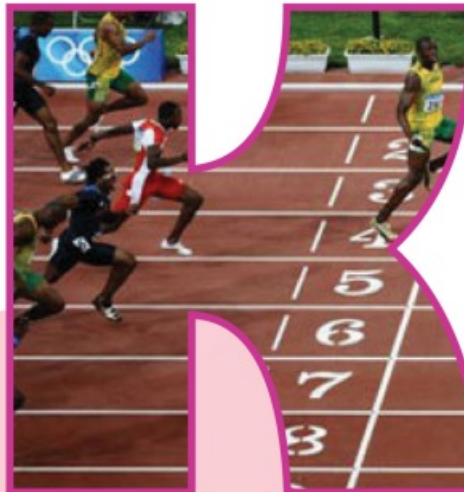


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康樂動向

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Sport Volunteerism: An Exploring Study on Volunteering Motivations in Chinese University Students

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INTRODUCTION

Volunteering in Sport

Volunteering is very important for sport industry, especially for sport organizations and mega sport event, which are rely on volunteers to sustain the activities and ensure the success. The relationship between sport and volunteerism should be mutual supportive (The United Nations, 2003). International mega sport events such as Olympics, Soccer World Cup and Commonwealth Games all depend on a large number of volunteers to support the core event service and ensure the event success. The International Olympic Committee (IOC) could not sustain the global event in that scale without volunteers' effort (Green & Chalip, 2004). From the organizations perspective, it is significant to figure out the demand of volunteers and make the best use of these volunteers to achieve a win-win situation for organizations and volunteers as well. In current times, because that volunteers show more and more important role in sport event, recruiting, organizing and training volunteers becomes harder for organizers (Green & Chalip, 2004). It is a significant task for event organizers to build a volunteer team with high quality and experienced volunteers.

There are two common kinds of volunteers in sport, they are sport event volunteers and community sport volunteers. The community volunteering activity always be long-term and have educational or leisure purpose. Sport event have a short-term schedule with high level competition, arouse the public attention and attract many people to participate. However, community sport and sport event have different settings; for instance, volunteers in these two organizations may have different demographic types. Moreover, even that sport volunteers in community have different motivations from volunteers in sport event (Doherty, 2005; Strigas & Jackson, 2003).

Currently, volunteering plays a very important role in society and helps to create a stable civilization and adds more value for serving public (United Nations Volunteers, 2002). However, there are many various kinds of definition of volunteerism depend on previous study (In P. Dekker, & L. Halman, 2003). Stanley Parker (1997) according to volunteers' motivation classified that there are four types of volunteers, which are altruistic volunteering, market volunteering, cause-serving volunteering and leisure volunteering. With the development of society, college students desire more opportunities to apply their knowledge and skills to social practice and to gain more social experience through the form of volunteering. From the previous performance which college students have done in volunteering, college students did supply main support to organizations, they should looked as the most important group of recruitment (Burns et al., 2005). Volunteers have been considered as the backbone of sport events (Torkildsen, 1999). Moreover, sport industry is the major sector of volunteering, especially for sport organizations and mega sport event, which rely on volunteers as the major manpower to sustain the activities. Understanding the volunteers' motivation can be beneficial for volunteers and organizations. Study on motivation of volunteer was begun in the 1970s, and at that time, volunteering became a popular activity in university campuses (Ellis, 1978).

Purpose of the Study

The aim of this study is to measure sport event volunteer motivation of Chinese university students in different background. The specific research questions are:

- (1) What are the motivators of Chinese university students when they volunteer in sport event?
- (2) Are these motivators different between gender, major, university type and previous volunteering experience?

METHODOLOGY

Participants

Questionnaires were distributed to two universities for meeting the demand of the background diversity, one is Shenyang Sport University which is a sport university; another is North East University which is a comprehensive university in China.

Instrumentation

The questionnaire of motivation survey developed by Strigas and Jackson (2003) was adopted in the present study. The questionnaire has 40 items based on four previous studies, which covering that human service volunteer motivation (Cnaan & Goldberg-Glen, 1991), general volunteer motivation (Clary et al., 1998), motivation in leisure (Beard & Ragheb, 1980), and special event (Getz, 1991). It measured in the form of a seven point liker-type scale. Gender, previous volunteer experience, university major and type of school were also recorded.

Data Analysis

The collected data was analyzed by using the IBM SPSS Statistics 21.0 version. In order to address the research items, descriptive statistics, Pearson correlation analysis and Independent Samples *t*-test were conducted. Group differences are conducted to explore the differences between gender, previous volunteering experience, university major and school type.

RESULTS

Frequency Distribution of Participants

Questionnaires were sent to 500 China university students with 366 respondents (73%). For each demographic variable, more than half of participants were male 207 (56.6%), have no previous volunteering experience 205 (56%), not major in sport 216 (59%), and from physical college 227 (62%).

Table 1 Frequency Distribution of Demographics

	Frequency	Percentage (%)
Gender		
Female	159	43.4
Male	207	56.6
Experience		
Have previous experience	161	44.0
Have no previous experience	205	56.0
Major		
Sport	150	41.0
Non-sport	216	59.0
School		
Sport	227	62.0
Comprehensive	139	38.0

The mean and standard deviation of the five motivation factors (material factors, purposive factors, leisure factors, egoistic factors and external factors) were presented in Table 2.

Table 2

Factors	M	SD
Factor 1: Material	4.68	1.08
Volunteering experience will look good on my resume	4.73	1.91
My employer/school expects me to provide volunteer service.	4.84	1.65
I want to gain some practical experience toward my own paid employment.	5.16	1.62
My employer/school is going to give me extra bonus/credit for volunteering at the sport event.	4.18	1.70
I want to be recognized for doing this volunteer work.	4.77	1.53
Complimentary items (that may result) played a very important role in decision to volunteer at this event.	4.16	1.77
I wanted to work with people from different age groups and/or backgrounds.	4.92	1.57
Factor 2 : Purposive	4.98	1.22
I wanted to help make the event a success.	4.91	1.63
Volunteering for this sport event enables the organizational committee to provide more services for less money.	4.61	1.50
It is fun to volunteer for the sport event.	5.03	1.56
Volunteering in sport event is worthy of my efforts and attention.	5.05	1.60
Volunteering creates a better society.	5.14	1.65
Volunteering activities energize me.	5.13	1.61
I wanted to interact with others.	5.03	1.60
Factor 3 : Leisure	4.08	1.06
I wanted to get away from the responsibilities of my everyday life.	3.23	2.01
I wanted to slow down the pace of my life.	3.77	1.87
Volunteering is a good escape from my own troubles.	3.46	1.97
I wanted to relieve the stress and the tension of everyday life.	4.15	1.71
I wanted to provide me with the excitement / crave.	4.31	1.66
I was asked by others to volunteer at the sport event.	4.08	1.71
Volunteering makes me feel better about myself.	4.90	1.54
By volunteering, I feel less lonely.	4.75	1.64

Correlation

Table 3

	MM	PM	LM	EgM	ExM
MM	1.00				
PM	.61**	1.00			
LM	.34**	.09	1.00		
EgM	.61**	.74**	.13*	1.00	
ExM	.58**	.50**	.49**	.49**	1.00

* : Correlation is significant at the 0.05 level (2-tailed).

** : Correlation is significant at the 0.01 level (2-tailed).

The matrix among these five factors was indicated in Table 3. All variables demonstrated significant medium to high correlations besides purposive motivation and leisure motivation.



Factor 4 : Egoistic	5.03	1.10
I wanted to improve my skills and abilities.	5.11	1.62
I have more free time than I used to have.	4.54	1.70
I wanted to develop relationships with others.	5.08	1.50
I wanted to challenge my abilities.	5.17	1.46
I wanted to discover new interests.	5.13	1.40
I wanted to make new contacts that might help my business or career.	5.14	1.60
Factor 5 : External	4.61	1.20
My friends/family/significant others are also volunteering at the sport event.	4.34	1.69
I am genuinely concerned about the particular championship I am serving.	4.61	1.64
I wanted to be appreciated by my significant others/family/community members.	4.22	1.83
I wanted to continue a family tradition of volunteering in sport events.	4.48	1.75
I wanted to gain a feeling of belonging.	4.87	1.65
I adhere to the organizational committee's specific goals.	5.16	1.60

Independent Samples *t*-test

Independent samples *t*-tests were conducted to examine whether there was any difference in the mean score for motivation factors of university students in gender, sport major, previous experience and university type (Table 4 to Table 7).

Independent Samples *t*-test for motivation on gender

Table 4

	Gender						95% CI for Mean Difference	t	df
	Male			Female					
	M	SD	n	M	SD	n			
Material	4.70	1.02	207	4.67	1.16	159	-0.20, 0.25	0.23	315.21
Purposive	5.00	1.18	207	4.97	1.26	159	-0.22, 0.28	0.23	364
Leisure	4.09	1.03	207	4.07	1.09	159	-0.20, 0.24	0.20	364
Egoistic	5.02	1.08	207	5.04	1.11	159	-0.25, 0.21	-0.17	364
External	4.50	1.23	207	4.76	1.15	159	-0.51, -0.02	-2.10*	364

**p*<.05

From the Table 4, we can see that there were non-significant difference in material for male ($M=4.70$, $SD=1.02$) and female ($M=4.67$, $SD=1.16$; $t(315.21)=0.23$, $p=0.82$), purposive for male ($M=5.00$, $SD=1.18$) and female ($M=4.97$, $SD=1.26$; $t(364)$, $p=0.82$), leisure for male ($M=4.09$, $SD=1.03$) and female ($M=4.07$, $SD=1.09$; $t(364)$, $p=0.84$) and egoistic factors for males ($M=5.02$, $SD=1.08$) and females [$M=5.04$, $SD=1.11$; $t(364)=1.62$, $p=0.86$]. However, there was significant difference in external factor for males ($M=4.50$, $SD=1.23$) and females [$M=4.76$, $SD=1.15$; $t(364)=0.037$].



Independent Samples *t*-test for motivation on sport major

Table 5

	Major						95% CI for Mean Difference	t	df
	Sport			Non-sport					
	M	SD	n	M	SD	n			
Material	4.46	0.93	150	4.84	1.15	216	-0.60,-0.16	-3.35*	355.51
Purposive	4.76	1.21	150	5.13	1.21	216	-0.61,-0.10	-2.77*	364
Leisure	4.00	0.90	150	4.16	1.15	216	-0.41, 0.01	-1.90	359.20
Egoistic	4.80	1.15	150	5.19	1.02	216	-0.61,-0.15	-3.28*	295.68
External	4.39	1.05	150	4.77	1.27	216	-0.62,-0.14	-3.10*	353.43

**p*<.05

Table 5 indicated, there were significant differences in material for sport major students (M=4.46, SD=0.93) and non-sport students (M=4.76, SD=1.21; $t(355.41) = -3.35, p=0.001$), purposive for sport major students (M=4.76, SD=1.21) and non-sport students (M=5.13, SD=1.21; $t(364) = -2.77, p=0.01$), egoistic for sport major students (M=4.80, SD=1.15) and non-sport students (M=5.19, SD=1.02; $t(295.68) = -3.28, p=0.001$) and external factors for sport major students (M=4.39, SD=1.05) and non-sport students (M=4.77, SD=1.27; $t(353.43) = -3.10, p=0.002$). However, there was no significant difference in leisure factor for sport major students (M=4.00, SD=0.90) and non-sport students (M=4.16, SD=1.15; $t(359.20) = -3.10, p=0.06$).

Independent Samples *t*-test for motivation on previous experience

Table 6

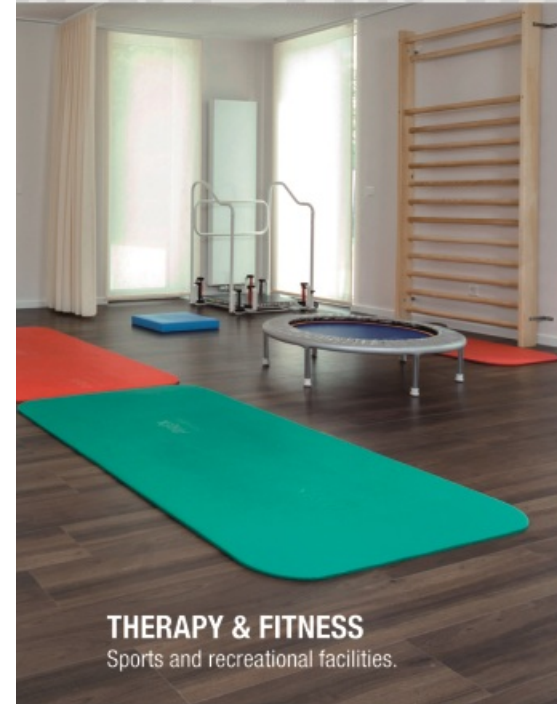
	Previous experience						95% CI for Mean Difference	t	df
	Have experience			Have no experience					
	M	SD	n	M	SD	n			
Material	4.75	1.02	161	4.63	1.13	205	-0.10, 0.35	1.13	364
Purposive	5.18	1.12	161	4.83	1.26	205	0.10, 0.60	2.76*	364
Leisure	3.96	0.98	161	4.17	1.11	205	-0.44,-0.00	-2.01*	364
Egoistic	5.11	1.05	161	4.96	1.11	205	-0.07, 0.38	1.34	364
External	4.54	1.20	161	4.67	1.20	205	-0.38, 0.11	-1.01	364

**p*<.05

Table 6 indicated, no significant difference in material for students with previous volunteer experience (M=4.75, SD=1.02) and students without previous volunteer experience (M=4.63, SD=1.13; $t(364) = 1.13, p=0.26$), egoistic for students with previous volunteer experience (M=5.11, SD=1.05) and students without previous volunteer experience (M=4.96, SD=1.11; $t(364) = 1.34, p=0.18$), external for students with previous volunteer experience (M=4.54, SD=1.20) and students without previous volunteer experience (M=4.67, SD=1.20; $t(364) = -1.01, p=0.29$). But there were significant difference in purposive factor for students with previous volunteer experience (M=5.18, SD=1.12) and students without previous volunteer experience (M=4.83, SD=1.26; $t(364) = 2.76, p=0.01$) and leisure factor for students with previous volunteer experience (M=3.96, SD=0.98) and students without previous volunteer experience (M=4.17, SD=1.11; $t(364) = -2.01, p=0.05$).



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Independent Samples *t*-test for motivation on university type

Table 7

	University Type						95% CI for Mean Difference	t	df
	Physical			Comprehensive					
	M	SD	n	M	SD	n			
Material	4.33	1.01	227	5.25	0.93	139	-1.13,-0.71	-8.70*	364
Purposive	4.66	1.28	227	5.51	0.86	139	-1.07,-0.63	-7.60*	361.23
Leisure	3.90	1.00	227	4.37	1.10	139	-0.68,-0.24	-4.18*	364
Egoistic	4.74	1.17	227	5.49	0.77	139	-0.94,-0.54	-7.35*	362.22
External	4.29	1.01	227	5.14	1.17	139	-1.09,-0.61	-7.03*	364

* $p < .05$

Table 7 indicated, we can see that students in Sport University and comprehensive university have huge difference in motivation factors. In another word, there were significant differences in all five motivation factors. In detail, material for students in sport university ($M=4.33, SD=1.01$) and students in comprehensive university ($M=5.25, SD=0.93; t(364)=-8.70, p=0.00$), purposive for students in sport university ($M=4.66, SD=1.28$) and students in comprehensive university ($M=5.51, SD=0.86; t(361.23)=-7.60, p=0.00$), leisure for students in sport university ($M=3.90, SD=1.00$) and students in comprehensive university ($M=4.37, SD=1.10; t(364)=-4.18, p=0.00$), egoistic factors for students in sport university ($M=4.74, SD=1.17$) and students in comprehensive university ($M=5.49, SD=0.77; t(362.22)=-7.35, p=0.00$) and external factor for students in sport university ($M=4.29, SD=1.01$) and students in comprehensive university ($M=5.14, SD=1.17; t(364)=-7.03, p=0.00$).

DISCUSSION

The results of this study are described and the relationship between the dependent variables and independent variables are discussed in this part.

Among these five factors, egoistic factor scored the highest with a mean of 5.03 and purposive factor had the second highest score with a mean of 4.98, and followed by material factor with a mean of 4.68.

The finding of egoistic factor with highest mean score is unique to this sample. The Egoistic factor is related to individual's demands for interpersonal relationships, self-esteem, and self-achievement. That also means all egoistic motivations are starting from their personal needs, and volunteers just care about their own interests. To be frank, this finding is related to Chinese one-child policy since 1979 until now. A family has one child is not healthy for the whole family, especially not good for child's mental growth, even can make child more selfish and potent (Dong, 1995). So, it is not hard to understand college students have so high egoistic motivation for participating sport event in current times.

"Purposive factors" was named as "values" by Clary et al. (1998). Which means a factor is a desire of volunteer to do works which can benefit for event organizations or contribute to sport event and community. There are many similar findings about purposive or values dimensions depending on previous study. Astin and Sax (1998) indicated that students were strong desire to service in communities, to help others, participate in volunteering and join in a team.

While Material factor also has a high mean score in this sample. It includes motivations of material or utilitarian factors which developed by Clark and Wilson (1961) and career factors

described by Clary et al. (1998). This factor means volunteers want utility gain or social status in exchange for their service. Bagheriy et al. (2010) indicated the influence of the seven motivation factors on university students who participated in sport events. In that research, the result showed that purposive and material factors had most influential effect for the students' participation.

Andam et al. (2009) examined 360 students from 20 different universities and found that material gain is the highest influential factor but personal enrichment is the lowest one. This finding indicated that university students are more care about their future career paths by volunteering than other population groups, because many volunteering experiences can be beneficial for their resume and help them find a job.

From data analysis, students in different gender have significant difference in external factor. Females were more likely influenced by external factors as motivation to volunteer than male. Astin and Sax (1998) founded that a significant relationship was found between gender and volunteer motivation for college students. In addition, they also clarified that female students have higher motivation than male students in volunteering. Moreover, females are more likely than males to benefit from volunteering (Wilson & Musick, 1999). Females are more likely to help others, handle well with the interpersonal relationships and give back to sociality than male (Astin & Sax, 1998). However, Liao-Troth & Dunn (1999) indicated that there was no significant difference between male students and female students in volunteerism, because the sample is too small.



There were significant differences in material, purposive, egoistic and external factors between students of sport major and non-sport major. Students in sport major were more interested in sport event and would gain more benefits in material factors such as stronger resume. Additionally, sport major students have more professional knowledge and skills than non-sport major students, so they will have more confident to help sport event and contribute more to

the organization, that means sport major students have more purposive motivation. There are similar findings according to previous study. Callow (2004) examined the motivations of volunteers with professional knowledge or skills, and indicated that previous professional experience or jobs may have bigger influence than their age on volunteer motivations. Even the manager of sport event organization are more likely to recruit sport major students as volunteers because their excellent performance record (Yue, 2008). Moreover, there were significant differences in all five factors between students from physical university and comprehensive university. The environment of university will affect students in various kinds of aspects, including their interest and value (Bringle & Hatcher, 1996). In addition, students from physical university could have more opportunities to participate in sport event volunteering than students from comprehensive university.

Two significant differences were found between students with previous volunteer experience and without experience, which were purposive and leisure factors. From the research of Astin and Sax (1998), it indicated that the most significant factor influencing students to involve in volunteering activities is whether the students had volunteer experience in high school. Pauline and Pauline (2009) surveyed the US open volunteers' motivations and indicated that precious volunteer experience can influence motivations. It means that previous experience is significant for students to involve in volunteering activities. Student volunteers with previous experience in this sport event may have more motivations to contribute to this event than without previous experience. While, as mentioned before, if volunteers have strong purposive motivation to contribute to this sport event, they will not desire many leisure choices. As a result, student volunteers with previous experience have less leisure motivation than student volunteers without previous experience.

Based upon the present findings, sport event organizer may use different ways to manage and motivate university volunteers in different background in the future. Organizers can provide more opportunities for sport major students to volunteer their professional knowledge, and make use of their previous volunteer experience.

