The Online Journal of Recreation and Sport

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Message from the Editors

I am pleased to announce second volume and third issue of The Online Journal of Recreation and Sport (TOJRAS) in 2013. As the mission of journal is to stress the significance of different practices in the field of education by academic efforts and researches, selected research papers enlighten valuable contributions by different practice on the base of qualitative and quantitative researches, especially mix approach.

As this issue promotes how the journal is developing as regards its vision and mission, there are valuable researches and their studies that contributed to the journal. Therefore, I would like to thank to editorial board, reviewers and the researchers for their valuable contributions to the journal and this issue.

July, 2013
Prof. Dr. Erdal ZORBA
Editor in Chief

It is a great pleasure for me as an editor of The Online Journal of Recreation and Sport (TOJRAS) to publish July, 2013 issue. I would like to thank to all authors and associate editors for their contributions to the current issue of TOJRAS that selected papers reflect the journal developments and contributions by their rich research process. On behalf of the editorial team of The Online Journal of Recreation and Sport (TOJRAS), we will welcome to share your original and valuable researchers. All authors can submit their manuscripts to tojras.editor@gmail.com for the following issues.

July, 2013
Assoc. Prof. Dr. İsmail Hakkı MİRİCİ
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Barter System and Its Usability Ratio in Sports: Opinions of Sports Club Directors

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ABSTRACT

The purpose of this study is to determine recognition level of the barter system, its positive and negative aspects, its utility as an alternative financing model in the direction of the opinions of sports club directors. 'General scanning model' is utilized in our study which one of the descriptive scanning methods. Directors of the sports clubs carrying on activities in Turkey have constituted the population of the study; and sample group consisted of sports directors (f=179) of different branches that are selected randomly (football, volleyball, basketball and handball) and contending in the higher leagues. Cronbach's Alpha coefficient of the survey is determined as 0.74 according to the results of the replies given to the survey utilized in the study. Statistical package program is used to analyze the survey data. Frequency (f) and percentage distribution (%) analyses are utilized to specify the distribution of participants. At the end of the study, it is underlined that in general barter system is not known in the sports clubs, thus all clubs particularly directors should be informed about the system; and it is determined that barter system may be utilized as an alternative financing model in the sports clubs. It can be stated that clubs may eliminate economic difficulties they experience dramatically via exchange of goods and services they shall realize from numerous sectors carrying on activities in the system.

Keywords: *Barter System, Finance, Sports Club, Club Director. .*

INTRODUCTION

In view of today's globalization tendencies of enterprises having the aim of reaching different markets, growing by strong partnerships and increasing their profitability; enterprises may find themselves in a competitive environment and be dependent on foreign markets. In this current situation, efforts of trying to pursue the expansion in the national and international trading volume by means or existing finance and marketing techniques may be remain incapable from time to time (1).

One of the methods utilized by the enterprises to eliminate this incapability with the aim to increase their competitive power in the both national and international markets, to easily overcome the cash flow problem experienced in the crisis period is the barter system, which disappeared with the invention of money and returned back to the economic world stage together with the 1930 economic crisis. Barter system has been brought into business life as a new implementation which can cure the problems of enterprises by the related organizations; and system has made progress as of this date and has become one of the important actors of economic life (2).

Barter, an English-rooted word, expresses the agreement that is concluded between two parties and proposes exchange of one product with another without using any money. Barter means exchange of goods and services and is known as the single trading and financing method that is implemented starting from the stone age until today (3). In

this context barter means interchange or exchange in the simplest term (4). As a system, barter is defined as a trading system that has been developed by being inspired from exchange which is the oldest and simplest counter trading methods (5). Barter word does not have an exact equivalent, and "takas-exchange" and "trampa-interchange" words are frequently used instead of word barter. Definition of exchange is given in two ways in the dictionary of Turkish Language Association. Fist one is: "Settlement by gibing a product in return for a product, interchange"; second one is: "trading, payment of a trading realized by two countries mutually by means of goods" (6).

Mankind has utilized exchange method in the historical process together with starting agricultural production instead of hunting and collecting and adopting a sedentary life. This situation continued till Lydians found money in B.C. 700's, and barter economy gave way to monetary economy gradually (7). Goods and services pass into other hands without money or any other similar medium of exchange in the interchange method as the oldest trading form in the history of humanity, and this exchange process turned into a multilateral (multi-station) indirect goods exchange from a bilateral (two-station) goods exchange together with the invention of money (8).

Barter system is applied as an indirect goods exchange until 1930's (9). Financial consequences of depression in the big crisis period that affected all world in 1930's were 50 million people becoming unemployed, and decrease in the rate of 42% in the total production and in the rate of 65% in the international trade. Additionally liquidity crunch experienced in this period has reminded that gold, money and similar mediums of exchange are not goods and/ or services that meet the requirements of the enterprises, and they are only articles of exchange. Thus, barter system gaining currency especially in the Latin American countries, has become a preferential finance instrument (10). In this period, especially West European countries have made barter agreements between each other and realized exchange of certain food products and raw materials mutually (11).

When we came to 2000's trade volume of barter companies in the world has increased significantly, and number of barter companies established has reached 1596 (12). Specialists predict that barter system shall continue to grow rapidly in the following years, and 50% of whole world trade shall be realized by means of barter system (13).

When we examine barter applications in Turkey, it is seen that global crisis developed in the 1990's has influenced whole economy of Turkey, and particularly finance section. International financial providers stopped the investments made to developing countries including Turkey as a result of crisis, and institutional investors withdrew and converted their investments into cash, thus dimensions of the crisis have enlarged. Consequently, cash money became extremely valuable. In the presence of these problems, enterprises tend towards alternative finance and marketing instruments, thus barter system acquired currency in Turkey (14).

Turkish Barter International Company has realized the first barter application with its barter solutions developed for the sports clubs and by its barter sports structuring established. Barter project developed by Turkish barter for the sports clubs including Fenerbahçe, Galatasaray, Beşiktaş and Ankaragücü is introduced to the sports community as a risk free finance model. Project was realized with the aim to pay all debts to sporters from the barter pool, to enable football players who are looking for a club to go to the team they want against barter, and to meet all kinds of requirements of teams such as camps, accommodation, food, office equipment, etc. by means of barter system (15).

Benefits barter system shall provide to the sports clubs can be listed as follows: to make a purchase when profitable buy opportunity is encountered in the barter common market, to perform transfer supply in return of payment to be done to the sporter as the transfer fee of the sporter, and to facilitate transfer procedures of sports clubs in the market by utilizing a large spectrum such as one-to-one exchange, to utilize spare capacity by using multiple exchange together with the one-to-one exchange in the barter common market that operates according to logic of pool and to obtain the opportunity to increase the sales revenues (16).

When it is considered that even amateur sports clubs establish commercial enterprises to overcome the financial difficulties; barter system may be considered as an alternative finance model by which sports clubs can purchase their general and specific demands rapidly and free of risks in accordance with the logic of a business entity and offer solutions to various financial problems experienced in the sports clubs. In this context, purpose of this study is to determine the requirements of sports clubs to utilize barter system as an alternative finance model, the goods they can demand and supply from/to the system and negative and positive aspects of the system by means of the directors of sports clubs who decide on the finance models of the clubs.

INSTRUMENT AND METHOD

Directors of sports clubs that carry on activities in Turkey constitute population of this study which is realized to determine recognition level of the barter system, its positive and negative aspects, its utility as an alternative financing model in the direction of the opinions of sports club directors; and sample group consists of sports directors (f=179) of different branches that are selected randomly (football, volleyball, basketball and handball) and contending in the

higher leagues.

In order to prepare the data collection tool created to determine the opinions of sports directors about the barter system, local and foreign literature on this subject is reviewed. Additionally, opinions of three academic members and two owners of barter establishments who are considered to be specialists on this subject were received and the necessary amendments were made and survey to be applied is finalized.

'General scanning model' is utilized in our study which one of the descriptive scanning methods. Cronbach's Alpha coefficient of the survey is determined as 0.74 according to the results of the replies given to the survey utilized in the study. Cronbach Alpha value being higher than 0.70 shows that survey is reliable (17). Reliability is the feature of a measurement, a scientific explanation to show or explain the issue it wants to measure or explain viably and exactly (18). Statistical package program is used to analyze the survey data, and frequency (f) and percentage distribution (%) analyses are made to specify the distribution of participants. Results obtained from distributions are shown in the form of tables, findings are interpreted and required solutions are offered.

