

## SPORTS FACILITIES IN CHANGWON CITY AND CITIZEN QUESTIONNAIRES FOR THEIR SPORT AND PHYSICAL ACTIVITY

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### ABSTRACT

High quality and fit for purpose sports facilities are an essential part of creating a healthy and active Changwon-ci. The kinds of public sports facility are classified into 14 categories: athletics field, soccer field, baseball stadium, cycle stadium, tennis court, scrambling, a simple playground, gymnasium, swimming pool, Korean archery, yacht, ice rink, shooting range. Reported sports facilities in Changwon city are classified into 10 categories. Park facilities in Changwon city are classified into 7 categories. Children's parks were the most numerous and neighboring parks had a large area. We referenced the Global Physical Activity Questionnaire (GPAQ) Analysis Guide and developed exercise participation questionnaire (EPQ) with modified GPAQ. Badminton was most citizens' favorite exercise. Swimming was the second favorite exercise. Many young people feel positive about sport but aren't necessarily looking to take part; for them, sport and physical activity needs to be more visible and accessible, with stronger reminders of their positive associations.

**Keywords:** Changwon city, Global Physical Activity Questionnaire (GPAQ), Sports facilities.

### INTRODUCTION

Access to quality sport, physical activity, and leisure facilities is essential to improving the health and wellbeing of the local community (Horsham District Council, 2016). Sport and active recreation facilities are crucial components of the offer to encourage and support healthy and active lifestyles (Llywodraeth Cymru Welsh Government, 2016). There are a number of ways access can be improved but fundamentally it involves providing the right facilities in the right place. Active leisure is also possible at local gyms which attract great interest of the inhabitants. The municipal base of sports facilities consists of facilities managed by the Municipal Sport and Recreation Centre, school facilities, public neighborhood pitches, and recreational grounds. The Athletic facilities such as athletics fields or gymnasia can attract human activity and that provide those opportunities must be inclusive, attractive, accessible and efficient and they must be what people and communities need. The facilities framework provides a clear rationale for a built leisure infrastructure that is fit for purpose and appropriate - reflecting future community needs and satisfying the demands of different customers. The main municipal sports facilities intended for competitive sports and for national and regional competitions, used by dozens of sports clubs operating in the city (Crompton, 2010).

Most of the original sport and recreation infrastructure studies have not been replicated since they were initially undertaken nearly a decade ago (Harper, 2011). Although many provincial and territorial governments as well as sports, recreation and parks associations routinely refer to the facility inventory information, most officials agree that the data is gradually becoming

outdated. While the studies provided a foundation for understanding the magnitude of the infrastructure deficit as it existed at a point in time, there was no mechanism to ensure that the information remained accurate and complete.

The construction experts in the sports facilities office deal with questions relating to sports facilities construction, and to the construction of outdoor facilities and sports halls in particular.

Changwon--ci is the capital city of Gyeongsangnam-do, on the southeast coast of South Korea. With a population of 1.07 million as of 2015, Changwon is South Korea's 9th most populous city. The region has been inhabited since the Bronze Age, and its urban areas have been renamed and re-organized many times throughout history. As Korea's first planned city, modeled after Canberra, Australia, Changwon uses accessible urban planning including a large number of parks and separate residential and industrial areas. The city has also branded itself an "environmental capital" with the municipal government actively participating in climate change conferences and committing to the development of sustainable policies like the globally recognized bike-sharing program (Nubija). Changwon hosts four professional sports teams: a basketball team, two association football clubs, and a baseball team. The city also hosted a Formula 3 race, the Korea Super Prix, from 1999 to 2003.

## METHODOLOGY

This work focuses on helping both public sector and private contractors and operators of sports facilities by issuing standards and recommendations and through exercise participation questionnaire (EPQ) by some Changwon citizens. It researches specific problems associated with sports facilities, evaluates new developments and trends in the construction and operation of sports facilities. The inspection process of the present study involved conducting a self-administered survey, which included questions on persons for exercise. Peoples at Changwon-city in South Korea were provided with a packet containing study information, an informed consent document, and a parental questionnaire. We referenced the Global Physical Activity Questionnaire (GPAQ) Analysis Guide and developed exercise participation questionnaire (EPQ) with modified GPAQ. We calculated descriptive statistics, including means, standard deviations, and percentages for each variable (Zar, 1984).

Shannon–Weaver index of diversity (Shannon and Weaver, 1963): the formula for calculating the Shannon diversity index ( $H'$ ) is  $H' = -\sum p_i \ln p_i$ .  $p_i$  is the proportion of important value of the  $i$ th items ( $p_i = n_i / N$ ,  $n_i$  is the important value index of  $i$ th items and  $N$  is the important value index of all the items). Item evenness is a measure of diversity which quantifies how equal the community is numerically. Evenness indices ( $E$ ) was calculated using important value index of item (Hill, 1973).