LIMITATION

There are many limitations of this study. First is the sample's location. The sample of this study was just in one city, which was



Shenyang, China. So, the result of the present study only can indicated the situation of university students in Shenyang, not for entire China. Moreover, the volunteering activity in Shenyang is the best developed in China, but it is easier for researcher to collect data according to hometown issues. Secondly, the original version of this survey was in English, so there must be some translation limitation in this study, especially culture difference, such as community culture.

CONCLUSION

The objective of the present study was to further examine motives to volunteerism among university students in different demographic groups. The reason why undergraduate students were selected as participants for this survey was that they have high tendency to volunteer and they were as the main human power for volunteering service. This study was an exploring study on demographic groups. There were total four demographic groups as the comparing subject, which were gender, study field, previous experience and university type.

There were significant differences for students in different demographic groups in sport event volunteer motivation. One significant difference was found between male and female in motivation, which was external factor. Female were more likely take external factors as motivation to volunteer than male. So, that means there are still some difference between male and female in other motivations except material, purposive, leisure and egoistic factors. There is still need more exploratory study in this field in the future.

There were significant differences in material, purposive, egoistic and external factors between students of sport major and non-sport major. Moreover, there were significant differences in all five factors between students from physical college and comprehensive college. Students with sport background will have more value and personal needs and motivations than students without sport background. The environment of college will affect students in various kinds of aspects, even their interest and value (Bringle & Hatcher, 1996).





Two significant differences were founded between students with previous volunteer experience and without experience, which were purposive and leisure factors. Previous experience is significant for students to involve in volunteering activities again. Student volunteers with previous experience in this sport event may have more motivations to contribute to this event than without previous experience.

Sport organization could depend on this survey to motivate university students in different background and help hold sport event more successful. Organizers can give many skillful or professional works to sport major students to do, make students with previous volunteer experience feel valuable and affirm their performance, offer more leisure time for students without previous volunteer experience. RMA



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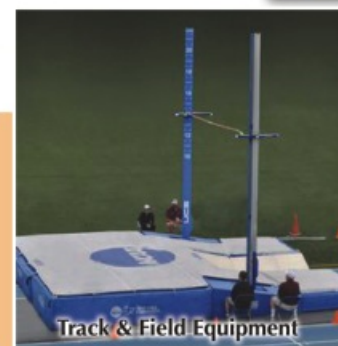
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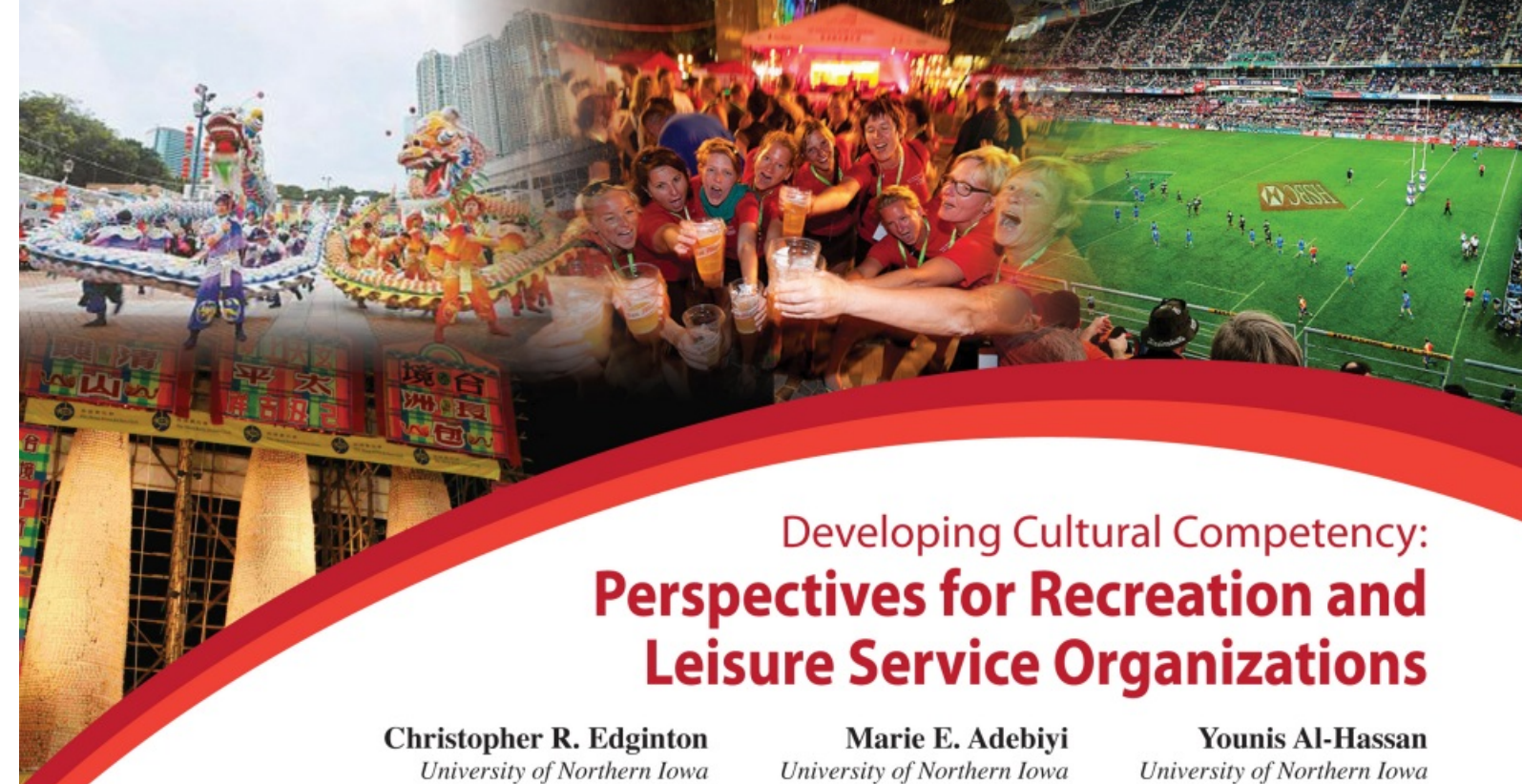


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Developing Cultural Competency: Perspectives for Recreation and Leisure Service Organizations

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INTRODUCTION

Increasingly, we live in a world where people are called upon to embrace the diversity that individuals bring to their leisure pursuit. This is true in a very diverse city like Hong Kong as well as cultures throughout the world especially those who are experiencing a large intake of individuals from other countries. This phenomena requires recreation and leisure professionals to be able to effectively demonstrate greater cultural knowledge when relating to others from different cultural background and/or perspectives. Often, such knowledge is referred to as one's cultural competency.

Taylor (2001), has offered that "leisure has assumed a continuum of roles in cultural diversity ranging from suppression to celebration of difference". This author further notes that freedom in leisure choices maybe constrained by opportunity equity, access and exclusion issues based cultural and linguistic difference. Leisure in its many forms is "routinely used to foster cultural reproduction of dominant ideologies and power relations" (Taylor & Toohy, 1999). Such practices may marginalize leisure participation and involvement. This may in turn impact on one's life satisfaction.

Burtz (2016) has suggested that a culturally insensitivity organization will create barriers to leisure participation. He further note that "cultural competence recognizes, affirms, fosters, and values the strengths of individuals, families, and communities and protects and preserves the worth and dignity of each". He suggests that cultural competency can be fully gained when individuals adopt standard, policies, procedures and practices which reflect the cultural of individuals and groups being served. By doing so, recreation and leisure agencies can enhance the quality of their services and outcomes. Burtz goes on to further note that the professional staffs of many public recreation and leisure organizations do not necessarily reflect the culture they serve.

For the recreation and leisure professional, it is often essential that one be able to employ cultural techniques in the

practice of their professional activities. This may involve embracing different cultural values, respecting the customs and beliefs of others, communicating with others in ways that are culturally appropriate and be open to differences. According to the US Department of Health and Human Services, *cultural competence* may be "defined as a set of congruent behaviors, attitudes, and policies that come together in a system, agency, or among professionals and enables that system, agency, or those professionals to work effectively in cross-cultural situations" (US DHHS, Office of Minority Health, 2017). Similarly, cultural competency has also been thought of a set of human behavior.

Denboba (1993) offers that cultural competency can be thought of as;

A set of values, behaviors, attitudes, and practices within a system, organization, program or among individuals and which enables them to work effectively cross culturally. Further, it refers to the ability to honor and respect the beliefs, language, interpersonal styles and behaviors of individuals and families receiving services, as well as staff who are providing such services. Striving to achieve cultural competence is a dynamic, ongoing, developmental process that requires a long-term commitment.

This author also suggests that cultural competency may include the development of a plan which includes intervention in policy making; infra-structure building, program administration and evaluation, the delivery of services and enabling supports; and for the individual.

Cross, Bazrob, Dennis & Isaac (1989) have suggested that five critical dimensions that enable an organization to become more culturally competent. These include (1) valuing diversity (2) having the capacity for cultural self-assessment (3) being conscious of the dynamics inherent when cultures interact (4) having institutionalized culture knowledge and (5) having developed adaptations to service delivery reflecting an understanding of cultural diversity. From an organizational

perspective, in order for an agency to be cultural competent, it must “(1) have a defined set of values and principles, and demonstrate behaviors, attitudes, policies, and structures that enable them to work effectively cross-culturally (2) have the capacity to (a) value diversity, (b) conduct self-assessment, (c) manage the dynamics of difference, (d) acquire and institutionalize cultural knowledge, and (e) adapt to diversity and the cultural contexts of communities they serve and (3) incorporate the above in all aspects of (a) policy-making, (b) administration, (c) practice and service delivery, (d) systematically involve consumers, (e) families and (f) communities (National Center for Cultural Competence, 1998).

The purpose of this paper is to examine the concepts of cultural competence as it relates to recreation and leisure services. First, a “cultural competency model” is presented and discussed. Second, strategies for improving professional practice by emphasizing a greater focus for recreation and leisure staff members would be examined. Third, the paper will offer ways which cultural competency programs can be incorporated into pre service and in service programs.

CULTURAL COMPETENCY MODEL

The Cultural Competency Model offered in Figure 1 includes four key dimensions. These include one’s cultural experience, cultural interactions and relations, cultural comfortability and cultural awareness. These dimensions are described below:

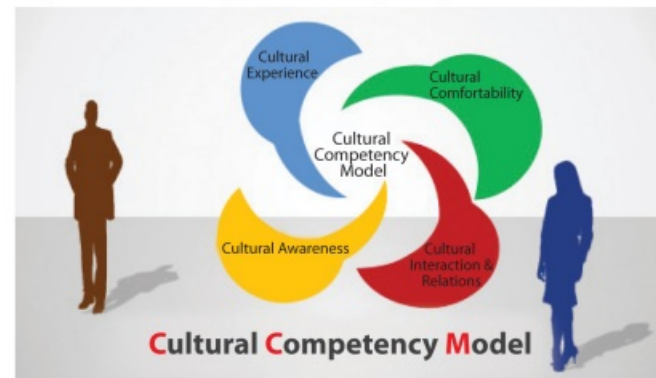
Cultural Experience. One’s cultural experiences can be thought of as level/number of encounters a person has with other cultures. This involves engagement in other cultural environments. In addition, it is about experiencing other cultural techniques and practices towards an action. For example experience in food and other basic ways of living (e.g. dressing style).

Cultural Interaction and Relations. One’s ability to relate effectively with people from different culture without refrain is a reflection of their comfort in interacting and building relationships with others. Culturally competent individuals feel free to interact with others using a variety of forms of communication both oral and written, and even the use of their body language with others.

Cultural Comfortability. This term refers to the level in which an individual feels comfortable within other cultural settings, among people from other cultures, and the level of comfortability in sharing and understanding other cultural experiences.

Cultural Awareness. The ability to recognize the difference in beliefs and values within cultures can be thought of cultural awareness. There must be an awareness that a person from a different origin has different customs, rituals and beliefs. Cultural awareness suggests that one must have an understanding of different forms of human behaviors, and ways which such behaviors can be interpreted to meet their needs.

Figure 1 A model of cultural competency



The Cultural Competency Model (CCM) works in a cyclical fashion. In order words, one should experience other cultural techniques and practices in order to gain the first step in gaining cultural competence. By immersing oneself in other cultures, one gains cultural experience. This can be done by sampling foods from other cultures, observing and participation in festivals, holiday celebrations and other cultural driven activities and events. The next step in the model is interaction and building of relationships. This often involves social bridging (Putnam, 2001). The term social bridging refers to expanding one’s network by establishing new relationships with others. The next step in the process is that of gaining comfort within new cultural settings with people from another culture. This often involves a sense of ease in dealing with others, a freedom from the constraints that prevent individual’s form building relationship and in fact feeling comfortable with others and/or within their own environments. The last step in the process is that of cultural awareness. Being culturally aware is in fact an awakening, a consciousness which enable individuals to be sensitive to the beliefs and values of individuals within a new culture.

This Cultural Competency Model can be useful to individuals working in recreations and leisure service agencies to modify their progress toward become cultural competent. It can help people chart their course and gaining greater cultural competence. This model presents a way to benchmark one’s progress towards the end of becoming culturally competent. It provides a way and organizations to reflect on their own behavior and actions. It provides a way for individuals to embrace the differences of others and for recreation and leisure organizations to fulfill their mandate which often is reflected in their mission of provision of services to all.

STRATEGIES FOR IMPROVING PROFESSIONAL PRACTICE

In the 21st century, globalization has advanced diversity and the notion of multiculturalism throughout the world. In recreation and service organizations professional practice is ineffective, incomplete, and irrelevant without attention to cultural diversity. Thus, it is increasingly important for recreation and leisure professionals to become more culturally competent. Alizadeh and Chavan (2015), have suggested that there are many challenges in fostering cultural competency. Among these but not limited to are the following limited cultural awareness/knowledge

and cultural skills/behavior resulting in “ethnocentric, biased and/or prejudice beliefs towards others”. These facts alone suggest that every recreation and leisure service organization has a mandate to develop innovative practices to improve cultural competency which will in turn enhance the delivery of programs and the impact of such services on individuals participating (Long, 2012; Alizadeh & Chavan, 2015).

According to Sue (2006), acquiring full knowledge of culture is challenging as individuals assimilate cultural values differently. This author suggests that, professionals “must decide what cultural aspects are particularly important to know”. Toward this end, recreation and leisure managers should be able to foster research, develop programs and concepts that open doors for understanding new cultural structures and psycho-social interaction techniques. Cultural awareness requires consistency in the search of cultural knowledge and should be linked with credibility to attain the goal of effective service delivery (Sue & Zan, 1987). Further, Calzada and Suarez-Balcazar (2014), suggested that vision, mission and value statements of organizations need to embrace cultural diversity. Once such statements have been established, a strategic process to enhance cultural competency within recreation and leisure service organizations will follow.

Table 1 provides an overview of profession practices related to cultural competency that can serve as a basis for training/development programs. Each of these items has been keyed to the stages found in Figure 2. Some potential professional practices for extending cultural competency are offered in the table below.

Table 1 Potential Practices Related to Building Cultural Competency.

Stages	Potential Practices
Stage 1	Foster learning about other cultures, values and recreation and leisure interest.
	Develop collaborative relationships, partnerships with the population served by the organization.
	Engage in self-reflection about one’s culture and potential biases.
	Identify one’s preparedness to serve culturally diverse populations.
	Participate in cultural immersion experiences.
Stage 2	Provide pre-service cultural competency trainings/ development programs.
	Follow culturally-sensitive engagement and outreach practices.
	Utilize culturally-sensitive communication styles that emphasize different cultural preferences.
	Plan extended cultural events which reach out into diverse settings.
	Provide translation services
	Use culturally-relevant screening and assessment tools that are translated to meet the needs of groups which the organization is serving
Stage 3	Allow staff to engage in cultural immersion to the population served.
	Arrange reception and meeting areas to accommodate large and different cultural groups.
	Arrange reception and meeting areas to accommodate large and different cultural groups.
	Provide in-service staff training/development on cultural competency.
	Create forums and other opportunities for ongoing dialogue for staff to reflect on what is and what is not working when serving culturally diverse population.
Stage 3	Engage in self-assessment of cultural competency practices via self-ratings; collect feedback from culturally diverse population.
	Continually review evidence based practices relative to program planning, implementation and evaluation.

Source: Adapted from Calzada, E., & Suarez-Balcazar, Y. (2014). *Enhancing Cultural Competence in Social Service Agencies: A Promising Approach to Serving Diverse Children and Families* (Vol. 31). OPRE Report.

A strategic procedure for building greater cultural competency within recreation and leisure service organizations is essentially a three stage process. These stages include the following: (1) identifying and understanding cultural diversity and perspectives; (2) creating opportunities cultural diversity outreach practices; (3) evaluating practical approaches and implementing standard cultural diversity expectations. Figure 2 portrays the process of building greater cultural competency within the recreational and leisure service organization. The first two stages of the process is the point at which the organization’s professional culture is developed. This part of the provides an opportunity for the recreation and leisure professional to determine the content of cultural behaviors, core values, customs, meanings and attributions (Pecukonis, Doyle & Bliss, 2008).

Figure 2 Stages in Building Cultural Competency





INCORPORATING CULTURAL COMPETENCY INTO TRAINING/ DEVELOPMENT PROGRAMS

Training of staff is essential. In order to effectively implement a strong program to enhance cultural competency in a recreation and leisure service agencies. In many organizations, training and development programs is aimed to change the behavior of employees. Edginton, Hudson, Lankford and Larsen (2015) have suggested that there are several types of training including orientation/pre-service training and in-service training. Orientation/pre-service training according to these authors is "directed toward providing new employee with necessary skills, knowledge and attitudes to perform a function within an organization prior to actual placement in the work environment" (pg. 212). In order, words the training takes place before the individual starts their work performance. On the other hand, in-service training occurs after individuals have started their employment. Again, as Edginton et al. suggest that there are three types of in-service training- updates for new technology, reinforcement of one's initial training and developmental training to enable individuals to expand their knowledge.

Chand (2016) has noted that there are three models of training / development programs. They are: (1) System Model; (2) Transitional Model; and (3) Instructional Systems Development Model. The *System Model* ties the training/ development effort to an organization's employees to embrace required standards. The aim of this model is to assist employees perform, their work commensurate with standards. There are five steps in this training model. The first is to analyze and identify the training needs. This involves determining job requirements and the skills and knowledge set of employees. This is followed by designing programs in other to meet needs. "This steps requires developing objectives of training, identifying the learning steps and sequencing and structuring the content. The next step of the process is the development of the program, followed by its implementation and last is the evaluation of the training/development effort.

The *Transitional Model* of training / development is focused on a transformation and evolution of an organization as a whole. This process starts with a focus or refocus on the vision, mission

and values of the organization and asks the question "where does the agency want to be in the future?" The training development program then focuses on repositioning the organization and its members to embrace its new vision, mission and values. In other words, the purpose of the transitional model is one of reshaping the organization to move in a new direction. In the recreation and leisure area, organizations often contemplate the extent to which they should be direct service providers as contrasted with enablers or facilitators. Whether or not their focus should be on crafting casual leisure opportunities for individual or more serious ones (Stebbins 2005). These and other questions are often explored in the *Transitional Model* of training and development.

Last, the *Instructional System Development Model* is one focused on linking training objectives with job performance. In other words, the training / staff development effort seeks to enhance the performance of individuals based on their job responsibilities and roles. This often involves making an individual assessment on each individual regarding their relative success in the work environment and then planning individual / development training programs built around identifiable outcomes and objectives. The establishment and achievement of such outcomes can then be used to plan, design, and development the training or staff development program. Other training / development activities in this model involve focusing on the logistical arrangements required to implement a program. And, last as is the case with other training/development programs evaluation must be undertaken to ensure the program is effective in enhancing job performance.

The content of training / development programs focused on assisting professional staff in gaining greater cultural competence are wide and varied. Some of the more common topics often found in the area of cultural competency, training / development programs include: (1) diversity and inclusion; (2) principles of cultural competency; (3) cultural disparities; (4) personal and organizational bias; (5) culture and communication; (6) managing cultural conflicts; and (7) others. Further, the actual training / development strategies ranging from lecture presentations to actual hands on experiential experiences also vary depending upon the needs of the individuals, the organization and the cultural context within which training / development is being offered.