FINDINGS

In this section, there are statistical findings obtained in this study.

Table 1. Distribution of participations according to their duties in the sports clubs

Duty in the club	N	f	%
President		27	15.1
Member of the board	179	114	63.7
Secretary general		26	14.5
Manager		12	6.70

It is determined that 63.7% of the participants carried out duty as member of the executive board (f=114), 15.1% as president of the club (f=27), 14.5% as secretary general (f=26), and 6.70% as administrative manager (f=12).

Table 2. Descriptive findings related with the knowledge level of participants about barter system

Knowledge about the system	N	f	%
I have knowledge		30	16.8
I have knowledge to a certain extent	179	16	8.90
I have no knowledge		133	74.3

It is determined that 16.8% of the participant club directors has knowledge about barter system (f=30), 8.90% has knowledge to a certain extent (f=16), and 74.3% do not have any knowledge.

Table 3. Descriptive findings related with the source of recognition about the barter system

Source of recognition of the system	N	F	%
Newspapers and TV advertisements		17	9.5
Barter Broker (Customer representative)		9	5.0
By means of a member	179	10	5.6
Barter club publicity days		6	3.4
By web page		4	2.2
No information		133	74.3

It is established that the participant directors have acquired information from newspapers and television advertisements in the rate of 9.5% (f=17), from club members in the rate of 5.6% (f=10), from barter customer representatives in the rate of 5.0% (f= 9), from club publicity days of barter companies in the rate of 3.4% (f=6), and from internet in the rate of 2.2% (f=4). Also it is revealed that 74.3% of the sports club directors did not have any information about the barter system (f=133).

Table 4. Descriptive findings related with the requests of participants to use barter system as an alternative finance and marketing instrument and goods participants shall demand from the system if they had information about the system

		N	f	%
System employment	Its use shall be convenient		115	64,2
	Indecisive	179	2	1,1
	Its use shall not be convenient		62	34,6
Goods demanded from the system	Food and beverage		40	22.3
	Cleaning products		35	19.6
	Stationery		25	14.0
	Electronics	179	14	7.80
	Automotive		13	7.30
	Real Estate		3	1.70
	Textile		39	21.8
	Printing House		10	5.80

It is seen that 64.2% of the participants find the use of barter system as an alternative finance and marketing instrument convenient (f=115), 34.6% think its use is not convenient (f=62), and that 1.1% is indecisive (f=2). Additionally it is established that in general club directors shall request food and beverage from the system in the rate of 22.3% (f=40), and textile products in the rate of 21.8% (f=39), cleaning products in the rate of 19.6% (f=35).

Table 5. Descriptive findings related with the opinions of participants about the utilization of barter system in their clubs and advantages system provides for the club

		N	f	%
Whether or not system is used	Continuously used		20	11.2
	Used for several times	179	26	14.5
	Not used		133	74.3
Advantages system provided for the club	Eliminate cash flow problem		15	32.6
	Long term interest free borrowing opportunity		2	4.30
	Free of charge and efficient advertisement opportunity		1	2.20
	Opportunity of finding new customers and markets	46	5	10.9
	Facilitate sales of goods and services		7	15.2
	Elimination of unutilized capacity		10	21.7
	Warranty of receiving		5	10.9
	Improving recognition of goods and services		1	2.20

Participant directors stated that barter system is utilized in their clubs continuously in the rate of 11.2% (f=20), utilized for several times in the rate of 14.5% (f=26), and 74.3% of them indicated that system is not used in their clubs (f=133). In general, participants utilized barter system to eliminate cash flow problem in the rate of 32.6% (f=15), to eliminate unutilized capacity in the rate of 21.7% (f=10), and to facilitate sales of goods and services in the rate of 15.2% (f=7).

Table 6. Descriptive findings about the aspects of the barter system participants utilizing the system are dissatisfied

Negative aspects about the barter system	N	f	%
Lack of confidence towards the system		9	19.6
Goods deliveries not realized in time		6	13.0
Goods purchased from the system being more expensive than its equivalents		8	17.4
Being restricted with the goods in the system	46	7	15.2
Not being able to provide high quality goods		4	8.70
Problems experienced in pricing		5	10.9
Not being able to find the required goods in the system at any moment		7	15.2

It is observed that in general 19.6% of the participant club directors indicated lack of confidence towards the system (f=9), 17.4% found the goods purchased from the system expensive (f=8), and 15.2% was dissatisfied by barter system because goods required from the system were not found at any time (f=7).

DISCUSSION AND CONCLUSIONS

It can be said that participants have a command of the financial problems in their clubs, since most of the participants are the members of executive board in this study, which tries to establish the recognition of barter system, its negative and positive aspects, and current situation related with its employability as an alternative finance model (Table 1). 25.7% of directors stated that they have information about barter system, thus it may be stated that they are interested in this subject to a certain extent. On the other hand it is determined that 74.3% of participant directors did not have any information about the subject (Table2). When it is considered that the first barter company was established in 1992 (2), sports club directors are not aware of the system for a long time.

9.5% of the participants expressed that they got information about the system from newspapers and TV advertisements, 5.6% from members of the club. This situation may be interpreted as club directors have a smattering of the system (Table 3). Also it can be said that, companies that are members of the barter system and brokers (19) specialized in marketing of the system and manipulation of members are not giving interactive demonstrations. Thus, ratio of 3.4% of those having information about the barter club publicity days confirms this perspective (15).

In this study, it is determined that directors of sports clubs are using barter system mostly to overcome cash flow problems (Table 4). It draws attention that 25.7% of the directors who are using barter system in their clubs, explain lack of confidence towards the system as goods deliveries not realized in time, products purchased from the system being more expensive than its equivalents, being restricted with the goods in the system, not being able to procure high quality products, experiencing problems in pricing, not being able to find the required products in the system at any moment (Table 6). These ratios may be interpreted as most of the directors do not know the system, and those who know the system and are using it encounter unfavorable conditions (Table 5).

We see that Gaziantep and Gençlerbirliği sports clubs have examined barter system after barter sports project was submitted to the Turkish Football Federation by Turkish Barter A.Ş. in 2003. Also, it is seen in the research realized that Galatasaray, Fenerbahçe, Ankaragücü and Beşiktaş sports clubs are members of the system (20). After the investigation they have performed, club executives have stated that barter system is significant in terms of creating resources for the club and not to overspend (21).

Sports club directors, trying not to compromise on the budget and to stabilize their budget, have stated their discontents about the system, by the reason of goods purchased from barter common market are more expensive in

comparison to their equivalents as it is mentioned above. In the interview realized with Zafer Önder İpek, former general manager of Gençlerbirliği Club, he told us they have purchased detergent from the barter common market in exchange for advertisement, however price of the detergent was more than the market conditions, thus they would purchase more goods from the system if goods were sold at the market prices; this situation supports our findings. It may be stated that such problems should be eliminated to improve the usability of the system and increase the number of clubs that are members of the system.

Since barter system means utilization of lots of goods and services without spending cash money; it can be said that sports clubs shall obtain the opportunity to convert the abstract services provided for their spectators and fanbase to concrete assets and utilize the system for the benefits of the club. When the club directors are members of the barter system, they can present on-site and off-site advertisements, match tickets, organizations and their licensed products and in exchange accept services such as cleaning products, textiles, stationery, transportation, accommodation.

In this context, it seen in the literature review that Galatasaray Sports Club, utilizing the barter system, has started a new implementation in Florya. Yellow-red directors gave information about a new implementation to the press following Galatasaray by saying *"We will have an advertisement request from media institutions that want to make an interview. They shall give opportunity of advertisement in their newspapers and televisions in exchange for the interview. "* (7). Thus, it can be said that Galatasaray Sports Club is trying to acquire more sponsors by making sponsor advertisements with the aim to carry the advertisements of sponsor companies in the newspapers and televisions.

It is seen from the findings of the study that the most important problem of the clubs is the problem of cash flow. It is considered that barter system that provides opportunity of zero-interest credits shall be a significant instrument to eliminate this problem. When the sports clubs utilize barter system, they can have the possibility to use the cash money they reserved from the budget for the infrastructure investments and growth without the need of an additional fund to eliminate the financial problems. One of the most important factors causing sports clubs to get pushed for cash is the inefficient marketing of the sports services produced. The most significant advantage of barter system is the opportunity of efficient marketing, thus system provides the opportunities for the clubs to get out these bottlenecks they experience.