## RESULTS AND DISCUSSION

Recognizing that the recreation, parks and sports sectors represent the single largest citizen participation sector in the Changwon city. There are two providers of sports facilities: the public provision made by the local councils, county councils and local government and the private provision made by hotels, sports clubs and private clubs. The public sector aims to provide facilities that are accessible to everyone and are based on a pay-and-play policy where anyone can pay their money and play the sport. The kinds of public sports facility are classified into 14 categories: athletics field, soccer field, baseball stadium, cycle stadium,

tennis court, scrambling, a simple playground, gymnasium, swimming pool, Korean archery, yacht, ice rink, shooting range (Table 3). Scrambling is a favorite sport in Korea, mainly young people playing the game. Shooting ranges in the Changwon city can be indoor and may be restricted to certain types of arms: bows, handguns, or they can specialize in certain shooting sports such as 10 m Air Pistol/Rifle. Bowling, gate ball, and inline skate were absent.

**Table 1. Public sports facility**

Items	EA	%	Open
Athletics field	3	2.59	Throughout the year
Soccer field	23	19.83	Throughout the year
Baseball Stadium	8	6.90	Except winter
Cycle Stadium	1	0.86	Throughout the year
Tennis court	23	19.83	Throughout the year
Scrambling	2	1.72	Except winter
A simple playground	26	22.41	Throughout the year
Gymnasium	13	11.21	Throughout the year
Swimming pool	9	7.76	Throughout the year
Korean archery	3	2.59	Throughout the year
Golf driving range	1	0.86	Throughout the year
Yacht	2	1.72	Throughout the year
Ice rink	1	0.86	Throughout the year
Shooting range	1	0.86	Option

The private sector, in providing sports facilities, usually has a commercial aim, that is, they are trying to make money from the people using their facility. They may also let non-residents use the facilities but this usually involves some kind of joining and membership fee to do so. Other complexes are purposely built to provide people with a holiday based around leisure activities. There are other commercial sports clubs that provide venues for sporting events. Squash, tennis and golf are some examples where private development has taken place. Reported sports facilities in Changwon city are classified into 10 categories: yacht, horse riding, a comprehensive gym, swimming pool, training hall, golf driving, fitness center, billiard room, martial arts school, and golf course (Table 2). Billiards were the most common (35.2%). The second was the training hall (25.7) including Taekwondo, boxing. There were many screen golf driving ranges (22.5%).

**Table 2. Reported sports facilities**

Items	EA	%	Open
A comprehensive gym	3	0.27	Throughout the year
Billiard room	394	35.24	Throughout the year
Fitness center	145	12.97	Throughout the year
Golf course	2	0.18	Except winter (option)
Golf driving	252	22.54	Throughout the year
Horse Riding	1	0.09	Except winter
Martial arts school	31	2.377	Throughout the year
Swimming pool	2	0.18	Throughout the year
Training hall	287	25.67	Throughout the year
Yacht	1	0.09	Throughout the year

Park facilities in Changwon city are classified into 7 categories: children's park, small-park, neighborhood-park, cultural park, waterside-park, athletic park, and nature park (Table 3).

There were simple exercise equipment in the children's park, neighborhood-park, and athletic park. Children's parks were the most numerous (278). Neighboring parks had a large area (19,577 m<sup>2</sup>). In recent years, the number of walking-trails has increased. Recent research efforts in urban planning have focused on the idea that land use and design policies can be used to increase transit use as well as walking and bicycling (Handy et al., 2002). Variables that were consistently associated with children's physical activity were sex (male), parental overweight status, physical activity preferences, intention to be active, perceived barriers (inverse), previous physical activity, healthy diet, program/facility access, and time spent outdoors. Variables that were consistently associated with adolescents' physical activity were sex (male), ethnicity (white), age (inverse), perceived activity competence, intentions, depression (inverse), previous physical activity, community sports, sensation seeking, sedentary after school and on weekends (inverse), parent support, support from others, sibling physical activity, direct help from parents, and opportunities to exercise (Sallis et al., 2000).

**Table 3. Park facilities**

Item	Children's Park	Small park	Neighborhood park	Cultural Park	Waterside Park	Athletic park	Nature park	Total
No.	278	66	88	4	2	6	3	477
m <sup>2</sup>	690	132	19,577	203	6	851	6,924	28,383

The kinds of activities are classified into 17 categories (Table 4). Across the four grade groups, men were consistently more active than women (data not shown). For example, soccer is the favorite sport for a measly 18.8% of men and woman is absent in the activities. Baseball and basketball are same trend. However, the aged 60 or 70 women showed more active mobility than men. For example, jogging is by far the most popular sport in women. However, it is informative to examine the gender differences in physical activity in the context of exercise intensity. Badminton was most citizens' favorite exercise. Swimming was the second favorite exercise.