SUMMARY

We live in an increasingly diverse society often made up of many different cultures. Individuals and groups often bring their leisure pursuits, unique customs, values, beliefs and practices. In other for any recreation and leisure organization to be successful, their programs must reflect the emerging character their culture. This calls for recreation and leisure professionals to gain greater cultural competency in to other to meet the leisure needs and interest of different individuals and groups. This presents a

challenge to the recreation and leisure professionals and his/her organization to discover practices which can assist in promoting greater cultural awareness, experiences, interactions and relations and cultural comfortability. This paper has offered a "Model of Cultural Competency" and suggest that several training/ development methods as well as professional practices that can be used to enhance cultural competency. RMA



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Relationship between Biomechanical Characteristics of Sprint-specific Plyometric Exercises and Sprinting Performance in Youth College Sprinter

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INTRODUCTION

According to Bangsbo, Nørregaard and Thorsø (1991), the sprinting motion which last for two to four seconds occurred at every 90 seconds during a soccer match. Robbins and Young (2012) found that the wide receivers and running backs in an American football team needed to sprint repeatedly for several times during the game. Therefore, the sprinting performance becomes one of significant factor affecting the overall performance of specific sports.

To achieve a high sprinting velocity, the force production of thigh muscles such as the hamstrings, quadriceps and gluteus maximus should be high enough so as to generate greater propulsive force during the ground contact period and therefore high level of strength and power is needed among these muscles. (Brughelli, Cronin & Cheaouachi, 2010; Holm, Stålbom, Keogh & Cronin, 2008; Markovic, Jukic, Milanovic & Metikos, 2007; Mero, Komi, 1994). In order to develop the strength and power of these muscles, different strengthening training protocols were used by the strength and conditioning professionals and plyometric training is one of the methods commonly used.

Plyometric exercises refer to those exercises which produce fast and powerful movements by pre-stretching the active muscle immediately followed by concentric contraction. (Potach & Chu, 2008) The stretch-shortening cycle (SSC) were involved in this type of training.

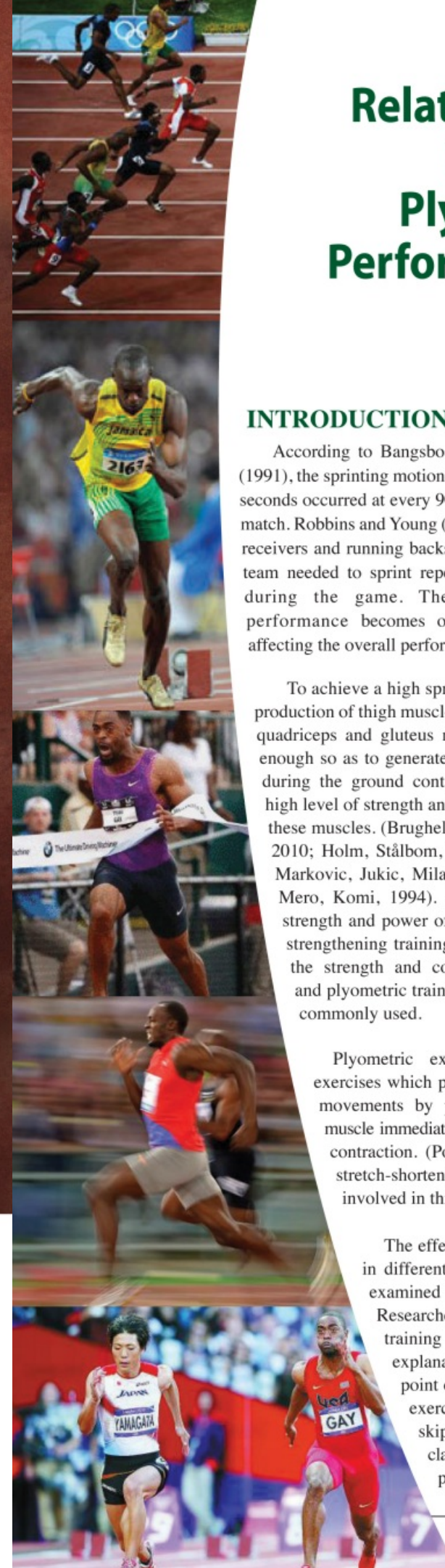
The effects of plyometric training in different area of sports has been examined widely in many years. Researchers found that plyometric training which aim to provide explanation in the biomechanical point of view. Some plyometric exercises such as bounding, skipping and hopping are classified as 'sprint-specific' plyometric exercises by

the coaches and researchers as they found that these exercises can improve the leg strength and power better than the plyometric exercises performed vertically. They believed that these exercises cover great horizontal displacement which is similar to the motions of real sprint running, the transfer effect is better if these exercises are included in the training program rather than those plyometric exercises which involve vertical movement only. (de Villarreal, Requena & Cronin, 2012; Rimmer & Sleivert, 2000)

However, some studies only examined the kinetic parameters of these sprint-specific plyometric exercises such as force and power production but not correlating these data with the real sprinting performance (Mero & Komi, 1994). Some researchers correlated the kinetic and kinematic parameters of plyometric exercises with real sprinting performance but they had not selected the sprint-specific plyometric exercises and also they had not classified the improvement into specific phase of sprint running. (Holm, Stålbom, Keogh & Cronin, 2008). According to Rimmer and Sleivert (2000), they found that sprint-specific plyometric exercises are more effective to improve the 40 meters sprint performance than the plyometric exercises performed vertically, especially the initial acceleration phase (0 – 10m) and therefore the researchers define these exercises as 'sprint-specific' plyometric exercises. However, they did not provide the correlation which indicated how these exercises are specific to sprinting. Therefore, this study aims to investigate the relationship between sprint-specific exercises and the sprint velocity of 40 meter sprint.

METHODS

Cross-sectional approach was used in this study to examine the relationship between sprint-specific plyometric exercises and 40 meters sprinting performance within the same groups of sprinters. Pearson product-moment correlation was used to determine the strength of relationship between sprinting velocity in the initial acceleration phase (0 – 10m), constant acceleration phase (10 – 40m) and overall performance (0 – 40m) of 40 meters sprint and the propulsive ground reaction force (PGRF), vertical ground reaction force (VGRF) and ground contact time (GCT) of four selected sprint-specific plyometric exercises.



SUBJECTS

In this study, twelve male sprinters were involved (age: 21.5 ± 1.68 years; height: 1.75 ± 0.03 m; weight: 657.4 ± 64.2 N) based on the calculation from the paper of Chelly et al. (2010) using g-power (GPower version 3.1). All the sprinters had at least one year track and field training experience and some experience in plyometric exercises training. None of these sprinters reported any current lower body injuries that could affect the performance or leave them prone to injury as a result of the testing procedures. Informed consent, PAR-Q form and information sheet were provided to each of the participants before the participation in this study. All the participants were recruited through the track and field teams in different sports clubs in Hong Kong. The present study was approved by the Human Subjects Ethics Sub-Committee of Technological and Higher Education Institute of Hong Kong. Explanation of the general nature of this study was provided to all participants without giving them the detailed aim of this study so as to minimize any biases during the testing procedures. The benefits and risks involved in this study was also explained to all of the participants and they were free to withdraw from this study at any time without any penalty.

STUDY DESIGN

Each subjects performed the sprint test and plyometric test in two days separated by 48 hours. Sprint test was performed by each subjects in the first day while the plyometric exercises test was performed in the second day. Sufficient resting time was provided to all participants to ensure full recovery during the test so that the testing results would not be affected. All sprinting and sprint-specific plyometric exercises were performed in a counterbalanced order so as to minimize the fatigue and learning effects of the testing. To correlate sprint-specific plyometric exercises with real sprinting, the kinetics parameter (ground horizontal force) and kinematics parameter (ground contact time) of plyometric exercises and also the sprinting velocity of each participant were recorded.

In order to standardized the movement of selected sprint-specific plyometric exercises, the technique of these exercises will be shown to all participants and two supervised familiarization sessions will be provided before the testing. All participants were also be instructed to refrain from any vigorous physical training 48 hours prior to the testing session. (Holm, Stalbm, Keogh & Cronin, 2008; Wong, Chaouachi, Dellal & Smith, 2012)

TESTING PROCEDURES

Before the start of each testing session, every subject performed a standardized warm-up, consisting of 10 minutes of jogging with the velocity of 10 km/h, static stretching for lower limbs muscles (quadriceps, hamstrings, calf muscles, 10 seconds stretching for each muscles) and four lower body dynamic exercises (hip external rotation, hip internal rotation, high knees, butt kicks, each exercise performed 2 x 10m). Sprint test was conducted in the outdoor sport field while sprint-specific plyometric exercises were conducted in the indoor sports hall. (Holm, Stalbm, Keogh & Cronin, 2008)

Sprint Test

The 40 meters sprint was used as the testing protocol in this study because the plyometric exercises selected are proved to be useful to improve the 40 meter sprint performance (Rimmer & Sleivert, 2000). To standardize the starting position for all participants, each sprint started with the three points start position 0.5 meter behind the first timing gate. All sprints were initiated by the participants and the time was recorded when participant pass through the first timing gate. After the dynamic warm-up exercises, three sets of submaximal sprints were provided with two minutes inter-set rest. After the completion of warm-up, all participants performed three trials of sprinting. Four minutes resting time (active recovery) will be provided between each sprint trial.

Sprint-specific plyometric exercises

The sprint-specific plyometric exercises selected were based on the finding from Rimmer and Sleivert (2000), four exercises were selected from the training program they used which are proved to be useful to improve the sprinting performance based on the result of 40 meters sprint test. All exercises were performed for 15 meter and in a counterbalanced order and the data from dominant leg of each participant was recorded (depends on the first leading leg after leaving the starting block). The movement illustration and experimental set up of alternate leg bound and sprint bound are shown in Figure 1 while the movement illustration and experimental set up of single leg forward hop and single leg speed hop are shown in Figure 2.

- (1) *Alternate leg bound (ALB)*: All participants started the exercise from standing position with two feet parallel. They were instructed to jump forward using both legs to push off and bring the right leg forward by flexing the thigh to a position parallel to the ground with knee bent at 90o, both arms were swung forward during the flight phase. After that, participants landed on ground with right leg and immediately push off again and landed with left leg in an alternative sequence. Participants were instructed to perform the exercise with minimum number of jumps. Three sets of this exercise were performed with three minutes inter-set rest. (Fig. 1)
- (2) *Sprint bound (SB)*: All participants started this exercise with a jogging at comfortable pace and jumping forward with the right leg first. The exercise sequence is same as the alternate-leg bound. All participants should focus on using maximum movement speed to finish the exercise. All participants were instructed to perform three sets this exercises with three minutes inter-set rest. (Fig. 1)

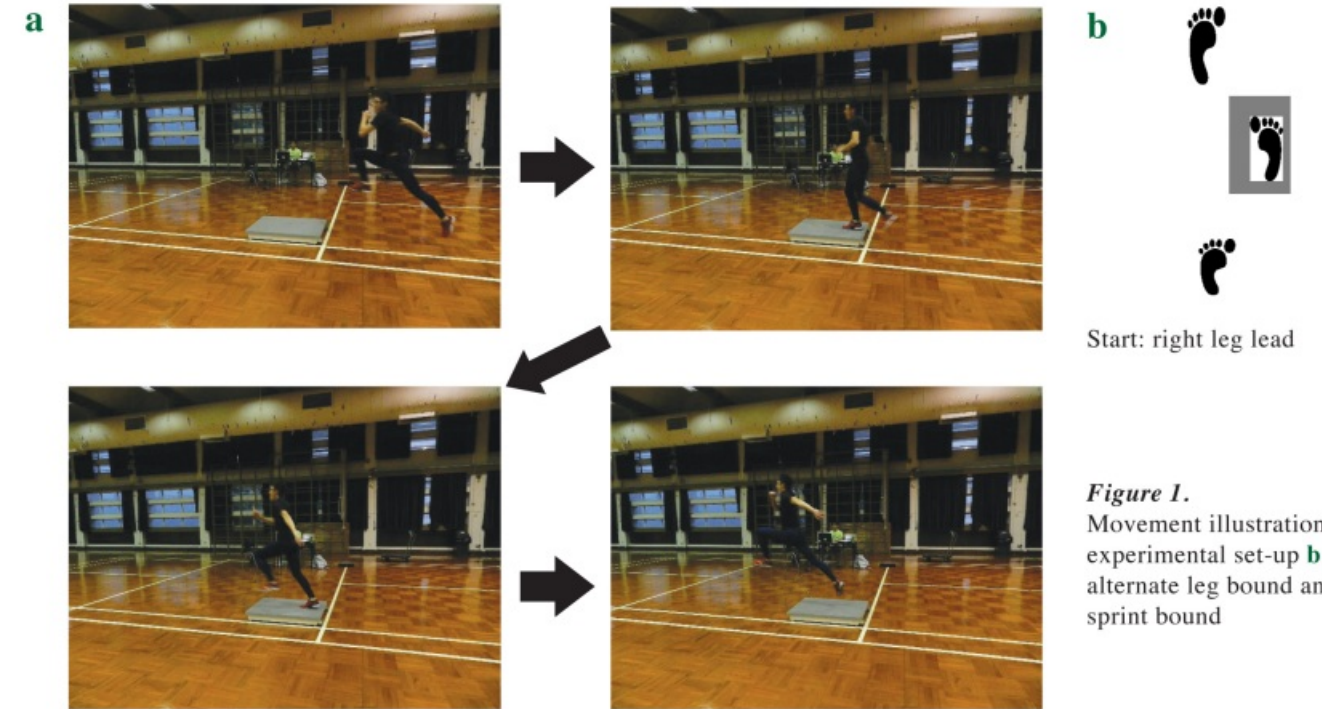
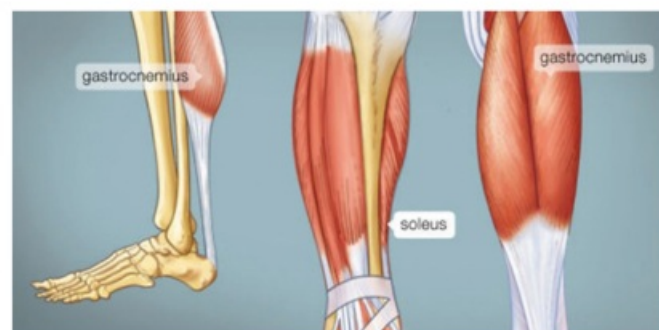


Figure 1. Movement illustration **a** and experimental set-up **b** of alternate leg bound and sprint bound

- (3) *Single leg forward hop (SLFH)*: All participants started the exercises with a single leg standing position. When they were instructed to start the hopping exercises, they need to perform with dominant leg (depends on the first leading leg after leaving the starting block), slightly dip the body down to the quarter squat position and jump as far as possible. Upon landing with the same leg, participants need to jump again immediately which focus on minimum number of jumps. All participants were instructed to perform three sets of this exercise with three minutes inter-set rest. (Fig. 2)

- (4) *Single leg speed hop (SLSH)*: All participants started the exercise with single leg standing position. They were instructed to start the exercise with slightly push off by both leg. The movement sequences were the same as single leg forward hop but this exercise require all participants to focus on maximal movement speed. Three sets of this exercise were performed with three minutes inter-set rest. (Fig. 2)

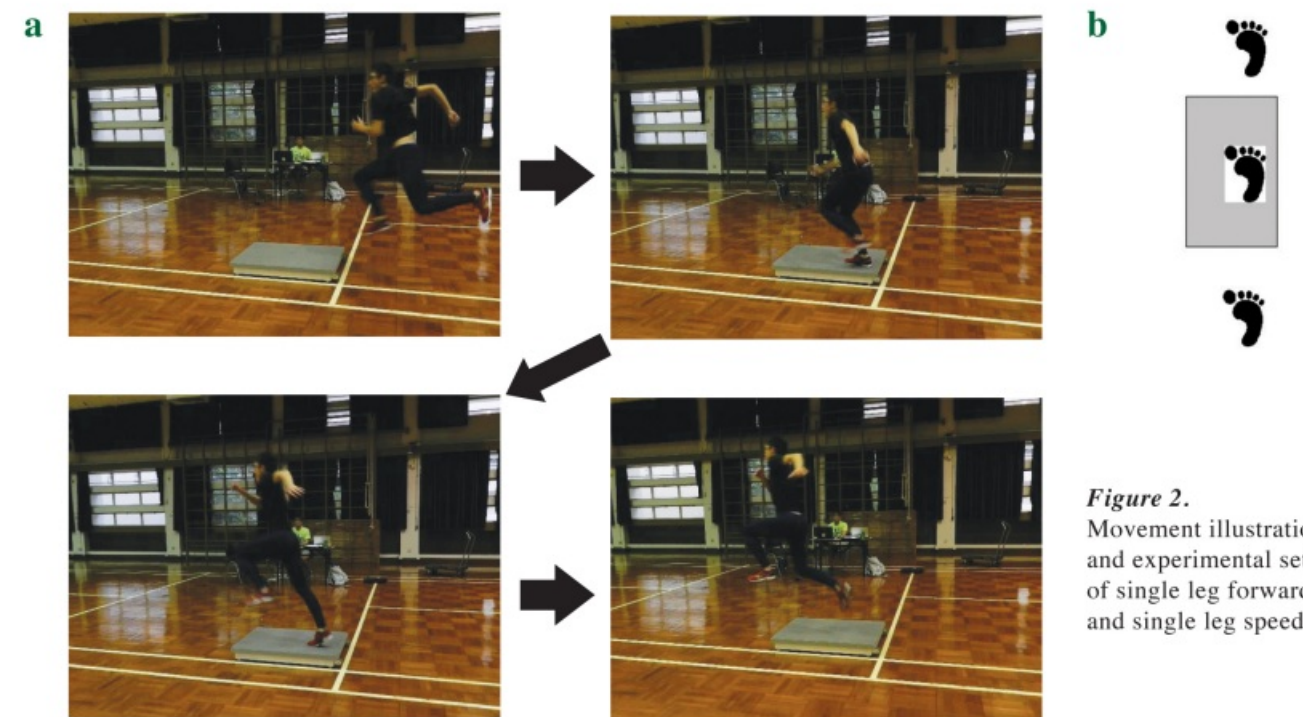


Figure 2. Movement illustration **a** and experimental set-up **b** of single leg forward hop and single leg speed hop



DATA COLLECTION AND INSTRUMENTS

Sprinting Assessment

The distance of 40 meter was measured by the measuring tape and timing gate (SmartSpeed, Fusion Sport, Australia) was used to record the sprinting time. The first pair of timing gate will be placed 0.5m in front of the starting line and times were recorded at the 10- and 40-m marks of the 40 meters sprint so that the velocity of initial acceleration phase and constant acceleration phase could be reported. Each participant needed to sprint three times in this test and they were instructed to sprint with maximal effort in each trial.

Plyometric exercises Assessment

Force platform (AccuPower, AMTI, Massachusetts, United States) was used to record the ground contact time and the peak value of ground reaction forces in vertical and horizontal direction for each exercise. It was placed at the position where all participants stepped their third step of bounding or hopping exercises on the force platform. Practice trials were provided to all participants before the testing as parts of the warm-up protocols in order to ensure that all of the participants could position their third step of bounding or hopping on the force platform. For every exercise, participants needed to perform three trial with three minutes inter-set rest (passive recovery). They needed to perform the exercises in a counterbalanced order and the data from dominant leg of each participant was recorded.

STATISTICAL ANALYSIS

Descriptive statistics for all variables were presented as means and standard deviations to indicate the central tendency and variability of the results among participants. Pearson product-moment correlations was used to determine the strength of the relationship between sprint performance and the kinetics (ground reaction forces) and kinematics (ground contact time) of four selected sprint-specific plyometric exercises. All statistical analyses were conducted using Statistical Package for the Social Sciences (SPSS version 22) with significance set at the value of $p < 0.05$. Measurement of reliability was indicated by calculating the intra-class correlation coefficient (ICC) and internal consistency respectively.

