Workshop Paper

Implementing Internet Sports Marketing in Malaysia

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ABSTRACT

The internet is the faster-growing communication medium in marketing today, and the purpose of this study was to analyze the current demands and the potential of Internet Sports Marketing in Malaysia. Self-administered survey forms were distributed to 606 samples in four competition venues. Results of this study revealed that 450 respondents (74.26%) reported they would like to register the future events online, and 457 respondents (75.41%) preferred the race kits to be delivered to them at the doorstep. From the results of these two questions, the web base company in Malaysia decided to launch their sports website in February 2009.

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INTRODUCTION

The internet has a grown faster than all other forms of electronic technology and all other mediums of communication (Berthon et al., 1996c). It has become a central aspect of communications and represents an extremely effective resource for consumers in their search for information, purchasing, communication, and recreation (Himel and Munck, 2000). So, many people are now online that the internet is mass media. With the emergence of the internet came new economic opportunities for business (Madsen, 1996b). In addition to online advertising, web-based commerce, or the buying and selling of goods and services via the internet (Ubois, 1997), has grown rapidly.

As the number of internet users grows, it will become increasingly important for marketers to use this tool effectively. Despite the swift growth in internet commerce and online advertising revenue, corporations have also been reluctant to enter into internet commerce because for several reasons. Web users still find internet shopping awkward or confusing (Alreck and Settle, 2002). To these consumers, items are hard to find, and the shopping interaction is viewed as not being user-friendly (Fram and Grady, 1997).

Consumers are also concerned about privacy. They are reluctant to send credit card information, required for online shopping, across the internet, and/or they fear that personal information, needed for online transactions, will be sold to internet marketers (Building Customer, 2002). Despite the prevalence of internet use among sports fans, very little has been written regarding how sports organization can optimize their internet marketing (Brown, 2003). Unlike traditional broadcast media, the web presents a unique opportunity for marketers because it facilitates two-way communication between the seller and buyer (Berthon et al., 1996c). Visitors at a corporate website are able to communicate directly with the business without concern for distance or time (Berthon et al., 1996b). Thus, organizations using their sites as advertising tools have the ability to hear from visitors whether in the form of sale or customer e-mail comment. The purpose of this study was to analyze the demands and potential of Internet Sports Marketing in Malaysia. A few research questions were established to guide this study: (a) To what extent do the sports participants use the internet in making buying decisions? (b) What is the level of demands and the potential of Internet Sports Marketing in Malaysia from the view of the sports participants?

METHODOLOGY

Self-administered survey forms were distributed to the samples in the competition venue. Convenience sampling was used to select subjects in four sporting events, which were held in Malaysia in 2008. The surveyors approached

participants at the end of the events. A total of 606 subjects voluntarily participated in this study, rarely was a surveyor's request rejected. It took respondents approximately 10 min to complete the questionnaire. To ensure that the survey questionnaire is a valid instrument, each item in the questionnaire was constructed based on the purpose of the study and was compared to the base of web literature, ensuring that the instrument items epitomized the universe of knowledge in the field. By doing so, the content validity of the instrument was assured.

The test-retest of the pilot study was α=0.88; it showed that the questionnaire is a reliable instrument.

Descriptive statistics were used to analyze the data collected from the survey questionnaire. These statistics included both frequencies and percentages. All statistics were computed using the Statistical Package for Social Sciences version 17.

RESULTS

Descriptive analysis revealed that respondents of this study were mostly from the Larian Perpaduan, consisted of 249 (41.09%) participants and follow by 141 (23.37%) participants from the Powerman event, 126 participants (20.79%) from Rat race, and 90 (14.85%) from the Fitness Program held in University of Malaya (Table 1).

Table 1: Breakdown of events and participants

Event	Number of participants (%)
Larian Perpaduan	249 (41.09)
Rat race	126 (20.79)
Fitness Program in University of Malaya	90 (14.85)
Powerman	141 (23.27)
Total	606 (100)

The results of this study indicated that male participants are 361 (59.60%) if compare to female participants are 245 (40.4%) provided in Table 2.

Table 2: Gender of the participants

Gender	Number of participants (%)
Male	361 (59.60)
Female	245 (40.40)

Table 3 indicated that majority of the respondents of this study are the people really love sports. 279 (46.04%) of the respondents rated they like sports very much, like sports a lot is 163 (26.90%), like sports a little is 122 (20.13%), and like sports very little only 42 (6.93%) respondents from a total of 606 respondents in this study. It means this study targeting the right subjects who love sports.

Table 3: Q1 - How much do you like sports?

Very little	42 (6.93)
Little	122 (20.13)
A lot	163 (26.90)
Very much	279 (46.04)

Furthermore, results from the Table 4 verified that the participants of this study are really loved sports with strongly agree 109 (17.99%) sports is about self-expression, 248 (40.92%) rated agree, 153 (25.25%) respondents rated disagree, and only 96 (15.84%) strongly disagree.

Table 4: Q2 - Sports is about self-expression

Strongly disagree	96 (15.84)
Disagree	153 (25.25)
Agree	248 (40.92)
Strongly agree	109 (17.99)

To find out the level of involvement of the participants in sports, results indicated that 184 (30.36%) watch and participate in the event equally. Participate only make up of 160 (26.40%), follow by 135 (22.28%) rated watch more and participate less, 65 (10.73%) respondents watch only, and 62 (10.23%) participate more and watch less as provided in Table 5.

Table 5: Q3 - What is your level of involvement in sports?

Watch only	65 (10.73)
Participate only	160 (26.40)
Watch more, participate less	135 (22.28)
Watch and participate equally	184 (30.36)
Participate more watch less	62 (10.23)

The respondents reported health was the major reason for them to participate in the sporting event (317 subjects, 52.31%). Meanwhile, 252 (41.58%) rated personal achievement was the reason, follow by 216 (35.64%) rated self-satisfaction as a reason, just have fun consists of 184 (30.36%), for socializing 164 (27.06%), and others 25 (4.13%) in Table 6.

Table 6: Q4 - I take part in sports because (you may tick more than one)

Self-satisfaction	216 (35.64)
Personal achievement	252 (41.58)
Socializing	164 (27.06)
Health	317 (52.31)
Just have fun	184 (30.36)
Others	25 (4.13)

Table 7 indicated that the respondents of this study use the internet to get information (459 respondents, 75.74%),

226 respondents (37.29%) use internet to read international sports news, read the local sports news consists of 186 subjects (30.69%), 107 subjects (17.66%) to exchange views, and only 85 respondents (14.03%) interested in buy sports merchandize from the internet.

The results of this study supported the previous study that Malaysian is concerned about privacy. They are reluctant to send credit card information, required for online shopping, across the internet, and/or they fear that personal information, needed for online transactions, will be sold to internet marketers (Building Customer, 2002).

Table 7: Q5 - You use the internet for (you may tick more than one)

Information	459 (75.74)
Sports news (international)	226 (37.29)
Sports news (local)	186 (30.69)
Buy sports merchandize	85 (14.03)
Exchange views	107 (17.66)

To find out whether the respondents interested in Internet Sports Marketing used Beijing Olympic as an example, 312 subjects (51.49%) reported positive answers and 294 subjects (48.51%) rated negative answers as reported in Table 8.

Results from this question have made the web base company difficult in the making decision whether to launch their website or otherwise.

Table 8: Q6 - Going to Beijing Olympic to watch the games is Sports Tourism. Would you buy the games tickets, book accommodation, and flight ticket on the web?

Yes	312 (51.49)
No	294 (48.51)

Table 9: Q7 - Would you buy sports merchandize online?

Yes	273 (45.05)
No	333 (54.95)

Table 9 indicated that 333 respondents (54.95%) reported not interested to buy sports merchandize online and 273 subjects (45.05%) reported they will.

Table 10: Q8 - Would you buy sports memorabilia online (i.e., autographed jersey of Beckham, etc.?)

Yes	246 (40.59)
No	360 (59.41)

This question was the main reason for the web base company to conduct this survey. Results from this study have given a brief idea on the demands and the potential of Malaysian in buying sports merchandize online.

Table 11: Q9 - How did you know about this event (you can tick more than one)

Newspaper	233 (38.45)
Word to mouth	255 (42.08)
Website	125 (20.63)
Street bunting	73 (3.80)
Others	94 (15.51)

Another main reason for this web base company to carry out this survey was to find out the opportunity in selling sports memorabilia online. Results of this study reported that 360 respondents (59.41%) were not interested and only 246 respondents (40.59%) rated interested in buying sports memorabilia online as reported in Table 10. This was another interesting result revealed from this study for the web base company in Malaysia.

Table 11 reported that newspaper (233 respondents, 38.45%) still the highest media to disseminate sporting news in Malaysia, follow by word to mouth with 255 respondents (42.08%), 125 subjects (20.63%) from the website, 73 subjects (3.80%) from the street bunting, and 94 (15.51%) from other forms of sources.

Results of this study reported that e-mail (301 subjects, 49.67%) was the preferred way to inform them of the events in future. 259 subject (42.74%) preferred SMS and dedicated website consisted of 213 subjects (35.15%) as reported in Table 12.

Table 12: Q10 - What is your preferred way to be informed of the events in the future? (you can tick more than one)

Email	301 (49.67)
SMS	259 (42.74)
Dedicated website	213 (35.15)

Another key point the web base company wants to find out was the Q11. Table 13 revealed that majority of the respondents (450 subjects, 74.26%) in this study would like to register online for the future events. This was the great opportunity for the web base company to focus on in Malaysia.

Table 13: Q11 - Would you like to register online for your runs/events in the future?

Yes	450 (74.26)
No	156 (25.74)

Table 14 indicated that a great opportunity for this company to put their attention on providing this services to the sports

participants. 457 respondents (75.41%) reported they would like to collect their race kit at the doorstep and only 149 respondents (24.59%) rated not interested.

Table 14: Q12 - Would you like your race kit (running numbers, t-shirts) delivered to your doorstep?

Yes	457 (75.41)
No	149 (24.59)

Malaysian sports participants reported that they use the internet for the international sports news (385 respondents, 63.53%), for local sports news (258 subjects, 42.57%), for international sports event listing (167 respondents, 27.56%), for online registration (158 respondents, 26.07%), for local sports listing (154 subjects, 25.41%), booking accommodation (133 respondents, 21.95%), for buy sports event tickets (132 respondents, 21.78%), for sports celebrity blog (115 respondents, 18.98%), and for load sports based home videos on web (110 respondents, 18.15%) (Table 15).

Table 15: Q13 - What type of online sports services you would use on the internet? (you can tick more than one)

Sports news: International	385 (63.53)
Sports news: Local	258 (42.57)
Buy sports event tickets	132 (21.78)
Book accommodation for sporting events	133 (21.95)
Online registration	158 (26.07)
Load sports based home videos on web	110 (18.15)
Sports celebrity blog	115 (18.98)
Sports event listing: Local	154 (25.41)
Sports event listing: International	167 (27.56)

CONCLUSIONS

The objective of the web base sports marketing company in Malaysia who carried out this study was achieved. Based on the high demands and potential in register events online (450 respondents, 74.26%) and high potential of providing services to the sports participants to deliver race kits to their doorstep (457 respondents, 75.41%), the company see it as an great opportunity in Sports Marketing in Malaysia, the company decided to launch their website in February 2009. This study revealed one major implication. The internet is a major source of information for sports participants in Malaysia, and it is a high use of the internet found among sports participants in Malaysia. If the web base sports marketing company able to present and make accessible attraction consumer-base content on their websites, sports organizations can strengthen the mental association for previous attendees, while creating awareness of these elements to potential attendees (Gladden and Frank, 2002). The important of the internet to marketing is increasing, and marketing practitioners should prepare themselves and their companies to take advantage of internet capabilities. Cyber marketing will continue to grow in importance and have a greater impact on consumer behavior in Malaysia.

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A Traditional Game Afar Koeso In-depth Study and Documentation

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INTRODUCTION OF AFAR KOESO

Afar Koeso is a traditional game that is being practiced in Afar community those are living in Ethiopia, Djibouti, and Eretria. It is one of the common traditional games being practiced still now in these three neighbor countries. This traditional and physical challenging game does not have any formally written documents and regular tournament program in the community system, easily accessibility attractiveness of foreign (modern sports games) by different electronics media, domination of passive recreation system in the society, so riskiness and dangerous of to play Afar Koeso game. Unavailability of well and suitable safety rules, safe players suits and playground, etc. Because of these and other reasons now a day Afar Koeso game is becoming ignored in the society mostly youngsters are not more interested for traditional games, and they divert their attention to the passive recreational system, modern and abroad games.

HISTORY OF THE GAME

Nobody knows clearly how, when, and who began Afar Koeso in the Community. However, according to supper grandparents, they were playing the game and transferred it as it is for the current generation. Afar Koeso game mainly practiced during holly days, wedding ceremony, spring season, and any other celebration times. The game may directly interrelate with Afar community lifestyle in different dimensions because it is the main recreational and leisure time game for the community starting from previous to existing time. Based on fairy story, the origin of Afar Koeso game is begging of Afar community. However, now-a-day, it is becoming endangered because of globalization, civilization, and other reasons those mentioned at introduction part. These conditions have its own impact for Afar Koeso game activities declination in the society especially youngsters. Because of these and other reasons, this and other interesting and indigenous games and knowledge are becoming demolished. Previous time most young people were free from any addiction and bad habits. Playing the game (Afar Koeso) and other sports activities were the only options for their leisure time and recreation. Nowadays, most youths are not interested to play Afar Koeso, and they are so interested for modern abroad games such as Football and other. This trend is so dangerous for Afar Koeso and other traditional games future. Therefore, at least we have to document and organize in well form and try to declare for concerned bodies such as federal, zonal traditional, and cultural sports offices and others to practice in national levels such as Genna, Gebeta, and Fers Shert.

TYPES OF AFAR KOESO

Afar Koeso game is a little different from zone to zone, but generally, there are three types of Afar Koeso those are Fenayta, Feraita, and Radoita. Most of the well-known and being practiced right now at the ground are Feraita and Radoita.

Fenaita

Fenaita is not practicing in the most area, and just it is almost has forgotten in the society. Number of players in Fenaita is only two and one - one member in each. Playing techniques, rules and all the activities, scoring system, etc., are similar with Fereita. The difference between Fenaita and Fereita is number of players, and Feneita is the individual game, unlike Fereita.

Fereita

Fereita is the second famous types of Afar Koeso next to Radoita. Mostly, it is practicing in Northern Afar area. It is a team game and includes totally four players in the match. The number of players is limited in this game, unlike Radoita. In Fereita, two equal numbers of players arrange in each two groups while playing the game.

Playing Technique, Rules, Scoring of Fereita

First, referee should bounce free ball highly for both team members and then both team members will jump to have the ball and to start the game.

Playing Fereita is by bouncing three times and then say Kuma to kick the ball by outside palm to the sky.

