good	Average	Bel.Av.	Bel.Av.
Female		24.92	26.38	25.89	27.47	22.71	23.21	23.09	25.33
		±3.52	±5.78	±5.01	±5.99	±3.72	±3.07	±3.78	±4.51
		(n= 13)	(n= 8)	(n= 9)	(n= 15)	(n= 17)	(n= 14)	(n= 11)	(n= 3)
Classifications		Average	Good	Average	Good	Average	Average	Average	Good

Values are means ± SD

n is number of subject

“Excellent” - Total scores of the physical fitness tests between 30-40

“Good” - Total scores of the physical fitness tests between 26-29

“Average” - Total scores of the physical fitness tests between 21-25

“Bel.Av.” (Below Average) - Total scores of the physical fitness tests <21

Telama et al. (2002) found that the major leisure activities of European youth were listening to music (66.8%), watching TV/video (60.3%), hanging around with friends (48.8%), helping

with housework (48.3%) and recreation sport (40.5%). In ranking their importance, listening to music was first (79.2%), followed by reading and participating in recreational sport (both 75.1%).

Table 7. Percentage of Participation in Leisure Time Activities of European Students (Telama et al., 2002, p. 28).

	BEL	CZE	EST	FIN	GER	HUN	ALL
Listening to music	90.1	57.4	41.8	66.5	76.0	68.8	66.8
Play music or sing	27.4	22.8	7.4	20.4	21.4	20.3	20.0
Watch TV/ video	87.7	45.6	34.8	65.0	68.1	60.8	60.3
Earn some money	34.2	22.6	11.6	30.3	25.7	10.5	22.5
Hang around with friends	72.3	32.6	31.7	74.2	59.8	21.9	48.8
Spend time with boy/girl friends	65.8	30.8	9.6	21.6	35.5	56.9	36.7
Play cards, computer games	60.4	28.2	14.4	34.5	46.0	26.3	35.0
Reading (e.g. books)	72.8	60.4	25.7	62.1	53.7	56.9	55.3
Organized competitive sports	57.2	19.6	17.9	38.6	51.8	27.0	35.4
Visit sport events	38.9	32.3	8.4	25.3	26.5	23.5	25.8
Extra work for school	55.1	14.6	3.5	15.8	64.0	20.3	28.9
Go to parties	38.6	17.3	19.3	19.1	33.8	32.2	26.7
Art and crafts	12.7	20.8	12.4	20.2	31.7	18.4	19.4
Spend time alone (e.g. relax)	56.0	31.6	22.6	40.8	46.3	18.4	36.0
Go shopping	46.6	33.0	15.7	27.8	38.3	40.6	33.7
Go to movies, concert	63.7	32.3	21.8	16.1	43.3	40.3	36.3
Volunteer work	17.4	12.5	2.0	5.0	10.5	12.4	10.0
Help with housework	59.5	53.1	27.1	44.4	48.7	57.1	48.3
Go to youth club	34.6	13.0	8.6	15.1	39.9	10.0	20.2
Visit relatives	60.2	35.2	18.6	31.7	16.9	45.5	34.7
Recreational sport	53.8	47.2	18.5	41.8	41.7	39.9	40.5
Total	1105.0	662.9	373.4	716.3	879.6	708.0	
Mean (%)	52.6	31.6	17.8	34.1	41.9	33.7	

Table 8. Importance of Leisure Time Activities of European Students (% of important + very important)
(Telama et al., 2002, p. 29).