RESULTS

The intra-class correlation (ICC) and internal consistency of the vertical and propulsive GRF of the four 'sprint-specific' plyometric exercises which were used to test the stability are shown in the Table 1 respectively. The ICC of GCT, mean VGRF and mean PGRF ranged from moderate (>0.3) to large (>0.5), large (>0.5) to very large (>0.7) and moderate to large respectively according to the Will Hopkins' classification. According to the Cronbach's alpha value classification, the internal consistency of GCT, mean VGRF and mean PGRF ranged from poor (>0.5) to good (>0.8), acceptable (>0.7) to excellent (>0.9) and poor to good respectively. The means and standard deviation for the sprint velocities in different sections of the 40 meter sprints and the normalized kinetic variables of the four selected 'sprint-specific' plyometric exercises are showed in Table 2 and 3 respectively.

Table 1 Measurements stability based on ICC and internal consistency in 4 plyometric exercises. (N=12)

	ICC			
	ALB	SB	SLFH	SLSH
GCT (s)	0.43	0.40	0.67	0.60
Mean VGRF (N/BW)	0.79	0.53	0.75	0.56
Mean PGRF (N/BW)	0.64	0.67	0.37	0.60
	Internal consistency			
	ALB	SB	SLFH	SLSH
GCT (s)	0.69	0.57	0.86	0.82
Mean VGRF (N/BW)	0.92	0.77	0.90	0.79
Mean PGRF (N/BW)	0.84	0.86	0.54	0.82

Note. ICC = intra-class correlation; ALB = alternate leg bound; SB = sprint bound; SLFH = single leg forward hop; SLSH = single leg speed hop; GCT = ground contact time; VGRF = vertical ground reaction force; PGRF = propulsive ground reaction force; BW = body weight.

Table 2 Sprint velocities (ms^{-1}) in different sections of the 40 meters sprint test. (N = 12)

Section	Mean	SD
0 – 10m (ms^{-1})	5.59	0.27
10 – 40m (ms^{-1})	8.16	0.36
0 – 40m (ms^{-1})	7.31	0.32

Note. SD = standard deviation.

Table 3 Ground contact time and normalized ground reaction force of sprint-specific plyometric exercises in mean \pm SD. (N = 12)

	ICC			
	ALB	SB	SLFH	SLSH
GCT (s)	0.21 \pm 0.02	0.19 \pm 0.02	0.24 \pm 0.03	0.20 \pm 0.02
Mean VGRF (N/BW)	3.43 \pm 0.56	3.24 \pm 0.42	3.65 \pm 0.74	3.62 \pm 0.46
Mean PGRF (N/BW)	0.61 \pm 0.13	0.64 \pm 0.10	0.52 \pm 0.06	0.60 \pm 0.11

Note. ALB = alternate leg bound; SB = sprint bound; SLFH = single leg forward hop; SLSH = single leg speed hop; GCT = ground contact time; VGRF = vertical ground reaction force; PGRF = propulsive ground reaction force; BW = body weight.

The relationship between sprint velocities and the mean value of kinetics variables of four sprint-specific plyometric exercises is shown in Table 4. Only the mean GCT of ALB was significantly correlated to the sprint velocity of section 10 – 40m ($r = -0.61$, $p = 0.036$). Moreover, only the mean PGRF of SLSH was significantly correlated to the sprint velocity of section 0 – 10m ($r = 0.64$, $p = 0.026$), section 10 – 40m ($r = 0.73$, $p = 0.007$) and section 0 – 40m ($r = 0.72$, $p = 0.008$) respectively.

Normalization of the mean values of ground reaction force by the participants' body weight led to some changes in the strength of correlation as shown in Table 5. The correlation between mean

Table 4 Correlations between sprint velocities and mean kinetic and kinematic variables of sprint-specific plyometric exercises. (N = 12)

	Sprint velocities (ms^{-1})		
	0 – 10m	10 – 40m	0 – 40m
ALB			
Mean VGRF (N)	0.34	0.05	0.04
Mean PGRF (N)	0.17	0.22	0.21
Mean GCT (s)	-0.43	-0.61*	-0.57
SB			
Mean VGRF (N)	0.51	0.39	0.45
Mean PGRF (N)	0.45	0.54	0.53
Mean GCT (s)	-0.12	-0.02	-0.00
SLFH			
Mean VGRF (N)	0.38	0.48	0.42
Mean PGRF (N)	-0.07	0.09	0.04
Mean GCT (s)	-0.12	-0.02	-0.00
SLSH			
Mean VGRF (N)	0.48	0.42	0.46
Mean PGRF (N)	0.64*	0.73**	0.72**
Mean GCT (s)	-0.06	-0.19	-0.15

Note. ALB = alternate leg bound; SB = sprint bound; SLFH = single leg forward hop; SLSH = single leg speed hop; VGRF = vertical ground reaction force; PGRF = propulsive ground reaction force. * $p < .05$. ** $p < .01$.

GCT of ALB decreased. ($r = -0.61$ to -0.60). Mean PGRF of SB was significantly correlated with the sprint velocity of section 0 – 10m ($r = 0.67$, $p = 0.018$), 10 – 40m ($r = 0.58$, $p = 0.047$) and 0 – 40m ($r = 0.63$, $p = 0.027$) respectively. Moreover, mean VGRF of SLFH showed significant correlations with the sprint velocity of section 0 – 10m ($r = 0.75$, $p = 0.005$), 10 – 40m ($r = 0.71$, $p = 0.009$) and 0 – 40m ($r = 0.69$, $p = 0.014$) respectively. Mean VGRF of SLSH showed significant correlation with the sprint velocity of section 0 – 10m ($r = 0.69$, $p = 0.013$). The correlations between mean PGRF of SLSH with the sprint velocity of section 0 – 10m, 10 – 40m and 0 – 40m also changed. ($r = 0.64$ to 0.73 , $r = 0.73$ to 0.65 and $r = 0.72$ to 0.71) respectively.

Table 5 Correlations between sprint velocities and mean normalized kinetic and kinematic variables of sprint-specific plyometric exercises. (N = 12)

	Sprint velocities (ms^{-1})		
	0 – 10m	10 – 40m	0 – 40m
ALB			
Mean VGRF (N/BW)	0.54	0.25	0.37
Mean PGRF (N/BW)	0.26	0.16	0.20
Mean GCT (s)	-0.39	-0.60*	-0.55
SB			
Mean VGRF (N/BW)	0.51	0.13	0.20
Mean PGRF (N/BW)	0.67*	0.58*	0.63*
Mean GCT (s)	-0.94	0.10	0.03
SLFH			
Mean VGRF (N/BW)	0.75**	0.71**	0.69*
Mean PGRF (N/BW)	0.14	0.10	0.12
Mean GCT (s)	-0.11	-0.06	-0.02
SLSH			
Mean VGRF (N/BW)	0.69*	0.41	0.53
Mean PGRF (N/BW)	0.73**	0.65*	0.71*
Mean GCT (s)	-0.02	-0.14	-0.10

Note. ALB = alternate leg bound; SB = sprint bound; SLFH = single leg forward hop; SLSH = single leg speed hop; VGRF = vertical ground reaction force; PGRF = propulsive ground reaction force; BW = body weight. * $p < .05$. ** $p < .01$.

DISCUSSION

The main findings of the present study were that the mean propulsive GRF of sprint bound and single leg speed hop, and the mean vertical GRF of single leg forward hop correlated positively and largely with the sprint velocity of both initial acceleration phase (0 – 10m), constant acceleration phase (10 – 40m) and the whole performance phase (0 – 40m). While only the mean GCT of alternate leg bound and mean vertical GRF of single leg speed hop correlated with the sprint velocity of constant acceleration phase (10 – 40m) and initial acceleration phase (0 – 10m) respectively. The results indicated that sprint bound, single leg forward hop and single leg speed hop were more specific to sprinting than alternate leg bound because the GRF of these exercises are significantly correlated with all different phases of the 40 meters sprinting while the alternate leg bound only correlated with one phase of 40 meters sprint.

The results of present study indicated that the horizontal propulsive force of sprint bound and single leg speed hop are significantly correlated with the 40 meters sprint performance, it was expected since sprinting is a horizontal movement and therefore the horizontal component of GRF of these exercises was relevant to the sprinting velocity. It can be easily understood that larger horizontal force is needed to be applied on the ground so as to achieve a great sprinting acceleration or velocity according to the Newton's second law of motion. Brughelli, Cronin and Chaouachi (2011), Čoh, Jošt, Škof, Tomažin and Dolenc (1998), Hunter, Marshall and McNair (2005), Kawamori, Nosaka and Newton (2013), Morin, Edouard and Samozino (2011) and Nummela, Keranen and Mikkelsen (2007) conducted the investigations on the relationship between kinetic parameter of sprinting and the sprint acceleration performance. Their research findings showed that the sprint acceleration performance is mainly correlated with the horizontal component of GRF. The results present study was in line with their studies. Sprint bound and single leg speed hop were two exercises which require the performers to finish the designated distance with maximum movement speed while alternate leg bound and single leg forward hop require the performers to finish the designated distance with minimal number of ground contact. When performing the sprint bound and single leg speed hop, performers were focused on the time requirement and hence they may apply GRF in horizontal direction in an optimal level. On the other hand, performers may focus on the requirement on minimal number of ground contact when they were performing the alternate leg bound and single leg forward hop and hence applied the GRF in vertical direction more. Because larger vertical GRF applied on the ground result in longer flight time and hence the number of ground contact can be minimized.

Beside the propulsive component of GRF, the mean vertical component of GRF of single leg forward hop also showed significant correlation with the sprint velocities of different phases of 40 meters sprinting. This result was opposed to some of the findings of previous studies. Maulder, Bradshaw and Keogh (2006) found that there is no significant correlation between single leg hop and the single leg triple forward hop and the 10 meters sprint performance in their study. The difference in correlation can be explained by the differences in the exercises

techniques of the exercises. The single leg hop and single leg triple hop used in the study of Maulder, Bradshaw and Keogh (2006) require the participants to jump horizontally as far as they can with one jump and three jumps respectively, while the single leg forward hop used in present study required the participants to finish the designated horizontal distance with minimal number of ground contact. As a result, the exercises are different even the name of exercises is the same. Also, jump distance of single leg hop and single leg triple hop is used to correlated with 10 meter sprint time in their study while the GRF of single leg forward hop was used to correlated with the sprint velocity in the present study. Therefore, the results are different in term of the significant level of correlation. Moreover, Kawamori, Nosaka and Newton (2013) found that the relative vertical component of impulse has no significant correlation with the sprint acceleration performance. However, it does not imply that the vertical force is not relevant to the sprint performance. Kawamori, Nosaka and Newton (2013) propose that only maximize the propulsive GRF may not be the best method to improve the sprint performance. In fact, the combination of magnitude, duration and directions of force applied on the ground should be optimal in order to maximize the sprint performance. The vertical GRF of single leg forward hop may be in the optimal level of magnitude and therefore it was correlated with the sprint performance significantly.

Only the mean GCT of alternate leg bound correlated with the sprint velocity of constant acceleration phase (10 – 40m) significantly while the mean GCT of other exercises showed no significant relationships with any phases of 40 meters sprinting. Although some previous studies found that shorter GCT is required in order to achieve a better sprinting performance (Babić, Čoh & Dizdar, 2011; Murphy, Lockie & Coutts, 2003; Nummela, Keranen & Mikkelsen, 2007), it does not mean that minimize the GCT by training is the best approach to improve the sprinting performance especially the sprint acceleration. Weyand, Sternlight, Bellizzi & Wright (2000) reported that applying larger amount of force on the ground is more important than to have a shorter ground contact time in order to achieve a faster sprinting velocity. As a result, not every GCT of the exercises in the present study were correlated with the sprint acceleration performance. This may indicate that the kinematic parameter of the 'sprint-specific' plyometric exercises may not be relevant to real sprinting but it needs further investigation.

In conclusion, the sprint bound, single leg forward hop and single leg speed hop are the true sprint-specific plyometric exercises as they have significant correlations with the sprint velocities of 40 meters sprinting. Moreover, both vertical and propulsive GRF of these exercises showed significant correlations with the sprint velocity indicated that the sprint performance is not only determined by the amount of force applied in the horizontal direction. In fact, it is determined by the combination of direction and magnitude of force applied on the ground. These three exercises are sprint-specific because they have a better combination of direction and magnitude of force. Therefore, coaches can have a better selection of exercises and proper coaching cues that should be delivered to the athletes to let them know what they should be focused when they are performing these sprint-specific plyometric exercises. RMA



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Life Fitness

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Life Fitness 一直致力帶出我們的企業文化 - 充滿活力、健康生活，為不同的運動人士提供度身訂造的專業健身器材。因此，我們的母公司 Brunswick Corporation 在過去一年中成功收購了 Cybex、SCIFIT 與 Indoor Cycling Group (ICG) 這三個世界著名的運動器械品牌。現時，我們旗下擁有包括 Life Fitness、Hammer Strength、Cybex、ICG、SCIFIT、Inmovement、Brunswick Billiards 和 Roolf Flooring 共 8 個運動及康體產品品牌。為我們不同類型的客戶，提供更多元化及更全面的產品選擇，以滿足他們不同的需要。



CYBEX

40 多年來，Cybex 一直研發和生產高性能的運動器械，成功幫助各業內人士開拓業務。每一種 Cybex 的健身器材，都以 Cybex Research Institute (CRI) 人體生物力學所得的數據為基礎，幫助不同級別的運動人士取得明顯的鍛鍊成果。

SCIFIT

成立於 1987 年的 SCIFIT，旨在協助長者、傷健和復康人士，希望透過一種嶄新的設計和運動方式，向這些體力不足、運動範圍受限制、處於治療或康復階段人士提供幫助，為他們打造出一個合適的健身方案。

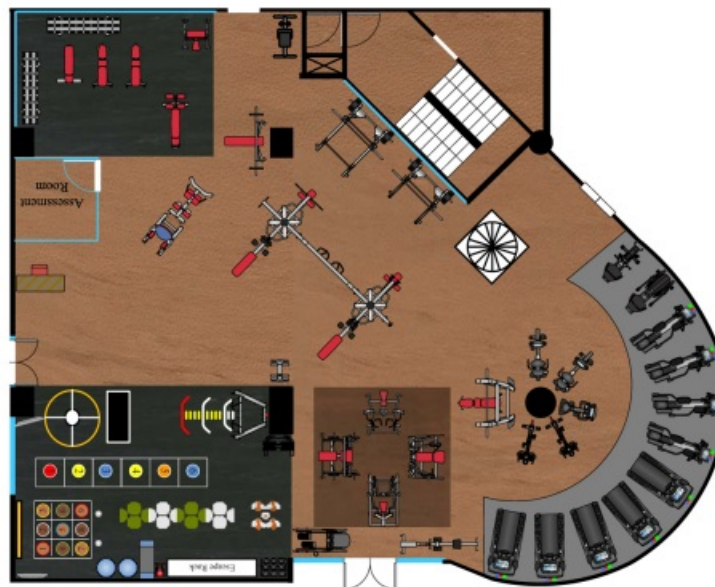


INDOOR CYCLING GROUP

1994 年創立至今，Indoor Cycling Group 一直是世界上最大且專業的室內單車生產商。20 多年來一直專注於室內單車的研發與生產，並設計相應的訓練系統和健身程式，在國際比賽中屢獲殊榮。

Life Fitness 服務

在前期的諮詢服務中，我們提供各種不同類型的產品配對建議、場地設計方案和安排客戶親身體驗我們產品的優點，我們亦是世界著名地板供應商 PaviGym 的香港及澳門獨家代理。與此同時，亦會提供完善的售後配套服務，包括產品使用培訓、產品維修及保養方案等等。我們還會在全新的亞太區總部，為業內人士舉辦不同類型的培訓、工作坊和研討會，讓我們的客戶能獲得最快和最新的運動及健身業內資訊，從而幫助推動本地的運動行業發展。



場地設計方案

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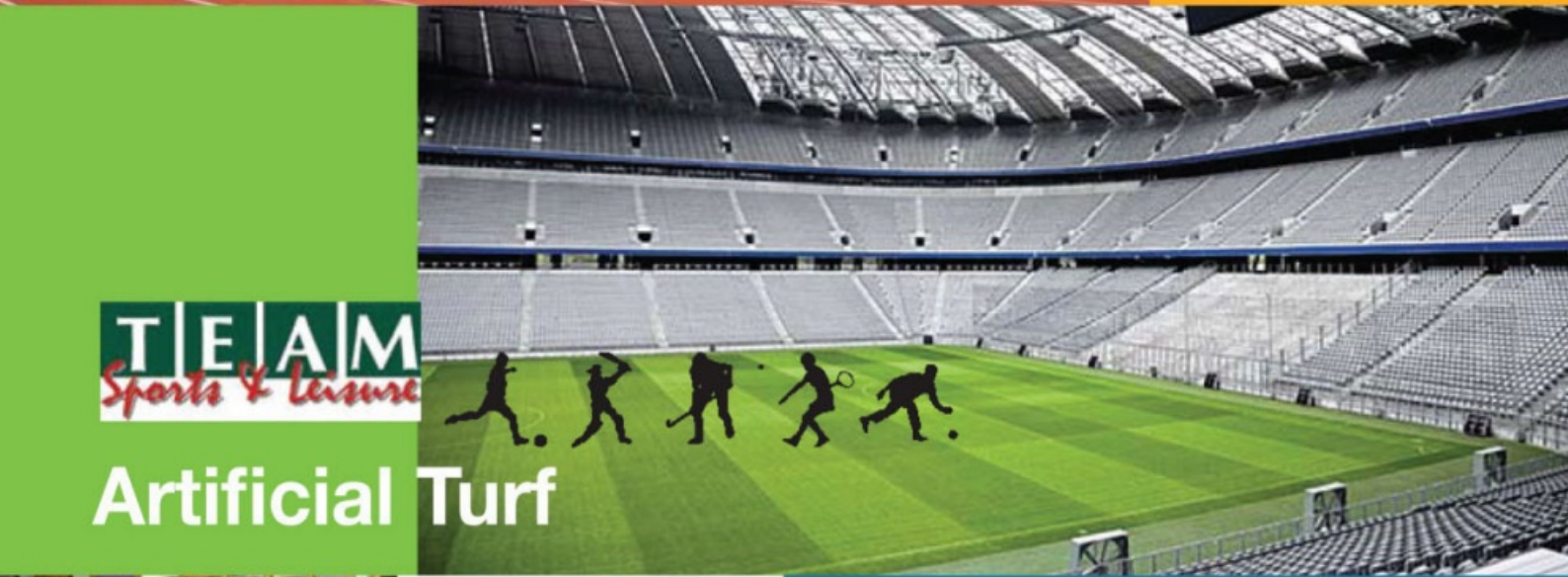
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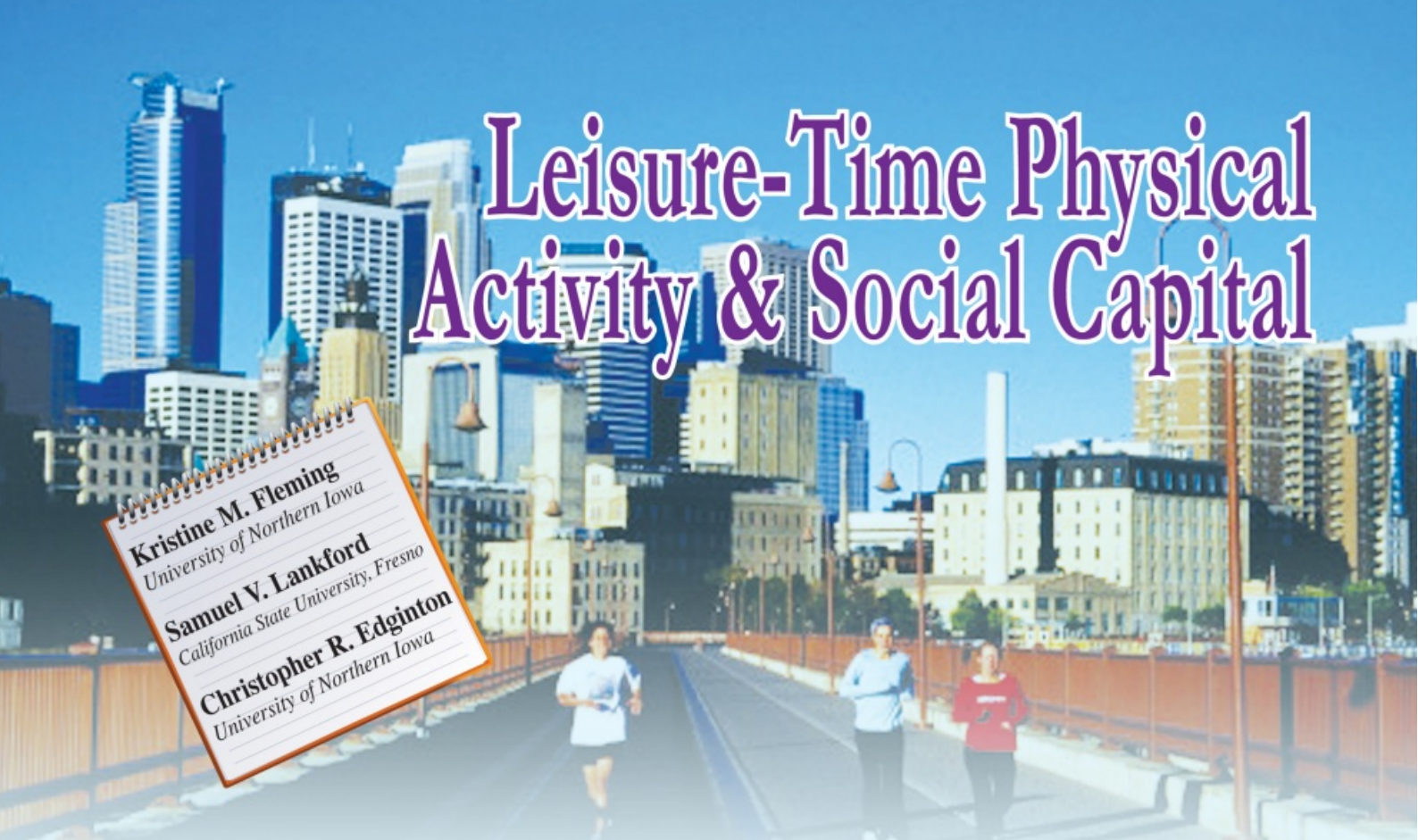


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Leisure-Time Physical Activity & Social Capital

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INTRODUCTION

Leisure-time physical activity (LTPA) and social capital are intertwined in ways which support the health and well-being of individuals. The U.S. Department of Health and Human Services (USDHHS; 2008) recommends individuals should participate in 75 minutes of vigorously intense, or at least 150 minutes of moderate intense, aerobic activities per week. Further, two days of strength training are also recommended to achieve healthy levels of physical activity. However, in many nations throughout the world, less than 50% of individuals meet the recommended guidelines.