To score a point a player should catch the ball that the kicked ball by outside feet after bouncing three times from teammate or opponent team members.

When catching the ball that drops on the external body (tree, spectators), the player can get the point.

Players can play in standing or sitting position.

In Fereita, counting points above ten is impossible.

One score is named La (1 cow).

When both teams score equal nine points, the points will reduce back into 8 points.

If one team scored higher than the opponent team they give bonus by subtracting some points, i.e., a team scored 9 points and the other scored 4, 5, or 6 they may deduct to 8, 7, etc.

To win the game, the point differences should be more than two points, i.e. f loser team scored less than or equal eight points, and the winner should score 10 points.

Duration of the game and playground size is decided by teams agreement.

The ball is similar to all Afar Koeso (Afarball) game.

Total number of players in Fereita is four and two each team.

Radoita

Radoita is the most famous, wrestling like and challenging types of Afar Koeso. Radaita has different names from area to area, i.e., in Red Sea area it is known as Feda, in other areas also called Geda. Its playing system is a little bit different from place to place. In some area, especially previous time they play Man to Man position with an equal number of players in each team. It has the advantage to identify opponent players easily in the game. During the game, the players should only charge opponent team by Redim (pushing with shoulder only) but not laying down opponent players. The game playing at the ground also can classify into five types but well known and being practicing right now in the community are Tuhinaitu and Lahbahti.

Tuhinaitu is a friendship game mostly the same team will play to evaluate his own current performance to be ready for the main match. In this, the game may be among clan or family group will play. No winner and looser during Tuhinaitu match just it is performance evaluating match for one team. This game will be done also among some group members by dividing into two groups.

Lahbahti is a competitive and aggressive game of Afar Koeso. This game will play between clan-clan, kebele-kebele, woreda-woreda, city-city, zone-zone, etc. After appointing of the required team by Alla traditional system. It means requesting a group to have Afar Koeso game appointment at Sedea traditional foxtrot by fastens or ties a piece of thread on the small finger of one of the members of the requested team. The requested person may be that group Enayta (mother of the team). This is the system how to get appointment to play Afar Koeso among different interested groups.

After committing the Alla system, each team has the preparation time for the match. The preparation time length may be different from team to team. During preparation time, all team members will be isolated from family and village. Before some days of Afar Koeso match, all players of both teams will stay in the Cave away from family with full and sufficient meal and adequate rest. It will make players be ready in physically and psychologically.

In addition to that, all players will be prevented from girlfriend relation, normal day to day tasks, and any energy consuming activities. They will wait in the Cave until game program reach. This considered as a condition like modern sports competition. On match day, before beginning the game, they will swear in the name of God to have fair play before all referees (Essees).

Basic Techniques of The Afar Koeso

All Afar Koeso games are played with hands. The game basic techniques, scoring system, play ground size, duration time, and number of players, team position, rules, and regulations

are almost different in each type of game. In Fereita and Feneyta, except number of players almost all activities and techniques are similar, but in Radoita playing techniques are completely different. To score points in Fereita and Feneyta catching, the ball that threw to the sky after three times rebounding on the ground, unlike Radoita players should reach the ball that he accepted from Enayta on scoring area without falling by opponent players.

In Radoita game, Enayta will take the ball from referee, and then, he will observe seriously all his team-mate players' position and pass the ball by throwing to one is confident on who is in good position to perform and reach with the ball without any opponent obstacle to the scoring area to get a point. After receiving the ball, the player will run as soon as fast to the scoring area. During this time, the opponent players will run aggressively to lay (catch) the ball holder player to protect from scoring area. In general, the ball holder team members will protect their team member from any opponent obstacle until he reaches to the scoring area including by laying opponent team players and the defender team also struggle to grab ball holder player before he reaches the scoring area.

FORMATION OF TEAMS AND POSITIONS

There is no clear and formal team line up and formation in Afar Koeso traditional game. However, there are three main groups in Afar Koeso suck as offensive, defensive, and Enayta in the match. During Afar Koeso match, both offensive and defensive team will act as defensive and offensive player simultaneously. While one of the offensive team players runs to scoring area with holding the ball, the defensive team runs to block this player before reaching the scoring area, and at the same time, the offensive team players also block defensive team players before they touch and lay down their team member.

Offensive Units and Roles

The offensive team is a ball holding team in Afar Koeso match. All members act as a striker to reach the ball at the scoring area. The main goal of offensive unit is reaching the ball with holding at the scoring area. One of the players reaches the ball at the scoring area that team can get or score one point. If the player fell to ground by defensive player, he will not score point. A player who reached the scoring area with ball without any obstacle will appreciate as man of the match and he scored point. This player is called Helem (star player). Then, ball will return to Enayta to continue the game. While the striker runs with ball his teammate will protect him from defensive team by blocking them from touching to facilitate running way.

Defensive Units and Roles

Main role of defensive unit is attending aggressively the opposite team Enayta when he gives the ball by throwing for one of his team member who is so fast, strong, agile, and well performer. He will not give for all but good positioned players only. The defender players are blocking ball holding player including lay down to the ground before reaching scoring area with the ball. All players may act as defender during match. No goalkeeper and specific goal area but end line of opponent field area serve as a goal area.

Special Team Units and Roles

The special teams unit of Afar Koeso game is called Enayta. Each team will have one Enayta when they are playing. Enayta's serve as pace maker for the game and also as referee to manage and control his teammates for the period of game time. These special teams' unit possess the ball and observe teammates position to pass the ball for own team members during their turn then after receiving the ball the player will run with ball to scoring area to get point.

General Rules and Regulations of Afar Koeso

Beginner of the match is host team.

Referee will give the ball for home team Enayta to start the game.

An Enayta, who get the ball, will start the game by giving to his teammate by throwing only.

Ball will exchange to opposite team Enayta after the first team finishes his turn.

Ball can exchange from one team to another in each some rounds (mostly each four rounds).

Any jewelry and long finger nail are forbidden during game.

Insulting, boxing, kicking, being aggressive, spraying sand, dust, etc., are forbidden in the game.

Laying opponent player who does not hold the ball is not permitted.

No formal players' substitution any number and anyone can be on off in the match.

Some areas catching legs and laying ball holding opponent players does not award you as a clever but hugging above waist part of the body is more norm.

Even the players injured in the game the match continue but the victim will off.

Afar Koeso is classified based on age level (children and adolescent), but females do not play it.

Host team has responsible to be full sponsor for guest team members.

Scoring System

To score the point, a ball holding team players have to reach to scoring area with the ball without lay on the ground by opponents team member and then toss the ball at scoring area three time. After he reached the destination place, he has to bounce the ball at the middle of his feet then jump and clamp with both hands with his both shank to create sound as it indicates he scored the point. This sound serves as whistle for referee. At this time, if opponent players too close to ball holding player, he can pass the ball for his teammate who is free and in better position.

A team should score much point is a winner team.

If the team members have illegal faults, their team will lose winning position for the game even they scored more points.

After falling down by opponent team member and rerunning again does not award points.

For one reaching at scoring area with ball can award one point.

Duration of the game, playground size, number of player and materials.

In Afar Koeso, the players will finish the game when they tired but it is unlimited.

Time duration is depends on their agreement, but if the first team spends an hour, the remaining team will have equaled an hour to continue the game.

Afar Koeso playground is unlimited measurement, and they prefer it by estimation.

Essees guess half of the playground to allot ground for each team.

Playground should be leveled, free from any obstacles such as rock, wood hunk, valley, etc.

The only material to play Afar Koeso is approximately ground tennis ball size that may be made from stuff, plastic, hair, and other convenient local materials.

Number of players is an unlimited and unequal number in each team.

Officials and Faults

Up to five local respected persons serve as referee (Essee) in Afar Koeso.

Tackling free Opponent Players

Insulting, boxing, being aggressive, throwing stone, spraying sand, dust, etc.

Bringing sharp materials, bracelets, watch, and ring in the game.

Punishments for Different Faults

As a team, guilty team penalizes the following punishments.

The game main referees (Essee) can decide the casualty team as match winner.

Destructive team members will pay restitution for victim team members by inviting full and adequate meal for all team members. The local tradition system can obligate the team to invite the causality. This respected tradition in the community.

As a player guilty player will penalize by his own team members the following punishments:

- Torching, by tying his limbs and sometimes immersing into water.
- They will also ban him from next game if he does not admit his mistake but he admitted his mistake he will have a chance to join next match.
- Popularity and cultural Impact on the society.
- Afar Koeso game has a high socio-cultural impact on the society in negative and positive dimensions.

Positive impacts are:

Developing social interaction among players, teams, zone, clans, different groups, etc., like any other sports activities.

Develop physical and mental fitness for players.

Recreational and positive leisure time for spectators and other society.

Serves as the level of dignity and develop level of competency in different social groups.

Negative impacts are:

Causes of different severe injuries,

The injured players may suffer long last health problems and until death.

Players do not worry about safety but being aggressive to win the game.

RECOMMENDATIONS

It should be documented in well-organized form.

The concerned body should compromise and bring together to easily manageable form to establish common basic rules, regulations, techniques, playing systems, etc., in all areas that Afar Koeso being practiced in the community.

Minimizing risky full activities and shaping safety rules should be develop by concerned bodies to promote the game in the future.

Number of players, playground size, and time duration should be rearranged.

Safety rules, materials, etc., have to develop in the game.

Regular Afar Koeso tournament program should be established in the community even in Afar community those are living in neighbor countries such as Djibouti and Eretria.

Negotiating Challenges: A Platform in Advancing Women's Opportunities in Sports Leadership

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ABSTRACT

The under-representation of women in sports leadership is a phenomenon that every sports woman advocates and sports management researchers put a step-foot-forward. While women made a prominent advancement in leadership in different realms in the society, little has changed in the context of sports with fewer women in top leadership positions than men. Although there have been diverse explanations produced for this under-representation of women as top leaders in sports organizations, the focus of this phenomenological study is to provide an in-depth understanding of the challenges women faced and strategies in advancing for opportunities in sports leadership. Framed by role congruity theory (Eagly and Karau 2002), the participants cited work-life conflict, social issues, and comparison to men's group as challenges. In negotiating, these challenges women emphasized strategies of developing competence, mentorship, solidarity, and support among women to advance and strengthen a culture where women have equal opportunities, equal access, and equal support in sports at all levels and in all capacities as decision-makers, administrators, managers, coaches, officials, and even as participants.

Keywords: Role congruity, Sports leadership, Gender equity, Women in sports

INTRODUCTION

Leadership has been predominantly a male prerogative in corporate, political, military, and other sectors of society to include sport. Although women have gained increased access to supervisory and middle management positions, they remain quiet rare as elite leaders and top executives (Eagly and Karau, 2002). Women face a disproportionate number of life challenges which reduces their ability to achieve their full potential. In many studies, it showed that despite formal guarantees of equality, the overall rate of progress for women particularly those from the poorest and marginalized regions of the world have been slow.

According to Women Win article (n.d.), women continue to encounter inequalities and deprivations in their daily lives, which prevent them from contributing toward both the creation of more equitable societies and sustainable development within their communities and beyond. That despite the advances in gender equality and women's empowerment worldwide in the business place, politics, academia, and on sports field, women continues to lag behind in opportunities, support, and resources (Huggins and Randell, 2007).

Throughout the world, women's participation in leadership and decision-making remains limited in sports and sports-related organizations. Women's are underrepresented at all levels including coaching, management, commercial sporting activities, and the media as well as decision-making bodies at the local, regional, national, and international levels (Women 2000 and Beyond Journal, 2007).

Many barriers and challenges to equitable employment opportunities remain including stereotypical attitudes toward women and sport. In the study of Sartore and Cunningham (2007), it proposes that gender-role meanings and stereotypes

associated with social and sports ideology may function to limit the capacity of women within the sports context. In addition, Women 2000 and Beyond Journal (2007) affirmed that given sports as traditionally a male domain, the involvement of women in sports challenges a multitude of gender stereotypes.

The potential for prejudice against women leaders that is inherent in the women gender role follows from its dissimilarity to the expectations that people typically have about leaders. In Eagly and Karau (2002), prejudice can arise when perceivers judge women as actual or potential occupants of leader roles because of inconsistency between the predominantly communal qualities that perceivers associate with women and predominantly agentic qualities they believe are required to succeed as leaders. People thus tend to have dissimilar beliefs about leaders and women and similar beliefs about leaders and men.

Eagly and Chaiken (1998) stated that lack of leaders may be due to the different expectations that exist for men and women holding equal positions. Research points to an overt prejudice in role expectations that are incongruent with the general perceptions of leaders. There have been many theories suggested and barriers identified to explain this challenges. However, a discrepancy between the leadership role and gender role as a source of prejudice has not been examined in any sports setting.

Specifically, role congruity theory as being conceptualized by Eagly and Karau (2002) proposed distinctive proposition that prejudice toward women leaders and those aspiring leaders is associated to less favorable evaluation of women's potential leadership because leadership is more stereotypical for men than women; and less favorable evaluation of the actual leadership behavior of women because such behavior is perceived as less desirable in women than men. Furthermore, the authors explained that the first prejudice stems from the descriptive norms of gender roles, in which descriptive beliefs about women's characteristics and qualities are unlikely expected and desired qualities in a leader. Meanwhile, the second prejudice stems from injunctive norms of gender roles, the beliefs about how women ought to behave. Currently, there exists a lack of input from women leaders addressing the issue of role incongruity ingrained within athletic administration, which potentially prevents and/or limits women from achieving top leadership positions. The voices of women speaking about the problems encountered in athletic leadership will keep the issues of an underrepresented gender in the forefront of society (Inglis et al., 2000).

INCONGRUENCE OF GENDER AND LEADERSHIP ROLES

The under-representation of women in leadership positions within sports organizations has received considerable theoretical, empirical, and anecdotal attention (Acosta and Carpenter, 2004). As a result, a myriad of frameworks has been applied in an effort to better understand why this overwhelming trends persists (Sartore and Cunninghum, 2007).

Role congruity theory (Eagly and Karau, 2002) has been used to examine expectations about the roles that men and women occupy. Role congruity theory examines the congruence between gender roles and leadership roles (Eagly and Karau, 2002). When gender roles are applied to men and women, certain jobs can be viewed as more appropriate for men or women (Cejka and Eagly, 1999). This can result in prejudice toward women in male-dominated fields because of a perceived incongruity that exists between what is expected of women based on their gender role and the expectations of leaders (Garcia-Retamero and López-Zafra, 2006). As a result of the gender roles applied to men and women, work environments can become sex-segregated so that certain jobs are deemed more appropriate for men or women (Sartore and Cunningham, 2007). When working in fields incongruent with their gender role, women were perceived as more masculine (Garcia-Retamero and López-Zafra, 2009). Similarly, men were perceived as masculine when working in fields congruent to their gender role and as feminine in fields incongruent to their gender role (Garcia-Retamero and López-Zafra, 2006).