	BEL	CZE	EST	FIN	GER	HUN	ALL
Listening to music	69.6	77.3	73.8	65.9	92.6	96.2	79.2
Play music or sing	27.4	36.8	20.7	21.9	31.8	53.2	32.0
Watch TV/ video	54.8	46.5	57.3	50.6	79.6	83.4	62.0
Earn some money	70.7	61.6	78.5	64.5	72.2	80.2	71.3
Hang around with friends	68.7	53.9	83.3	89.5	85.6	45.6	71.1
Spend time with boy/girl friends	76.3	70.9	60.8	54.7	77.2	97.5	72.9
Play cards, computer games	37.2	38.5	29.6	28.7	63.3	68.5	44.3
Read (e.g. books)	73.9	79.1	67.1	60.4	78.0	92.1	75.1
Organized competitive sports	73.6	46.4	59.1	53.6	78.0	80.5	65.2
Visit sport events	40.8	53.7	39.6	36.1	62.9	76.2	51.6
Extra work for school	62.4	36.1	32.6	25.0	76.9	68.8	50.3
Go to parties	39.4	44.3	60.9	31.6	69.1	71.4	52.8
Art and crafts	28.1	39.9	40.0	28.3	59.0	60.9	42.7
Spend time alone (e.g. relax)	53.2	53.8	61.3	55.9	71.5	45.9	56.9
Go shopping	34.6	46.9	50.4	55.9	71.5	45.9	56.9
Go to movies, concert	58.3	64.8	66.3	28.5	79.1	92.5	64.9
Volunteer work	53.7	39.7	30.9	25.6	44.5	64.7	43.2
Help with housework	62.7	65.4	76.9	52.2	68.5	85.3	68.5
Go to youth club	53.4	31.5	42.6	23.6	68.4	50.1	44.9
Visit relatives	69.2	63.3	68.8	55.3	45.9	83.7	64.4
Recreational sport	61.2	79.0	73.6	66.1	83.9	87.0	75.1
Total	1169.5	1129.4	1174.1	952.9	1449.4	1559.6	
Mean (%)	55.7	53.8	55.9	45.4	69.0	74.3	

In a study with 19,790 Hong Kong primary and secondary students, it was found that important considerations for participation in sport activities were identified, namely enhancing health, membership with the team, socialization, support of the community, good facility and cost of participation (Fu, 1993). Lindner and Sit (1999) found that the major reasons for participation in sport of Hong Kong youth to be “fun, fit and healthy, friends and become good” (p. 34). Telama et al. (2002) stated that motivation for physical activity for European youth included “physically fit, good for me, I enjoy exercise, I can meet friends, body

in shape, I enjoy competition, it relaxes me, and part of the team” (p.132). In a study with 674 Hong Kong athletes aged 6 to 20 years, Cheung (2002) found that the major motives for sport participation in both genders were “skill improvement and fun, followed by team spirit, excitement and affiliation-friendship” (p.45). It appears that in order to attract students to participate in sport and lead an active lifestyle, it is important to offer purposeful physical activities in a social and enjoyable environment.

Table 9. Factors Perceived as Important Contributors to Sport Participation by Hong Kong Secondary Schools (N= 13,750) (Fu, 1993, p. 13).

Factors	Rating (means)		
	Overall	Male	Female
Enhancing health	4.12	4.19	4.02
Membership in team	3.75	3.81	3.65
Availability of good facility	3.71	3.74	3.66
Socialization	3.59	3.65	3.49
Support of general public	3.55	3.61	3.44
Parent support & encouragement	3.53	3.51	3.56
Peer support & encouragement	3.40	3.32	3.46
Identity with the team	3.35	3.35	3.35
Availability of facility	3.33	3.34	3.31

Table 10. Reported Motives (expressed in percentages) for Participation in Physical Activity of European Male Students (Telama et al., 2002, p. 58).