As a consequence, it is determined in this study that sports club directors can use barter system in their sports clubs as an alternative finance model, and overcome the economic crisis clubs experience by means of goods and service exchange they shall realize from many sectors carrying on activities in the system.   Also it can be stated that barter system is not known by the directors of sports clubs, thus all clubs, particularly directors should be informed about this system.

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Comparing Results of Biomechanical Analyses of Raw Data Determined using AutoCAD Software with Those Determined by an AutoMatlab Software For the Annexation Movement Jump On a Pony and Hands Jump Forward in Gymnastics

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ABSTRACT

The study aims at devising a program that uses the Matlab package and also compatible with the AutoCAD software in order to automatically determine the biomechanical variables of athletic moves after feeding the program with minimum information within the movement and Comparing the results of biomechanical analyses of raw data determined using AutoCAD software with those determined by an AutoMatlab software For a number of Athletic performance moves. As the researcher recognized the fact that the number of researcher that are capable of kinematic analysis are limited , and they spend hours to determine the biomechanical variables in their researches, the researcher set fourth the problem of the study in questioning if it is possible to write a program capable of determining the largest number of biomechanical variables with highest precision and shortest time. Thus the researcher set out to devise computer program to perform the task and optimize the time of the analyzer in determining his research's variables . The study hypothesized that the results can be precise and identical to the values of variables determined using the traditional analysis programs and methods. The sample of the study was the Iraqi male and female champions in Gymnastic in the amateur category. The researcher adopted the descriptive method which is appropriate with the nature of the study. The results of the study's variables were presented first using the traditional methods from and then the results using the devised program and comparing them . The researcher concluded that Matalab and AutoCAD packages can be tuned with the aim of determining the kinematic variables including the joints of the human body during the athletic movement. The work was a result of collaboration between researcher in the fields of biomechanics and computer science to developed such programs . The study shows that there are no differences in the results of biomechanical analyses of raw data determined using AutoCAD software with those determined by an AutoMatlab software.

Keywords: *AutoMatlab, Biomechanical Analyses, Annexation Movement*

INTRODUCTION

Biomechanics analysis is considered the first step in expounding the details in any study that attempts to investigate the dynamic actions either in sports or any other field of interest. The researcher observed the positive current trend that converges to creativity in biomechanical kinetic analysis using powerful computrized analysis software that are capable of processing the variables of any dynamic movement in sports with both speed and precision. The research recognizes the contributions to this subject while proposing an a program written in Matlab language that can be added to relevant kinetic analysis programs including (AutoCAD, Photoshop, and video stream players) and used to decrease the time required to determine biomechanical variables when compared to the traditional manual methods. The importance of the study stems from its designed program that is capable of extracting the biomechanics variables automatically and precisely without the need to extract the variables manually through biomechanics law.

The study's problem

The researcher recognizes the fact that the numbers of researcher that are capable of kinematic analysis using the computer are limited, and those who do, spend hours to determine the biomechanical variables in their researches. Thus the researcher states the problem of the study through questioning if it is possible to write a program capable of determining the largest number of biomechanical variables with highest precision and shortest time?

The problem of the study in a nutshell is" to speed up the process of analysis using set after set of inputs after displaying the results of each speed ". Thus the researcher proposes a computer program to perform this task while optimizing the time of the analyzer in determining his research's variables. The program is easy to use by any researcher and this overcomes the bottleneck that encounters researcher when they have valid scientific ideas to investigate but lack the time for analysis.

The study's objective

Designing a program that works in the Matlab environment to automatically extract some biomechanics variables of an athletic performance in a relatively short time when compared to time spent working on AutoCAD.

The Scope of the Study

The methodology of the study was performed with the aid of one male and one female gymnastic champion in individual events on gymnastic apparatus. The tests were performed in the indoor gymnastic playgrounds in the Futowa sports club and Qarakush club both located in Nineveh /Iraq during the period between 11/12/2010 – 19/1/2010.

Key terms

Biomechanics**:** The science concerned with the internal and external forces acting on the human body and the effects produced by these forces through the laws that govern the movements of the human being, his systems and their interaction with the environment (Alsumaidai, 1987).

AutoCAD 2000i**:** Wide application engineering software that is mainly used in architectural engineering and construction plans. The program is used in sports science in extracting kinematic and kinetic values.

Matlab language**:** A two-word term meaning (matrix laboratory) referring to a numerical computing environment and programming language that allows high mathematical and logic computation on matrices with efficiency and precision (Brian D.Hahn, (1997), Gerad Blanchet (2006)).

Automatlab **:** A term consisting of two parts .The first part is taken from the first part of Autocad and the second is taken from the matlab. The term is used to denote the program that is designed by the researcher.

Digital images**:**The researcher defines the digital image as a number of picture element (pixels) that are spatially separated or organized. Each pixel is a scalar proportional to the brightness. Color image measures the intensity and chrominance of light. Each color pixel is a vector of color components The digital images are processed by the computer through Matlab by dividing the image into thousands of colored pixels in order to process each pixel separately. The pixels are represented by a two-dimensional matrix and the row and column index defines the location of the pixel in the digital image. A digital image is a discrete two-dimensional function of (x,y) which has been quantized over its domain and range . Without loss of generality, it will be assumed that the image is rectangular, consisting of rows X and Y columns. The resolution of such an image is written as (X x Y) (Torsten Seemann 2002).There are various input methods to feed the image into the computer including digital cameras . As the image consists of pixels, the quality of

the image increases with the number of obtained pixels and the size of the image is determined by the number of pixels. The images used in the study were colored images.

The nature and importance of biomechanics analysis

The main purpose behind biomechanics analysis is to determine the level of performance of athletic movements and skills in various sport events including gymnastic. The analysis aids specialists, researcher and trainers to recognize the points of strength and weakness in the level of performance of the athlete and to evaluate the performance objectively and scientifically. However, the analysis is incomplete if it overlooks the biological interaction between the human body and forces acting with it because the movements of the human body parts are linked to physical forces based on the neurological system as well as various other body parts and system (Mahjoob, 1990). Thus Biomechanics analysis of the motor performance is an objective method to evaluate and develop the performance. It aids in selecting the best possible moves and positions that can be utilized by the athlete in a certain performance (Hussam Aldeen 1993).

Matlab in the field of Computation

Determining, sampling and analyzing data and parameters.

Arithmetic and logic computation.

Developing algorithms

Sampling, simulating and designing primary project plans.

Engineering and scientific drawing (www.mathworks.com).

METHODOLOGY

The method adopted is descriptive based on the nature of the study. The study sample included two gymnastic champions (one male and one female) gymnastic champions that were deliberately selected and were equal in age, training experience and their mass which was 25 kg.

The biomechanic variables used in the study:

Total horizontal displacement , Total motion time , Horizontal speed ,Horizontal inertia, Horizontal force, Horizontal work ,Horizontal energy ,Kinetic energy ,Potential energy and Total energy

The algorithm

Forming an image in AutoCAD that represents the dynamic analysis of the athlete.

Reading the colored image that contains the analysis.

Input the mass of player and number of images.

Determining the dimensions of the image (rows, columns and color).

Determine the pixels that represent the beginning and the end of the motion through image processing.

If the pixels that represent the beginning and the end of the motion are not identified GOTO END.

Determine the horizontal scale of the image through two pixels by recognizing the color value.

If the horizontal scale is not identified GOTO END.

Determine the biomechanical variables.

Display the calculated biomechanical variables' values.

Determine the pixels that define the height the athlete from a certain point from the horizontal and vertical distance of the pixels.

If the height pixels were not identified GOTO END .

Determine the vertical scale of the image through two pixels by recognizing the color value.

If the vertical scale is not identified GOTO END.

Calculate the values of potential and total energy.

Display the values of potential energy and kinetic energy

End

RESULTS

The Biomechanics Results for the Tuck jump on the pommel horse as shown in the image in appendix .

Table (1) The Biomechanics results for the jump move on the Pommel horse using the traditional software and the designed program

AutoCAD		Auto Matlab	
Biomechanics variables	Value	Biomechanics variables	Value
Total horizontal distance	1.921 m	Total horizontal distance	1.921 m
Total motion time	0.960 s	Total motion time	0.960 s
Horizontal speed	2.001 m/s	Horizontal speed	2.001 m/s
horizontal inertia	50.025 J	horizontal inertia	50.025 J
horizontal force	52.100 N	horizontal force	52.100 N
horizontal work	100.084 J	horizontal work	100.084 J
horizontal power	104.254 W	horizontal power	104.254 W
Kinetic energy	50.050 J	kinetic energy	50.050J
Potential energy	160 J	potential energy	160 J
total energy	210 J	total energy	210 J

The biomechanics results for the forward arm jump move on the floor mat using the traditional software and the designed program as shown in the diagram in appendix 2.

