香港中學生的活動概況

PHYSICAL ACTIVITY PROFILES OF HONG KONG SECONDARY SCHOOL CHILDREN

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本文目的是探討香港中學生的活動概況。這項研究利用問卷調查了二百一十七名年齡由十一至十八歲的中學生 (其中一百零九名為男生，一百零八名為女生)。資料的分析方法是採用「等級排列」。所有學生被分為三組，分組方法與中學初、中、高級的年齡分組相若。研究結果顯示很多學生都沒有參與比賽性質運動而只參與康樂性質活動。在比賽性質運動的等級排列，很大比數的學生都是參加籃球比賽。至於康樂性質活動，觀看電視是最常見的活動。基於抽樣方法的限制，本研究顯示出大部分香港中學生都是很少參與體育活動的。

Introduction

Physical inactivity is one of the risk factors of cardiovascular disease during adolescence (Armstrong et al., 1991). It is well documented that a physically active lifestyle is important for children to develop adequate cardiorespiratory capacities for their adulthood during adolescence (Eaton et al., 1995; Riddoch & Boreham, 1995). In Western industrialized countries, there is an inverse relationship between physical activity and cardiovascular disease (Blair et al., 1989; Sandvik et al., 1993). Promotion of lifetime activities for the children required the effort of the health and physical education professionals (Janz et. al., 1992). Cardiovascular disease was the second leading cause of death in Hong Kong (Hong Kong Government, 1995). While the physical fitness of Hong Kong school children was found to be lower than other countries (Fu, 1994), there is therefore a need to expand our knowledge regarding the physical activity profiles of the Hong Kong secondary school children.

Recently, study of physical activity profiles of school children is of growing interest among epidemiologists. However, the scientific assessment of physical activity has always been a problem for them. There are many techniques used to measure physical activity, for example, surveys and questionnaires (Aaron et. al., 1993), heart rate monitoring (Janz, 1994), energy output estimation/motion sensors (Bray et. al., 1994; Welk & Corbin, 1995), behavioral assessments (DuRant et. al., 1993), cardiorespiratory fitness (Sidney et. al., 1992) and step-meter pedometer (Hatano et. al., 1990; Hatano, 1993). There are limitations to each of these techniques and no agreement has been reached regarding information needed. The purpose of this study was to examine the physical activity profiles of Hong Kong secondary school children by the physical activity recall questionnaire.

Methods

Subjects

A total of 217 secondary school children (109 males and 108 females) between the ages of 11 and 18 were randomly selected from a Hong Kong rural school with standard provisions in resources and average academic standard. They were students from Form 1 to Form 5. Subjects' ages were computed with reference to the date of the data collection. Weight (Wt) and height (Ht) were measured to the nearest 0.5 kg and 0.5 cm respectively. Since body mass index (BMI) provides an estimate of obesity (Smalley et. al., 1990), this was computed with the formula Wt/Ht^2 (Wang et al., 1994).

Physical Activity Questionnaire

Questionnaire is an useful technique for large scale data collection, and recall questionnaire was found

to be one of the most valid and practical tool for data collection (Caspersen, 1989). The questionnaire employed for this study was revised from the one originally developed by Lee & Hung (1993). The language used in this survey was Chinese. The questionnaire contained two parts. The first part asked the subjects to recall their competitive and recreational activity patterns for the preceding month. The subjects were instructed to respond to the 5-point Likert scale for each of the physical activity items listed on this part. At the end of this part, blank spaces were provided for the subjects to add any other items that did not appear in the list. The scaled items were from "frequently" to "never" and categorized by the number of hours involved in the specified activity. The second part asked the subjects to list the number of hours of their daily physical activity pattern during school days and holidays. Some activity items were listed for the subjects to respond, and again, at the end of this part, blank spaces were provided for the subjects to add new items. The questionnaire tried to account for sports and nonsporting activities that were assumed to be common among Hong Kong school children. The questionnaires were answered by the subjects during their regular physical education lessons. The data collection was completed within 2 consecutive weeks in Autumn.

Data Analysis

The questionnaire data were stored in a Lotus 2.4 spreadsheet and analyzed with SPSS-PC (version 5.0). Data consist of sex, age, weight, height, ratings for competitive activities, ratings for recreational activities, and time spent on daily physical activities during school days and holidays.

Descriptive statistics in terms of mean and standard deviation were calculated. It is the intent of this paper to focus on the rank orders of the physical activities on a competitive level and physical activities on a recreational level in different age groupings and genders.