	BEL	CZE	EST	FIN	GER	HUN	Total
<i>12-year-old boys</i>							
My friends do it	32.1	45.0	52.2	56.8	49.2	41.9	43.1
I want to make career of it	50.9	73.3	54.7	44.5	56.1	62.8	53.6
I meet new people	74.5	63.0	54.2	58.2	56.1	63.4	64.4
Goof for me	92.4	94.0	85.7	80.4	55.2	88.3	83.6
I enjoy competition	73.2	92.9	78.3	74.4	52.7	80.9	72.8
Physically fit	93.9	97.0	91.0	94.5	54.4	85.1	87.1
It relaxes me	80.0	60.0	70.0	70.0	53.9	91.5	72.2
I enjoy exercise	88.3	80.6	80.0	77.5	56.8	90.4	80.1
Part of a team	74.4	85.0	83.1	75.7	54.4	87.2	74.5
My family wants	33.3	42.2	72.4	51.8	54.0	52.7	47.6
Body in shape	88.8	80.8	81.8	70.5	52.7	82.8	78.7
Make money	40.1	32.0	43.4	32.4	52.3	49.5	41.5
It is exciting	87.9	68.4	85.5	63.8	53.2	86.0	77.5
Physically attractive	53.7	56.0	76.3	37.5	58.8	65.2	57.0
I can meet friends	82.4	77.8	74.4	79.9	56.6	71.0	75.7
Opportunity for self expression	71.1	67.3	66.0	56.5	52.7	84.8	65.9
<i>15-year-old boys</i>							
My friends do it	31.8	25.8	33.0	46.5	49.0	41.3	37.4
I want to make career of it	35.6	20.2	38.3	37.2	54.4	66.7	40.2
I meet new people	74.5	48.9	47.0	55.1	62.1	71.6	61.9
Goof for me	92.1	93.5	92.7	83.9	64.1	90.5	86.2
I enjoy competition	70.5	66.0	67.0	67.7	63.1	89.3	68.9
Physically fit	94.5	89.4	97.4	96.0	66.0	87.7	89.7
It relaxes me	82.6	55.9	80.5	63.8	57.8	75.7	72.6
I enjoy exercise	89.3	59.6	72.8	69.8	66.7	90.5	77.0
Part of a team	72.1	55.3	67.4	68.9	60.7	89.2	68.5
My family wants	17.6	12.9	41.9	28.3	41.4	47.3	29.4
Body in shape	89.0	72.6	85.9	72.2	63.4	68.5	78.9
Make money	37.9	8.6	27.0	21.3	51.9	33.8	33.0
It is exciting	87.4	45.2	84.0	62.9	65.5	81.1	75.6
Physically attractive	37.9	35.5	84.0	33.5	56.6	74.3	51.3
I can meet friends	83.6	60.6	69.4	76.6	59.1	81.1	73.8
Opportunity for self expression	76.9	53.2	62.2	56.4	60.7	84.0	66.7

Table 11. Reported Motives (expressed in percentages) for Participation in Physical Activity of European Female Students (Telama et al., 2002, p.59).

	BEL	CZE	EST	FIN	GER	HUN	Total
<i>12-year-old girls</i>							
My friends do it	23.4	38.2	45.1	35.2	49.3	32.6	34.9
I want to make career of it	34.0	54.5	46.0	29.5	53.2	56.0	40.9
I meet new people	74.4	57.9	53.0	68.9	54.8	63.3	64.8
Goof for me	92.9	94.7	90.0	86.7	56.7	97.8	85.9
I enjoy competition	49.9	84.0	75.1	45.9	50.5	73.3	57.2
Physically fit	95.1	89.7	93.2	89.7	64.1	87.6	88.1
It relaxes me	84.5	52.6	71.1	69.4	59.0	90.1	73.9
I enjoy exercise	90.5	92.3	75.3	71.3	57.7	91.1	79.2
Part of a team	63.5	57.1	82.4	67.3	58.1	87.0	68.0
My family wants	26.7	30.3	64.3	30.4	52.3	51.1	40.1
Body in shape	86.1	86.1	89.2	63.8	57.2	88.0	78.3
Make money	25.7	14.5	31.7	15.8	45.2	26.1	27.4
It is exciting	84.4	32.4	79.8	58.3	61.3	80.4	72.3
Physically attractive	33.1	39.5	72.2	30.5	58.6	64.8	46.3
I can meet friends	81.0	72.0	75.4	80.5	56.2	66.3	74.6
Opportunity for self expression	71.1	61.0	64.7	63.3	63.1	75.8	67.0
<i>15-year-old girls</i>							
My friends do it	24.8	24.7	17.9	24.7	52.5	30.2	28.3
I want to make career of it	23.6	19.5	19.3	21.6	46.9	58.5	27.6
I meet new people	84.8	71.9	52.6	65.7	55.0	71.7	67.7
Goof for me	95.9	94.6	93.4	87.1	60.6	100.0	87.8
I enjoy competition	7.0	65.2	46.4	33.8	52.2	77.4	48.0
Physically fit	96.6	82.4	99.1	95.3	57.2	98.1	89.2
It relaxes me	91.8	66.7	82.2	80.3	56.1	94.5	79.6
I enjoy exercise	94.6	83.1	67.5	72.4	58.3	83.6	77.1
Part of a team	66.0	72.4	56.7	63.0	62.2	88.9	64.6
My family wants	10.5	12.4	22.6	9.9	44.3	22.6	19.0
Body in shape	93.4	79.3	89.7	73.6	60.9	83.3	81.4
Make money	26.9	6.9	13.7	15.9	43.9	20.8	22.9
It is exciting	88.7	48.4	73.7	50.9	57.5	83.3	69.1
Physically attractive	39.1	40.2	79.8	27.7	48.3	59.3	47.3
I can meet friends	92.5	84.1	67.0	81.3	57.5	79.6	78.0
Opportunity for self expression	79.1	60.9	57.1	63.8	61.2	94.4	67.9