Table 2 The biomechanics results of the jump move on the floor mat

AutoCAD		Auto Matlab	
Biomechanics variables	Value	Biomechanics variables	Value
Total horizontal distance	2.132 m	Total horizontal distance	2.132 m
Total motion time	0.840 s	Total motion time	0.840 s
Horizontal speed	2.538 m/s	Horizontal speed	2.538 m/s
horizontal inertia	63.450 J	horizontal inertia	63.450 J
horizontal force	75.525 N	horizontal force	75.525 N
horizontal work	161.019 J	horizontal work	161.019 J
horizontal power	191.689 W	horizontal power	191.689 W
Kinetic energy	80.518 J	Kinetic energy	80.518 J
Potential energy	236.312 J	Potential energy	236.312 J
total energy	316.830 J	total energy	316.830 J

CONCLUSIONS

Matlab and AutoCAD features can be combined to produce a high precision program.

The biomechanics variables of the investigated moves were determined automatically after feeding the designed program with the minimum of values.

RECOMMENDATIONS

The designed program can be used in analyzing all types of sport motion and moves.

Devising a program to determine kinematics variables of body joints during the sport movements .

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Evaluation of Physical Activity Levels of Female Teachers Working In the Province Of Karaman

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ABSTRACT

In this study it is purposed to evaluate physical activity levels of female teachers working in the province of Karaman. Study was conducted with 277 female teachers from various branches working in the province of Karaman. Physical activity levels of female teachers determined with Physical Activity Evaluation Survey (PAES). According to the findings obtained from study 19.7 % of the teachers are inactive, 30.9% of them are active enough for health , 49% of them are active.It was undestood that the teachers participated in study; 14,2% thin, 54,9% normal, 25,3% overweigth and 5,6% obese accordig to their Body Mass Index (BMI). Significant differences found between the Met/week and kcal/week values in terms of demographic and some anthropometric features of teachers (P<05).Among physical activity levels and demographic features and some anthropometric features of teachers among the range of r = .208 and r = .294 and r = .384 and r = .777 significant positive relationship was observed.Although it was observed that the physical activity levels of the teachers working in the province of Karaman were enough in terms of health; it was determined most of their physical activity was related to housework.Female teachers also often need to include activities such as work, transportation, stairs and sport index in their lives.The fact that teachers educating the future generations often include issues related to the importance and necessity of physical activity in classes and be model to their students in this issue, can contribute to the growth of healthy generations.

Keywords: *Physical activity, Demographic features, Anthropometric features*

INTRODUCTION

Education is the most important requirement of our age for individuals have the basic qualifications, get information, make social relationships and have a good career in the globalizing world. Science and technology is progressing rapidly today, to be able to keep pace with developments, to achieve material and spiritual satisfaction, to look at the world from a large window and to generate ideas by analytical thinking are possible with education.In the proper functioning of the educational process teachers undertook an extremely important mission.Although there have been studies in which physical activities of teachers examined in terms of different variables in recent years (Arabacı 2007; Şanlı 2008; Carlomogna et al. 2010; Gündüz et al. 2010; Yoncalık et al. 2011; Keegan et al. 2012), further research is needed.

Today, to live by improving the quality of life become an important issue as much as to live long. Physical activity has an important place to get old in a healty manner and to minimize age-related health risks. From childhood getting the regular activity habit, making exercise an indispensable part of daily life and at least increasing the amount of daily physical activity for each individual has a great importance in the protection of individual health and reducing health

threats to be faced in the future. The benefits of physical activity is important at any age. It is known that children and teenagers not giving importance to physical activity,sitting in front of the computers or television for hours are more prone to obesity. Children and adolescents spend most of their time by playing computer games, waching television and sitting (Reed et al. 2010).

Life standarts of people have increased depending on world-wide economic growth and technological developments.Though this situation makes the life easier for people, in many societies has led to the emergence of the epidemic of inactivity. Sedentary lifestyle has lead obesity that causing degenerative diseases such as type 2 diabetes, cardiovascular disease, stroke, cancer, lung disease, gall bladder disease and kidney disorders (Abadie ve Brown 2010).

Long-term studies conducted on adults show regular physical activity increases the level of health and physical fitness. Adults participating in moderate intensity physical activity has an increase in cardiovascular endurance, bone density, muscular strength and endurance.Being physically fit reduces the risk of cardiovascular disease, colon cancer, diabetes, early death and obesity (Seabra et al. 2008).

Physical activity is also associated with mental health as well as physiological health. Physical activity speeds up the general circulation ; increases noradrenaline and endorphin levels by increasing blood flow to the brain (Taras, 2005). In studies investigating the effect of physical activity on brain flexibility observed that acting increases brain-derived neurotrophic factor improving the learning and detection and neurotrophic factor has been edited by physical activity. Regular physical activity increases the structural changes in the hippocampus of brain that is an important area for memory. In addition, it icreases neurons, dendrites and synapses which are embeded in the necessary structural elements throughout the central of regular physical activity and peripheral nervous system (Reed et al. 2010). There is some evidence related to better understanding of exercise, regulation of mood and the production of new cells in literature (Shelton 2009). There is also strong evidence that physical activity reduces the risk of clinical depression . Physical activity and sport participation improve self-esteem, self-perception and psychological health (Bailey et al. 2009). Like physicological variables including depression, anxiety, stress, and self-confidence ; bone and muscle-skeletal functions also develop and get better. Also, improvements in the quality of work and life are associated with increased physical fitness and activity level (Paluska and Schwenk 2000; Eveland-Sayers et al. 2009).

Physical activity like age, gender, nutrition, and genetic structure is an important element that determines body composition.Physical activity is one of the main requirements of being healthy, having a balanced body composition and maintaining. For this reason, the acquisition of the habit of regular physical activity and being sustainable are extremely important.

Considering all these benefits of physical activity, the amount of physical activity levels of teachers that expected to model to students in upbringing   healthy generations gain importance.Therefore, in this study it has aimed determining physical activity levels of female teachers and evaluating the relationships between demographic features and some anthropometric features.

MATERIAL METHOD

The population of this study consists of female teachers working in primary and secondary schools attached to the Ministry of National Education during the academic year 2009-2010 in the province of Karaman.

Study sample consists of 277 voluntary female teachers randomly accessed in 35 different primary schools in the province of Karaman in the same year. Due to missing data of 44 female teachers participated in study, data of 233 teachers evaluated in all.

Collection of Data:

Physical activity habits of participants evaluated with Physical Activity Evaluation Survey (PAES) developed by Karaca (2000).In this survey regular activities at least once a week and duration of these activites discussed. Survey contains descriptive information (age, height, weight), activities related to work, activities related to school, transportation activities, walking up stairs, housework, activities doing as a hobby and sport activities (Karaca et al. 2000).The reliability coefficient of the value obtained from the sum of the six section of this survey found 68 by Karaca (2000). The validity of the survey evaluated with the activity log and correlation value determined as 72 .The intensity of activities recorded determined according to MET (Metabolik Equivalent) values. MET values of activities found from activity list developed by Ainsworth et al. (2011). MET/week values of activities calculated with formula developed by Karaca (2000).

MET/week = (The Frequency of Activity * Duration of Activity * Intensity of Activity)

MET/kcal week = (The Frequency of Activity * Duration of Activity * Intensity of Activity * Weight)

Table 1. Descriptive Statistics of Female Teachers (n=233)

Variables		Number	%
	21-28	62	26.6
	29-39	94	40.3
Age group	37-44	62	26.6
	≥ 45 and over	15	6.4
	Numeratical Teachers	36	15.5
	Verbal Teachers	89	38.2
Branch	Grade Teachers	76	32.6
	SST Teachers	32	13.7
	Thin	33	14.2
	Normal	128	54.9
Physique	Overweight	59	25.3
	Obese	13	5.6
	Inactive	46	19.7
PAL	Enough	72	30.9
	Active	115	49.4
Marital Status	Single	45	19.3
	Married	188	80.7
Have Children	Yes	69	29.6
	No	164	70.4
	1	67	28.8
	2	82	35.2
Number of children	3	14	6
	4 and more	1	.4

SST: Special Skill Teachers (Physical Education. Music. Art …)

PAL: Physical Activity Level

In research the ones who have less than 1000 kcal/week taken to inactive, the ones have 1000-2500 kcal/week to enough, the ones have higher than 2500 kcal/week to active group according to PAES (Baş Aslan et al. 2007). Body Mass Index (BMI) values calculated with participants' weight in kilograms (kg) value divided by the square of the value of height in meters (m).Teachers who have ≥25 BMI value as overweight,the ones have ≥30 classified as obese (Keegan 2012).