In addition, women in leadership positions often experience prejudice when evaluated for success in male-dominated work environments that is environments incongruent with the female gender role (Heilman, 2001). Therefore, the prejudice against women's success in the workplace potentially originates from two sources of perceived incongruity: (1) Between the expectations of leadership roles and perceived feminine gender roles and (2) this prejudice is aggravated for female leaders in a male-dominated industry (Heilman et al., 2004). Therefore, role congruity theory may help explain why women are underrepresented in leadership positions in male-dominated fields such as sport. Since sports leadership has typically been a male-dominated field and women's athletics have historically been marginalized (Coakley, 2004), women may be perceived as only possessing the characteristics necessary to be successful in communal roles and may, therefore, be perceived to lack the leadership traits defined as masculine or agentic in athletic administration (Sartore and Cunningham, 2007).

In summary, role congruity theory (Eagly and Karau, 2002) suggests that traditional gender expectations that are being aggressive, agentic, dominant, self-confident and self-sufficient for men, and being affectionate, helpful, nurturing, and gentle for women influence whether or not men and women fill leadership positions "successfully." That is, leadership behavior is more congruent with masculine traits,

which situates women at a disadvantage when attempting to "move up" in the management world, and particularly in athletic administration. In addition, once women are in leadership positions, women are evaluated less favorably than men because such management and leadership roles are more stereotypically associated with men (Eagly and Karau, 2002). This may be particularly salient for women in sports when women are evaluated by their peers; role congruity suggests that perceptions of success or failure in the athletic administration would be very different for men than for women.

Adopting the literature and standpoint of role congruity in providing greater understanding of women's under-representation in sports leadership, the current study was guided by the following research questions:

1. How role incongruity does play in the under-representation of women in sports leadership?
2. What evidence that exists to support or refute the two types of prejudice inherent in role congruity theory?
3. What specific strategies have women leaders used to overcome perceived under-representation related to role incongruity?

METHODS

To have a profound understanding and better analysis of women leaders' lived experiences in the under-representation of women in sports leadership, a phenomenological approach was considered for this study which allows for a more in-depth and richly nuanced exploration of motives and experiences, provide the best fit for the research questions in this study. This approach is chosen since the focus of the study is on the interpretation of the lived experiences of women in sports leadership.

Since the main focus of the study is on women in sports leadership, a purposeful homogenous sampling technique was used for the selection of the participants of this study. While the research is seeking to make meaning of women in sports leadership's experiences, perceptions, and insights, the participant selection is limited to a small group of women who were identified as leaders in national sports organizations in Malaysia. Furthermore, the study considered two women leaders who are prominent and have contributed a significant difference in sports realm of the country. Data collection was done in a face-to-face, individual, and in-depth interview.

Data were collected by interviewing two women in sports leadership position in national sports organizations in Malaysia. Before the interview, the identified participants were sent an introductory letter through email that explained the nature of the study, its purpose, the interview procedure and the nature of the questions. Likewise, the email served as the consent letter, and the participants were only considered when they responded to agree to participate in the study. The participants were reminded that during the interview all details will be recorded and transcribed for analysis. To maintain the confidentiality of the participants, their real name was not indicated and was given a pseudonym.

Research data were analyzed using the six-step process outlined by Creswell (2002). This six-step process provides a systematic, inductive method for examining and translating the large amounts of detailed, raw data gathered during the interview process into a clear set of emerging themes about the central phenomenon in explaining the challenges and opportunities of women in sports leadership (Table 1).

Table 1: Background information of the participants

Pseudonym	Position held	Organization/Office
Datuk	Former president	National sports association
Professor	Director	University sports association

GENERAL DISCUSSIONS

Shape by the concept of role congruity theory in examining the current under-representation of women in sports; this article provides a greater understanding of the challenges and opportunities of women in sports leadership from the perspective of women in leadership positions in national sports organizations in Malaysia.

Perceive Challenges

Based on the interview data, the participants stressed relevant perception on the challenges and opportunities of women in sports leadership. Where these challenges form part of the threatening factors in advancing women's opportunities and delays the progress of women's equity in the sports realm.

The participants emphasized several challenges that they believed attributed to the limited opportunities of women. The most common challenge the participants emphasized was work-life conflict. The participants considered home life responsibilities and professional work commitments as impeding factors to women seeking for top-level leadership roles. Comparison to men's group was also considered as another challenge women facing, where it affect in a way of the support the women is getting and hinder to meet the quota of women's equity. Social issues are another challenge the participants perceived that women are facing in sports leadership. Such social issues include self-limiting behaviors and being less confident. Where this particular challenge calls for young women, who aspire for leadership roles to learn to assert rights and have a higher level of general self-efficacy and confidence.

Perception of Role Congruity

The participants believed that role congruity was a contributing factor to women in sports leadership. Thus, incongruence of roles is one of the many factors that could contribute to the ongoing predicament of the low representation of women in higher leadership position. However, the perception of the participants varied regarding how the incongruence of roles played in the challenges and opportunities of women as a leader. Professor in her experiences in leadership position emphasized that in leadership it is not about a man or woman who can lead better neither gender is a factor to become an effective and efficient leader. Likewise, in 24 years in the association as President, Datuk never saw incongruence of roles between gender and leadership. She further asserts that she assumed that because she is the leader, she is the senior.

Experiences Related to Role Congruity

With several years of experience in leadership position, the participants emphasized evidence that in a way have shown prejudices among women's leadership ability and gender roles. Although their perception on role congruity does not affect how they perform their position, both acknowledge that prejudices toward women in sports leadership are evident. One of the prejudices the participants emphasized was criticism in leadership roles when being compared to men. Datuk exemplified that when a woman leader asserts her role, intensely she is referred to as nasty. However, when a man leader drew fire nobody remembers it because it was assumed that it was his right to get angry and the members deserve it, and it is part of his leadership qualities.

Moreover, gender discrimination is another evident prejudice that the participants experienced. In a way that because it is a women's organization or a women leader at that, the support was sometimes less, and the recognition of their existence was sometimes just taken for granted and worse neglected. Datuk believed that as she goes more senior in her position, the glass ceiling was there. Likewise, Professor added to the idea that women still need to juggle their personality and manage many things to be relevant and will not be discriminated. She further explains that even a woman was given the position they can still make the woman dead in the position even she has the right to sit in the position.

Strategies to Advance Opportunities

With the evidence of prejudice in the general context of women in sport, the participants were both optimistic in advocating gender equity. Both have ideals in three strategies to advance the opportunities of women and elevate women's representation in the sports realm. Mentorship was considered by the participants that will help encourage more women in the organization. The participants shared and believed the idea that mentoring and bringing more women that have strength in numbers is where the power of the women lies. In addition to mentoring, the participants as well propose that women should support each other women and have a sense of solidarity among them. Datuk stressed that women must support other women and put personal feelings aside. In the same way, Professor coheres to the principles that more than men helping women, women must help each other enough to elevate themselves to a respectable level.

Finally, another strategy that the participants emphasized in advancing the opportunities of women in leadership is to be competent in a way of believing oneself with confidence and efficacy. Accordingly, the participants emphasized that to be a leader one should prove oneself and be very good at what you are holistically.

Implications

The issue on the challenges and opportunities of women in sports leadership is a never ceasing predicament for women in sports advocates. Whereas base on the results and findings gathered, this study leads to several undeniable suggestions that will aid future researches.

To gather wide-ranging perception on the issue, future research must consider more women leaders and in various sports organizations. With the limited participants in this study, it also limits the views and insights to deeply understand the factors contributing to the challenges and opportunities of women in sports leadership.

Since few researches have been done in the general context of women in sports leadership in Asia, it is suggested that future research should attempt to examine more women leaders in other parts of the region and further consider the factors affecting the low representation of women.

Whereas the perceived challenge of work-life conflict played a relevant effect on the opportunities of women leaders in accelerating into a higher level of leadership position, policy makers should need a change or formulate a family supportive policies that will encourage more women to pursue sports leadership career.

Since the participants believed that discrimination in women leadership can be eliminated, if at the grassroots level of participation will also be addressed, women leaders should otherwise consider to organize and promote programs that will cater more women at the participation level.

As a way to advance opportunities among women; mentorship, solidarity, and support among women are the prevalent strategies emphasized by the participants. Therefore, women leaders should take initiative to serve as mentors and allow for networking opportunities.

CONCLUSION

This research examined and further provided a greater understanding of the challenges and opportunities of women in sports leadership from the perspective of women in leadership positions in national sports organizations in Malaysia. Adopting the concept of role congruity, it was disclosed that perceived challenges play threatening effects in advancing the opportunities of women in sports leadership. Through understanding these issues women are facing, it is recognized that more strategic action plans are of serious necessity. Current women leaders, women in sports advocates and policy makers should cohere, create, and implement policies and practices that will open more opportunity and promote women's equity in all levels and all capacities as leaders, decision makers, administrators, coaches, officials, and participants.

Further, research is likewise recommended on women in sports in understanding more impeding factors influencing women's pursuit of leadership position, where the future line of this research should be the quest of closing the gap of gender and leadership roles.

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Workshop Paper

The Asthma Prevalence and Physical Activity in Indonesia

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ABSTRACT

This paper portrays the description of asthma prevalence in Indonesia. The idea is how to encourage the asthma patient to engagement in physical activity (PA). We argue that PA is one factor to increase physical endurance in asthma patient and make a better life. To approach this topic, we divide the discussion into three parts. In the first section, we explore the prevalence asthma in Indonesia. The second section presents a brief overview on the PA and asthma. The third section discusses the relation of asthma and PA and types of sports for the asthma patient. Based on this literature, we recommended the people who are suffered from asthma still engagement in PA to improve their self-endurance and get best quality life.

Keywords: Prevalence, Asthma, Physical activity

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INTRODUCTION

The World Health Organization make a definition that asthma is one of chronic diseases in the respiratory system, characterized by recurrent cough, wheezing, chest pain at night or in the morning because of blockage in the respiratory system. Over than 80% of asthma death occurs in low- and lower-middle-income countries (WHO, 2015). Global asthma also reported there are 334 million people have asthma, 14% of the world's children experience asthma symptoms. 8.6% of young adults (aged 18-45) experience asthma symptoms and 4.5% of young adults have been diagnosed with asthma and/or are taking treatment for asthma (Global Asthma Report, 2014).

In Taiwan specially at Taipei, asthma in children 13-14 years old for 12 months prevalence has been reported wheezing 5.2%, S4 attack 1.6%, wheezing disturbing sleep 0.4%, severe wheeze limiting speech 0.8%, exercise wheeze 8.2%, night cough 10.4%, ever had asthma 9% from 11.400 population (Hsieh and Beasley, 1998). The percent number from population indicate of asthma in children need more attention from the government.

The asthma patient did not care about engagement physical activity (PA). Their parents or they are scare if the asthma attack happen. This condition makes 50% of children with asthma less doing exercise (De Bisschop et al., 1999). It was in line with the frequency and number of exercise per week, non-asthmatic students higher than asthma students (Chiang et al., 2006). This statement needs solution how to engagement asthma patient to participate in PA.

THE ASTHMA PREVALENCE IN INDONESIA

The Indonesian of Health Minister (2013) reported that the highest of asthma prevalence in Indonesia are Center of Sulawesi (7.8%) than Nusa Tenggara Timur (7.3%), DI Yogyakarta (6.9%), and Southeast Sulawesi (6.7%). The fewest prevalence of asthma there is Lampung (1.6%), Bengkulu and Riau (2.0%), North of Sumatera and Jambi (2,4%), and Southeast of Sumatra (2.5%) (RISKESDAS, 2013). The geographic of island why Center of Sulawesi has the highest prevalence asthma is unknown. The Riau (2%) and Riau Island (3%) less than the Sulawesi Island. Even though the Riau Island frequently get forest fire.

The asthma prevalence based on age reported that the highest are on 25-34 years old (5.7%) than 15-24 years old and 35-44 years old (5.6%), 5-14 years old also have prevalence of asthma (3.9%). The women are the highest prevalence (0.2%) than man (4.6%). There is also no different prevalence of living environment between village and town. The other reported is the lowest income has prevalence of asthma (5.8%) and the highest income (3.8%).

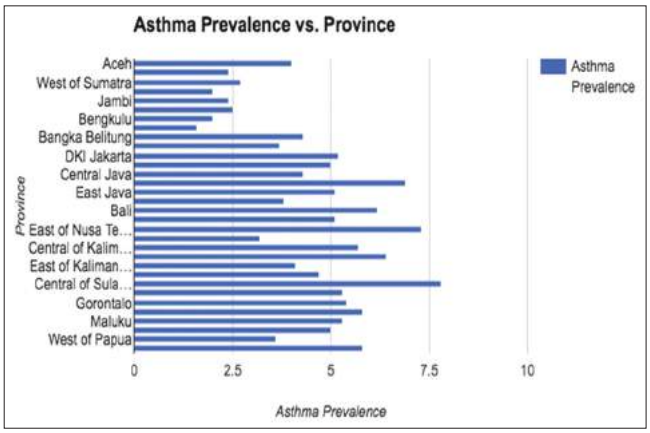

Figure 1: The diagram of asthma prevalence in 32 Province Indonesia

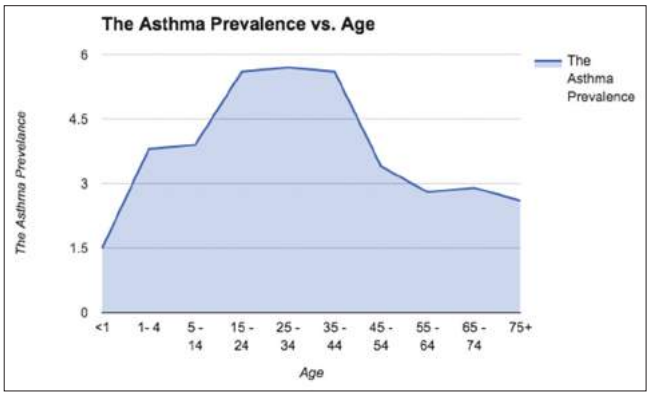

Figure 2: Diagram of the prevalence of asthma based on age in Indonesia

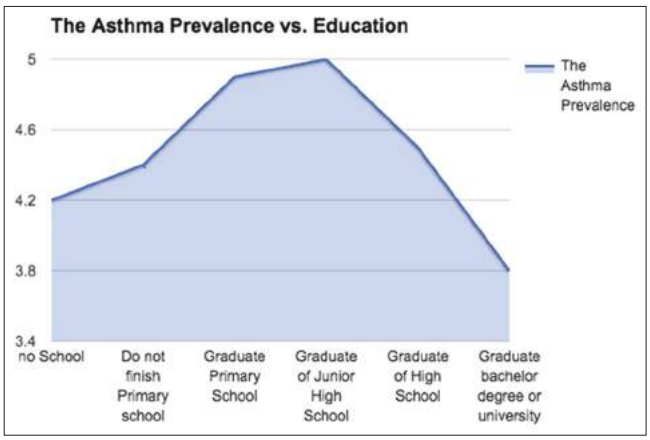

Figure 3: The asthma prevalence based on education

PA

PA is kind of body movements within working of muscles and requires more energy or increased metabolic rate than resting energy expenditure (Bouchard et al., 2012). The studies reported that breaststroke swimming three times a week for 2 months increased peak flow rate of male students with age