In the past, studies were conducted to compare the physical fitness of subjects from different countries. The founding of the President Council of Physical Fitness in the US in 1958 was the result of a report showing that the US children were far inferior to their European counterparts in physical fitness. It appears that such comparisons are less meaningful nowadays since the relationship between physical activity and physical fitness is more complex and physical activity depends on the interaction of various factors – demographic, physiological, psychosocial and environmental.

The Development of Sport Culture through Physical Fitness and Mass Sport

Coronary heart disease has become the major cause of death in many countries affecting the health and quality of life of many people. In planning and implementing preventive and intervention programmes for this degenerative disease, the modification of the behaviour risk factor of sedentary lifestyle (physical inactivity) is one important area. People are aware of the importance of health but for various reasons, many of them fail to exercise

regularly and lead an active lifestyle. Thus, it is important not only to closely monitor the physical fitness and activity level of the general public and children, but also identify contributors and barriers for them to participate in purposeful physical activity. Different cultures are influenced by different factors, which are interactive. It is thus inappropriate to import other systems into one's setting without adaptation. It is, however, desirable to use experiences elsewhere as references in planning. Popular sports also vary and thus the choice of mass sports becomes a delicate process. For students, it appears that swimming, basketball and soccer are popular in both Asia and Europe (Fu, 1994; Kavanagh, 2001).

For special populations, prescriptions of appropriate physical activities such as walking or Tai Chi and medication are recommended so that they too can enjoy the benefits of an active lifestyle (Fu, 1993; Frohlich, 2001; Kavanagh, 2001; Mensink et al., 1997; President Council on Physical Fitness and Sports, 2001; Reuter & Engelhardt, 2002; Sherman, 2001; U. S. Department of Health and Human Service, 1998).

Table 12. Popular Sports of Asian and European Primary and Secondary Students Fu, 1993; Telama et al, 2002).

Sports:	Primary		Secondary	
	Male	Female	Male	Female
Swimming	X ●	X ●	X ●	X ●
Basketball	●	●	X ●	X ●
Soccer	X ●	X	X ●	
Track & Field	●	●	●	●
Judo	●	●	●	●
Badminton		X	X	X
Table-tennis	X		X	
Jogging	X			X
Cycling	X	X		
Gymnastics		X		X
Volleyball				X
Rope skipping		X		

Note: x – Chinese norms (4); ● – European norms (18).

In the development of sport culture, it is essential that the Government and the community recognize that this to be important and accord it with appropriate priority. The inherent conflict for resources between the indigenous and new sport,

the overall political and socio-economical environments, and the differences in aspirations and needs of the old and young generations will be our challenges in the years ahead.