Statistical Analysis:

SPSS 17.0 statistical package program used to evaluate the data. Complience of observations to normal distribution was determined by Kolmogorov – Smirnov test. As all of the data shows normal distribution, Independent Sample T Test which is one of the parametrik tests used for comparing two independent groups and One-Way ANOVA Test which is also one of the parametric test used for comparing more than two groups.Correlation analysis done for relationships between variables. In this study, the error level was .05.

FINDINGS

Table 2. Comparison The MET Values of Female Teachers According to Their Marital Status

Variables	Single (n=45)		Married (n=188)			
	X	S	X	S	t	P
Work Index Met/week	51.18	10.791	54.38	23.688	-.883	.378
Work Index Kcal/week	2984.60	856.980	3484.08	174.627	-1.868	.063
Transportation Index Met/week	31.24	20.951	27.41	22.884	1.024	.307
Transportation Index Kcal/week	1763.31	113.767	1752.88	149.540	.044	.965
Housework Index Met/week	997.11	387.231	1562.28	722.739	-5.069	.000*
Housework Index Kcal/week	58985.38	287.420	99328.94	478.558	-5.416	.000*
Hobby Index Met/week	24.91	72.874	6.14	44.571	2.210	.028*
Hobby Index Kcal/week	1298.00	354.909	378.81	253.641	2.011	.046*
Stairs Index Met/week	13.33	89.443	38.03	143.489	-1.103	.271
Stairs Index Kcal/week	653.33	438.693	2750.05	106.067	-1.298	.196
Sport Index Met/week	15.02	39.636	18.49	62.755	-.354	.723
Sport Index Kcal/week	874.38	235.964	1127.04	372.123	-.435	.664

*P <.05

Understood that there is a statistically significant difference (P<.05) in favor of married teachers between housework index and hobby index Met/week and kcal/week values of female teachers according to their marital status from the information of Table 2.It was not found a statistically significant difference (P>05) among work index, transportation index, stairs index and sport index Met/week and kcal/week values

Table 3. Comparison The MET Values of Female Teachers According to They Have Children or not

Variables	Have children (n=69)		Have not children (n=164)			
	X	S	X	S	t	P
Work Index Met/week	50.33	10.304	55.20	25.022	-1.563	.119
Work Index Kcal/week	2993.79	805.692	3553.31	1835.651	-2.433	.016*
Transportation Index Met/week	29.67	22.936	27.52	22.399	.657	.512
Transportation Index Kcal/week	1726.55	1323.949	1766.82	1479.769	-.195	.845
Housework Index Met/week	1058.07	387.870	1619.34	744.491	-5.928	.000*
Housework Index Kcal/week	6357.06	2739.728	103301.43	4933.521	-6.288	.000*
Hobby Index Met/week	16.25	59.826	7.04	47.673	1.245	.214
Hobby Index Kcal/week	846.52	2919.517	434.25	2708.225	1.036	.301
Stairs Index Met/week	18.55	101.652	39.45	146.544	-1080	.281
Stairs Index Kcal/week	1148.99	6442.144	2848.35	1081.587	-1.216	.225
Sport Index Met/week	14.32	38.226	19.30	65.787	-.588	.557
Sport Index Kcal/week	827.17	2240.885	1183.87	3907.243	-.710	.478

*P <.05

According to Table 3, there is a statistically significant difference (P<.05) in favor of female teachers have not children; between work index, kcal/week , housework index Met/week and kcal/week values. Whereas, observed that there is a statistically significant difference among work index Met/week, transportation index, hobby index, stairs index, sport index Met/week and kcal/week values (P>05).

Table 4.Comparison The Met Values of Female Teachers According to Their Age Group

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Age Groups	Work Index Met/week	between the groups	1526.124	508.708	1.070	.363
	Work Index Kcal/week	between the groups	2.26687	7554835.607	2.953	.033*
	Transportation Index Met/week	between the groups	1484.583	494.861	.975	.405
	Transportation Index Kcal/week	between the groups	1.10847	3693840.662	1.819	.145
	Housework Index Met/week	between the groups	1.00857	3361287.504	7.276	.000*
	Housework Index Kcal/week	between the groups	5.124610	1.708410	8.266	.000*
	Hobby Index Met/week	between the groups	8430.627	2810.209	1.056	.369
	Hobby Index Kcal/week	between the groups	2.83397	9443167.112	1.232	.299
	Stairs Index Met/week	between the groups	273791.071	91263.690	5.290	.002*
	Stairs Index Kcal/week	between the groups	2.06569	6.88528	7.893	.000*
	Sport Index Met/week	between the groups	23406.097	7802.032	2.283	.080
	Sport Index Kcal/week	between the groups	8.21537	2.73817	2.277	.080

*P <.05

When Table 4 examined, understood that work index kcal/week, housework index and stairs index Met/week and kcal/week values shows a statistically significant difference (P<05).It could not found a statistically significant difference among work index Met/week, transportation index, hobby index and sport index Met/week and kcal/week values (P>05).

Table 5.Comparison The MET Values of Female Teachers According to Their Branches

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Branch	Work Index Met/week	between the groups	3869.238	1289.746	2.772	.042
	Work Index Kcal/week	between the groups	2.24047	7467698.128	2.917	.035*
	Transportation Index Met/week	between the groups	3840.686	1280.229	2.573	.055
	Transportation Index Kcal/week	between the groups	1.67087	5566255.328	2.774	.042*
	Housework Index Met/week	between the groups	182793.724	1280.229	1.223	.302
	Housework Index Kcal/week	between the groups	5.96159	3.30727	.878	.453
	Hobby Index Met/week	between the groups	27805.862	9268.621	3.597	.014*
	Hobby Index Kcal/week	between the groups	9.92147	3.30757	4.497	.004*
	Stairs Index Met/week	between the groups	37655.521	12551.840	.687	.561
	Stairs Index Kcal/week	between the groups	1.32228	4.40617	.461	.710
	Sport Index Met/week	between the groups	637.589	212.530	.060	.981
	Sport Index Kcal/week	between the groups	141663.173	472212.724	.038	.990

*P <.05

Table 5 stated that there is a statistically significant difference (P<05) between work index and transportation index kcal/week and hobby index Met/week and kcal/week values of research group according to branches. There is not a statistically significant difference among work index and transportation index Met/week , housework index, hobby index, stairs index and sport index Met/week and kcal/week values (P>05).

Table 6. Comparison The MET Values of Female Teachers According to Their Physique

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Physique	Work Index Met/week	between the groups	2244.102	748.034	1.583	.194
	Work Index Kcal/week	between the groups	9.30187	3.10017	13.77	.000*
	Transportation Index Met/week	between the groups	1080.109	360.036	.707	.549
	Transportation Index Kcal/week	between the groups	937296.043	312432.681	1.533	.207
	Housework Index Met/week	between the groups	660818.026	220272.675	.438	.726
	Housework Index Kcal/week	between the groups	4.937210	1.646610	7.933	.000*
	Hobby Index Met/week	between the groups	17961.891	5987.297	2.285	.080
	Hobby Index Kcal/week	between the groups	3.89867	1.29997	1.706	.167
	Stairs Index Met/week	between the groups	130077.512	43359.171	2.425	.066
	Stairs Index Kcal/week	between the groups	1.31749	4.39158	4.853	.003*
	Sport Index Met/week	between the groups	9060.762	3020.254	.868	.458
	Sport Index Kcal/week	between the groups	4.25587	1.41877	1.163	.325

Understood that there is a statistically significant difference (P<05) among work index, housework index and stairs index kcal/week values of female teachers acording to their body structure from the data in Table 6. But, it could not found a statistically significant difference among work index, housework index, stairs index Met/week, transportation index, hobby index, sport index Met/week and kcal/week values (P>05).