The persistent question to ask is why? Sallis and Owen (2002) point out that although there are many factors contributing to physical activity behavior, social-environmental influences must also be examined. Social-environmental influences include social networks, social cohesion, and social capital (McNeill, Kruter, & Subramanian, 2006). In addition, social-environmental factors are influenced by a variety of resources to include friends, family, and professionals, and are characterized by the encouragement and companionship as well as information and knowledge received from these relationships (McNeill et al., 2006).

More specifically, social capital is a social-environmental factor found to contribute to positive health benefits (Kawachi, Kim, Coutts, & Subramanian, 2004; Putnam, 2000). Communities high in social capital often include increased levels of trust, social support, and civic engagement, and may encourage members to embrace living a physically active lifestyle (King, Stokols, Talen, Brassington, & Killingsworth, 2002). Furthermore, norms related to positive health are more likely to be reinforced in high social capital communities (Berkman &

Kawachi, 2000). In connection to social capital and physical activity, studies have examined the association between participation in civic engagement and physical activity (Lindström, Hanson, & Ostergren, 2001); however, few studies have examined the impact of trust on physical activity behavior (Lindström, 2011; Poortinga, 2006a; Ueshima et al., 2010). Regardless of the number of studies displaying the health benefits associated with social capital, the level of social capital is decreasing (Putnam, 2000).

The purpose of this study was to examine the relationships between levels of LTPA and social capital. An exploration of respondents' levels of trust and social support for physical activity was included to determine if there was an association with levels of physical activity. Furthermore, the study explored individual factors, such as age, gender, income, educational attainment, perceived health, and race to determine whether differences and associations exists in levels of physical activity, trust, and social support for physical activity.



Research Questions

- 1a. What are the levels of LTPA among respondents'?
- 1b. What are the differences in respondents' levels of LTPA by age, gender, and race?
- 1c. What is the relationship between respondents' level of LTPA by income, educational attainment, and perceived health?
2. What are the differences between respondents' who did not meet and respondents' who met physical activity recommendations with perceptions of social support received for physical activity from family and friends and trust?
- 3a. What is the relationship among respondents' levels of social capital and LTPA?
- 3b. Does the likelihood of LTPA participation vary between measures of trust and social support?

METHOD

Research Design

A non-experimental descriptive research design, which incorporates a cross-sectional analysis, was applied to this study. A self-report questionnaire was administered to measure levels of LTPA, social support, and trust. Subject demographic information also included race, age, income, education, gender, and perceived health.

Participants

Purposeful random sampling was initially used to select participants for this study; however, due to the low number of responses snowball convenience sampling was used in the final selection of respondents. Participants randomly selected were based on U.S. Census tract information containing the highest number of multicultural populations living in the community (State Data Center of Iowa, 2013). Upon randomly selecting community members to receive survey mailed to their household, distinguished community leaders were utilized to distribute the survey at community events. Administering the survey in the selected community provided diversity in the responses received, which was needed for the comparison of variables related to race.

Instrumentation

The self-report questionnaire consisted of four major sections. The first section of the questionnaire asked study subjects about perceived social support for physical activity received from family and friends. The social support scale used was adapted from the Social Support for Exercise Scale (Sallis et al., 1987). The scale was adapted to include the words "physical activity" instead of "exercise." The second section of the questionnaire was designed to assess perceptions related to trust. An aggregate of items were used to measure trust in this study. The third section of the questionnaire asked participants to report levels of physical activity. The International Physical Activity

Questionnaire (IPAQ)-short form was used (Craig et al., 2003). The fourth section consisted of demographic questions (e.g., race, gender, age, income, and educational attainment). Perceived health was also asked to provide a better sense of the personal health factors related to the study subjects.

Procedures

The census tracts with the highest concentrations of multicultural populations living in the area were selected in this study. Addresses for randomly selected residents were obtained to conduct a mail-out survey, which were sent to the homes of the participants including a cover letter, survey, and a return stamped envelope. Participants were contacted four times to complete the survey cycle, which occurred over 10 weeks.

Statistical Methodology and Data Analysis

To summarize and describe the characteristics of the respondents, descriptive statistics were used, which included the means, frequency distributions, and percentages. More specifically, descriptive statistics were provided for respondents levels of LTPA, trust, social support, and sociodemographic / socioeconomic factors. The data analysis also included the following statistical methods: Cronbach's Alpha, Pearson chi-square, and binary logistic regression to odds ratio (ORs). Using SPSS (Version 19) software, the following statistical procedures were conducted for data analysis: (1) Cronbach's Alpha was used to determine reliability of the questions and answers reported within the instrument (Cronbach, 1951); (2) Pearson chi-square were used to determine the prevalence and frequencies of expected and observed outcomes between at least two discrete variables (Huck, 2012; Tabachnick & Fidell, 1996); (3) Independent t-test is used to calculate the differences between two different groups (Huck, 2012); and (4) A binary logistic regression model was used because the dependent variable is dichotomized to determine the probability of a relationship occurring with an independent variable (Huck, 2012).

RESULTS

A self-report questionnaire was mailed to 370 households. A total of 70 surveys were returned, which yielded a 20% response rate. Due to the low number of returned surveys, an additional 48 community members were asked to complete the survey resulting in a total of 118 respondents. See Table 1 for demographic information.

The Cronbach's alpha level was calculated to determine the reliability of the subscales used for this study. The Cronbach's alpha levels for the social support for physical activity from



family subscale was 0.909 and the social support for physical activity from friends subscale was 0.914. The results of the Cronbach's alpha indicate the subscales are highly reliable for this study, which is supported by previous research (Glass et al., 1997). The Cronbach's alpha level for trust was 0.803, which indicate the subscale is reliable for this study and supported by previous research (Freitag & Bauer, 2013).

Four different forms of data analysis were used to determine the differences and associations between level of physical activity and social capital, which included an independent t-test, multiple regression, chi-square, and odds ratio. An independent t-test was used to determine significant differences between respondents who did not meet and met LTPA (aerobic, combined aerobic and strength training) recommendations with perceptions of social support received for physical activity from family and friends as well as trust. Results indicated significant aerobic physical activity differences from respondents who received complaints and criticism regarding physical activity participation from family as well as respondents who received complaints and criticism regarding physical activity participation from friends. Significant aerobic physical activity differences were also found amongst respondents who received rewards from family members for physical activity participation and whose family members planned physical activity or recreational outings together. No significant differences were found between levels of aerobic physical activity and trust variables.

Among combined aerobic and strength training physical activity levels, significant differences were observed related to respondents who received complaints and criticism regarding physical activity participation from family. Significant aerobic and strength training physical activity differences were also found amongst respondents who received rewards from family members for physical activity participation and whose family members planned physical activity or recreational outings together, helped plan activities around respondents physical activity, and changed their schedule so they could do physical activity together. Significant differences were also found among family and friends who asked respondents for ideas on how to get more physical activity. Among the trust variables, a significant difference was only found in trusting persons one meets for the first time and combined levels of aerobic and strength training physical activity.



Multiple linear regression analysis was conducted to determine the impact independent variables have on the respondents' total minutes of LTPA. More specifically, the results of this analysis indicate physical activity social support and trust cannot be used to predict physical activity participation. No significant results were found related to predicting total physical activity minutes based on physical activity social support and trust. However, family members who changed their schedule so respondents could do physical activity together was found to be a significant predictor of total physical activity minutes.

Pearson chi-square was used to determine the association the levels of LTPA and social capital when factoring in demographic characteristics. Although the majority of Pearson chi-square analysis did not indicate significant associations related to the level of LTPA and social capital with demographic characteristics, the results did indicate perceived health was significantly associated with respondents level of aerobic and strength training physical activity (see Table 1). In addition, social support for physical activity was significantly associated with respondents level of aerobic physical activity and combined levels of aerobic and strength training physical activity guidelines. Overall social support for LTPA received from family and level of social capital was also significantly associated with the levels of combined aerobic and strength training physical activity (see Table 2). Furthermore, significant associations were also observed amongst respondents' level of social capital and age.

Table 1 Respondents' Level of Aerobic (aer) and Strength Training (ST) Physical Activity by Demographic Characteristics

	Does not meet aer + ST PA (%)	Meets aerobic + ST PA (%)	Test Value	Sig.
Gender				
Female	69.0	66.7	$\chi^2 = 0.062$	0.803
Male	31.0	33.3		
Health Status				
Excellent / Good	55.1	82.8	$\chi^2 = 6.895$	0.009*
Fair / Poor	44.9	17.2		
Education				
HS degree or less	28.6	33.3	$\chi^2 = 0.849$	0.654
Some college	48.8	39.4		
BA or higher	22.6	27.3		
Race				
White	36.5	33.3	$\chi^2 = 0.102$	0.749
Person of Color	63.5	66.7		
Income				
Less than \$15,000	34.2	32.3	$\chi^2 = 2.335$	0.674
\$15,000-24,999	24.1	12.9		
\$25,000-34,999	19.0	22.6		
\$35,000-49,999	10.1	12.9		
More than \$50,000	12.7	19.4		
Age				
18-24 years	10.7	18.2	$\chi^2 = 7.377$	0.194
25-34 years	21.4	12.1		
35-44 years	13.1	12.1		
45-54 years	13.1	15.2		
55-64 years	17.9	33.3		
65 years or older	23.8	9.1		
Residency				
9 years or less	34.0	33.3	$\chi^2 = 0.002$	0.964
10 years or more	66.0	66.7		

Note. *p < .05



Table 2 Respondents' Level of Aerobic (aer) and Strength Training (ST) Physical Activity by Social Capital Variables

	Does not meet aer +ST PA (%)	Meets aerobic +ST PA (%)	Test Value	Sig.
Social support				
Low social support	28.2	9.1	$\chi^2 = 4.937$	0.026*
High social support	71.8	90.9		
Family support satisfaction				
Completely satisfied	16.7	27.3	$\chi^2 = 10.743$	0.030*
Very satisfied	20.2	42.4		
Somewhat satisfied	36.9	15.2		
Not very satisfied	17.9	9.1		
Not at all satisfied	8.3	6.1		
Family support satisfaction				
Completely satisfied	15.5	15.2	$\chi^2 = 4.269$	0.371
Very satisfied	21.4	39.4		
Somewhat satisfied	35.7	27.3		
Not very satisfied	11.9	9.1		
Not at all satisfied	15.5	9.1		
Trust Level				
Low trust	36.6	27.3	$\chi^2 = 0.911$	0.340
High trust	63.4	72.7		
Social capital				
Low social capital	53.7	33.3	$\chi^2 = 3.896$	0.048*
High social capital	46.3	66.7		

DISCUSSION

The present research study found adults living in a diverse community indicated there is a significant association related to the social support received for LTPA and the overall satisfaction of support received from family is important in meeting physical activity levels. Although the findings of the study did not indicate significance with each individual component of social capital, an association was found in the overall level of social capital and LTPA. The results of this study continue to demonstrate and expand the usefulness of social capital and LTPA. Additionally, perceived health status was seen to be associated with achieving appropriate levels of LTPA. This study suggests that an understanding of the social-environmental factors impacting LTPA can be useful in improving the health of local communities.

Research Question 1

The following offers a discussion for each of the three research questions.

1a. What are the levels of LTPA among respondents?*

Among respondents, 39% did not meet aerobic physical activity recommendations while 61% of respondents did meet aerobic physical activity recommendations. In regards to recommended levels of strength training, 28% of respondents participated in 2 or more days of strength training activities while 72% of respondents participated in 1 or no days of strength training. Overall, 28% of respondents met both aerobic and strength training recommendations. Previous research indicates individuals who are involved with community organizations are more likely to participate in physical activity (Greiner et al., 2004; Lindstrom et al., 2001; Nieminem et al., 2013; Poortinga, 2006a). Greiner et al. (2004) note increased levels of physical

activity were significantly associated with civic participation, while trust was not. Lindstrom et al. (2001) offers additional support regarding an association with low social participation and low physical activity participation among residents living in Malmo, Sweden. Furthermore, Nieminem et al. (2013) found social support was associated with leisure-time physical activity, but not trust. More specifically, social participation was found to be associated with leisure-time physical activity (Nieminem et al., 2013).

1b. What are the differences in respondents' levels of LTPA by age, gender, and race?

There were no statistically significant differences between respondents' levels of LTPA by age, gender, and race. Similar results have also occurred in previous studies measuring physical activity and social capital when compared with age and gender (Mummery et al., 2008). Although no significant differences were found, the results of this study indicate respondents who were female and persons of color reported higher levels of aerobic physical activity participation and combined aerobic and strength training guidelines (IDPH, 2013). Although previous research has indicated greater strength training participation amongst male subjects, this study showed greater level of strength training participation among women. More specifically, Lindstrom, Moghaddassi, and Merlo (2003) noted in a study conducted in a Malmo, Sweden neighborhood, women were more likely to be physically inactive compared to men. A study conducted by Legh-Jones et al. (2012) also indicated physical inactivity was less likely to be reported by men when compared with women. Poortinga (2006b) also notes men were more likely to engage in physical activity than women.

Among respondents who met aerobic physical activity guidelines, 40.3% of respondents were white while 59.7% of respondents were a person of color. In regards to meeting recommended levels of aerobic and strength training, 33.3% of respondents in this study were white and 66.7% a person of color. In 2013, only 47.6% of white/non-Hispanics met physical activity guidelines for aerobic activities, while 27.4% met strength-training guidelines and 18.0% met both aerobic and strength training recommendations (IDPH, 2013). Among non-white / Hispanic respondents, 39.8% met physical activity guidelines for aerobic activities, while 23.5% met strength-training guidelines and 16.9% met both aerobic and strength training recommendations (IDPH, 2013). These results are consistent with a study conducted in Chicago, which found African American males were more likely to participate in physical activity than white males (Wen et al., 2007). Despite having a greater percentage of respondents meeting physical activity recommendations, the results were not significant.

1c. What is the relationship between respondents' level of LTPA by perceived health status, educational attainment, income, and length of residency?

There were no statistically significant associations between respondents' levels of aerobic and combined aerobic and strength training physical activity by educational attainment, income and length of residency. Previous research has indicated



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significant associations related to low educational attainment and physical inactivity (Legh-Jones et al., 2012; Lindstrom, Moghaddassi, & Merlo, 2003), associations were not found in this study. A significant association with perceived health status was found related to combined aerobic and strength training physical activity, with a higher percentage of respondents who met combined aerobic and strength training levels more likely to report excellent / good health. There was no significant association between perceived health status and meeting only aerobic physical activity levels. Previous research has indicated perceived health status is positively associated with physical activity behavior (Abu-Omar et al., 2004; Parkai et al., 1998). Abu-Omar et al. (2004) found positive relationships between self-rated health and level of physical activity throughout the European Union. Significant results were also found between physical activity level and better self-rated health among respondents (Abu-Omar et al., 2004). Furthermore, self-rated health was found to be a significant predictor of physical activity level among elderly Dutch. The findings of this study are consistent with previous research related to physical activity, and incorporate the most updated guidelines for recommended levels of physical activity.

Although minimal significant results were found related to level of physical activity and demographic variables, this study provides an unique perspective as it considers whether respondents' meet aerobic and combined aerobic and strength training recommendations. In previous studies measuring physical activity, strength training was not incorporated into measurements of physical activity. For the last decade, a variety of health and government organizations have raised awareness related to the need for physical activity; however, as research continues to be conducted to improve health the positive health results of strength training will continue to emerge.

2. What are the differences between respondents' that did not meet and respondents' who met physical activity recommendations with perceptions of social support received for physical activity from family and friends and trust?

The results of this study differs from previous research, which found no significant differences when comparing the amount of social support received from family and friends among minority women to maintain regular physical activity (Eyler et al., 1999). The results of this study did not indicate significant differences found between levels of physical activity and trust variables, which is consistent with previous research (Legh-Jones & Moore, 2012; Nieminen et al., 2013). Statistically significant aerobic physical activity differences were found amongst respondents who received rewards from family members for physical activity participation and whose family members planned physical activity or recreational outings together. Furthermore, statistically significant aerobic physical activity differences were also found amongst respondents who received complaints and criticism regarding physical activity participation from friends.

Although previous studies has not measured the role of social

support for physical activity and nationally recommended guidelines of combined aerobic and strength training physical activity (Eyler et al., 1998; Eyler et al., 1999), previous research does indicate physical activity level is associated with social support for physical activity received from family and friends (Courneya & McAuley, 1995). This study found significant differences among respondents who met national guidelines for physical activity and social support satisfaction. Among women living in Virginia, family social support was seen as a predictor of physical activity participation (Anderson, Wojcik, Winett, & Williams, 2006). An increased number of significant differences were found among the support received from family and friends and combined physical activity levels found in this study. In regards to social capital variables related to trust, a significant difference was only found in respondents' combined level of physical activity and trust in persons met for the first time. Although previous studies indicate associations with generalized trust, social support, and physical activity levels (Ball et al., 2010; Kim, Subramanian, Gortmaker et al., 2006; Lindstrom et al., 2001; Lindstrom, 2011; Mohnen et al., 2012; Mummery et al., 2008; Poortinga, 2006a; Ueshima et al., 2010; Wen et al., 2007), there appears to be a lack of research regarding trust in persons met for the first time, and combined levels of aerobic and strength training physical activity.