References

- Beighle, A., Pangrazi, R.P., & Vincent, S.D. (2001). Pedometers, physical activity and accountability. *JOPERD*, 72(9), 16-19.
- Cheung, S. Y. (2002). Participation of Hong Kong Interschool sport competition athletes. *ICHPER.SD J*, XXX III (3), 43-46.
- Francis K.T. (1999). Status of the year 2000 health goals for physical activity and fitness. *Phys. Ther.*, 79(4), 405-414.
- Fu, F. H. (1994). *Health fitness parameters of Hong Kong school*. Hong Kong Baptist University.
- Fu, F. H. (1993). *The development of sports culture in the Hong Kong Chinese*. Hong Kong Baptist University.
- Fu, H. K. (2001). The prevalence of cardiovascular disease risk factors of Hong Kong Chinese. *J. of Sp. Med Phy Fit.*, 41(4), 491-499.
- Fu, F. H., Chow, B. C., Chung, P. K. & Louie, L. (1998). *The Wellbeing of the Hong Kong People*. Hong Kong Baptist University.
- Frohlich, E. D. (2001). Local hemodynamic changes in hypertension: insights for therapeutic preservation of target organs. *Hypertension*, 38(6), 1388-1394.
- Kavanagh T. (2001). Exercise in the primary prevention of coronary artery disease. *Can. J. Cardiol.*, 17(2), 155-161.
- Lindner, K. J., & Sit. C. (1999). Sport and activity participation of Hong Kong children and youth. *Hong Kong J. Sp Med Sp Sc.*, VIII, 23-36.
- Mensink, G. B. M., Heerstrass, D. W., Neppelenbroek, S. E., Schuit, A. J., & Ballach, B. M. (1997). Intensity, duration, and frequency of physical activity and coronary risk factors. *Med. Sci. Sports Exerc*, 29(9), 1192-1198.
- Morgan, W. P. (2001). Prescription of physical activity. *The Quest*, 53, 366-382.
- Naul, R., Hardman, K., Pieron, M., & Skirstad, B (1998). *Physical activity and active lifestyle of children and youth*. ICSSPE Sports Science Studies 10, Verlag Karl Hofman Schorndorf.
- Pate, R., Dowda, M., & Ross, J. (1990). Association between physical activity and physical fitness in American children. *Am. J. of Diseases Child*, 144, 1123-1129.
- Pate, R. R., & Trost, S. G. (1998). How to create a physically active future for American kids. *ACSM's Health & Fitness Journal*, 26, 18-23.
- President Council on Physical Fitness and Sports. (2001). Healthy people 2010: Physical activity and fitness. *Research Digest*, 3(13).
- Reuter, I, & Engelhardt, M. (2002). Exercise training and Parkinson's disease. *The Physician & Sportsmed*, 30(3), 43-50.
- Sherman, N. W. (2001). Do high-intensity exercises improve bone mass in children? *JOPERD*, 72(9), 6.
- Telama, R. Naul, R., Nupponen, H., Rychtecky, A., & Vuolle, P. (2002). *Physical fitness, sporting lifestyles and Olympic ideals: Cross-cultural studies on youth sport in Europe*. ICSSPE Sports Science Studies 11, Verlag Karl Hofman Schorndorf.
- U. S. Department of Health and Human Service. (1998). Physical activity and health – A Report of the Surgeon General.
- Wannamethee, S. G., & Shaper, A. G. (2001). Shaper. Physical activity in the prevention of cardiovascular disease: an epidemiological perspective. *Sports Med.*, 31(2), 101-114.

Note:

This paper was presented at the International Conference on Physical Fitness and Sport Development held at Macau, organised by Macau Sport Development Board and Macau Polytechnic Institute on September, 2002.

Correspondence:

Prof Frank H. Fu,
Faculty of Social Science,
Hong Kong Baptist University,
Kowloon Tong, HONG KONG.
Email: frankfu@hkbu.edu.hk