Table 7. Comparison The MET Values of Female Teachers According to Their Physical Activity Levels

	Variables	Source of Change	Sum of Squares	Squares Mean	F	P
Physical Activity Levels	Work Index Met/week	between the groups	62.439	31.219	.065	.937
	Work Index Kcal/week	between the groups	343579.09	1717897.046	.653	.521
	Transportation Index Met/week	between the groups	1086.518	543.259	1.071	.344
	Transportation Index Kcal/week	between the groups	745693.59	3728466.796	1.829	.163
	Housework Index Met/week	between the groups	7.52747	3.76417	213.196	.000*
	Housework Index Kcal/week	between the groups	3.118811	1.559611	168.584	.000*
	Hobby Index Met/week	between the groups	5820.531	2910.266	1.093	.337
	Hobby Index Kcal/week	between the groups	1.82197	9104007.790	1.186	.307
	Stairs Index Met/week	between the groups	120991.90	60495.950	3.391	.035*
	Stairs Index Kcal/week	between the groups	6.38978	3.19538	3.433	.034*
	Sport Index Met/week	between the groups	20844.241	10422.120	3.053	.049
	Sport Index Kcal/week	between the groups	7.47637	3.73827	3.114	.046

P <.05

There is a statistically significant difference (P<05) between housework index and stairs index Met/week and kcal/week values of female teachers according to their physical activity level.It could not found a statistically significant difference (P>05) when work index, transportation index, hobby index, sport index Met/week and kcal/week values evaluated.

Table 8 .Demographic Features of Female Teachers,Correlation Matrix on Their MET Values

Variables	Total Met/week	Total Kcal/week	Age	Marital Status	Children Status	Number of Children	Branch
Total Met/week	1						
Total Kcal/week	.927**	1					
Age	.114	.208**	1				
Marital Status	.309**	.332**	.337**	1			
Children Status	.361**	.382**	.448**	.754**	1		
Number of Children	.341**	.394**	.541**	.616**	.817**	1	
Branch	-.089	-.059	.242**	.037	.060	.107	1

** P <.01.

It has seen that there is a positive relationship 01 that vary between r=.208 and r=.294, between Met/week and kcal/week values of female teachers and demographic features (age, marital status, having children or not, number of children and branch).When examined the relationship of demographic features, seen a significant relationship 01 that vary between r=.337 and r=.817.

Table 9. Some Anthropometric Features of Female Teachers and Correlation Matrix on Their MET Values

Variables	Total Met/week	Total Kcal/week	Height (cm)	Weight (kg)	BMI (kg/m²)	Physique
Total Met/week	1					
Total Kcal/week	.927**	1				
Height(cm)	.017	.115	1			
Weight (kg)	.86	.427**	.291**	1		
BMI (kg/m²)	.78	.384**	-.154*	.899**	1	
Physique	.820**	.777**	-.007	.129*	.131*	1

*P <.05 ** P <.01

Understood from Table 9 that there is a statistically positive relationship 05 that vary between r=.384 and r=.777 between Met/week and kcal/week values and some anthropometric features (BMI and body structure).But, there is not a statistically significant relationship among Met/week values and height, weight and BMI values of participants. In the same way, there is not a statistically significant relationship between kcal/week and height. Anthropometric features show a relationship between 01 and 05 that vary r= -.154 and r=.899 between them.

RESULTS

Physical activity habits of individuals changes by reason of cultural structure, socio-economic level, individual differences and health. Occupation is one of the important factors that influences physical activity habits.In this study evaluated physical activity levels of the teachers in terms of different variables, 19.3% of female teachers are single, 80.7% of them are married. While 29.6% of married teachers have children, 70.4% of them have not any children (Table 1). According to their marital status, between MET/week and kcal/week values of housework and hobby index there is a statistically significant difference in favor of married teachers (Table 2). Arabacı and Çankaya (2007), concluded that there is a statistically significant difference between their physical activity levels according to marital status of teachers in their research that they investigated pyhsical activity levels of physical education teachers. Work index kcal/week and housework index MET/week and kcal/week values of female teachers according to they have children or not vary (Table 3). 28.8% of female teachers participated in research have 1 child , 35.2% of them have 2 children, 6% of them have 3 children, 4% of them have 4 or more children (Table 1).

There is a statistically significant difference among teachers according to their values of work index kcal/week and housework index and stairs index MET/week and kcal/week in terms of age groups (Table 4). Arabacı and Çankaya (2007), concluded that there was a statistically significant difference like in this study when they compared physical activity levels of physical education teachers in terms of age groups. Whereas; Yoncalık et al. (2011),could not find a significant difference among teachers in terms of their physical activity levels according to their age group. According to branches of the research group, it was found that a statistically significant difference between the values of work index, transportation index kcal/week and values of hobby index MET/week and kcal/week (Table 5).

Webster et al. (2010), stated that physical biographical character has an effective role on physical activity levels of teachers in their study 247 teachers participated in. In this study one of the reasons of the difference between Met/week and kcal/week values of teachers according to branches may be biographical factors.

Yoncalık et al. (2011) stated that there was no statistically difference between physical activity levels of teachers in terms of their branches.

It has understood that 14.2% of teachers participated in study are thin, 54.9% of them are normal, 25.3% of them are overweight and 5.6%of them are obese according to their BMI values (Table 1). In Keegan et al. (2012) study 58.4% of female teachers are normal, 23.8% of them are overweight and 13.3% of them are obese. Results of both studies show similarity. There is a statistically significant difference among female teachers among work index, housework index and stairs index kcal/week values according to their body structure (Table 6).This situation means as BMI values of female teachers increase, kcal values increase,too.

It is seen that 19.7% of female teachers are inactive, 30.9% of them are active enough for health, 49% of them are active (Table 1). When participants compared in terms of physical activity levels, it was concluded that there was a statistically significant difference between housework index and stairs index MET/week and kcal/week values (Table 7). Keegan et al. (2012),has stated that 49.8% of female teachers are low (<2.5 hour/week moderate or severe activity), 49% of them are active (≥2.5 hour/week) in their study 118315 which female teachers or administrators participated in; evaluated physical activity, BMI and interaction of neighborhood. Yoncalık et al.(2011), has concluded that 11% of female teachers are inactive, 47% of them are active in low level, 53% of them have enough physical activity in their study that they has aimed to determine physical activity levels of teachers working in province of Konya. Gürel et al. (2004), stated as 77.9% rate of the ones that had insufficient physical activity level in their research that they determined nutrition information, information sources and physical activity levels of 143 teachers working in five different cities. Şanlı (2008), has stated that 17.1% of teachers are not active physically, 63.9% of them have low physical activity and 19% of them have enough physical activity to protect their health in his research

that he aimed to evaluate the relationship among physical activity levels, age, gender and BMI of 286 teachers working in Beypazarı, Ankara.

There is a positive relationship 01 that vary between r=.208 and r=.294 among Met/week and kcal/week values of female teachers and demographic features (age, marital status, having child or not, number of children and branch) (Table 8).There is a statistically positive relationship 05 that vary at r=.384 and r=.777 interval between Met/week and kcal/week values and some anthropometric features (BMI and body structure).

As a result; though seen that physical activiy levels of female teachers working in the province of Karaman are enough; it is obvious that most of their activities consist of housework index.It has understood that teachers needs to include activities related to work, transportation, hobby, stairs and sport index in their lives.Physical education teachers should include issues related to physical activity, health and obesity in classes and they should be a model to students and society.

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Impact Drills Reciprocity Loop Speed and Altitude Training On the Development of Variables Associated With the Tactical Offensive Performance of the Tennis Players

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ABSTRACT

The planned and organized training and continuing through which to improve and upgrade a working c this research aims to develop and design a training using exercises heights and speed loop of the tennis consensus among motor units involved in motor performance with a high degree. It also works training which uses rapid movements and training load simple performance upgrade.This research. And the researcher to choose the way intentional sample included 19 Player of the players Smouha Club ims to develop and design a training using exercises heights and speed loop of the tennisImprovement in the speed of reaction to that focus on the development of individual elements of speed would be more effective and more efficient, prompting the player to develop high speed and good reflectivity reactions in the shortest possible time The exercises help to speed the development and the development of special ingredients fitness needed by sports activity and function of the internal organs of the body to adapt to any work which leads to a rise in the functional ability of the player.