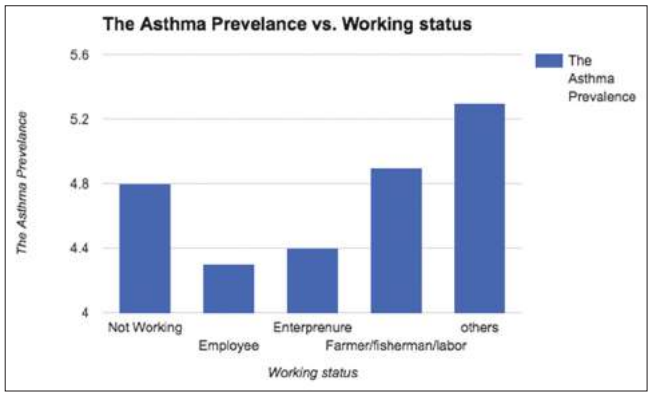

Figure 4: The asthma prevalence based on working status

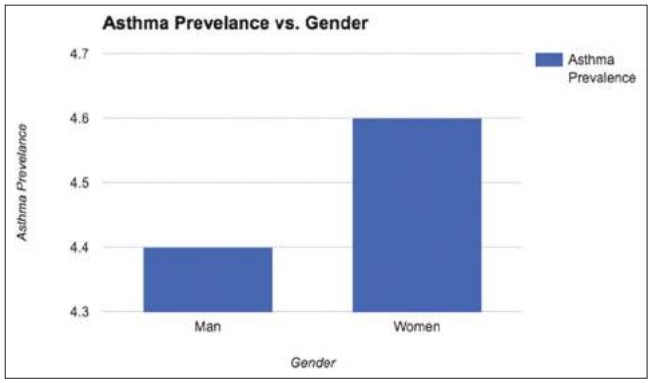

Figure 5: The diagram of asthma prevalence between genders

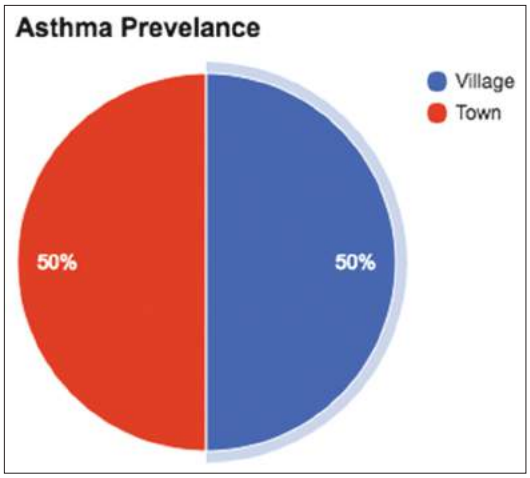

Figure 6: The asthma prevalence based on living life

between 17 and 24 years old in Semarang State University (Sumartiningsih and Setiowati, 2011). The other studies showed that swimming exercise increase of lung function and cardiopulmonary fitness also decreases of bronchial hyper responsiveness (Beggs et al., 2014; Wicher et al., 2010).

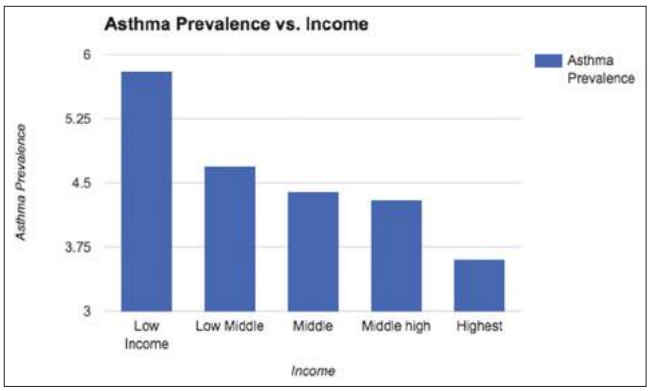

Figure 7: The asthma prevalence based on income

The Relation of Asthma and PA

Physical training program also had the effect to improved cardiopulmonary fitness as measured by increase in maximum oxygen uptake 5.4 ml/kg/min and maximum expiratory ventilation 6.0 L/min. Physical training had no effect on resting lung function or the number of days of wheezing. Its mean lung function and wheezing are not caused by physical training in patients with asthma (Ram et al., 2000; Walter and Holtzman, 2005). The PA can improve the maximum oxygen uptake and expiratory ventilation.

Low and moderate aerobic exercise decrease of airway inflammation and remodeling in murine model of asthma and increase in collagen 288%, elastic fiber 56%, smooth muscle 380%, and epithelial 402% (Vieira et al., 2007). In fact community, the reason for recommending that asthmatics avoid exercise, that's PA requiring a marked increase in ventilator load serves as a robust trigger to the onset of asthma symptoms. However, athletes 11% get history of asthma

Table 1: The qualification of asthma based on clinical description (RISKESDAS, 2013; ACSM'S, 2014)

The qualification of asthma	Symptoms	Night symptoms	Lung function
Intermittent	• <1 times/week • Without symptoms outside attack • A brief attack	• <2 times a month	• VEP1>80% prediction value • APE>80% best value • Variability of APE<20%
Mild persistent	• >1 times/week, but<1 times/day • The attack can disturb activities and sleep	• >2 times a month	• VEP1>80% prediction value • APE>80% best value • Variability of APE 20-30%
Moderate persistent	• Symptoms every day • The attack disturbing activities and sleep • Needed bronchodilator everyday	• >1 times a week	• VEP1 60-80% prediction value • APE 60-80% best value • Variability of APE>30%
Severe persistent	• The continuously symptoms • Frequently relapsed • Limited physical activity	• Frequently	• VEP1<60% prediction value • APE<60% best value • Variability of APE>30%

Table 2: Cardiorespiratory training program or endurance exercise program recommended frequency 3-5 day per week (ACSM's, 2014)

Activity	Duration	Parts of body	Goals
Warm-up	5-10 min	Whole body	Increasing muscle temperature, improving oxygen exchange, and speeding nerve impulse transmission
Walking, Cycling Swimming Upper body ergometer	20-30 min Individuals with asthma Suggestion 20-60 min Tolerated 60-90 min	Whole body	Increase of endurance individual with asthma Intensity 80% for walking speed as determined during 6 min walk test For dyspnea 60-80% of peak work rate Frequency 3-5 day per week
Cool down	3-10 min	Whole body	Decreasing the exercise intensity Maintain blood pressure Reduce the risk of post-exercise bronchospasm Stretching can be added at the end cool down but not primary

Table 3: The summary of recommendations and suggestion for resistance exercise training in patients with COPD and older adults (ACSM's, 2014)

Group	Frequency	Intensity	Sets	Repetitions	Rest	Exercises
COPD	2-3 d/w	50-60% 1 RM initially progress to 85% 1 RM	1-3	10-12 initially progress to 6-10	1-3 min	8-10
COPD	2-3 d/w	50-85% 1 RM	2-4	6-12		3-9
Healthy, older adults	>2 d/w	Moderate to high	1 or more	10-15		8-10

COPD: Chronic obstructive pulmonary disease; 1 RM: One repetition maximum. Moderate to high is moderate intensity is defined as 5-6 on 0-10 scale, high intensity is 7-8 on a 0-10 scale

symptoms; they can still win 41 medals in US Olympians (Nieman and White, 1998).

The PA Program for Asthma Patient

The asthma patient needed to keep better quality life for their body. There is also need doing some PA. PA intolerance is the hallmark of chronic lung disease. Foremost among the symptoms that limit exercise is dyspnea and or fatigue because of some combination of the pathologic changes in lung function noted earlier. These may be exacerbated by physical deconditioning, anxiety secondary to exertional shortness of breath and declining motivation. Exercise capacity is reduced in patients with chronic lung disease because of ventilatory and gas exchange limitations, cardiac and respiratory muscle dysfunction, and skeletal muscle disuse and or disfunction (ACSM's, 2014).

The ACSM's said that the benefits of chronic adaptation to exercise in individuals with chronic lung disease there are divided into four part: (1) Maximal endurance exercise: Increased aerobic capacity, increase maximal work rate, increase 6 min walking distance, (2) Submaximal endurance exercise: Higher metabolic (lactate) threshold, increased endurance (longer duration at same work rate), reduced heart rate, reduced volume oxygen consumed per unit time, reduced blood lactate, reduced volume of carbon dioxide produced per unit time, reduced minute ventilation, (3) Peripheral muscle performance: Increased upper and lower body peripheral, muscle strength and endurance, increased rate of force development, improved mechanical efficiency, and (4) Symptoms: Decreased dyspnea, less fear and anxiety because of sensation of breathlessness, improved quality of life (ACSM's, 2014).

Cardiorespiratory exercise training is recommended by ACSM to individual with chronic lung disease. Asthma is one of parts from chronic lung disease. The principle of exercise still use method frequency, intensity, time, and type (FITT) and also adjusted to the patient's capabilities, disease-specific limitations, therapeutic objectives, and goals (ACSM's, 2014).

CONCLUSION

The quality life is needed for individual with asthma. Engagement to PA is needed to keep quality life better. The physical activity for individual with asthma must be used guideline and pay attention for FITT of exercise.

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Exercise and Health in Thailand

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EXERCISE TRENDS IN THAILAND!!

- Health status
- Health and sports organization
- How to?

Today, why do people exercise?

Athletic/Artistic Performance, Physical appearance, Health

How can we increase exercise for health reasons?

Education - Require PE for schools?

Support - Physicians, family.

Research.

EXERCISE

- Exercise consists of activities that are planned and structured and that maintain or improve one or more of the components of physical fitness.
- Physical activity suggests a wide variety of activities that promote health and well-being.
- Exercise is often associated with fitness maintenance or improvement only.

BENEFITS OF EXERCISE

- Increased strength and muscular endurance
- Increased bone mineral density (BMD) – osteoporosis
- Aging – decreased falls, increased independence, and increased activities of daily living
- Increased basal metabolic rate – lean body mass (LBM)
- Appearance, self-esteem
- Technology – fewer demands placed on musculoskeletal and cardiovascular systems
- 2-3 generations ago – manual labor
- Stairs, elevators, and cars
- Recreation – playing ball, jumping, hide-n-seek versus video games, and internet

Convenience and fast foods:

- Automation – decreased muscular demands
- Body adapts – increased fast and weaker
- Scheduled exercise used to not be needed with manual labor.

Today, have to "give back" the leisure time gained Thru technology and purposely stress the muscular system.

Types of exercise

- ***Physical exercises are generally grouped into three types, depending on the overall effect they have on the human body:***
- ***Flexibility exercises, such as stretching, improve the range of motion of muscles and joints.***
- ***Aerobic exercises, such as cycling, swimming, walking, skipping rope, rowing, running, hiking or playing tennis, focus on increasing cardiovascular endurance.***
- ***Anaerobic exercises, such as weight training, functional training, eccentric training or sprinting, increase short-term muscle strength.***

TYPES OF EXERCISE

Calisthenics

Isotonic muscle-fitness exercise that overloads muscles by forcing the muscles to work at a higher level than usual.

Flexibility (Stretching)

Exercise designed to stretch muscles and tendons to increase joint flexibility or range of motion. Specific flexibility exercises need to be done for each part of the body.

Isokinetic

Muscle-fitness exercise in which the amount of force equals the amount of resistance so that no movement occurs.

Isotonic

Muscle-fitness exercise in which the amount of force exerted is constant throughout the range of motion including muscle shortening (concentric contractions) and muscle lengthening (eccentric contractions).

Muscle-fitness

Exercise designed to build muscle strength and endurance by overloading the muscles and it also called progressive resistance exercise. Common forms of muscle fitness exercise include isokinetic, isometric, and isotonic.

Basic Principles of Exercise Training

Frequency - How often is the exercise performed each week? For cardiovascular training effects, 3-4× per week is suggested

Intensity - The exercise must be performed at a level that challenges the cell/tissue/system for adaptations to occur.

Totally, dependent on starting state - Lower the starting fitness level the lower the starting intensity. Must build to continue adaptations. The most important variable in training regimen for most.

Duration - Length of each training session. For cardiovascular adaptations, it is suggested to start at 30 min/session.

MORE IS NOT NECESSARILY BETTER!

Overtraining/System Failure

Exercise prescription

- To treat various diseases
- Primary prevention – PE class
- Clinically – discuss exercise
- Work – corporate wellness
- End of college, athletic endeavors – need to have scheduled exercise
- 60 min daily
- Aerobic and resistance
- Convenient
- Traveling
- Pedometer
- Minutes per day
- Intensity, duration, frequency (need to vary).

How to make exercise a lifetime activity

- Pick activity that is enjoyable and uses most muscles
- Vary duration, intensity
- Group classes
- Music
- Walk the dog!
- Set goals – health, appearance, cholesterol.

Elderly

- Joint flexibility
- Muscle strength
- LBM
- Balance
- Prevention of injury.

Osteoporosis

- BMD
- Muscle—balance, falls, fracture
- Works with estrogen, diet
- Wt bearing

Coronary artery disease (CAD)

- Primary and secondary prevention
- Increased CV functional capacity and decreased myocardial O_2 demand
- Lipids, diabetes mellitus, obesity
- Blood pressure – 8-10 mmHg
- Inactivity is independent risk factor for CAD
- Sedentary have greatest cardiovascular disease mortality

Psychological Benefits of Exercise

- Reduced stress response to psychosocial stimuli
- Lessened sympathetic nervous system activation to cognitive stress
- Reductions in depression
- Improved self-esteem
- Reduction in emotional perturbations to stress
- Contribute to sustained behavioral changes and adherence.

Exercise and health in at Mae Fah Luang University

The main purpose to exercise to enhance health and focus to weight management…

Exercise and weight control class

Understanding - Talent-Spotting

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Searching for sports talent has been a regular practice worldwide. East Germans did lot of research in the field followed by other European countries and the west. Australians have succeeded by their talent search school program in producing great cricketers. Countries could not produce half of the number of medals when compared to the numbers human performance labs they had.

There are many lab and field tests are developed for sports specific fitness assessment such as spiroergometry, motor quality tests, anthropometry tests, body composition, psychological tests, and physical examination. Expensive laboratory tests were introduced for elite players and for research.

India had lot of talent spotting programs by SAI; one of such ambitious program was "The Boys Sports Company." The program was capable of identifying sports talent but failed to sustain because of poor planning in addressing important issues. Many talented young players ultimately left the sport. Services Sports control Board and SAI jointly started this without serious guidelines with regard to education and job prospects for the players with the result, many talented youth went out of sports.