The need for social environmental support is still present to meet recommended LTPA guidelines. Although previous research indicates associations with meeting guidelines for aerobic forms of physical activity and perceived support (Anderson et al., 2006; Courneya & McAuley, 1995; Eyler et al., 1999), an increased number of significantly associated variables were found among respondents who met combined physical activity guidelines and the need for support. Within recent years, strength training has emerged as a much-needed form of physical activity, but often overlooked by the general population. Therefore, the need for perceived social support for physical activity may be much higher to meet guidelines as shown in this study. As health concerns related to physical inactivity continue to emerge, the role of strength training must also be addressed and the need for support from family and friends to meet those levels.

3a. What is the relationship among respondents' levels of social capital and LTPA?

The association between respondents' level of social capital and LTPA varied depending on national physical activity guidelines (U.S. Department of Health and Human Services, 2008). Social support for physical activity was the only social capital variable significantly associated with aerobic physical activity level, while significant associations were found among levels of combined aerobic and strength training participation and social support for physical activity, family support satisfaction, and overall level of social capital. Previous research indicates low social support is associated with physical inactivity (Lindstrom et al., 2001; Mummery et al., 2008; Poortinga, 2006b). In addition, low social capital has also been found to be associated with physical inactivity (Mummery et al., 2008). Although trust



has been associated with physical activity behavior in previous research (Ball et al., 2010; Lindstrom, 2011; Poortinga, 2006a; Ueshima et al., 2010; Wen et al., 2007), the results of this study indicate trust is not associated with physical activity participation and is consistent with other studies (Legh-Jones & Moore, 2012; Nieminen et al., 2013). For example, Legh-Jones and Moore (2012) indicate trust is not associated with physical inactivity among adults older than 25 years of age in Montreal. Furthermore, Nieminen et al. (2013) found leisure-time physical activity levels was not associated with trust among adults living in Finland.

Social support for physical activity is significantly associated with respondents who met recommended physical activity guidelines. Individuals who do not receive adequate amounts of social support for physical activity may not meet recommended levels of physical activity. More specifically, social support for physical activity was found to be significantly associated with meeting combined aerobic and strength training levels. As the nation continues to strive for improved levels of physical activity, social support for physical activity should continue to be examined.

3b. Does the likelihood of LTPA participation vary between measures of trust and social support?

The binary logistic regression analysis indicated trust and social support were not found to be significant predictors of physical activity participation (Greiner et al., 2004; Yu et al., 2011; Legh-Jones & Moore, 2012; Nieminen et al., 2013). Previous research has shown trust and social support were associated with physical activity level (Ball et al., 2010; Kim, Subramanian, Gortmaker et al., 2006; Lindstrom, 2011; Lindstrom et al., 2001; Mohnen et al., 2012; Mummery et al., 2008; Poortinga, 2006a; Ueshima et al., 2010; Wen et al., 2007;). The results of previous studies may have occurred due to the use of large samples.

Although the sample size of this study met the required statistical guidelines, previous studies utilized census level data and included over 1,000 respondents.

The majority of respondents used in this study were African American women. There is currently no known research, which has been conducted in a similar community; therefore, comparing results with like studies is very difficult. Although the assumptions of the odds ratios statistic were met, research related to social capital and physical activity is typically conducted at the census level. With a limited sample size, potential associations related to trust as a major contributor of social capital is minimized; therefore, the need to study additional social capital variables to understand the potential impact the social-environment has on physical activity is apparent due to the limited associations found in this study.

CONCLUSION

This study demonstrates the associations of social capital to LTPA. Most aerobic and strength training activities occur during one's leisure. There is a need to connect such activities which promote greater health and well-being within a social and emotional context that supports family participation and the importance of linking one's perceived health. This study did not confirm that trust was a significant factor in improving the need for social support. This was an unexpected finding of the study. Clearly, LTPA provides opportunities for individuals to build social capital through social bonding; that is by deepening existing social networks. It also enables individuals to extend their relationships with others by engaging in social bridging. Another way of viewing this, is that participation in LTPA enables individuals to deepen their relationships and affords them with the opportunity to develop new ones.

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Effect of Repetition and Rest Interval in Plyometric Training Exercise - A Biomechanical Analysis

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INTRODUCTION

Plyometric training is referring to a powerful activity which is initiated by a pre-stretch movement (eccentric phase) and followed by an immediate concentric contraction (concentric phase) (Potach & Chu, 2008). Such activity is said to be a stretch-shortening cycle (SSC) activity (Komi, 2000). It can be stimulated by either an external impact or a stretch force. (Komi, 2000). The muscles are able to store the elastic energy in the eccentric phase because of its elastic property (Cavagna, Dusmann & Margaria, 1965; Cavagna, Dusman, & Margaria, 1968). It has been improved that locomotion involving SSC produced a higher power output in comparing with movements without involving SSC (Malisoux, Francaux, Nielsens, Theisen, 2006).

Based on these findings, scientists have begun to apply different plyometric training on people (Adams, O'Shea, O'Shea, & Climstein, 1992; Turner, Owings, & Schwane, 2003; Váci, Tollár, Meszle, Juhász, Karsai, 2013). It has been proven that plyometric training successfully improves running economy, vertical jumping power and other abilities on human subjects (Spurrs, Murphy, & Watsford, 2003; Chelly et al., 2010). However, the most proper way to use plyometric training exercise such as training frequency, number of repetition, exercise intensity and resting time are still not clear (de Villarreal, Jose & Mikel, 2008; Diallo, Dore, Duche & Van Praagh, 2001; Fowler, Trzaskoma, Wit, Iskra & Lees, 1995; Witzke & Snow, 2000).

The purpose of this study is to examine the effect of different number of repetitions in countermovement jump (CMJ), depth jump (DJ) exercise and the impact of inter-set rest time on the ground reaction force.

METHODS

Study Design

In this within-subject repeated measures study, all subjects visited the Human Performance Laboratory and performed two plyometric exercises, namely countermovement jump and depth jump. The height of depth jump is 0.3 inches. Each subject has to perform each exercise for two sets at ten repetitions per set with interest time 180 seconds (Willardson, 2006). The ground reaction force for every repetition was recorded by the force platform. The changes of ground reaction force across different number of repetition were examined. In second part, the interest rest would be 90 seconds at given number of repetitions. The purpose of this part is to examine whether the new resting time is enough for the recovery of the given number of repetition.

Participants

Twenty-four healthy, college-aged subjects were recruited. Subjects were informed that they had the right to withdraw from the study at any time point of the studies. Prior to the testing sessions, informed consent and Physical Activity Readiness Questionnaire (PAR-Q) were distributed to the subjects for completion. The study required for two visits and each visit would be approximately last for one hour including briefing, warm up, testing, cool down and debriefing. The study was approved by the THEi Human Subjects Ethics Sub-committee (HSESC).

Procedure

Before the starting of the experiment, the subject was asked to attend a briefing session in Technological and Higher Education Institute of Hong Kong. The briefing session lasted for about one hour. The briefing was to introduce the project aims and procedures. Informed consent and PAR-Q were distributed to the participants in the briefing session.

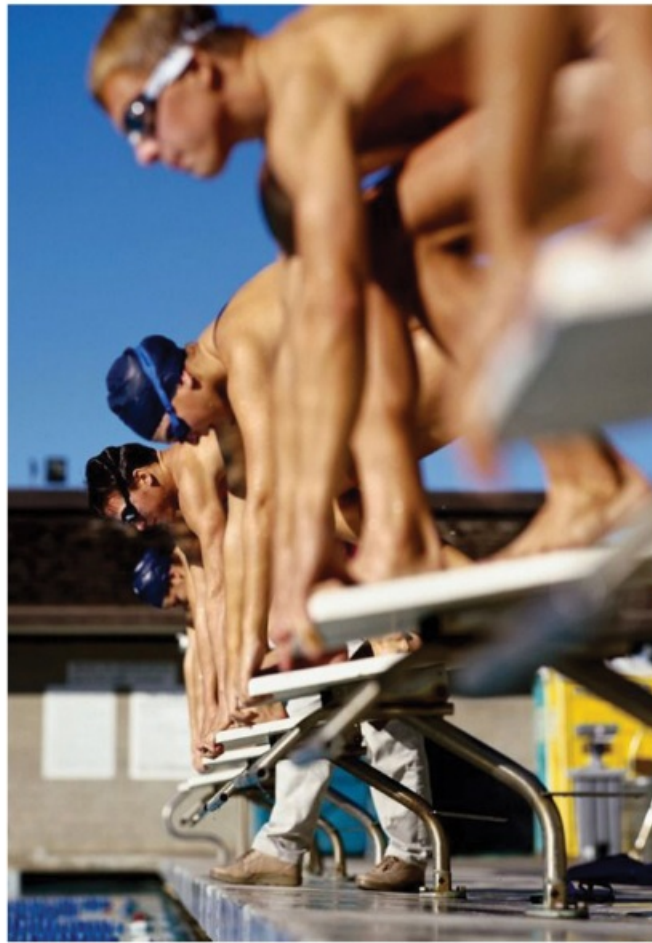
For each subjects, the experiment lasted for about one hour which including a briefing, warming up, testing, cool-down and debriefing. At the beginning of the tests, subjects were requested to measure the height and weight by using a scale. (SECA 703, SECA, CA, Chino, USA). For the warm up protocol, it was formulated based on the protocol released by Pagaduan, Pojskić, Užičanin and Babajić (2012). It was a combination of general and dynamic warm up. The general warm-up would last for 5 minutes on treadmill. The running speed would be approximately 12.6 km* hr-1. The dynamic warm up would last for 6 minutes of which including straight leg march, butt kicks, carioca, high knees, rear lunge with twist and step slide. Subjects were required to complete two sets of the dynamic warm up. The first test was testing the optimal number of repetition for both countermovement jump (CMJ) and depth jump (DJ) (Makaruk & Sacewicz, 2010). The second test was new inter-set rest by using a given number of repetitions. The order of plyometric jump would be randomized. The measurement station consists of a force plate (AccuPower, Advanced Mechanical Technology, Inc., Watertown, MA, USA) with a built-in amplifier and Accu-Power 1.6.3 software package.

In the first test, subjects were asked to perform ten repetitions of countermovement jump and depth jump on a force plate. The subjects were told to achieve maximum jumping height in both CMJ and DJ. Two trials were given to each subject for each exercise. Three minutes of resting time were given to the subjects between trials (Willardson, 2006). The highest ground reaction force of the corresponding repetition would be the final result. Before the starting of the test, a demonstration of the plyometric jumps was given to all subjects. The subjects would be given a verbal signal when they were ready to perform the jumps.

In the second part, the subjects were asked to perform the same exercises as in the first part. The optimal number of repetition calculated from previous test was transferred to the second part. The resting time was changed from 180 seconds to 90 seconds. The aim of the second test was to examine whether different resting time would impact for the athletes in recovery.

Data collection & instruments

The ground reaction force of each repetition from plyometric jump was recorded by a force plate (AccuPower, Advanced Mechanical Technology, Inc., Watertown, MA, USA). The highest ground reaction force for the repetition was used for further analysis. The sampling rate is set at 400 Hz. The subjects performed each set of plyometric jump to achieve maximum jumping height followed by a 180 seconds rest in between trial. The force would be expressed in absolute maximal force and relative maximal force which was divided by body weight. The repetition which was noticed to be statistically different with the next repetition would be chosen as the optimal number of repetition. The intraclass correlation coefficients (ICC) of CMJ related to the estimation of lower body explosive power and the Cronbach's alpha reliability coefficients of CMJ are both 0.98. The coefficient of variance of CMJ is 2.8% (Markovic, Dizdar, Jukic & Cardinale, 2004). The ICC and the Cronbach's alpha reliability coefficients of DJ in respect with jumping height is 0.968 and 0.989 respectively (Flanagan, Ebben & Jensen, 2008).



The force of each repetition of plyometric jump was measured by using the same force plate as in the optimal repetition test with 90 seconds resting time between sets.

Data reduction

The force generated in the plyometric jumps would be recorded in newton. For the countermovement jump, the force that generated in the concentric phase would be recorded. For the depth jump, the force that generated in the concentric phase would be recorded. For both force analysis, the peak value of the vertical force was expressed in absolute term and relative term (absolute force*body weight⁻¹).

Statistical analysis

The parameters were expressed as mean and standard error (\pm S.E.). The mean of the recorded jumps was used as the force generated by the subjects during each repetition of plyometric jump. The highest force was used as the final result between the two trials. The tests of normal distribution were conducted for all data set prior to the analysis of data. All data were normally distributed ($p < 0.05$). The result was examined by using one-way ANOVA with repeated measurements. (Plyometric group) \times 2 (test: 180 sec and 90 sec). Post hoc statistical power calculations were performed using G*Power software (version 3.1.9.2, Universität Düsseldorf, Germany). Statistical significance was set at $p \leq 0.05$. Statistical analysis was performed using SPSS (version 22, SPSS Inc., IBM Corporation, New York, United Stated).

RESULTS

The reliability and consistency of countermovement jump and depth jump for the two visiting days of the current studies are shown in Table 1. The consistency and reliability of CMJ generally are very good. The consistency and reliability of DJ vary between repetitions a lot.

In the first visit day, no significant difference was observed between the repetitions in the first set of CMJ ($F=7.733$, $p=.675$, Fig. 1). One way ANOVA repeated-measure showed significant difference between the repetitions of the 2nd set of CMJ on the same day ($F=8.595$, $p=.000$, Fig. 1). Significant difference did not exist in the first ($F=.969$, $p=.505$, Fig. 2) and second ($F=.776$, $p=.641$, Fig. 2) set of DJ. No significant difference was observed between the repetitions in the first set of CMJ in relative terms (N/kg) ($F=.751$, $p=.661$, Fig. 3). In the 2nd set, significant difference noted in relative terms ($F=6.972$, $p=0.001$, Fig. 3). Both first set ($F=1.120$, $p=.406$, Fig. 4) and second set ($F=.789$, $p=.631$, Fig. 4) of DJ had no significant difference in relative terms.

In the second visit day, statistical difference was observed in the first set of CMJ ($F=5.383$, $p=.003$, Fig. 5). Significant differences occurred in the 6th ($p=.015$) and 8th ($p=.041$) repetition. However, no significant differences noticed between repetitions in the second set of CMJ ($F=3.688$, $p=.013$, Fig. 5). First set ($F=.955$, $p=.510$, Fig. 6) and second set ($F=.850$, $p=.585$, Fig. 6) of DJ had no significant difference between repetitions. In relative terms, significant difference appeared in the 6th repetition and 8th repetition in the first set of CMJ ($F=4.740$, $p=.004$, Fig. 7). Statistics showed no difference between repetitions in the second set of CMJ relative to body weight ($F=3.812$, $p=.011$, Fig. 7). The statistical difference in the first ($F=.888$, $p=.557$, Fig. 8) and second set ($F=.830$, $p=.600$, Fig. 8) of DJ were not significant.

Table 1

Reliability and consistency of countermovement jump and depth jump for the two visiting days. Error! Not a valid link. Note:

N^{th} = relationship between N^{th} repetition of the first set and N^{th} repetition of the second set; CMJ = countermovement jump;

DJ = drop jump; α = cronbach's alpha; ICC = intraclass correlation coefficient.

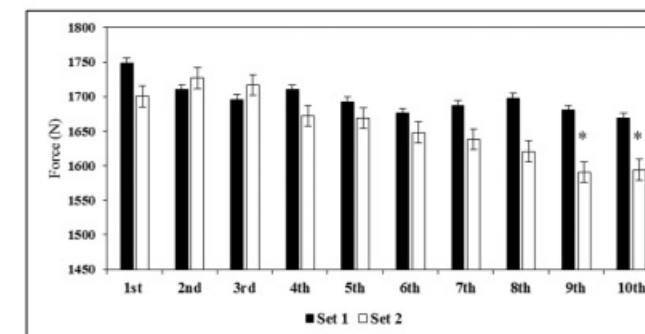


Figure 1. Mean ground reaction force of each repetition of CMJ in the first testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton. Inter-set rest is 180 seconds. * $p < .05$.

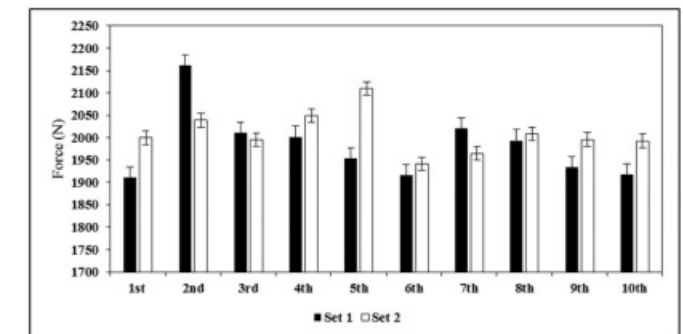


Figure 2. Mean ground reaction force of each repetition of DJ in the first testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton. Inter-set rest is 180 seconds.

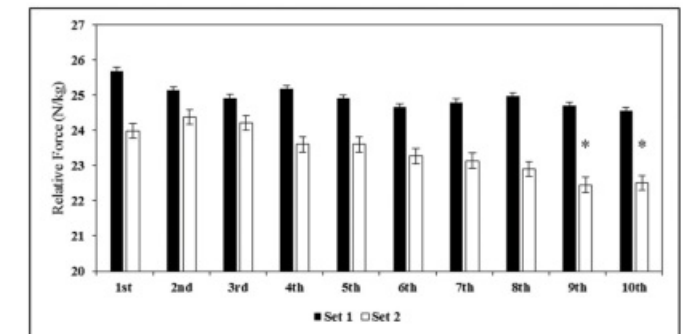


Figure 3. Relative mean ground reaction force of each repetition of CMJ in the first testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton divided by kilogram. Inter-set rest is 180 seconds. * $p < .05$.

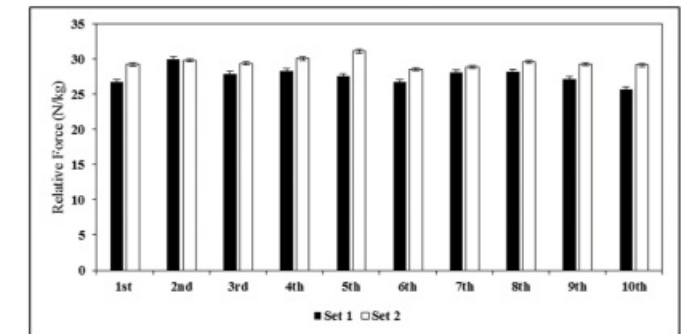


Figure 4. Relative mean ground reaction force of each repetition of DJ in the first testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton divided by kilogram. Inter-set rest is 180 seconds.

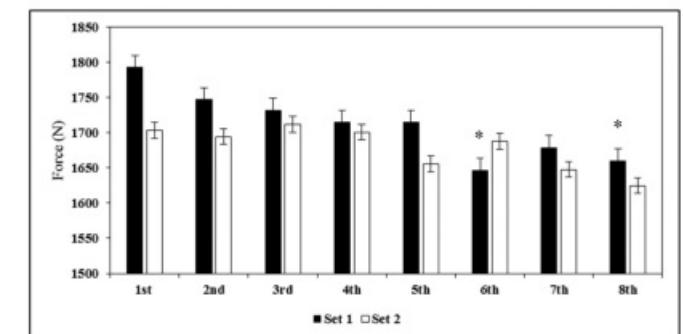


Figure 5. Mean ground reaction force of each repetition of CMJ in the second testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton. Inter-set rest is 90 seconds. * $p < .05$.

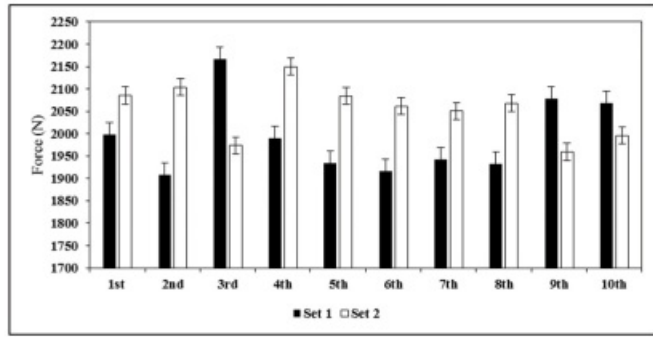


Figure 6. Mean ground reaction force of each repetition of DJ in the second testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton. Inter-set rest is 90 seconds.