Shannon-Weaver indices ( $H'$ ) of diversity for mammals was varied from 2.278 to 2.584. They were shown high  $H'$  values at the age (21-40) group and the age (41-60) group. Although  $H'$  indices for four groups were different from each other, there were not shown significant differences ( $p < 0.05$ ). For the community as a whole, the values of evenness indices were the low (from 0.804 for (>20) to 0.912 for the age (21-40) group. However, there not shown significant differences ( $p < 0.05$ ).

**Table 4. Responses for citizens' preference in Changwon city**

Rank	Item of exercise	Age group				Total
		>20	21~40	41~60	60 >	
1	Jogging	0	2	5	8	15
2	Badminton	4	6	10	1	21
3	Soccer	10	5	2	0	17
4	Swimming	3	4	4	8	19
5	Volleyball	8	4	1	0	13
6	Health	1	4	5	5	15
7	Tennis	4	4	1	0	9

8	Ping-pong	0	4	2	1	7
9	Cycle	2	6	4	3	15
10	Golf	1	1	8	8	18
11	Jokgu	0	5	8	1	14
12	Gate ball	0	0	2	10	12
13	Baseball	10	2	0	0	12
14	Basketball	9	2	0	0	11
15	Bowing	1	0	2	5	8
16	Inline skate	6	2	2	4	14
17	Oher	1	9	4	6	20
Total		60	60	60	60	240
Shannon-Weaver index (H')		2.278	2.584	2.495	2.284	2.793

Many young people feel positive about sport but aren't necessarily looking to take part; for them, sport and physical activity needs to be more visible and accessible, with stronger reminders of their positive associations (Table 6). Other young people are uninterested in sport but find wider reasons to take part. Promoting the benefits they are looking for is more effective; selling sport as fun does not resonate with them. The approach offers public health and other organizations a disciplined, consumer-focused means of mobilizing their available resources in a manner that maximizes the odds of creating active living communities (Killingsworth, 2003). These means include understanding the competition, understanding of game-partners, creating mutually beneficial exchanges, segmenting markets and targeting them based on anticipated return (Maibach, 2003). The focus of physical activity promotion is moving from methods for increasing health enhancing physical activity on the individual level to higher level strategies including environmental and policy approaches (Rütten et al., 2001). Individuals that live in these environments are at increased risk of engaging in unhealthy behaviors, such as physical inactivity, often as a response to stressful and hazardous environments (Geronimus, 2000; McNeill et al., 2006).

**Table 6. Key influences on engagement with sport vary as people travel through life**

	Ages		
	Teens	Post school	Adults
Drivers for positive experience and continued participation	<ul style="list-style-type: none"> <li>• Increase physical activity</li> <li>• Strengthening strength</li> <li>• Health promotion</li> <li>• Good experience with interesting sports</li> <li>• Bonds with friends</li> </ul>	<ul style="list-style-type: none"> <li>• Sporting is organized by the friendship group</li> <li>• Strengthen youth service and collaboration</li> <li>• Opportunity to acquire social norm</li> </ul>	<ul style="list-style-type: none"> <li>• Sport provides relaxation</li> <li>• Eliminate physical imbalance</li> <li>• Part of a routine</li> <li>• Play by friends of same subjects and family</li> <li>• Relieve stress</li> <li>• Resolve alienation</li> </ul>
Drivers for negative experience and drop out	<ul style="list-style-type: none"> <li>• Physical injury</li> <li>• Safety related issues</li> <li>• Stronger Competitiveness</li> <li>• Pressure to succeed</li> </ul>	<ul style="list-style-type: none"> <li>• No-one in friendship circle organizes sport so its left to individuals which can be isolating</li> <li>• Prefer social events</li> <li>• Neglect of work</li> </ul>	<ul style="list-style-type: none"> <li>• Physically painful or stressful</li> <li>• Sporting environment seen as unpleasant or intimidating</li> <li>• Neglect of work</li> </ul>



	in other areas • Fear being laughed at or disappointing others	• Often linked to narrow associations of sport	• Obsessed with biased sports
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Physical activity is defined by the World Health Organization as ‘any bodily movement produced by skeletal muscles that require energy expenditure’. The council has long valued the important role that sport and physical activity play in preventing ill health and improving quality of life and it provides a number of facilities that promote sport and physical activity including leisure centers, swimming pools, a golf course, an athletics track, sports pitches, parks and playing fields. Physical health benefits include helping to combat obesity, reducing the risk of coronary heart disease, reducing the risk of stroke and hypertension, preventing and helping the management of diabetes, prevention of cancer, prevention or reduction of osteoporosis, reductions in falls among older adults and minimizing the effects of arthritis (ACSM, 2006). There is a growing understanding of how certain levels of physical activity may positively affect to health enhancement. Thus, local governments need to provide a lot of physical facilities for the health of the people.

## CONCLUSIONS

There is a growing understanding of how certain levels of physical activity may positively affect to health enhancement. Thus, local governments need to provide a lot of physical facilities for the health of the people.

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