Most players come with their own talent such as PT Usha, VVS Laxman, and Md Azharuddin with adequate sports medical support; their performance can be sustained. An injury management is not alone sufficient to support the young talent. Doctors must understand sports training modification, load, recovery, and competition preparation. Talent is often caught in dope control due to lack of awareness.

Coaches also need lot of training to understand the performance which is related to age and physical parameters and it should be comparable to their counterparts? There should be proper coordination among player, sports doctor, coach, conditioner, physiotherapist, and administrator. Technology and the know-how are to be understood properly and the following guidelines to be adhered.

a. Talent spotting by field/lab testing
b. Identification of appropriate sports discipline with priority
c. Follow-up with progress
d. Psychological understanding in providing autonomous
e. Early injury/injury proneness detection and prevention
f. Appropriate rehabilitation and back to school
g. Suitable sports medicine back-up.

Role of "Cognitive Behavioral Therapy" and "Neuro-Linguistic Programming" Support to Enhance the Performance of a Player

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AIM OF PAPER

The positive effect of "cognitive behavioral therapy (CBT)" and "neuro-linguistic programming (NLP) exercise" in converting the anxiety and fear of failure into a successful execution to win in the competition.

DIAGNOSING THE PROBLEM

A some of the players are not able to perform very well in the "zone" in spite of their practise sessions are proving very good.

Check the sports anxiety levels,

Speak to the coach on the skills, fitness, and technique in the game.

Checking the belief system,

Negative thinking patterns,

Speaking to the parents,

Then, design the strategy,

The unavoidable realistic issues with the players – case studies:

1. Air rifle shooter: This shooter is at the age of 16 started shooting and became national competitor placed at 4th position. After that, she started aspiring for the best but she developed a problem, when she is aiming at target, some negative thought started disturbing her concentration and not able focus on target, previously she use to hit 9.8 in 10 rounds … but slowly her score came down to 9.2 and average is below than a regular score. This made her fee very bad … depressed.
2. Wrestler: His age is 19 years, taking the training at Delhi with Sri Susheel Kumar group. Has good technique, good body muscle and has all characters of a wrestler, think from the body, but when he entered into the ring … he always has a negative thought he is not competent to fight and win the competition, as soon as he gets it, he loose the game … this repeated for him for more than 7 competitions….
3. Cricketer: Under 19 player, captain, by mind he is a bowler but due to injury to shoulder, he started playing as batsman, whenever he is ready to take ball, his mind used to pop up a visual of clean bowled … not able to stand in the crease for not more than 10 min, this happened for him more than 10 times.
4. Tennis player: During the tournaments, he always gets an automatic thoughts about his poor performance, he cannot succeed against any player, but practise matches, even he wins over his coach many a times.

HOW THE CBT HELPS THE PLAYERS

The majority of the players have experiences of loosing the game in crucial competitions, this will register in their sub conscious, that some of the matches they may not be successful. Their training will be good and learning the technique is good, but the performance situation they will be totally a disappointing. This kind of situations can be easily handled with the help of CBT, basic idea of CBT stems from the thought … and feelings always go together, behind every bad feeling there is bad thinking … CBT will handle this negative thought process with help of CBT structured process

can change the thinking pattern and lead to realistic and practical thought process. This can make any sports person to perform better.

Why We Need NLP for Sports Person? When They have Trained on Skill and Fitness?

There are many factors that influence sporting abilities; genetic inheritance, fitness levels, technical skills, and our mental abilities. All sports performers will give a lot of their time on their fitness and game skills; the education on the psychological side of the game is often neglected even at a world class or Olympic level of performance.

Most sportspeople have experienced times when they are "in the zone," where they are performing at their high pressure situation, they give best in what some describe as a state of "flow." If you ask some one-how they achieve flow many will say things like "I do not know it just happens." What this means is that it is an unconscious process and it is beyond of their normal conscious awareness.

In modern sports, the ability to access these flow states and optimise mental skills can mean the difference between winning and just competing!

In sports, there are many ways that NLP can be used to optimise genetic, fitness, and technical abilities. NLP is often the difference that makes the difference.

NLP allows people to learn and adopt the strategies, techniques and physiology used by our sporting role models to achieve excellence often in a fraction of a second.

By using NLP techniques in sports, we literally teach people to be able to go into "flow states" to consciously enter states of peak sports performance as and when needed. You can use NLP to maintain the motivation to train so as to take your skill sets to the next level, you can learn to "get over" mistakes and to learn from errors rather than dwell on them and you can learn to have the confidence to compete to the best of your ability.

Whether you are an aspiring Sachin, Sania Mirza, Tiger Woods, Paula Radcliffe, Lewis Hamilton, David Beckham, or someone who plays sports simply for fun NLP is used by people even if they do it consciously or unconsciously.

It will either be used against you or you can learn to use it for you and when you learn to use NLP with purpose you can really begin to play your sports at a new level.

How This NLP Works

NLP is often proposed as a study of the way in which human beings structure their perceptions and it creates a framework that can be used to analyze study, reprogram, and program a person's behavior, lifestyle and attitude. Body posture, breathing, gestures toward the eyes, ears, body, eye movements, and language patterns are all elements that are used to trigger the unconscious mind in NLP.

High-achievers and peak performers think, act and feel differently from average people. They have superior mental strategies in place that help them learn faster and better and perform to their potential more often. NLP was created by Richard Bandler and John Grinder in the 1970's.

Here's what you can learn from NLP:

- Change negative thinking to positive
- Stop self-limiting thinking patterns
- Increase energy
- Remove mental blocks
- Powerful visualization techniques
- Drop unwanted habits
- Create instant rapport
- Improve communication
- Remove unwanted, negative emotions
- Create a smart learning and retention strategies.

NLP sports psychology is based on the concept of bringing out the peak performance in an individual by improving their coordination and mental concentration. NLP for sports utilizes the five senses which are auditory, visual, kinesthetic, gustatory, and olfactory senses. By utilizing these five senses to influence the mind, this can help to enhance the performance of the individual. NLP for sports provides a method where a person can perceive the world around them in a certain way and with the use of sensory based language it is the best way to influence the human mind. When it comes to team work and coordination in sports, the use of certain words that represent a sensation can give sports people that extra edge that is required to win.

NLP sports psychology helps to influence the human mind in such a way that it starts to manage the internal states of the mind. The state of mind of the individual is an essential factor in bringing out his or her best performance. A lot of sports performers spend a lot of their time focusing on improving their fitness and technical ability and often the mental element is neglected, even at world class level.

Invoking of states in the mind can help bring out the best in a player. Coaches generally know their players very well and therefore have an idea about what is the best thing to bring out the peak performance in a player.

The use of NLP has had a significant impact in the area of sports performance. Some of the world's leading sports people have put their success down to using NLP techniques.

People such as Michael Jordan, Tiger Woods, Andre Agassi, Greg Norman, Jimmy White, and Michael Vaughan are

among many highly successful sports performers who use NLP techniques consistently to achieve excellent results.

TIGER WOODS AT THE EVE OF NEURO LINQUISTIC PROGRAMMING - "MY WILL MOVES MOUNTAINS" - TIGER WOODS

Oprah Winfrey says of NLP "NLP helps me to manage audiences and motivate them, it is amazing."

Technique Used for the Players to Give their Best Performance: Swish Technique

Make sure the atmosphere must be very quite and comfortable if possible make the room must have AC facility. Ask the sports person to sit comfortable in the comfortable chair. Ask the client to close the eyes and follow the suggestions.

Visualize your picture with the disturbance undergoing when in the ground.

Ask client to visualize in color picture, make the client perceive the sounds, smells on the ground. Make the picture can be kept aside-term it as the first picture.

Visualize the best picture, how you wanted to visualize yourself with full performer.

With all the happiness to the core belief. Term, this as the best picture.

Decrease the size of the best picture into a small size then paste it on the first picture.

Give suggestion, "i say swish then you can blow the size of small best picture into a big size picture. Say swish … the best picture become very big, then the first picture disappear."

Visualize the best picture in a bigger size.

Visualize you are giving the best performance then all your friends are congratulating you. Enjoy this wonderful situation.

Then slowly open your eyes…

If possible ask the client to write the experience.

This must be practiced at least 21 days to become the reality daily 3 sessions. Every session must have 6 times.

CASE STUDIES

1. Air rifle shooter: Age 18 years; improvised her focus and coordination of body mind.
2. Wrestler: He always has a problem of final match glitz, around 10 final matches lost to his opponents, after the sessions he claims that … his body mind prepared to win and no negative thoughts of loosing the game.
3. Cricketer: He as a problem of too many thoughts as he stand in front of the wickets, always gets an image of duck out in the brain. After the session, he not only stand in the creeze for long time he could hit 82 runs. He claims it made him become more calmer and focussed on the present situation.
4. Tennis player: During the playing he always have negative thoughts that he is going to loose the match, though he is very good in all actions of the game, forehand, backhand, rallys … he used to beat his coach and seniors, but when it is a match … in the second round he is out. After the session he feels, he is going good winning the matches.
5. Shuttle player: State level player: He has all the skills to beat the opponent in the final matches, he always win the first match … then he will be overwhelmed with this. Remaining matches he used to loose. After the sessions he feels, he is able to withstand the pressure and able to win the matches with all the skills and ability.

The above real life stories are very encouraging and useful to all the coaches and sports persons.

CONCLUSIONS

Sports psychologists have long recognized the importance of positive self-talk in helping athletes achieve their potential. Everyone who play competitive sport or who competes at a serious level faces adversity and obstacles to success: Physical pain, poor conditions, strong opponents, and fatigue. The only way an athlete can succeed in the face of these difficulties is to have powerful self belief and great determination. Positive self-talk is one tool that athletes use to achieve their best in competition (3). Researchers also believe self-talk can help everyone improve performance in a variety of settings (2). With the help of CBT, the faulty automatic thought process can be redesigned and empower the athlete with the alternative self suggestion method to alter his state of mind to be more realistic and positive to face the task with all the confidence and power. When an athlete talk to himself, surface structure of his sentences has a huge impact on his feeling and performances. This affect determines his state-sport confidence level at a certain moment.

When an athlete thinks about his abilities or predicting the result of a next competition, cognitive processing will formed as a self-suggestions. Our thought has ability for captivating us in the world of imagination and incomplete informations. Our language can be a clear representative of our thinking process. According to the NLP, this structure can be redesigned and same thing can be executed as with reference frame consciously in the brain. One of the most

important things for an athlete who wants to participate in competition is having mastered on his cognitive processes and emotion. In this research, we figure out the swish method and CBT can be a useful tool for increasing athletic self-awareness and cognitive controlling that has affect on state-sport confidence. I recommend that NLP and CBT can be used in sport psychology to help the players to enhance their confidence and perform better in highly pressurised situations. The awareness must be given to all the coaches and players about this approach to enhance the performance and confidence of the players.

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Influence of Resistance Training on Health and Performance

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Health is important for one and all to maintain quality of life. Health and performance are the two different ends and needs specialized training programs for both to achieve the different goals. Athletes need the best performance to achieve their goals. Moreover for both health and sports performance smart resistance training (RT) under the able guidance of a good coach is required.

RT is a technique to use of resistance for muscular contraction to improve the strength, anaerobic endurance and increased in the size of skeletal muscles. RT is performed on the basis of the principles that muscles of the body will work to overcome a resistance force when they are required to do so. In addition while RT repeatedly and consistently performed, your muscles become stronger. Muscular strength is an important component of fitness variable that is essential for best possible health and fitness. Moreover, a well-rounded fitness program includes strength training to improve bone, joint function, bone density, muscle tendon and ligament strength, as well as aerobic exercise to improve your heart and lung fitness, flexibility and balance level. RT does not have to involve going to the gym or using weights. We can do strength training just using our own body weights.

Strength is a key variable of health-related fitness. RT is a means for developing the strength and size of the muscles. RT uses a range of specialized equipment to target specific muscle groups and types of movement. Azeem (2013), enlighten that the muscular strength includes a range of training modalities including body weight exercises, elastic bands, plyometric exercises for (upper and lower body), multi machines, free weight machines, and hydraulic machines. Azeem (2015) revealed that the exercise is a medicine and RT in particular is one of the most important medicine in controlling certain types of diseases, i.e., obesity, joint pains, muscle weakness, neuromuscular coordination, etc., Azeem, et al. (2006) stated that the RT is beneficial for athletes and important and part of the athlete's training program. Upper body strength is very important and part of the training program for the following sportsmen and women globally, i.e., cricketers, basketball players, boxers, baseball players, wrestlers, judo players, etc.

Azeem (2015) reveals that the pushups are one of the basic and most common exercises for the human body. Pushups are great exercise for the chest and also help tremendously for shaping and defining abs, triceps, shoulders, and torso. The basic principles of weight training are essentially identical to those of strength training, and involve a manipulation of the number of repetitions reps, sets, rest, exercise types, and weight moved to cause desired increases in strength, endurance, and size. The specific combinations of reps, sets, exercises, and weights depend on the aims of the athletes performing the exercise; sets with fewer reps can be performed with higher weights.

Azeem (2014) investigate a study on untrained males, for 12 weeks, 2 days TR, 2 sets × 5 exercises for upper body, and improved from pre- to post-tests by percentages. High pulley 67%, incline chest press 58%, sitting shoulder press 65.47, sitting triceps extensions 58.63, and preacher curls 65.56.

There are number of benefits from RT they are as follows: Positive effect on 640 + muscles, improves muscles tone, burn calories 24 h in a day, even during rest or sleep, decreases resting blood pressure, increases blood level cholesterol (good cholesterol and reduces bad cholesterol), improves body composition, prevents injuries, increases the efficiency of heart, improves personality, improves performance in physical activities, and sports performance. There are a variety of types of training, and each type of training is unique in changing body composition, increasing strength, increasing power, increasing motor performance, and hypertrophy of the muscles. Moreover, training is based on the frequency, volume and intensity.

RT PROGRAM AND ITS SEVERAL BENEFITS ON PHYSICAL, PHYSIOLOGICAL AND PERFORMANCE PHYSICAL

1. Increased tissue (muscles, tendons, and ligaments) tensile strength
2. Increased cross-sectional area of muscle fibers
3. Decreased body fat.

PHYSIOLOGICAL

1. Improved cardiovascular efficiency
2. Beneficial endocrine (hormone) and serum lipid (cholesterol) adaptations
3. Increased bone density
4. Increased metabolic efficiency (metabolism).

PERFORMANCE

1. Increased neuromuscular control (coordination)
2. Increased endurance
3. Increased strength.

BASIC PRINCIPLE OF RT

The basic principles of RT as follows: Progressive overload principle, program, weight, exercises, repetitions or reps, set, rest, variety, and recovery.

This is evident and recommended that one has to understand the delicacy of the RT and has to follow proper training program under the able guidance of a fitness trainer for proper improvement and to maintain quality of life.