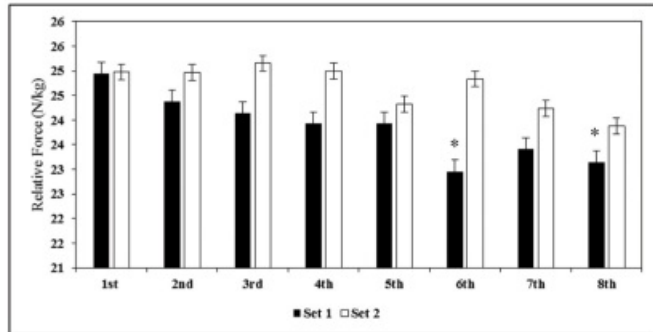


Figure 7. Relative mean ground reaction force of each repetition of CMJ in the second testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton divided by kilogram. Inter-set rest is 90 seconds.

* $p < .05$.

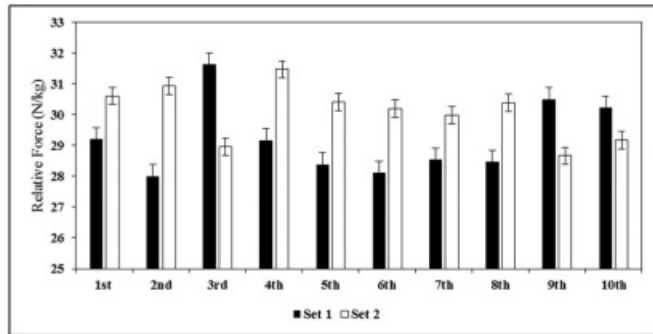


Figure 8. Relative mean ground reaction force of each repetition of DJ in the second testing day. Each bar represents the mean ground reaction force of that repetition. Force is represented in terms of newton divided by kilogram. Inter-set rest is 90 seconds.



DISCUSSION

The aim of the present studies is divided into two parts. The first part was to examine the ground reaction force of each repetition in depth jump and countermovement jump so as to identify the optimal repetitions. In the second part, the optimal repetitions was used to examine whether any impact from 90 seconds inter-set rest time.

Previous studies demonstrate multiple dimensions to evaluate the effectiveness of different plyometric training program on different individuals (Adams, O'Shea, O'Shea, & Climstein, 1992; Turner, Owings, & Schwane, 2003; Vácz, Tollár, Meszle, Juhász, Karsai, 2013). Exercises prescription in these journal articles vary between each other. No matter it is the number of set, number of repetition or resting time, they are very different between each other. Only limited literature investigated how to maximize the training effect from different exercise prescription of plyometric training.

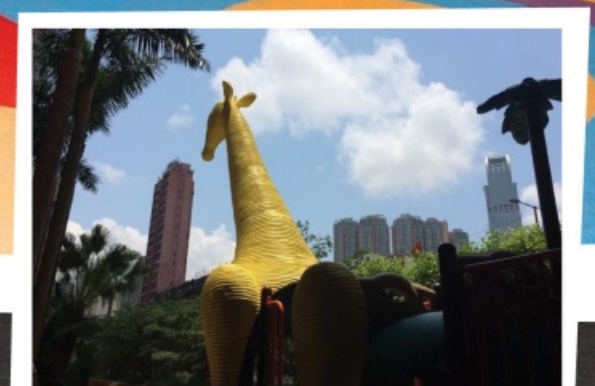
Multiple journals articles supported the ideas of using three minutes interest rest as a sufficient time for recovery from a set of plyometric exercises. In the current studies, such idea is consistent only if the repetitions is no more than eight repetitions for countermovement jump. Herrero, Izquierdo, Maffuletti and García-López (2006) used 180 seconds as inter-set rest for their studies. Irmischer et al. (2004) also applied 180 seconds resting interval for plyometric training. Kotzamanidis (2006) adopts 180 seconds resting time on prepuberal boys for his plyometric program. However, all the aforementioned studies have not made clear indication about the number of repetitions. Some researches trying to quantify the plyometric intensity by using similar approach as the current research did. Randall and William (2007) use different variables such as rate of eccentric force development and peak ground reaction force to analyze the problem of the plyometric intensity. The force analysis of countermovement jump and depth jump turns out to be consistent with present study.

The analysis for depth jump appears to have discrepancy with previous authors. In this studies, the ground force reaction of depth jump showed no difference between each repetition of depth jump. But, the reliability and consistency of depth jump in current studies appear to be fluctuating by using ground reaction force as the dependent variable. Meanwhile, Flanagan, Ebben and Jensen (2007) conclude that using relative strength index,



ABOUT US

We believe that great childhood is always linked to play. In order to contribute to this important phase of life, we ensure to minimize the risk while your children maximize their playing experiences. We truly believe that bringing play into people's lives is equivalent to bringing them happiness.



PLAY CONCEPT INTRODUCED THE FIRST WHALE TO HONG KONG!

To work on was "Sea, Land & Sky", the idea involved into having the largest marine creature to represent the sea, the tallest animal to represent the land, and the flying chess as flooring pattern. A way to bring nature slightly closer to our children.

The Whale Garden is a representation of how playground could evolve into something so magical after years of innovation and precise craftsmanship.





ground contact time and jumping height are better measurement for testing the depth jump movement. That may be one of the reasons why the current studies demonstrated a large variability in consistency between each repetitions of depth jump. Flanagan, Ebben and Jensen (2008) also suggest that placing hands on hip would be more reliable than allowing arm swing when doing depth jump. That suggestion did not match the practice of the present studies as the arm swing of the subjects is not restricted.

Regarding to the 90s resting time used in present study, Comyns, Harrison, Hennessy and Jensen (2006) show that 240 seconds for intra-complex rest interval enhanced the jumping performance in male. That may provide an alternative to consider four minutes as the new resting interval. However, the actual resting interval for plyometric exercises may differ from complex training (plyometric + weight training). At the same time, National Strength and Conditioning Association suggested a range of work-to-rest ratio from 1: 5 to 1: 10 or 120 to 180 seconds for inter-set rest. According to its suggestions, repetitions should be kept at 8 to 12 repetitions while such recommendation only partially consistent with current studies (Radcliffe & Farentinos, 1999). For instance, the optimal repetition of countermovement jump should be eight repetitions given that the inter-set rest is 180 seconds. Results of present study indicated that the optimal repetition become five repetitions when the inter-set rest is reduced to 90 seconds (Fig. 5). Therefore, if a strength and conditioning coach wants to deliver a

plyometric training for athletes, he/she may have to determine the best number of repetition depending on performing which plyometric exercise and resting time available. For instance, if the coach wants to keep 40 foot contacts for the plyometric session, there are two choices he/she can choose. First one is using the approach in part 1 of the present studies (8 reps/set with 180 sec resting time). Second one is using the approach in part 2 of the current studies (5 reps/set with 90 sec resting time). By keeping the same number of foot contact, 180 seconds approach needs 15.67 mins while 90 seconds approach only needs 12.67 mins for completion. By using the same amount of time, 90 seconds approach can nearly perform 2 more sets which is about 50 foot contacts in total. This approach at the moment is only eligible in performing countermovement jump but not depth jump.

PRACTICAL APPLICATION

Current studies examined two approaches for training plyometric training. Given that a minimum of 50 foot contacts of training threshold for plyometric exists, the favour situation for the 90 seconds inter-set rest approach was found. Such approach is more time efficient in training plyometric. In the future, coaches may choose to implement the less repetition and resting time method to deliver the training. Based on the fact that time efficient training, athletes may then have sufficient resting time or allocate more time in skill training. RMA

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Analysis of Venue Attributes: An Application of Importance, Performance at a Ladies Professional Golf Association Tour Event



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INTRODUCTION

Since 2008 the Ladies Professional Golf Association (LPGA) has endured an abundance of challenges and experienced copious transformation through the global recession, changes of tournament destinations, sponsorship levels and broadcast revenues, to a rally in 2016 with a total purse of \$63.1 million and 410+ televised hours (LPGA.com, 2016). Created in 1950, the LPGA tour began with 14 U.S. domestic tournaments and a total of \$50,000 in prize money (LPGA.com, 2017). In 2001, the number of tournaments had grown to a high of 40 events, and \$43.5 million in total prize money, before a recessionary economy reduced the number of tournaments to 24 in 2010. The LPGA appears to have rebounded as the 2017 tour schedule includes 35 events and \$67.35 million in total prize money (LPGA.com, 2017). Another development has been the steady presence of the LPGA on the global level, with 13 scheduled outside of North America for 2017 amongst Australia, Bahamas, Canada, China, France, Japan, Kuala Lumpur, Mexico, New Zealand, Scotland, Singapore, South Korea, Thailand, and Taiwan. The U.S. Women's Open, the KPMG Women's PGA Championship, the RICOH Women's British Open, the Evian Championship, and the ANA Inspiration (formerly known as the Kraft Nabisco Championship), the site of this investigation, are classified as major championship events.

The spectating experience at a professional golf tournament differs from other professional sport competitions such as baseball or football, in that the spectator is watching specific athletes rather than teams (Robinson & Carpenter, 2002). A golf spectator can view the action from three different perspectives: Parade style (where spectators select a spot on the course and watch the field pass by); Cross-Country style (a particular player or group is followed around the course); or Random-Roaming of the course, watching different golfers at different course locations (Mahoney & Tedrick, 2014). Viewing golf is disparate

from the conventional spectator experience where a fan is confined to a seat in a sports or entertainment venue, but can see the majority of action in the event from that seat (Hansen & Gauthier, 1993).

Another distinctive element to a professional golf event, including a major on the LPGA tour, is that championship competition is spread over four days. The standard format for an LPGA event is a 72-hole format where the players play 18 holes each day for four days. After the first 36 holes (Thursday and Friday), those players who do not make the cut score depart and the remaining golfers compete the final two days (Saturday and Sunday) of the tournament. The winner is determined by the lowest stroke (score) total over the entire 72-holes. To see the event in its entirety a spectator must attend all four days. The usual spectator experience in the other primary professional sports is a contest/game on only one day. To determine spectator satisfaction and consumer behavior at a professional golf event, all days of competition must be considered. The distinctiveness of a golf tournament could influence the ordonnance of the spectators. For instance, the fact that half of the tournament is played on two weekdays (Thursday and Friday), while the other half is played on the standard two weekend days, could influence who attends and on which days. If well-known, popular or fan-favorite players are on the leader board after Saturday's play, this could lead to a different type of crowd on Sunday than on the previous three days. If a celebrity Pro-Am is incorporated, this could attract certain spectators for that day or days (Mahoney & Tedrick, 2014).

Previous research has examined motivations of golf spectators and factors at tournaments such as physical beauty or the competitive level present as parts in spectator satisfaction. Hansen and Gauthier (1993, 1994) analyzed motives of spectators at professional golf tournaments such as the scenery provided by lush grass, mature trees and manicured landscapes.



Lambrecht, Kaefer and Ramenofsky (2009) studied sportscape factors (i.e.; parking, course accessibility, concessions, seating, merchandise, crowd control and restrooms).

Dixon (2002) studied attitudes of active male and female golfers toward the LPGA. Robinson & Carpenter (2002) investigated the make-up of spectators on different days and marketing implications. Danylchuk (2000) studied attitudes about sponsors' products, and Crossett (1995) explored importance of LPGA events to the host community. Another study (Robinson, Trail and Kwon, 2004) looked at spectators/community support in correlation with sponsors intention of bringing the event back.

PURPOSE

The purpose of this study was to examine the influence of importance-performance perceptions and consumer behavior patterns of non-local resident attendees at a major on the Ladies Professional Golf Association (LPGA) tour. The researchers chose to expand upon the prior Mahoney and Tedrick (2014) importance-performance research based on the hypothesis that spectator satisfaction is a function of both expectations related to certain important attributes and judgments of attribute performance. Essentially, probing spectator perceptions and appraising impressions regarding select tournament venuescape attributes by answering two primary questions: how important is this attribute to attendees; and how well did the tournament perform with respect to these attributes. As with Mahoney and Tedrick (2014), select importance-performance categories of the tournament venuescape included: parking lot experience, shuttle service, tournament entrance, ticketing/will call/admissions experience, driving range area, concessions, area around greens/sightlines, bleacher seating, friendliness of pros on course, service of event host(ess)/ hospitality staff, comfort stations, and trash and recycle. Other data collected included the admission type for non-local resident attendees (daily, tournament, corporate/sponsor, complimentary or volunteer), their demographic characteristics (population, gender and geography), consumer behavior, and viewing style (parade, cross-country, random roaming).

RELEVANT LITERATURE

The sport (and entertainment) manager must have understanding of design features, which ultimately influence the attendee experience and what meaning will be attached to the event by attendees (Getz, 2016). Beis, Loucopoulos, Pyrgiotis and Zografas (2006) explain venue operations as a high volume of demand for services from a multitude of different groups in a short period of time (e.g. 6 days for KNC tournament) and in very specific locations (the venues), with the demands being often lacking in stated specific requirements. In addition, logistics is the coordination of materials and people on a specific site (Beis et al., 2006). Akamp (2013) presents the challenges and scope of operating multiple venues at the same time becomes apparent during the set-up and venuization process -- the transferring of divisional plans to venue plans, including the workforce members' transition from headquarters to the various venues.

Venuescape, a term introduced by Mahoney and Tedrick (2014) expands upon the Wakefield and Sloan (1995)

"sportscape" postulation of those service extensions and the physical surroundings of a sports event. Venuescape not only captures those service extensions, the physical surrounding of a sports and, or entertainment event, but also the diversity of programming surrounding the planned sports and, or entertainment event (core product). Mahoney and Tedrick (2014) describe "venuescape" as a more conducive terminology of sports and entertainment venues (e.g. fixed stadia, or configurable LPGA tournament or Olympic venues), the diversity of events they host, and the multitude of ancillary services necessitated and provided for the total event experience. In regards to a major on the LPGA tour, attendees are experiencing the results of a planned, built-out and managed entertainment environment while attending a sporting event. For instance, a planned Wednesday evening Pairings Party or a Friday evening concert event (entertainment) programmed within the overall championship tournament schedule expands beyond the sport only focus, by incorporating entertainment and a multitude of venues to host such events and attendees (Mahoney and Tedrick, 2014). Furthermore, synergistic planning must include hospitality services whereby food and beverage services for spectators are reimaged to enhance the experience (e.g. open sightlines from food court to closest play, accessible and comfortable standing and seating options; configurable stadium seating closest to desirable tee locations; specialized volunteer hospitality locations with sightlines to nearest play).

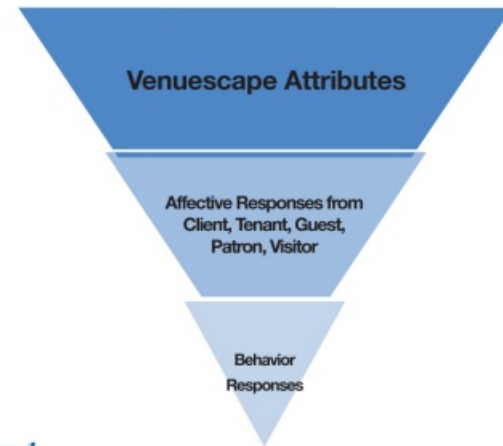


Figure 1 Model of Venuescape (adapted from Mahoney and Tedrick 2014)

Mahoney, Eskilsen, Jeralds and Camp (2015) state venue management often includes an event management component, whether as part of the servicing of event clients and customers or as part of the marketing of the event and venue. This echoes the aims of the LPGA and event organizers of its LPGA-sanctioned or co-sponsored tournaments. Moon, Ko, Connaughton and Lee (2013) suggest hosting such events can increase a city's awareness, enhance destination image, and add high impact regional effect to the community. In the field of sport and tourism marketing, Moon, Kim, Ko, Connaughton, and Lee (2011) reported that perceived event quality is positively related with the destination image. Sport events such as a major LPGA championship with international players are also attractive to a diversity of other constituents including the media and corporate sponsors because of business opportunities (Mahoney and Tedrick, 2014).

Event organizers must be cognizant of spectators perceived service quality, and overall event programming in order to



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maximize the entertainment value for the consumer. For example, atmosphere provides additional entertainment value to the core product (Uhrich & Benkenstein, 2010), and quality service occurs when expectations of the event match perceptions of the service experience (Allen, O'Toole, Harris and McDonnell, 2011). Furthermore, understanding re-patronage intentions, willingness to recommend a visit to other (Wakefield & Blodgett, 1999), and customer satisfaction (Madrigal, 1995; Wakefield & Blodgett, 1994) are of equal importance.

Most studies that examine venuescape attributes have been conducted in other sports (i.e., German professional soccer, Japanese baseball, women's collegiate football, professional American football, and major league baseball) however, Mahoney and Tedrick (2014) and Robinson and Carpenter (2002) researched golf events. Jennings (1996) suggests event spectators seek authentic competition in which uncertainty of outcome is uncompromised by bribery, corruption, cheating or drug use. According to Higham and Hinch (2009) the key characteristics of sport attractions include uncertainty of outcomes, the role of athletic display, the kinesthetic nature of sport activities and the visceral nature of many types of sporting engagements.

Hall, O'Mahony, and Veceli (2010) found attendance depends on emotional attachment, and perceptions of quality and accessibility of the facilities and parking. Melnick (1993) offers that spectators may seek social connections and interactions, well-designed venues inclusive of sightlines, comfort, food service, parking and tailgating, and player-fan interactions. Allen, et al. (2011) indicated transport is often the first (and last) physical commitment by the audience to the event. Service attributes can be of significant importance for the evaluation of product quality in the eyes of the consumer (Alon, Jaffe, Prange, & Vianelli, 2017). Consequently customer, media, and VIP transport, including mobility assist, parking and traffic management are the first and last impressions of an event (Mahoney & McMillen, 2011, 2014). In terms of satisfaction, other attempts by Breiter and Milman (2006), and Wu and Weber (2005) utilized the importance-performance model to analyze convention services and facilities, but not attendee satisfaction.

The hosting of sports events can have a significant and long-lasting impact on the local environment, economy and society (Masterman, 2014). Proper venue planning and management is essential for the successful hosting of major sports events (Parent and Smith-Swan, 2013). As important as the physical management of the site are customer care and the acknowledgement of the essential relationship between staff, the service and the needs of the visitor. Each component is vital and any lack of attention to detail albeit accessibility, transport, signage, parking, quality of food and beverage, cleanliness of toilet facilities or providing of interpreters can diminish the overall visitor experience.

Amongst the cited literature only Mahoney and Tedrick (2014) investigated spectators rating select tournament attributes in terms of importance to the attendee, and the perceived performance regarding the respective attributes, while attending a major on the LPGA tour. Furthermore, the scarcity of prior studies on what venuescape attributes are important to non-local resident attendees and how satisfied they were with different aspects of the tournament is particularly true in the context of the

LPGA. To fill the aperture in the literature, the primary objective of this revisit to the Mahoney and Tedrick study was to investigate the select 13 importance-performance attribute categories of the tournament venuescape. This study provides insight by analyzing non-local resident attendee perceptions and gauging impressions at a major on the LPGA tour. The present study postulates sport and entertainment event organizers and scholars garnered insight how venuescape impacts the planning, spatial layout, design and programming for the entire sport and entertainment experience of non-local resident attendees at configurable non-stadium venues.

As important as the physical management of the site are customer care and the acknowledgement of the crucial relationship between the staff, the service and the needs of the visitor (Page, 2015). Page (2015) suggests the experience is likely to be affected by the expectations and preconceived ideas that the visitor may possess prior to a visit, as well as the cultural origin of the visitor and prior socialization. Forrester and Adams (2013) suggest the value of visitors as key stakeholders within the process of evaluating and event, whereby "stakeholders" are all individuals, groups or organizations having a significant interest in how well an event operates. Such as sponsors, administrators, personnel, participants, clients, visitors, political decision makers, members of governing bodies, community leaders, etc.