Keywords: *Soccer, Sprint, Acceleration, Player Position*

INTRODUCTION

Tennis Ground fall within Batting Games "- odd-even," which is characterized by the nature of the special technical, where transmission ball across the network between the players describes techniques in two forms contradictory two defense and attack are in accordance with the direction of the ball and the both the attacker and the opponent.

Thus, the competitive needs of the attack require accurate guide the ball from player to areas affecting striker in the opponent's court, which is difficult for him the possibility to defend. And thus makes it easier to attack to get the point directly or force the opponent to make a mistake,

Artistic renderings tactical offensive:
Exceed artistic renderings offensive different patterns of tennis players, according to areas of the pitch and use the appropriate Time zone momentarily to implement any of them on the basis of the development of the opponent. Divided into: -
1 - attacks the rear of the stadium.
A - From the base line
B - in front of the base line

2 - attack the front of the stadium.

3 - Multiple attacks.   (9: 4 - 12)

That the strength of the strikes as a weapon Plan refers to the modern tennis match. Where (sending forces - Re be sent offensive - strikes ground Judge - strikes the plane when the network - with the speed of decision-making of the player) depends on the player's ability to analyze fast each of the competitive position and rival together by identifying what is the ideal choice answer ball in a split second   (7: 2)

Sport relies tennis on technical mastery of the skills right next to the construction of the components of general fitness. Then comes the fitness, which is characterized by the basic skills of tennis
And consistent both Mohammed Allawi 1982 Abdel Nabi Beauty 1988 Ehab Shehata 1993, citing both John "Jon" and Mabit Mabbit "" Shaffer and Nyder "Chavez & Nrider" and Allen Wadih 2000 that strikes in the sport of tennis is divided into: Enquiry

Basic strikes, including: -

1 - transmission

2 - front strikes

3 - strikes back

Advanced strikes, including: -

1 - strike aircraft

2 - half strike aircraft

3 - the projected strike

4 - crushing blow   (8: 144) (1: 11) (3: 33) (10:5)

It is already clear that the variety and multiplicity of strikes makes the arduous training process, so it must raise the standard of performance skills by following the best modern training methods and skills that suit each game separately.
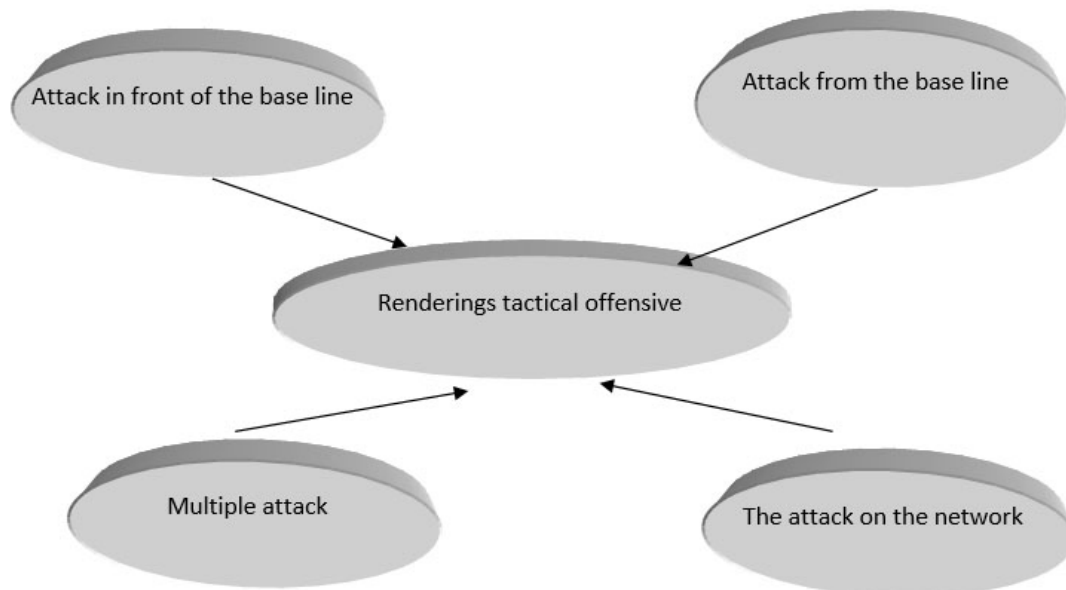
The muscle power of the most important physical variables that should be enjoyed by tennis player because they are associated with some physical components closely, such as power deals quickly, and speed the transition. There believe no player fast before to be strong and through limited office for references previous and also experience researcher in the field of tennis next to analyze performance skills during the games is clear that the force deals quickly is the ability most demanding performance of most skills especially offensive which they are considered the ability to execute strikes basic and advanced strikes in the limits of international law tennis.

Agree many specialists in the sport of tennis on the importance of carrying speed and reaction speed as selected the correct response to the sexy among several stimuli unknown opponent and against the player through the game of reactions and rapid response, such as the movement of rapid progress towards the network or the parties to the pitch respond fast ball.

Therefore cannot be the correct application of aggressive style of tennis players if you do not react fast player and his immediate response speed is very important for the success of the ball and thus response to earn points reflex reaction is the only difference between winning and losing in the physical confrontation.

To speed in tennis five elements:
1. visual Reflexes
2. Tactile Reflexes
3. Movement Speed
4. Initiation Speed
5. Alteration Speed (5: 168)

The highlands exercises are an effective way for the construction of wind energy and the development of power through the slopes, which is considered one of the best forms of resistance exercises using body weight. It should not only be done once or twice at most every week (11).

Attention must be given work to warm up before exercise highlands and calm Beyond (trot for a period of 5-10 minutes, followed by exercises to lengthen) are training twice a week for a period of 6-8 weeks in order to improve your fitness in general and improve the speed in particular 3-5 minutes between sets (12).

Purpose of study
This research aims to develop and design a training using exercises heights and speed loop of the tennis to try to identify: -
1 - the impact of the proposed exercises on some sense of capacity and functional mobility and physical with the tennis.
2 - Effect of the proposed exercises on the effectiveness of tactical offensive performance of the tennis.

Hypotheses:
1 - There are significant differences between tribal measurement and dimensional measurement in measuring the distance with players moving in favor of the post measurement.
2 - There are significant differences between tribal measurement and dimensional measurement in complex reaction time with the players in favor of the post measurement.
3 - There were statistically significant differences between tribal measurement and dimensional measurement in the efficiency and stability of the central nervous system to the players in favor of the post measurement.
4 - There are significant differences between tribal measurement and dimensional measurement in the speed of the performance of the players in favor of the post measurement.

5 - There are significant differences between tribal measurement and dimensional measurement in the speedy implementation of the players strike in favor of the post measurement.
6 - There are significant differences between tribal measurement and dimensional measurement in carrying speed of the players in favor of the post measurement.
7 - There were statistically significant differences between tribal measurement and dimensional measurement in distinctive force as soon as the players in favor of the post measurement.
8 - There were statistically significant differences between tribal measurement and dimensional measurement in the effectiveness of tactical performance of the players in favor of the post measurement.

Search procedures

Research Methodology:
The researcher used the experimental design of one set of measurement tribal dimensional suitability of the nature of the research.
Sample:
The researcher to choose the way intentional sample included 19 Player of the players Smouha Club

Table (1) SMA and the standard deviation and transactions convolution To sample some of the variables

Measurements	SMA	Broker	Standard deviation	Coefficient convolution
Age	20.11	20	0.74	-0.172
Weight	60.86	64	9.51	0.040
Cm	160.05	160	4.36	-0.809
Age Training	4.58	5	1.17	-0.680
Reaction speed of the hand	13.25	13.166	0.792	0.135
Reaction speed of a foot	4.458	4.5	1.259	-.099
Speed transition	4.756	4.835	0.254	-0.929
Carrying speed	41.375	41.5	2.264	-.166
Threw the ball medical	6.002	6	0.49	0.312-
Agility	6.754	6.69	0.238	0.739
Broad jump of stability	174.36	175	12.40	0.413
The efficiency of the central nervous system	45.21	44.98	9.01	.0300
The stability of the central nervous system	7.79	7.64	2.42	0.882

Evidenced by the table (1) that the transactions convolution sample ranged between (0.040, 0.882) i.e. they confined between ± 3 suggesting homogeneity of the sample.