SAMPLE PROGRAMS

Beginner Level - I (Weekly 03 Times for 12 Weeks)

Exercise	Sets	Repetitions
Warm - up 5-10 min		
Sitting leg press	2	10-12
Leg extensions	2	10-12
Leg curls	2	10-12
Bench press	2	10-12
High pulley pull down (front)	2	10-12
Shoulder press (front)	2	10-12
Sitting rowing	2	10-12
Butter Fly Pec DecK	2	10-12
Preacher curls	2	10-12
Sitting triceps extensions	2	10-12
Cool down		

Beginner Level - II (Weekly 03 Times for 12 Weeks)

Exercise	Sets	Repetitions
Warm - up 5-10 min		
Incline leg press	2	10-12
Leg extensions	2	10-12
Leg curls	2	10-12
Incline bench press	2	10-12
High pulley pull down (back)	2	10-12
Shoulder press (back)	2	10-12
Sitting rowing	2	10-12
Chest press	2	10-12
Preacher curls	2	10-12
Sitting triceps extensions	2	10-12
Cool down		

Intermediate Level - I (Weekly 06 Times for 12 Weeks)

Days 1 and 4

Exercise	Sets	Repetitions
Warm - up 5-10 min		
Thighs, calves, Abs		
Free squats	2	20
Incline leg press	3	15, 10, 8
Hack squats	3	10.8, 8
Leg extensions	3	10, 10, 10
Leg curls	3	10, 10, 10
Sitting calves raises	3	10, 10, 10
Sit-ups	3	20, 20, 20
Leg raises	3	20, 20, 20

Days 2 and 5

Exercise	Sets	Repetitions
Warm - up 5-10 min		
Chest, shoulders		
Push-ups	2	20
Parallel bench	3	15, 10, 8
Incline bench	3	10.8, 8
Butterfly pec deck	3	10, 10, 10
Pull overs	3	10, 10, 10
Front press	3	10, 10, 10
Back press	3	10, 10, 10
Rear delt	3	10, 10, 10
Up right rows	3	10, 10, 10

Days 3 and 6

Exercise	Sets	Repetitions
Warm - up 5-10 min		
Lats, arms		
Pulley pull down (front)	3	15, 10, 10
Pulley pull down (back)	3	10, 10, 10
Sitting rowing	3	10.10, 10
Biceps curls	3	10, 10, 10
Hammer curls	3	10, 10, 10
Standing tricep push downs	3	10, 10, 10
Sitting triceps extensions	3	10, 10, 10
Fore arm curls	3	10, 10, 10

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Workshop Paper

Horizons of Sports Psychology - Today

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Horizon is a line at which the earth or sea and sky seem to meet. Limit of one's knowledge, experience thinking, linking, resolving, solving, etc., for an apt an ultimate outcomes or results.

Psychology is a science that describes the mind and its processes (normal, abnormal) in a situation or situations under similar or dissimilar conditions at varied time and seasons. The psychological process is not fully scientific like other branches, but psychologically favorable moment is the time when one is likely to achieve the desired end. Psychosis is the abnormal or diseased mental state of affairs in an individual at any point of time. Psychotherapy is also a systematic science of a treatment for mentally disabled people by psychological methods. Psychiatry is also a treatment of mental illness/disorders. The expert one who treats the mental illness/disorder is known as psychiatrist or psychologist. Before the 90s, athletes failed to have the information or foundation basing on which, they can make a superior athletic performance. Athletes relied on smart luck to realize this optimal and superior performance. In 1897, Norman Triplett, an Indiana psychologist, began to explore why athletes performed the way they did in specific situations. These initial studies resulted within the development and growth of the contemporary games psychology industry.

THE EARLY YEARS

Triplett began by trying out the results of cycling on own as in comparison with cycling with a group. Triplett concluded that cyclists who cycled in group cycled faster than the ones that cycled alone. To test his findings more insightfully, Triplett decided to test children to look how fast they might carry out an easy task of reeling in fish alone as when compared with the same task being done by a group. Triplett discovered youngsters reeled their strains in faster while others were present as compared with when they had been alone.

THE GRIFFITH ERA

Coleman Griffith undertook informal investigations of football and basketball games at the same time as he was once pursuing his doctorate in psychology at Illinois school in 1918. He was fascinated in the reaction times of players and also their psychological awareness, muscular rigidity, and recreation. In 1925, Griffith established his own games activities lab, which was dedicated to the field of games psychology. He investigated the aspects that affected the performance of the athletics. In the year following this, Griffith published his first book named "The Psychology

of Coaching" and another book named "The Psychology of Athletics" in the year 1928.

Franklin Henry won his Ph.D. from the California University in the year 1938, and that very same year, he was employed as an instructor at the college of California-Berkeley's physical education division. While working here at the California-Berkeley University, Henry started to review the games psychology components and how they have an effect on the motor skills of athletes. He started to test with the effects of workout at high altitudes, decompression illness, and aeroembolism (this is the release of air bubbles in tissue on speedy lower in air power). In 1964, Henry authored and circulated a paper named "Physical Education: An Academic Discipline."

The year 1965 marked the beginning and establishment of "The International Society of Games Psychology" in Europe in the same year, the society also conducted its first ever global meeting. In the year 1967, "The North American Society for the Psychology of Games and Physical Activity" was established in the United States. Professor Dorothy Harris created a "Games Psychology" graduate program at the college of Penn State, and she systematized the first research conference in 1972 that dealt with women and games. "The Journal of Games Psychology" was founded in the year 1979.

International Olympic players employed games psychologists to work with the athletes in the Olympics of 1984. The U.S. Olympic Committee employed its first full-time games psychologist in the year 1985. "The Association for the Advancement of Applied Games Psychology" was established in the year 1986. The United States appointed more than 20 games psychologists to work with the participants in the Summer Olympic games of 1996. Today, almost every professional games team engages a games psychologist as their staff (Gee, 2013).

Coaches often discuss about aspects like "mental strength" and mental toughness' while discussing about indefinable quality which differentiates the great players from the good players in any of the various games popular worldwide. This quality is reinforced by certain psychological skills and, a coach plays a very significant role in aiding the athlete or the team to nurture and become impeccable in such skills.

Game psychology primarily focuses on training about practical psychological skills to athletes, thus enabling them to develop their psychosomatic abilities to an equal extent as their physical capabilities. The key differentiating factor present between winning and failing, or a good performance and a poor one, is probably the psychological skill level rather than the physical capability level. With respect to the physical capabilities, these psychological skills need to be taught in an appropriate manner, perfected by the coach and athlete, and then practiced until the athlete becomes impeccably perfect.

Coaches are always keen on improving their knowledge for helping their athletes in motivating themselves. Athletes are largely worried about maintaining their motivation levels once they have developed the determination and aspiration to prosper at their game. "Motivation is a complex concept involving the combination of direction and intensity of effort in a particular situation. For example direction – playing for a team or club, attending a coaching clinic or aerobics class, joining a fitness center, or seeking physiotherapy treatment for an injury: intensity – the amount of effort with which an athlete pursues their chosen direction (Gould, 1995)."

Today more than at any time in the past individuals distinguishes the vitality of combined mental and physical wellness. Game and exercise psychology in the remedial setting regularly concentrates on motivation, injury and rehabilitation, and enhancement of performance. Through the use of cognitive and behavioral systems people can recover the innate worth of their game, attain superior and best performance, permanence in his or her game, and mental well-being. Clinical examination concentrates on greatly correspond physical practice of sufficient concentration and

extent with positive updates in the state of mental disposition. In particular, people who cooperate in physical practice normally seem to experience lower rates of dejection and fretfulness. Commonly, people preparing in this field will appropriate and specific training in either practice psych or game psych.

Game psychologists work with games participants across a spread of each team and individual games and from amateur to elite levels of competition. The aim is predominately to assist athletes prepare psychologically for competition and to handle the psychological demands of each competition and coaching. In distinction, AN exercise scientist is primarily involved with the appliance of science to extend exercise participation and psychological feature levels within the general public.

Games and workout psychologists work in a wide range of game and workout backgrounds and with a diverse range of purchasers. Most game psychologists blend consultancy work with teaching and study or psychological consultancy in other localities such as the clinical and occupational domains. Some games psychologists do contain full-time positions with expert games groups or nationwide ruling bodies and possibilities to work as a full-time games psychologist are constantly expanding in number. An identical scenario exists for exercise psychologists, with most practitioners combining consultancy with educating and research careers. The work of workout psychologists might engage GP workout referral, setting up, and assessing workout programs in paid work, jail, and psychiatric contexts.

The work of a game or exercise psychologist is centered on people and can be extremely varied. Although consultancy work may be office-based, it is equally likely that consultants will work in field settings such as team premises, competition venues, clinical rehabilitation, and recreational exercise settings. Some examples of typical duties that may be associated with game psychologists include: Counseling referees to deal with the stresses that they encounter and how to cope with the demanding aspects of their particular role, advising coaches and staff on how to enhance cohesion within their teams, and of course help athletes deal with the psychological and emotional consequences of injuries. Daily activities of an exercise psychologist may include optimizing the benefits that can be derived from exercise participation and aid individual clients with the implementation of goals and strategies.

Sports psychology is the scientific study of players and spectators and their behaviors in sports and exercise activities. The aim of the study of sports psychology is to be able to apply the knowledge learned about these to practical uses. There are two objectives that the field of sports psychology aims to meet. These are:

1. To understand the effects of psychological factors on physical performance.
2. To understand the effects of participating in physical activity on psychological development, health and well-being.

Typical Questions that a Sports Psychologist Might Ask

1. How does anxiety affect the accuracy of an athlete's movements?
2. Does lacking self-confidence influence a person's ability to learn a certain sports?
3. How does a coach's reinforcement or punishment influence a player's performance?
4. Does imagery training help the process of recovery in injured athletes?
5. Does running reduce anxiety and depression?
6. Does participating in youth sports cause young athletes to be overly aggressive?
7. Does participation in daily physical education classes improve a child's self-esteem?
8. Does participation in athletics enhance personality development?
    - Sports psychology applies to a broad population of people - seniors, children, people who exercise daily, elite athletes, average athletes, the physically and mentally challenged, coaches, teachers and fitness leaders
    - Sports psychologists conduct research, teach about what they have learned about sports psychology and also consult with athletes and coaches.

Motivation

- Motivation is a huge part of sports psychology. Motivation is made up of the direction of efforts and the intensity of efforts
- The direction of efforts is whether an individual seeks out, approaches or is attracted to a certain situation
- The intensity of effort is how much effort a person puts forth in a situation.

Arousal, Stress and Anxiety

- Arousal is general physical and psychological activity
- Anxiety is a negative emotional state with feelings of worry, nervousness and apprehension that is associated with the activation of the body
- Stress is an imbalance between that demands that someone feels and his or her feelings of capably to meet that demands – when failure of these demands has important consequences.

Why does Arousal Influence Performance?

- Arousal increases muscle tension and affects coordination. Too much tension can create difficulties as well as it affects attention.

Signs of Arousal and Anxiety
- Cold, clammy hands
- Constant need to urinate
- Profuse sweating
- Negative self-talk
- Dazed look in eyes
- Ill feeling
- Headache
- Dry mouth
- Difficulty in sleeping
- Increased muscle tension
- Butterflies in stomach
- Inability to concentrate
- Better performance in situations where you are not been evaluated.

Feedback and Reinforcement
- Reinforcement is the use of reward and punishments that will work to either encourage a certain action or decrease in the future. This is called classical conditioning
- There are two ways of using reinforcement – a positive approach and a negative approach
- The positive approach focuses on rewarding appropriate behavior – this increases the likelihood of this behavior happening again
- The negative approach focuses on punishing undesirable behaviors and should lead to a decrease of these behaviors in the future
- Most coaches and instructors combine positive and negative approaches, and sports psychologists agree that the predominant approach with physical activity should be a positive one as negative approaches instill fear in the participants.

Team Dynamics
- A team is a group. Teams differ a bit from groups though. A team is any group of people that work together to accomplish a shared goal
- Team members and team dynamics have to depend on and support each other to accomplish a shared goal.

Ways to Create an Effective Team Climate
- Foster social support – mutual respect and support enhance team climate
- Encourage proximity – closer contacts promote team interaction
- Create distinctiveness – the more distinct the group feels, the better the climate will be
- Practice fairness
- Foster similarity – the greater the similarity felt by the group, the closer the climate will feel.

Leadership
- Leadership is the act of influencing individuals and groups toward a set goal
- A leader can be both appointed by a group or emerge from the group naturally.

Communication Skills in Sports
- Good communication skills in sports are among the most important ingredients contributing to the performance and growth of exercise and sports participants
- The purposes of communication are persuasion, evaluation, information, motivation, and problem solving
- In sports, the typical leader is the coach
- Effective coaches demonstrate effective behaviors such as focusing on the positive and providing clear feedback and technical training
- The consequences of good leadership are satisfaction, cohesion, and performance.

Some Specific Qualities of Good Leaders Include
- Integrity
- Flexibility
- Loyalty
- Confidence
- Accountability
- Candor
- Preparedness
- Resourcefulness
- Self-discipline
- Patience.

Enhancing Performance - Psychological Skill Training (PST)
- There exists such a thing as PST that is used to enhance performance
- PST refers to systematic and consistent practice of mental skills
- PST is important because psychological factors are the primary key in the day to day fluctuations in performance.

Athletes and Coaches Find the Most Useful PST Topics to Be
- Arousal regulation
- Imagery and mental preparation
- Increased motivation and commitment
- Goal setting
- Confidence
- Attention and concentration
- Self-talk
- Mental plans
    - PST enhances performance
    - PST intervention must be tailored to each individual, practiced over time by different techniques such as combining imagery, self-talk and goal setting.

Phases of PST
- Educational phase

- Acquisition phase
- Practice phase
    - PST should be conducted by a sports psychologists or coach and be introduced in the off season
    - The mental training should be 10-15 min per day for 3-5 days per week
    - Mental training should continue through the athletes in season.

Steps to Designing a PST Program

- Discuss your approach with the athletes
- Assess the athletes mental skills
- Determine which psychological skills to include in the training
- Design a PST schedule
- Evaluate the program.

In conclusion, the power of psychology in sports today is unimaginable it may be an individual sports or team game. The positive emotions and the negative emotions rose to the occasion and influence the result of the game. Till date, all problems are focused by the sports psychologists and sports scientists with regard to the psychological problems facing by the athletes in and out of the play field, but yet the solutions have to come. In near future let us hope the perfect solutions in the form of a tablet or injections or medicines or method or exercise or training or counseling or guidance or for the negative feelings and hostilities resulting into negative emotions which are nightmare of an athlete.