Results

Subject Characteristics

The physical characteristics of the subjects by gender and age are presented in Table 1.

Table 1 *Physical Characteristics of the Subjects (N=217)*

	Male (n=109)		Female (n=108)		Total (n=217)	
	M	SD	M	SD	M	SD
Age	14.08	1.48	14.11	1.48	14.07	1.48
Weight(kg)	51.76	10.67	46.43	9.78	49.11	10.42
Height(m)	1.64	0.09	1.56	0.06	1.60	0.09
BMI(kg/m^2)	19.04	3.08	18.90	3.14	18.97	3.10

Grouping

The subjects were grouped into 3 groups roughly corresponding to the age groupings in junior, middle, and senior secondary school children. The number of subjects in each group is presented in Table 2.

Table 2 *Number of Subjects by Age and Gender in Each Group (N=217)*

	Age	Male	Female
Group 1	11 - 13	42	39
Group 2	14 - 15	45	48
Group 3	16 - 18	22	21

Rank Order of Physical Activities

Table 3 indicates the rank order of physical activities on a competitive level. There were 15 types of physical activities on the questionnaire but only the top ten activities are listed. Basketball was found to be the most frequent activity participated by the subjects. The second most frequent activity was badminton , followed by athletics (track and field), swimming, football, cycling, volleyball, tabletennis, watersport (eg. canoeing, sailing, etc.), and dance respectively.

Table 4 shows the rank order of the physical activities on a recreational level. There were 18 types of physical activities on the questionnaire but only the top ten activities are listed. Watching television was the most frequent activity selected by the subjects. The second most frequent activity was shopping, followed by playing computer games, basketball, badminton, cycling, athletics (track and field), swimming, volleyball, and football respectively.

Table 3 *Rank order of physical activities on competitive level (N=217)*

Rank Order	Activity Item	Rank Order	Activity Item
1	Basketball	6	Cycling
2	Badminton	7	Volleyball
3	Athletics	8	Tabletennis
4	Swimming	9	Watersport
5	Football	10	Dance

Note: Only the top ten activities are listed.

Table 4 *Rank order of physical activities on recreational level (N=217)*

Rank Order	Activity Item	Rank Order	Activity Item
1	Television	6	Cycling
2	Shopping	7	Athletics
3	Computer Game	8	Swimming
4	Basketball	9	Volleyball
5	Badminton	10	Football

Note: Only the top ten activities are listed.

Table 5 presents the rank order of physical activities on competitive level by age and gender. Only the top five activities are presented for each age group. For group 1(ages 11-13) male subjects, basketball was found to be the most frequent activity , followed by athletics (track and field), football, badminton, and swimming. For female subjects of the same group, dance was found to be the most frequent activity, followed by badminton, swimming, athletics (track and field), and hiking. For group 2 (ages 14-15) male subjects, again, basketball was found to be the most frequent activity, followed by football, athletics (track and field), badminton, and swimming. For female subjects of the same group, dance was the top activity which was the same result as group 1. The second most frequent activity was volleyball, followed by badminton, swimming, and athletics (track and field). For group 3 (ages 16-18) male subjects, the leading activity was football, followed by badminton, basketball, athletics (track and field), and table-tennis. For female subjects of group 3, swimming was the leading activity, followed by badminton, basketball, athletics (track and field), and table-tennis.

Table 5 *Rank order of physical activities on competitive level by age and gender (N= 217)*

	Male	Female
Group 1	Basketball	Dance
Ages 11-13 (years)	Athletics	Badminton
	Football	Swimming
	Badminton	Athletics
	Swimming	Hiking
Group 2	Basketball	Dance
Ages 14-15 (years)	Football	Volleyball
	Athletics	Badminton
	Badminton	Swimming
	Swimming	Athletics
Group 3	Football	Swimming
Ages 16-18 (years)	Badminton	Badminton
	Basketball	Basketball
	Athletics	Athletics
	Table-tennis	Table-tennis

Note: Only the top five activities are listed.

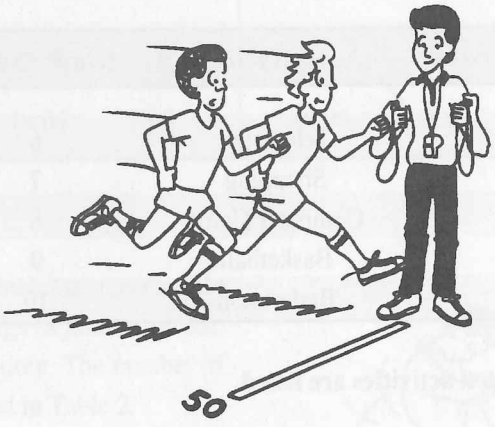

Table 6 shows the rank order of physical activities on recreational level by age and gender. Only the top five activities are shown for each age group. Watching television was the most frequent activity among all age groups of both genders. For male subjects of all age groups, the second most frequent activity was playing computer games, the third was basketball, and the fourth was shopping. While for female subjects of all age groups, shopping was the second most frequent activity and badminton was one of the top five activities listed.