Higham and Hinch (2009) discuss culture, sport and tourism and reflect on sport as a medium for socialization between visitors and hosts in the case of sport tourism. They present sport as a cultural tourist attraction with its appeal in both the 'deep cultural' differences of the host community and in the ways popular global sports (e.g. LPGA) are produced and consumed in other places. Researchers hereby presume differences exist amongst the 35 host communities and 15 host nations of the 2017 LPGA tour.

Shank and Lyberger (2015) write that understanding the consumer's tastes and demand, in turn, is important when developing an effective marketing mix for spectators. A number of studies have explored spectators' desire to stay at and re-patronize events. Bitner (1992) reported that the service experience is an important factor in customer satisfaction, and it is presumed that the service experience of customers contributions to their evaluation of a golf event. Previous studies have reported that peripheral services influence the desire to stay (Wakefield & Sloan, 1995; Wakefield & Baker, 1998). Watanabe, Matsumoto and Nogawa (2014) indicated that both peripheral services and core products are important determinants of spectators' desire to stay.

deLisle (2014) contends events represent a very special product that is of short duration, interacts with varying levels of anticipation, product knowledge and expectation, and requires satisfying the customer in an ever-changing environment. Principally, event attendees fancy outcomes that meet or exceed their initial expectations. As such, administrators need a method of assessing the pleasure/displeasure perceptions of spectators (Wakefield, Blodgett, & Sloan, 1996). The present study meets this need with pertinent data and recommendations in order for sport governing bodies, tournament administrators, event managers, and corporate CFO's to make well-informed choices regarding future events.

RESEARCH METHODOLOGY

Sample

Attendees of the 2010 Kraft Nabisco Championship (KNC), LPGA tour major at the Dinah Shore Tournament Course at Mission Hills Country Club, in Rancho Mirage, California, were solicited to complete an 18-question survey. The executive director of the tournament permitted the study, and data collection via a Rewards booth within the mega Kraft Experience tent. The 1974 study participants were given a choice of Kraft Nabisco product samples upon finishing the survey. Participants were assured confidentiality and that they would not be contacted for marketing purposes. Study participants were 18 years of age or older.

Instrument

The survey was designed to solicit information in five areas from attendees at the tournament: spectator perceptions and impressions on select tournament venuescape attributes, demographics, admission type, spending pattern, and viewing style. Two of the questions contained Importance and Performance (sub-classifications) with a seven-point Likert scale rating of the 13 venuescape attributes. These categories allowed for determination of how important specific venuescape attributes were to attendees; and how well the tournament performed. Nearly half of the survey questions related to data collection for tournament the title sponsor and tournament directors; 13 of the 18 questions offered data needed for this study.

The researchers utilized the spectator convenience intercept method, a variance of the in-person survey. This method allows the interviewer to "intercept" individuals and asks them to participate (Rea & Parker, 2014). Attendees were invited to participate in the survey as they roamed the Kraft Experience mega tent located within close proximity to the driving range, putting green, clubhouse, and ancillary services village. The final sample of 1974 completed surveys was marked with a high of 32% collected on Saturday.

DATA ANALYSIS

Descriptive statistics (frequencies and percentages) were calculated to examine spectators' demographic profiles. The researchers performed statistical analyses using the Statistical Package for the Social Sciences (version 24) software. The Kruskal-Wallis test was used to assess differences between the resident status groups for the importance and performance variables. The Chi Square test was used to assess differences between the resident status groups and the spending variable behavior.

RESULTS

The set of variables analyzed in the current study was different than in Mahoney and Tedrick (2014). Specifically, Mahoney and Tedrick (2014) included male-female quality variables. This study incorporated the resident group statuses of local resident, non-local resident (day visitor), and non-local (with overnight stay) variables.

Demographics of Sample

The majority of participants were female for each of the resident statuses (61.9% local; 61.2% day visitors; and 75.6%

overnight visitors). The majority of participants attended four or more years for the local resident (54.6%) and the overnight visitor statuses (42.5%), while the majority of participants were first year attendees (47.1%) for the day visitor status. In terms of mode of attendance, the majority attended with a spouse or significant other for each of the resident statuses (47.7% local; 43.9% day visitors; and 50.6% overnight visitors). The majority of participants had daily admission for the day visitor (65.0%) and the overnight visitor statuses (53.8%); however, the majority of participants had complimentary admission (45.6%) for the local status (See Table 1).

Table 1
Descriptive Statistics of Demographic, Attendance and Visitor Information of Spectators at a LPGA Major by Resident Status

Resident Status	Local Resident n (%)	Non-local (Day Visitor) n (%)	Non-local (with overnight stay) n (%)
Gender			
Male	(299) 38.1	(143) 38.8	(173) 24.4
Female	(485) 61.9	(226) 61.2	(537) 75.6
Number of Years Attended			
First year	(182) 22.1	(179) 47.1	(220) 30.6
2-3 years	(191) 23.2	(97) 25.5	(194) 26.9
4 or more years	(449) 54.6	(104) 27.4	(306) 42.5
Mode of Attendance			
Alone	(98) 12.1	(31) 8.2	(38) 5.4
With Spouse/Significant Other	(387) 47.7	(165) 43.9	(355) 50.6
With Friend(s)	(295) 36.4	(159) 42.3	(284) 40.5
With Co-workers(s)	(31) 3.8	(21) 5.6	(24) 3.4
Type of Admissions			
Daily	(250) 31.2	(245) 65.0	(382) 53.8
Tournament	(95) 11.8	(19) 5.0	(99) 13.9
Corporate/Sponsor	(50) 6.2	(20) 5.3	(31) 4.4
Kraft Pavilion	(25) 3.1	(12) 3.2	(25) 3.5
Complimentary	(366) 45.6	(77) 20.4	(167) 23.5
Volunteer	(16) 2.0	(4) 1.1	(6) 0.8

Comparison of Venue Importance Attributes Between the Resident and Non-Local Spectators

There was a statistically significant difference between the three resident group statuses for the following six importance variables: Tournament Entrance (local resident = 5.10, SD = 2.03), (non-local/day visitor = 5.23, SD = 1.64), (non-local/with overnight stay = 4.90, SD = 1.77), $p = .007$); Ticketing/Will Call/Admission Experience (local resident = 4.73, SD = 2.16), (non-local/day visitor = 5.25, SD = 1.80), (non-local/with overnight stay = 4.93, SD = 1.86), $p = .002$); Kraft Experience (local resident = 5.51, SD = 1.63), (non-local/day visitor = 5.47, SD = 1.53), (non-local/with overnight stay = 5.18, SD = 1.55), $p = <.001$); Driving Range Experience (local resident = 4.94, SD =



1.83), (non-local/day visitor = 5.09, SD = 1.72), (non-local/with overnight stay = 4.54, SD = 1.84), $p < .001$); Concessions (local resident = 5.08, SD = 1.65), (non-local/day visitor = 5.20, SD = 1.53), (non-local/with overnight stay = 4.97, SD = 1.52), $p = .030$); Bleacher Seating (local resident = 5.59, SD = 1.52), (non-local/day visitor = 5.56, SD = 1.28), (non-local/with overnight stay = 5.47, SD = 1.42), $p = .033$). The importance variables are presented in Table 2.

Table 2
Differences Between Resident Status and Mean Venuescape Attribute Importance Ratings (N=1973)

Venuescape Attributes	Mean	SD	p-value
Parking Lot Experience			.657
Local Resident	5.08	2.34	
Non-local (Day Visitor)	5.34	1.65	
Non-local (with overnight stay)	5.37	2.61	
Shuttle Service			.100
Local Resident	5.32	2.05	
Non-local (Day Visitor)	5.73	1.59	
Non-local (with overnight stay)	5.61	1.77	
Tournament Entrance			.007**
Local Resident	5.10	2.03	
Non-local (Day Visitor)	5.23	1.64	
Non-local (with overnight stay)	4.90	1.77	
Ticketing/Will Call/Admissions Experience			.002**
Local Resident	4.73	2.16	
Non-local (Day Visitor)	5.25	1.80	
Non-local (with overnight stay)	4.93	1.86	
Sponsor Experience			<.001**
Local Resident	5.51	1.63	
Non-local (Day Visitor)	5.47	1.53	
Non-local (with overnight stay)	5.18	1.55	
Driving Range Area			<.001**
Local Resident	4.94	1.83	
Non-local (Day Visitor)	5.09	1.72	
Non-local (with overnight stay)	5.54	1.84	
Concessions			.030*
Local Resident	5.08	1.65	
Non-local (Day Visitor)	5.20	1.53	
Non-local (with overnight stay)	4.97	1.52	
Area Around Greens/Sightlines			.976
Local Resident	5.69	1.40	
Non-local (Day Visitor)	5.74	1.29	
Non-local (with overnight stay)	5.70	1.36	
Bleacher Seating			.033*
Local Resident	5.59	1.52	
Non-local (Day Visitor)	5.56	1.28	
Non-local (with overnight stay)	5.47	1.42	
Friendliness of Pros on Course			.108
Local Resident	5.98	1.33	
Non-local (Day Visitor)	5.90	1.29	
Non-local (with overnight stay)	6.06	1.21	
Service of Event Host(ess)/ Hospitality Staff			.078
Local Resident	5.90	1.34	
Non-local (Day Visitor)	5.81	1.25	
Non-local (with overnight stay)	5.79	1.34	
Comfort Stations			.538
Local Resident	5.79	1.38	
Non-local (Day Visitor)	5.75	1.31	
Non-local (with overnight stay)	5.83	1.30	
Trash & Recycle			.543
Local Resident	5.76	1.47	
Non-local (Day Visitor)	5.80	1.24	
Non-local (with overnight stay)	5.74	1.36	
Local Resident (N=822)			
Non-local (Day Visitor) (N=380)			
Non-local (with overnight stay) (N=720)			
*Non-parametric statistics were calculated for these variables because they were assessed using ordinal scales (range 1 – 7, with 1 = unimportant, and 7 = every important). Means/SD are shown for ease of interpretation.			
*Significant at .05 level			
**Significant at .01 level			



Differences in Performance Variables Between the Resident Group Statuses

There was a statistically significant difference between the three resident group statuses for the following six performance variables: Tournament Entrance (local resident = 6.02, SD = 1.25), (non-local/day visitor = 5.90, SD = 1.17), (non-local/with overnight stay = 5.99, SD = 1.21), $p = .031$); Kraft Experience (local resident = 5.99, SD = 1.23), (non-local/day visitor = 5.82, SD = 1.24), (non-local/with overnight stay = 5.79, SD = 1.29), $p = .003$); Driving Range Area (local resident = 5.72, SD = 1.32), (non-local/day visitor = 5.61, SD = 1.30), (non-local/with overnight stay = 5.51, SD = 1.44), $p = .029$); Concession (local resident = 5.63, SD = 1.37), (non-local/day visitor = 5.59, SD = 1.20), (non-local/with overnight stay = 5.43, SD = 1.39), $p = .012$); Bleacher Seating (local resident = 5.89, SD = 1.18), (non-local/day visitor = 5.67, SD = 1.20), (non-local/with overnight stay = 5.73, SD = 1.20), $p = .001$); Trash & Recycle (local resident = 5.99, SD = 1.17), (non-local/day visitor = 5.81, SD = 1.15), (non-local/with overnight stay = 5.91, SD = 1.15), $p = .009$). The performance variables are presented in Table 3.

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Table 3
Differences Between Resident Status and Mean Venuescape Attribute Performance Ratings (N=1973)

Venuescape Attributes	Mean	SD	p-value
Parking Lot Experience			.078
Local Resident	5.94	1.38	
Non-local (Day Visitor)	5.81	1.42	
Non-local (with overnight stay)	5.97	1.36	
Shuttle Service			.197
Local Resident	6.03	1.29	
Non-local (Day Visitor)	6.08	1.15	
Non-local (with overnight stay)	6.11	1.29	
Tournament Entrance			.031*
Local Resident	6.02	1.25	
Non-local (Day Visitor)	5.90	1.17	
Non-local (with overnight stay)	5.99	1.21	
Ticketing/Will Call/Admissions Experience			.612
Local Resident	5.75	1.43	
Non-local (Day Visitor)	5.75	1.33	
Non-local (with overnight stay)	5.76	1.47	
Sponsor Experience			.003**
Local Resident	5.99	1.23	
Non-local (Day Visitor)	5.82	1.24	
Non-local (with overnight stay)	5.79	1.29	
Driving Range Area			.029*
Local Resident	5.72	1.32	
Non-local (Day Visitor)	5.61	1.30	
Non-local (with overnight stay)	5.51	1.44	
Concessions			.012*
Local Resident	5.63	1.37	
Non-local (Day Visitor)	5.59	1.20	
Non-local (with overnight stay)	5.43	1.39	
Area Around Greens/Sightlines			.377
Local Resident	6.00	1.12	
Non-local (Day Visitor)	5.93	1.05	
Non-local (with overnight stay)	6.00	.99	
Bleacher Seating			.001**
Local Resident	5.89	1.18	
Non-local (Day Visitor)	5.67	1.20	
Non-local (with overnight stay)	5.73	1.20	
Friendliness of Pros on Course			.138
Local Resident	6.01	1.18	
Non-local (Day Visitor)	5.87	1.22	
Non-local (with overnight stay)	6.01	1.08	
Service of Event Host(ess)/ Hospitality Staff			.053
Local Resident	6.04	1.15	
Non-local (Day Visitor)	5.96	1.09	
Non-local (with overnight stay)	5.92	1.17	
Comfort Stations			.111
Local Resident	5.84	1.23	
Non-local (Day Visitor)	5.72	1.22	
Non-local (with overnight stay)	5.79	1.14	
Trash & Recycle			.009*
Local Resident	5.99	1.17	
Non-local (Day Visitor)	5.81	1.15	
Non-local (with overnight stay)	5.91	1.15	
Local Resident (N=822)			
Non-local (Day Visitor) (N=380)			
Non-local (with overnight stay) (N=720)			
*Non-parametric statistics were calculated for these variables because they were assessed using ordinal scales (range 1 – 7, with 1 = poor, and 7 = excellent). Means/SD are shown for ease of interpretation.			
*Significant at .05 level			
**Significant at .01 level			

Differences in Spending Behavior Between the Resident and Non-Local Spectators

There were statistically significant differences between the three resident group statuses and spending behavior for the “food and beverage category” [$\chi^2 (10, N=1632)=61.102, p = <.001$] and for the “other category” [$\chi^2 (10, N=329)=21.439, p = .018$]. The spending behavior variable is presented in Table 4.

Table 4
Differences Between Resident Status and Spending Behavior (N=1973)

	Resident Status			D(f)	χ^2	P value
	Local Resident n (%)	Non-Local (Day Visitor) n (%)	Non-Local (Overnight) n (%)			
Spending Behavior						
Food and Beverage						
1-19	333 (51.2)	109 (32.7)	236 (36.4)			
20-39	197 (30.3)	116 (34.8)	244 (37.7)			
40-59	68 (10.4)	64 (19.2)	88 (13.6)	61.102	10	<.001**
60-79	24 (3.7)	19 (5.7)	35 (5.4)			
80-99	7 (1.1)	16 (4.8)	15 (2.3)			
100+	22 (3.4)	9 (2.7)	30 (4.6)			
Merchandise						
1-19	154 (42.4)	99 (42.5)	193 (39.1)			
20-39	90 (24.8)	40 (17.2)	85 (17.2)			
40-59	48 (13.2)	38 (16.3)	80 (16.2)	17.691	10	.060
60-79	25 (6.9)	27 (11.6)	53 (10.8)			
80-99	18 (5.0)	9 (3.9)	25 (5.1)			
100+	28 (7.7)	20 (8.6)	57 (11.6)			
Other						
1-19	80 (64.0)	52 (59.1)	79 (68.1)			
20-39	11 (8.8)	11 (12.5)	12 (10.3)			
40-59	12 (9.6)	15 (17.0)	11 (9.5)	21.439	10	.018*
60-79	9 (7.2)	3 (3.4)	6 (5.2)			
80-99	1 (0.8)	6 (6.8)	1 (0.9)			
100+	12 (9.6)	1 (1.1)	7 (6.0)			
*Significant at .05 level						
**Significant at .01 level						



CONCLUSIONS AND IMPLICATIONS FOR PRACTICE

There were statistically significant differences between the resident group statuses and six of the importance variables with the non-local (day visitor group) placing more importance on venuescape attributes as compared to the other resident group statuses. Areas of performance significance to spectators were: tournament entrance, Kraft experience, driving range, concessions, bleacher seating, and trash/recycle.

Significant differences were found between local residents and visitors in areas of importance. Again, significant differences were found between local residents and visitors in areas of performance. The most consistent local resident and visitor rating was from the importance categories of parking, shuttle, area around greens/sightlines, friendliness of Pros on course, service of event host(ess)/ hospitality staff, comfort stations, and trash/recycle. And, from the performance categories of parking, shuttle, ticketing/will call/admissions, area around greens/sightlines, friendliness of Pros on the course, service of event host(ess)/hospitality staff and comfort stations.

Spectator satisfaction is a function of both expectations related to certain important attributes and judgments of attribute performance, the researchers' hypothesis, was confirmed. It is evident from our study that venuescape attributes have a direct impact on local resident and visitor spectator's level of satisfaction. As demonstrated by this study, a need exists for future event planning, design, programming, and marketing, and venuescape studies within the professional golf area.

The study shows that differences do exist among local residents and visitors for LPGA events based on the days of championship play (Thursday-Sunday) and the celebrity Pro-Am (Tuesday-Wednesday). Differences might be centered upon the celebrity Pro-Am, tournament pairing party, pre-cut play versus championship play, concert/entertainment, etc., nevertheless, ramifications exist for tournament directors and host communities in terms of the differences based upon local residents and visitors. Continued research of local resident and visitors' behavior and venuescape factors that impact attendance is recommended.

Professional golf associations (e.g. LPGA and PGA), tournament administrators, event managers, and corporate sponsors authorizing tournament naming rights must be knowledgeable of venuescape factors and how they effect and sway spectators' satisfaction. Tournament directors and DMOs should consider the diversity of the spectators (local residents, non-local/day visitor, and non-local/with overnight stay) and volunteers to enhance their experience. To keep spectators better informed on operational changes at the host property by improving communication that will enable real-time venue operations updates to spectators via event app, email, social media and webpage. Consider utilization of a mobile app (e.g. LiveSafe) to aid real-time life-safety and security communication between event management and the spectators during the tournament, empowering patrons to send GPS-tagged incident alerts directly to event command center staff and receive timely alerts via push notification, text or email. In synergy with concessionaire, evaluate operations to speed wait times for food and beverages during high-demand periods. Expand digital services by allowing all attendees to use virtual passes on their smartphones to utilize shuttle transport and entry to tournament site.

Finally, understanding the economic impact of day visitors, and other non-locals with overnight lodgings have upon a specific event, and the host community is of the utmost importance to event organizers, the destination management organization (DMO), sponsors, regional politicians, and other community stakeholders attempting to work in synergy. It is the responsibility of the event administrator to know the economic impact his or her event has upon the host community. Differentiating between local resident attendees and visitors can have a significant impact on the overall planning, marketing, and logistical execution of the event. Such knowledge will enable event administrators to seek favorable tax, permit, transportation, or other municipality services rates. For example, within our study 84% of the participant pool made on-site food and beverage purchases, and over half purchased event merchandise.

FUTURE RESEARCH

This study was conducted using one championship tournament on the LPGA tour; additional research efforts are required to investigate other well-known North American or non-North American events throughout the host nations of the LPGA tour. For example, Australia, Bahamas, Canada, China, France, Japan, Kuala Lumpur, Mexico, New Zealand, Scotland, Singapore, South Korea, Thailand, and Taiwan.

To determine the probable impact of venuescape attributes the variables for study could be extended, for instance investigating further spectator, staff, media, player, expenditures, and across the worldwide spectrum of annual LPGA tournaments. Future study will also need to alter the research instrument to include “other” or “trans-gender” as 4.4% of participants did not complete the female or male gender question. Additional questions might include disability, gender and sexuality monitoring (Level Playing Field, 2016). Moreover, research might involve days of the week and demographics (Robinson and Carpenter, 2002), consumption behavior and sponsor loyalty (Dixon, 2002) and variables that affect the motive to attend (Zhang et al. 1997).



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