Workshop Paper

Scientific Role of Yoga Techniques

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INTRODUCTION

Every human being is having their own goal to reach in the world. To achieve this man has running and working hard by nature. Today, we are living in the competitive and mechanized world. In the computer era, the lifestyle of the human beings is totally changed to run along with the technology development. The technology helped man to reap the benefits of its use. Sides-by-side, a lot of stress and tension are faced by the man are quite common. Due to chronic and acute stress, many psychosomatic problems occurred in the human body. This is mainly caused by the imbalances in the body-mind coordination. Whereas the yoga trains the body, mind and spirit to become strong and flexible, release stress and create inner peace, while developing a deep connection with one's spirit, intuition, and personal power. All of these are essential for living a healthy balanced life. Yoga postures also increase the range of motion in joints and muscles. It stretches muscles, releasing tension and reducing build-up of lactic acid. Holding the yoga postures builds stamina required for all in the lifetime.

When we analyze the yogic techniques (asana, pranayama, and meditation) each one has its own scientific physiological background to synchronize the body, mind, and soul. This will pave the way for the development of fitness, wellness, and health lifestyle.

This 5000 years old ancient Indian system of education for the body and mind is a practical aid, not a religion or a cult. Although, yoga originates in India, it is a spiritual science that can benefit any cultural background as we must remember not to confuse religion with spirituality. In the 21st century, yoga has lost some of its power in purpose. Yoga today has often become another form of exercise or fitness technique to increase one's flexibility through poses. Its purpose and intention for practice in the purest form and truest essence are often diluted if not completely ignored and forgotten.

The term "yoga" is used to indicate both the "End" as well as the "mean." In the sense of the "end," the word "yoga" signifies "integration" at its highest level. All the means that subscribe to reach this goal also constitute yoga, in the sense of "yukti" the means or technique. All the practices, whether high or low are calculated to help the progress of the aspirant toward such integration are together known by the name "yoga." Yoga is thus an integral subject, which takes into consideration man as a whole. It does not divide him into watertight compartment as body, mind and spirit, etc. Over the past several years, yoga has gained acceptance among all and with very good reason; its effects are both physical and mental state of an individual. At the same time, it has endless benefits including increased flexibility, strength, balance, prevention from sports injury, and improvement in the existing sports injuries and general health too. Further yoga helps to increase lung capacity and function which is a key part of any endurance sport. However, this is not anywhere close to where the benefits end for on top of all the physical benefits it also teaches the art of relaxation and improves concentration and focus.

Yoga teaches the practice of integrating the body and the mind. The science of yoga proclaims that yogic techniques and practices aim at selective as well as wholesome shaping of human body and mind. Hence, a selective package of yogic practices consisting asana (physical postures), pranayama

(breathing practices), and meditation (mental practices) was designed with performance norms intended to create positive impacts among the practitioners.

THE PHYSICAL POSTURAL PRACTICE ASANA

Yoga is based on a system of asanas (a Sanskrit word meaning "steady pose"), which are exercises and poses performed while using conscious yogic nasal only breathing to improve flexibility of both body and mind, mental concentration, balance, and strength, as well as, balancing emotions, toning and rejuvenating the muscles and nervous system, improving circulation, and massaging the body's internal organs and glands.

According to traditional belief, Lord Shiva is said to have demonstrated 84 lakhs of asanas, as many as are the living species, so as. However, a selective course of 15-20 asanas is sufficient to maintain or re-establish our perfect health and fitness as a whole. Here, the schedule should include asanas in erect, forward and backward bends, sideways twist (left and right) of the spinal column.

The prescription of yoga asanas also helps to develop the control and concentration of the mind. Being able to hold a posture with steadiness, relaxation and comfort require that a person is able to focus their mind for an extended period of time. This helps for developing strength and concentration in mind/body and is beneficial to playing sports at highly competitive levels. Swami Sivananda highlights this point; he highlights that steady and systematic practice of yoga will make the mind "very obedient and faithful" and make the practitioner "successful in every attempt."

Asana is those postures with dynamic moments oriented to create physical and physiological changes in the human system. It works on the principle of Sthiram-Sugam-Asanam (seat). Local compression of various structures affects the whole body during flexing and extending which in turn tunes the tissues locally so as to stimulate nerves, blood, lymph, endocrine organs, and neural plexus. Thus, the wide range of posturing, improving suppleness, and flexibility in the body are achieved particularly toning up the nervous system. Functions of all vital organs, stimulation of glands, and regulation of the blood flow are achieved by proper postures and the muscles in our body are thus firmed and strengthened.

ASANA PRACTICE

By flexing and extending the tissues locally so as to stimulate nerves, blood, lymph, endocrine organs and neural plexus. Thus, the local compression of various structures affects the whole body. We are giving all possible movements to the body by making our body into different postures, and hold on those postures for some time, then relax the whole body. Thus, the wide range of posturing, improving suppleness, and flexibility in the body are achieved. Particularly toning up the nervous system, functions of all vital organs, stimulation of the glands, and regulation of the blood flow are achieved by proper postures. The muscles in our body are thus firmed and strengthened.

Asanas also help to create harmony and balance between the mind and body and help to achieve a healthy body and stable mind; they are aids for controlling the mind through physical discipline. Through asana, the functioning and efficiency of internal organs are improved and this consequently effects all other parts of the body in a positive manner. Cells are nourished and revitalized and the internal functioning of body organs is enhanced. According to Yogic authorities, "yogic exercises are mainly designed to keep the proper curvature of the spine and to increase its flexibility," they also state that "balancing asanas develop the function of the cerebellum, the brain center that controls how the body works in motion, improve muscle coordination and posture including physical and nervous balance which helps to achieve grace and fluidity of movement."

Inverted asanas can be particularly beneficial to break bad habits and old patterns of behavior, for example, an inefficient swimming stroke or volleyball swing. For a professional athlete wishing to optimize their performance, it is essential that they have the ability to change body movements and behaviors as required to maximize efficiency and effectiveness. Inverted asanas change the normal patterns (both the emotional and psychic state) throwing a new light on old patterns of behavior and being. Inverted asanas can also help to improve health, reduce stress, and anxiety and increase self-confidence.

What is Pranayama?

As the practice of pranayama focuses on deep breathing while stretching, this diaphragmic breath not only helps with sinking into a deeper stretch but also circulates the body's lymph fluid which increases the bodies' capacity to cleanse and detoxify by 15%. By cleansing the body on a regular basis with this kind of breathing, the bodies' immune system is boosted, the blood is purified, and this results in increased health and vitality.

Pranayama is the practice of breathing exercises with the three scientific phases, namely, puraka (inhalation), kumbhaka (holding the air in the lungs), and rechaka (exhalation) in a progressive manner that works centrally and the effects spread to the periphery, too. One must understand that the objective of pranayama is to affect the proper balance between ida (moon breath) and pingala (sun breath) nadis and to gain the physiological, spiritual upliftment through the attainment of light and knowledge from the sushumna nadi. From the physical point of view, a proper balance among the nadis ensures health, strength, peace, and longevity. Pranayama has seasonal effects in its technique and practice. Hence, the selection of pranayama for the practice schedule should be

based on the seasonal requirements. During practice the three phases, inhalation, holding the breath and exhalation should be observed as 1:1:1 (initial stage), 1:2:2 (intermediate stage) and 1:4:2 (advanced stage) (Iyenkar, 1976).

As the practice of pranayama focuses on deep breathing while stretching, this diaphragmic breath not only helps with sinking into a deeper stretch but also circulates the body's lymph fluid which increases the bodies' capacity to cleanse and detoxify by 15%. By cleansing the body on a regular basis with this kind of breathing, the bodies' immune system is boosted, the blood is purified, and this results in increased health and vitality. Finally the yoga routine winds down having stretched all muscle groups in a balanced way. Every session ends with a brief meditation to quiet the mind, thus the endocrinal system has been tones up positively. At the end, a relaxation pose is being done for few minutes allowing the body to rest, renew, reset and integrate the yoga.

The deep rhythmic breathing performed in yoga also creates and builds up one's life force energies or prana. Hence, one actually creates more energy than is expended during a yogic session. The type of energy that gained is not from the caloric intake of our diet but from the cosmic energy source. Ultimately, it brings down the equilibrium state in the body and mind by enhancing the sympathetic and para-sympathetic activations in the body.

Various Breathing Mechanisms

1. Abdominal breathing is the diaphragm separating the thorax from the abdomen descends during inhalation with the bulging of the abdomen; it increases the air-flow into the lower sections of the lungs. The rhythmic movement of the diaphragm massages the organs of the abdomen gently and helps them to function normally. It promotes general circulation also.
2. Thoracic breathing is the middle lobes are opened up fully by this type of breathing.
3. Clavicular breathing is the sparingly used upper lobes of the lungs will be properly aerated by this breathing.
4. Full-yogic breathing is the science of "working in relaxation" and "attention without tension" is imminent in Pranayama. We learn to work without getting tensed up, with any overtones, and over-reactions. With lesser energy expenditure, we enhance the efficiency. Slowing the breath by systematic and gradual training of our respiratory system by various pranayamas does not turn us Tamasic, but by reducing the overtones of Rajasic, makes us more Sattivk and more efficient.

Anuloma - Viloma Pranayama

This pranayama helps in clearing up the nasal passages. With regular and long practice, flow of breath through each of the nostrils becomes smooth and slow. This pranayama is very useful for nasal allergy, deviated nasal spectrum.

Chandranuloma–Viloma helps in increasing weight and Suryaanuloma–Viloma in reducing the obesity effectively. Cleaning of Chandra and Surya Nadis is the first step to bring the balance between the two Nadis. They lead toward unfolding of the inner layers of Consciousness.

Surya Bhedana (SB), Chandra Bhedana (CB), and Nadi Shuddhi (NS)

These three pranayamas promote a balance between the sympathetic nervous system and parasympathetic nervous system. Metabolic rate is decreased as in all other pranayamas. SB increases digestive power, soothes and invigorates the nerves, and cleans the sinuses. These pranayamas bring about balance in prana in the pranamaya kosa which is vital to spiritual growth. Thus, the concentration, clarity of mind, memory, intelligence quotient (IQ) and creativity are enhanced by these pranayamas.

SB particularly for IQ (featuring the left brain), CB for the development of creativity and intuition (featuring the right brain) and NS for the rest are well-known benefits. The lop-sided growth of personalities can be effectively brought to a balance suitably by adjusting the practices of SB and CB pranayamas.

For example: An artist, as a creative person, needs his critical faculty to be sharp and hence SB is prescribed more. Similarly, a highly analytical mind can be balanced by developing the "heart" featured by love, affection, intuition, creativity, etc., practicing CB pranayama. Thus, personality change can be brought about effectively. The steady systematic practice of NS pranayama can bring balance – samatva-equanimity.

Kapalabhati and Bhastrika

Great freshness and agility are experienced in bhastrika. It is not only shattering of tamas and stagnation (moving to Rajas) but also reduction of overtones and hypersensitivities to increase the functional efficiency of the cells. It is a fine practice to remedy some of the dangerous effects of kumbhaka practice if done wrongly. Bhastrika activate and invigorate the liver, spleen, pancreas and abdominal muscles. Thus, digestion is improved, the sinuses are drained, the eyes feel cool and one has a general feel of excitement. The two effects of kapalabhati and bhastrika (KB) are washing away of carbon-dioxide from the lungs and increased oxygen concentration in the lungs. It generates prana to activate the entire body.

Ujjayi

Ujjayi strengthens the muscles of the epiglottis which helps in reducing snoring. It helps in voice culture. This type of pranayama aerates the lungs, removes phlegm, gives endurance, soothes the nerves and tones the entire system. Ujjayi without retention, done in a rest position, is ideal for persons suffering from high blood pressure. Tonsillitis, sore throat, chronic cold and bronchial asthma are greatly reduced

by ujjayi. Hypersensitive throat, cough, excessive hiccups are also helped by practicing ujjayi.

Sukha Pranayama

This pranayama can work wonders in reducing the stresses and tensions; increasing memory, concentration power to improve the quality of life and to promote positive health. Sukha pranayama reduces the basal metabolic rate, increases the vital capacity, strengthens the immune system and used under all conditions for rehabilitation. This pranayama is used even by cancer patients.

Sitali, Sitkari, and Sadanta

All the three pranayamas are helpful in relaxing the muscles, soothes the nervous system, eyes and the ears, and even to reduce the basal metabolic rate effectively. We feel light and fresh after performing these three pranayamas. The taste buds and the mouth are sensitized and the vital capacity of the lungs enhanced. Allergies due to cold can be effectively overcome by the prolonged practice of these pranayamas. These help in reducing the stresses and tensions effectively. Sadanta is useful for reducing problems of the teeth and gums - decaying teeth, toothache, pyorrhea, etc. Sitkari is of great value for hypertension. These pranayamas are beneficial in cases of low fever and biliousness. It activates the liver and the spleen, improves digestion and relieves thirst.

Swana Pranayama

This pranayama helps to release the carbon-dioxide more forcefully from the lungs. It also eliminates the toxins from the body, thereby increasing the level of energy in the system. It has a direct impact on the renal region and the kidneys because of the panting movement and expulsion of the sound “Ha” on exhalation.

Savitri Pranayama

As we practice antara kumbhaka and bahya kumbhaka after inhalation and exhalation, respectively, carbon-dioxide is released from the body; the blood is purified of toxins. It also induces a tranquil mind, clarity of thought and improves concentration. The flow of energy in the ida and pingala nadis is balanced.

Naga Pranayama

This pranayama channelizes the pranic energy into the proper energy centers and this pranayama also increases the breathing capacity, expanding the thoracic region and keeping the lungs elastic.

Physiology of Meditation

Meditation is a systematic method of mental practice that gives a complete mental, physical, and emotional relaxation. Meditation is the art of relaxation and progressive freedom. It is the most beautiful experience man can have. He slowly gains awareness of everything his body, his mind, his conscious self. He is aware and watchful of himself in all situations and is thus able to respond to changing situations with ease and calm. The motionless, silence of sitting meditation requires only a little amount of oxygen. Thus, during meditation respiration will become slower, smoother and rhythmic in nature. The following are some of the simplest techniques of meditation. Silent meditation, mantra meditation, objective meditation and breathing meditation.

During meditation, the following are the main physiological changes occurs in our body. Heartbeat and breathing rates slow down. Oxygen consumption and metabolic rate falls by 20%. The blood lactate level drops. This level goes up with stress and fatigue. Skin resistance to electric current increases fourfold, a sign of relaxation. Electroencephalogram readings of brain wave patterns had shown increased alpha activity again a sign of relaxation.

CONCLUSION

As such, yoga is beneficial to mankind as it enables them to strengthen their concentration ability, foster a calm and relaxed mind, enhance the mind/body connection allowing the person to have greater muscle coordination and fluidity of movement. Yoga is also beneficial to a professional people as it positively contributes to the health and vitality of the body, strengthens internal organs such as the heart, lungs, and liver and helps to maintain fitness and agility. Yoga also helps to reduce stress and anxiety, cultivate self-confidence and self-belief. Ultimately, it brings down the equilibrium state in the body and mind by enhancing the sympathetic and para-sympathetic activations in the body. All of these elements are pivotal to maintain good health and fitness. The systematic yogic practices would make the homeostasis in the body systems as well as the enhancing nature of the body, mind co-ordination the human behavior and thoughts are regulated. It will induce the good lifestyle modifications in mind, based on this every man can enjoy the happiness within us in their lifetime.