Table 6 *Rank order of physical activities on recreational level by age and gender (N=217)*

	Male	Female
Group 1	Television	Television
Ages 11-13 (years)	Computer Game	Shopping
	Basketball	Badminton
	Shopping	Cycling
	Football	Athletics
Group 2	Television	Television
Ages 14-15 (years)	Computer Game	Shopping
	Basketball	Swimming
	Shopping	Badminton
	Cycling	Computer Game
Group 3	Television	Television
Ages 16-18 (years)	Computer Game	Shopping
	Basketball	Badminton
	Shopping	Table-tennis

Note: Only the top five activities are listed.

Discussion

The subjects in the present study are from one secondary school in the rural area of Hong Kong and may not be representative of all Hong Kong secondary schools. However, the academic and sports performances of the school selected are considered to be "average" among Hong Kong secondary schools.

The Profile of Physical Activities on a Competitive Level.

The results of this study suggest that a large percentage of the subjects participated in basketball on a competitive level. Males display a higher interest in participating basketball on a competitive level than females. For female groups, basketball can only be found in the top five activities of group 3. As might be expected, the top activity of female group 1 and 2 is dance, but it is interesting to find that dance has not been included in any of the male groups. For males, higher response rate went to strenuous sports like basketball and football. This finding is similar to the result obtained by Kelley and Kelley(1994). Athletics (track and field) and badminton were the two activities presented in all groups of both genders. These findings are consistent with the results reported by Fu (1993) on the interest of Hong Kong secondary school students on sports activities.

Data on the rank order of physical activities on competitive level demonstrated that the top five activities (basketball, badminton, athletics, swimming, and football) listed are sports items included in Hong Kong Physical Education syllabus (Curriculum Development Institute, 1988) and are sports events of the Hong Kong Inter-school competitions. These findings have an implication that the participation of the sports competitions of Hong Kong secondary school children is largely influenced by the availability of physical education programmes provided by the physical education or sport-related professionals of Hong Kong.

The Profile of Physical Activities on a Recreational Level

The findings of the rank order of the physical activities on recreational level indicated that viewing television was the most frequent activity performed by the subjects of all age groups. This finding is very much in agreement with those reported by Janz et al. (1992) for a group of adolescents . Tucker (1986) indicates that for the sake of good physical fitness, time spent on television watching should be limited. Therefore, parents should be cautious of the time spent on television viewing of their children. Furthermore, television viewing was followed by shopping and computer game playing on the ranking list of physical activities on recreational level, which are also nonsporting activities. From the results obtained, it appeared that the participation motives of the Hong Kong secondary school children in sport during their leisure time were not well established. This may involve many factors which the secondary students perceived as vital to their participation in sport (Fu, 1993, p.13).

Slight stereotypic sex difference in physical activity profile on recreational level was observed. All male groups presented playing computer games as the second most frequent activity. This finding is similar with the result obtained by Janz et al. (1992). Most of the subjects indicated that they played computer games very often. This trend is on an increase among Hong Kong secondary school children because computer is becoming popular and most students have access to it. On the other hand, all female groups indicated shopping as the second most frequent physical activity. It is not surprising to have this result as Hong Kong is the 'Shopping Paradise'.

Conclusion

The questionnaire data of this study showed that subjects participated more in recreational sport than competitive sport. In view of the positive relationship between habitual physical activity and physical fitness (Treiber et al., 1987) and the importance of environmental factors for improving children's physical fitness (McMurray et al., 1993), it is recommended that there should be more focus on studying children's participation motives for habitual physical activity in Hong Kong secondary schools.

From the findings of this study, it can be concluded that within the limitation imposed by the sampling method, there is evidence indicating that Hong Kong secondary school students are quite sedentary. Recent findings showed that participation in physical activities has an inverse relationship with the cardiovascular disease (Paffenbarger et al., 1993) and cardiovascular disease may commence in childhood (Newman et al., 1986). It is important for students to develop an active lifestyle while they are young.

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