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Workshop Paper

Traditional and Modern Concepts in Body Composition and Measurement Norms

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The study of human body composition is a branch of human biology which focuses on the *in vivo* quantification of body components, the quantitative relationships between components, and the quantitative changes in these components related to various influencing factors (Wang et al., 1992).

Conjecture on human body composition can be traced back to antiquity. During 440 BC. Hippocrates, the father of medicine, proposed an idea that as a whole organizm the human body is composed of four constituents, blood, phlegm, black bile, and yellow bile. A similar hypothesis was also proposed by ancient Chinese scholars, who suggested that there were five elements in the human body including mental, wood, water, fire, and earth. A good health was achieved through a balance of the five elements, and any imbalance resulted in disease. However, these ancient ideas were not based on experiments. Avicenna (980-1037) in the Arabic world authored canon medicine, which provided knowledge or organ size. 500 years later, Andreas Vesalius, also reported information on organ size and mass. As a branch of modern science, the study of human body composition has a history of about 150 years which can be roughly divided into two periods, early and recent periods.

Out of all, body mass index (BMI) has the most popularity and wider use in the field of body composition. First introduced in mid 1800s, BMI an index based on height and weight has been said to be an indirect measure of body fat. As a measure of body fat, however, BMI has serious flaws. It does not, for example, take age, sex bone structure, fat distribution, or muscle mass into consideration. For these reasons and others, BMI can misrepresent the quantity it is used to measure. There are three main issues to consider when using BMI, namely, (1) errors stemming from the fact that BMI is an indirect measure of obesity, (2) errors in self-reported data, and (3) the poor sensitivity and specificity of BMI. These problems result in misclassification of individuals with respect to body fat, and that misclassification, can in turn, introduce bias in studies that deal with body fat such as those estimating the effects of obesity on health outcomes. BMI is defined as weight divided by height squared (kg/m^2). As it is based on only weight and height, BMI does not measure body fat directly. As an indirect measure of obesity, BMI has several drawbacks. For example, a person's percentage of body fat is known to increase with age, whereas muscle mass decreases, but the person's weight and height do not necessarily reflect such changes in body fat and muscle mass. Some elderly persons who are portly but have low muscle mass have normal or even low BMI scores, an underestimation of body fat. Furthermore, lean persons with high muscle mass, such as athletes, sometimes have high BMI scores, an overestimation of body fat.

Another point to be considered the trends in the BMI for the past many years. Over the past several decades, there has been an increase in BMI in the general population. This has resulted in predictions of a public health disaster. It should be recognized that in the United States during the period from 1960 to 2002 not only has the mean weight increased by 24 lb among men aged 20-74 years but also the height has increased by about 1 in. We can then calculate that the weight increase per year has only been 0.57 lb, and as indicated above, this could be due to an increase in lean mass rather than fat mass, or it may be a combination of the two. In women, there was a similar increase in weight and height.[40]

In an earlier report, life-insured men up to age 40 years were reported to be 0.5-1.5″ taller and 2-9 lb heavier for the same height in 1959 than those studied 50-60 years before 1959.

Furthermore, in the earlier study, the mortality rate was lowest in those with higher weight-to-height ratios. This was attributed to the presence in the population of wasting diseases such as tuberculosis that resulted in an increased death rate.[13] Previously, a secular upward trend in height in adults in the United Kingdom also was reported.[60] In addition, in a twin study in the United Kingdom, children in 2005 were not only heavier but also taller than 1990 norms, whereas their BMIs were essentially the same.[3]

Overall, the history of changes in height and weight in Western European men and probably women has been that of an increase in both weight and height. In the 17th century, the average height of men in Northern Europe was ~5 ft 3 in. It now approaches 6 ft.[61] These data suggest that the BMI categories should be adjusted upward periodically to accommodate population-based changes. Improvements in mortality rates also suggest an adjustment would be useful.

In many studies (Rothman, 2007; Heymsfield et al., 2011), it is found that BMI as a measure of body fat is inaccurate and can lead to bias in measuring the effects of obesity on health outcomes. Beyond errors stemming from self-report inaccuracies, the problems stem from the fact that BMI does not take into account: (1) The difference between fat and nonfat mass such as bone and muscle, (2) the changes in body composition that occur with age, and (3) the time relation between obesity and the outcome being measured. Any calculations of risk ratios, risk differences, or attributable proportions will reflect the error inherent in BMI as a measure of obesity and potentially be biased.

The most common laboratory methods for assessing body composition include hydrodensitometry (hydrostatic, or underwater, weighing); air displacement plethysmography (ADP), using a BOD POD; isotope dilution for measuring total body water; dual-energy X-ray absorptiometry (DEXA) (Wagner and Heyward, 1999). Field techniques, which are usually simpler and less expensive, include skinfolds, anthropometric measurements (e.g., BMI, waist circumference and waist-to-hip ratio), near-infrared interactance, and bioelectrical impedance analysis (BIA). Ultrasound, computed tomography, and magnetic resonance imaging are also available but are less common and generally impractical due to a lack of availability, cost and technical complexity (Wagner and Heyward, 1999). A comparison of some of these techniques is included in Table 1.

Hydrodensitometry, ADP and isotope dilution are all based on a two-compartment model that assumes that the body is made up of fat and fat-free mass, without consideration for the distribution of fat mass or the different components of lean body mass. DEXA, on the other hand, is a method that uses a three-compartment model, which has the advantage of being able to differentiate bone mineral, fat tissue, and lean soft tissue when determining percent body fat. Four-compartment models combine data from several different methods in an effort to further discriminate between the quantity and distribution of fat mass, and the individual components of fat-free mass including bone mineral, protein, and water (Wagner and Heyward, 1999; Davies and Cole, 1995).

Nowadays, there are well balanced electronic machines like sophisticated body analyzer which can exactly measure all the components related thereof. The following areas are to be well explored by physical educationists, physiologists, anthropometric experts, and all to get a clear picture on the body composition assessment for more accurate data in any scientific research.

BODY WATER (kg)

It covers the largest portion among body composition accounting for about 50~70% of body weight. It is distributed in the cells and body fluids. If we look into our body from a composition point of view, it is like a systemized sea water bag. Body water is mostly distributed at the cells which compose the muscle tissue and over 70% of water fills healthy person's muscle while minerals and body fat do very little.

PROTEIN (kg)

Protein is a complex of organic compound with nitrogen and it indicates the total amount of solid components. Protein has very close relationship with intracellular fluid and the lack of protein means the nutritional imbalance. However, this does not mean the protein in food. If there is a severe shortage in protein mass, it can bring symptoms such as loss of nails and toenails, amenorrhea, hair discoloring, muscle atrophy, fatty liver, and edema… Human body and consumes body composing proteins when there is shortage in energy provision in body.

This is an undesirable energy generation process and if excessive rates of such process continue for a long time of period, it could burden liver, kidney, and others. For growing children, protein is an essential component in particular. During a growth period, various parts of our body are developed especially skeletal structure and muscle mass. Therefore, it is necessary to have sufficient amount of protein during a growth period since major components of muscle is the protein.

MINERAL (kg)

During a growth period, when there is a dramatic growth in bones, it is necessary to have good mineral to ensure the smooth development of a skeleton structure.

BODY FAT (kg)

Fat-free mass is the sum of body water, protein, and mineral. Thus, body analyzer machine uses the following formula to get the amount of body fat.

Body fat=Weight−FFM

=Weight−(Body water+Protein+Mineral)

The sum of body water, protein, mineral, and body fat which explained so far constitutes the weight.

Another assessment is looking to the body whether it is well balanced. This part shows the measured values of weight, skeletal muscle mass, and body fat mass and their relative comparison in figures and graphs. The figures next to the bar graphs indicate the measured values of each composition. The graphs consist of 10 steps, from 1 to 10, and the 4th and 5th step is the normal range. Where the face mark is stamped is where the examinee belongs to. You'll get the smile face stamp if the status of each composition is good or you'll get the long face stamp if it is bad.

Weight (kg)

About 100% ideal weight indicates the ideal value for the examinee's height. The ideal weight is obtained from BMI ideal weight calculation.

*BMI ideal weight calculation ideal weight (kg) = ideal BMI (kg/m^2) × height^2 (m^2)

Ideal BMI follows young children's BMI by height and gender.

Skeletal Muscle Mass (kg)

Muscle in this part refers to the skeletal muscles attached to the bones. 100% ideal muscle indicates the ideal amount of muscle that one should have when the examinee has an ideal weight. In particular, as bone development actively progresses during a growth period, it is necessary to have a well-developed skeletal muscle mass to supports smooth growth of bones.

Body Fat (kg)

It covers the largest portion among body composition accounting for about 50~70% of body weight. It is distributed in the cells and body fluids. If we look into our body from composition point of view, it is like a systemized sea water bag. Body water is mostly distributed at the cells which compose the muscle tissue and over 70% of water fills healthy person's muscle while minerals and body fat do very little.

To check the growth of the body, the following mechanism is followed.

With the DSM-BIA (direct segmental multi-frequency BIA) measurement method, the Measures lean mass of each body parts. Therefore, based on the segmental lean mass, it is possible to find out whether the examinee's body parts are strong or not and well balanced or not. There are 14 cases in the squares, the development status of arms is where is stamped, and the development status of legs is where is stamped.

The body balance function verifies that the muscles in each part of the body are developed in a balanced manner, examining differences between the muscles in both arms to evaluate the upper body balance, in both legs to evaluate the lower body balance, and in both arms and legs to evaluate the upper-lower body balance.[6] Where am I in height and weight among my 100 friends? This part is to check an examinee's developmental status through a percentile graph that enlarges a growth curve according to his/her age and gender. Percentile is a score that shows one's relative position in the distribution of the group to which he/she belongs. The 50th percentile (50%) indicates a mean value, and if it is closer to the 50th percentile, it means one's growth is at a rate close to the middle. However, there is no need for worry if one falls between the 10th percentile (10%) and the 90th percentile (90%), rather than the 50th percentile. However, if one is lower than the 10th percentile (10%) or higher than the 90th percentile (90%), special care is necessary.

PERCENTAGE BODY FAT

Percentage of body fat indicates the percentage of body fat to body weight. The ideal percentage of body fat is 15% for men and 23% for women, while the standard range of body fat mass for men is 10-20% of the weight and 18-28% of the weight for women. In the case of children under the age of 18, children's standard is used. Children below 18 years of age have different ideal percentage body fat depending on their gender and height. The standard range is within ±5% of ideal percentage body fat. "Slightly over" refers to a stage with a risk of obesity and is when one has larger than or same as +5% of an ideal percentage body fat and smaller than +10% of an ideal percentage body fat. "Extremely over" is when percentage body fat is larger than or equal to +10% of an ideal percentage body fat.

Obesity Degree (%)

Obesity degree (%)=(current weight/standard weight by height)×100

Obesity degree is an index that determines obesity without considering individual body composition. The standard range stretches from above 90% and below 110%. Above 110% and below 130% is "overweight" and above 130% indicates "extremely over."

Basal Metabolic Rate (BMR)

BMR is a value obtained by substituting the fat-free mass of current examinee to a formula. The standard range stretches from above 90% and below 110%. Less than 90% indicates below standard and more than 110% is regarded as above the standard BMR. Ideal BMR is a value obtained by substituting the ideal fat-free mass of an examinee to a formula.

What is Growth Score?

Growth score is a unique score of body composition testing that shows test results in recognizable scores so as to help understand the growth stage of children by taking into account physique and body components. It considers not only children's body composition but also obesity index degree, and physique such as height and weight.

Using the modern body analyzer machines, the assessment is done as follows.

Body Composition Analysis

The measured values of the examinee's body composition show different modes of analysis. The body composition analysis of the body analyzer is derived from the 4-compartment model, which divides body composition into 4 components. These 4 compartments have a settled ratio in a healthy body.

Total body water

The total volume of water in the body: It is the mass measured in kilograms which is the basic unit of measure for body composition components. Therefore, the unit volume of water should be converted into a mass unit. It is a common known fact that the volume of 1 L is equal to the mass of 1 kg in water. This fact allows volume and mass to be interchangeable, i.e., used at the same time.

Protein mass (kg)

The mass of protein is a major component of limb muscle, intestinal muscle, and skin.

Mineral mass (kg): The sum of osseous mineral in the bone and non-osseous mineral in body fluid.

Body fat mass (kg): The sum of subcutaneous fat, visceral fat, and intramuscular fat.

Soft lean mass (kg): The mass of fat-free mass except osseous mineral in the bone.

Fat-free mass (kg): The sum of all body compartments except fat mass.

Muscle-fat Analysis

Bar graphs and values for weight, skeletal muscle mass and body fat mass are displayed here. The length of bar graph shows a percentage relative to the standard value (100%) and the value at the end of each bar is the measured value. The standard value (100%) is based on the standard weight of the examinee. When an examinee is on a diet or exercising for weight control, body fat mass and skeletal muscle mass get affected among the body compartments. Therefore, need to keep monitoring the changes of body fat mass and skeletal muscle mass performing a weight control program. Moreover, one can see the body composition goes along as expected.

Obesity Diagnosis

In obesity diagnosis, it looks into a combination of three components to get a better clear cut idea on the exact figure of obesity that how it is getting distributed over the body. This enables examinee's to check BMI, the classical method for obesity diagnosis, percentage of body fat and waist-hip ratio all at once. Bar graphs and numeric values are provided for each item and both of the length of bar graph and the number represent the absolute value. The ranges of under, normal and over make easier to compare each graph.

Weight Control

Weight control suggests fat and muscle control that leads to the balanced body composition to achieve ideal body composition. The (+) and (−) signs indicate an increase or decrease in the amount of control.

Weight control (kg)

The sum of the fat and the muscle control value showing amount of weight to be controlled.

Weight control=Fat control+Muscle control

Fat control (kg)

The amount of fat to be controlled for optimum body fat mass based on the results of body composition analysis.

Muscle control (kg)

The amount of muscle to be controlled for optimum muscle mass based on the results of body composition analysis. If fat mass is over the standard, it is suggested to lose fat. However, no suggestion for muscle loss is offered in the case of muscle excess. Although muscle is often lost during weight control, there is no document supporting intended muscle loss. Therefore, it proposes 0.0 kg for muscle control, which means no muscle control needed, when an examinee is overweight for excessive muscle mass.

Thus, a summary of the body composition analysis results sheet enables to check the results at a glance based on nutrition evaluation, weight management, and obesity diagnosis. Hence, it is recommended to have a comprehensive

look of exploring the various measures of body composition components to have a better reading in further research activities of the concerned.

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