Survey:

The researcher to codify the same tests applied to the scoping high level of tennis players (first degree), another sample was selected at a low level of players (second class) in the sport of tennis

Baseline study:

The application of the proposed training on basic research sample includes (14) player of tennis players were in the period from 24/09/2011 till 8/12/2011 has been hold tribal measurement on Saturday and Sunday 17, 18/9/2011 m in the following tests (reaction speed of the hand and a man, speed transition, speed, strength and accuracy performance strike the front and rear and strike aircraft, carrying speed and bearing in and force distinctive speed), (the efficiency and stability of the central nervous system) and work matches between players and recorded video of the possibility of measuring the effectiveness of activity tactical has been a dimensional measurement in the same tribal and measurements on Saturday 10/12/2011 The research took 10 weeks by 3 units per week for speed drills and two units per week for. Training highlands

for severity of pregnancy: - training using maximum speed least until maximum speed, taking into account that characterized the exercise the right time and cruise and lack of tension.

Relative to the size of pregnancy: - training on the set of points for a period of time ranging from 10-20 minutes to reach maximum speed, taking into account that with increased is Duplicates increase level and fatigue did not affect the required level.

For the rest periods: - should form the rest period between each group and another between the often (2 - 5) minutes.

For training intensity highlands pregnancy of 40 - 60% of medium intensity and duration of the development of 8 - 12 weeks time of 90: 180 W with upwards max workouts.

RESULTS

Table (2) Significant differences between tribal measurement and dimensional measurement in some capacity Mobility and functional and Physical abilities And tactical effectiveness of the activity sense the players sample

Tests		Pre test		Post test		T test
		M	SD	M	SD	
Reaction speed of the body as a whole		0.65	0.06	0.46	0.19	7.67*
Reaction speed optical hand		23.36	3.15	19	2.51	7.64*
Reaction speed optical foot		26.36	4.03	20.71	3.6	7.57*
Sense of mobility capabilities	Sense of distance	1.17	0.47	0.6	0.21	7.03*
	Response on a moving exciting	22.78	8.76	7.57	4.6	10.06*
The efficiency of the central nervous system		53.68	16.91	28.4	9.02	9.38*
Constant level of efficiency of the central nervous system		11.18	4.09	5.96	2.13	6.81*
Speed motor performance		15.92	1.44	17.5	1.4	9.1*
Speed performance strike		0.36	0.09	0.22	0.07	9.65*
Strike front		14.21	1.05	15.79	0.97	7.78
Backhand		15.36	0.93	16.79	1.5	8.27
Strike front		24.36	1.5	26.64	1.5	11.78
Backhand		25.93	2.43	29.79	2.19	15.2
Effectiveness of tactical activity		1.9	.69	2.82	1.33	2.65

• T. spreadsheet at the 0.05 level of significance = 1.77

Evidenced by the table (2) and there were no statistically significant differences between pre and post measurements in some sense abilities and functional mobility and Physical abilities and tactical effectiveness of the activity for dimensional measurement with the players sample.

DISCUSSION

Showing spreadsheet (2) is clear and there were statistically significant differences between pre and post measurements of sample in reaction speed, which refers to the efficiency of the exercises, which have been applied and their positive contribution to the development speed of the reaction. The researcher due improvement in speed of reaction to that focus on the development of individual elements of speed would be more effective and more efficient, prompting the player to develop high speed and good reflectivity reactions in the shortest possible time. And also consistent with what the "Bill Rodgers Bill Rodgers" the highlands exercises can improve several performance attributes and great interest in increasing the speed. (2: 66)

The improvement in the sense of distance and respond exciting animated researcher that the accuracy of the speed of response are linked strictly visual perception which grown through exercises proposed which was applied to the sample and also the ability of the sincerity of expectation and intuition and insight into the attitudes different play as well as the speed of thought for the positions changing.

The results showed that there were statistically significant differences between tribal measurement and dimensional measurement in a distinctive speed and power carrying speed and the speed of performance and the speed of implementation of the attack tennis players in favor of the post measurement. Which indicates the effectiveness of the exercises used due researcher this improvement to the nature of the exercises highlands which helps to develop strength and flexibility of muscles and develop the speed and maximum power along with the nature of the training loop speed and dealing with the brain's ability to choose the immediate reaction masterly response to the attack or the beginning of an attack and for the improvement in speed performance researcher, she believes it increases the players significantly after periods of training, even with short attendance and regular training and quick-time training is the best picture of the frequency rapid kinetic exercises similar skill exercises. This is consistent with what he referred "James James2008 m to drill speed help to develop the components of fitness needed by sports activity and operate the internal organs of the body to adapt to any work, which leads to the high capacity of the player career (4: 8)

Also consistent with what he referred Bill Rodgers that after training from 8 - 12 week average of twice a week of altitude training improved results runners at the rate of 3%. Research has proven that carried out **Aozlan Osolin** development potential recipe speed as a result of growth and development of prescription muscle strength, were also able to **Motnsvay Muttenzfay** prove that speed affected significantly strongly muscles so the attempt strength development distinctive speed are important factors to help develop the recipe speed private recipe Speed performance.

As for the improvement in the effectiveness of the activity of tactical researcher to the nature of the training loop speed and that leads to improved reflexivity with rapid adjustment in deep perception, which helps when responding to any strike along with it improved how to get to the correct verb.

CONCLUSIONS:

1. And there were no statistically significant differences between pre and post measurements in all speed tests (Reaction speed - speed performance - speed of response balls) for dimensional measurement with the tennis players
2. There were statistically significant differences between tribal measurement and dimensional measurement in distinctive element of force as soon as the tennis in favor of the post measurement.
3. There were statistically significant differences between the measurement and measurement tribal dimensional tactical effectiveness of the activity to the tennis players in favor of the post measurement

RECOMMENDATIONS: -

1 - The use of loop speed drill in tennis drills to improve some sense capabilities and functional mobility and physical   players.
2 - Use highlands in training exercises to improve the strength of tennis deals quickly.
3 - Use exercises heights and speed loop players (junior - young adults) to improve the level of performance in tennis.
4 - Use exercises highlands because it will lead to the development of various energy systems (creatine phosphate - Adinoven phosphate).

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Members of Sporting Life Center to Investigate Eating Habits According to Income Level

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ABSTRACT

Eating habits of individuals, especially income level, culture, and so on may vary depending on the variables. The purpose of this research, members of healthy living and sports center to investigate eating habits according to income level. The aim was prepared according to the survey, were applied members of two different sports and the life center (62 men, 44 women) at the European side of İstanbul. The survey results were analyzed by SPSS 14.0 statistical program. Cronbach's alpha coefficient to determine the reliability of the questionnaire, the frequency and percent of surveyed members to determine the demographic characteristics of descriptive statistics, the income level of members' eating habits according to the chi-square ($x2$) test and Independent samples t-test have been employed to compare.In conclusion, the study of eating habits are similar to those of members according to income levels, differentiation was found to be related to the use of alcohol. Low-and high-income members to consume less oil, margarine and canola oil has been concluded.

Keywords: *Nutrition, Sports and Living Centers*

INTRODUCTION

Briefly, the life style is the set of the individual life habits unconsciously repeated everyday and their accepted results. These habits affect our health positively or negatively (Yıldırım 2005). In maintaining a healthy life, in other words, in improving the life quality, the nutritional habits play a crucial role. Proper nutrition and regular physical activity improve the physical as well as the mental health (Yücecan 2008).

Regular physical activity is essential for a healthy life. Physically inactive people are almost twice as likely to develop coronary heart disease as people who engage in regular physical activity. It also helps older adults remain independent and enhances the quality of life for people of all ages (Macera, www.cdc.gov/healthyyouth).

The importance of proper nutrition and physical activity in reducing rates of disease and death from chronic diseases has been well established. Poor diet and physical inactivity cause 310,000 to 580,000 deaths per year and are major contributors to disabilities that result from diabetes, osteoporosis, obesity, and stroke. The diets of many population subgroups contain too much total fat, saturated fat, and calories but not enough of other important elements such as calcium. Low fruit and vegetable consumption and high saturated fat intake are associated with coronary heart disease, some cancers, and diabetes (Macera, www.cdc.gov/healthyyouth).

The economic burden of poor diet, physical inactivity, and obesity is substantial. All are significant risk factors for developing coronary heart disease, certain types of cancer, stroke, and diabetes, conditions that involve considerable medical expense as well as lost work time, disability, and premature death (Macera, www.cdc.gov/healthyyouth).

The notion of the economic costs of obesity invariably refers to the costs of obesity and related diseases to society (Drewnowski and Specter 2004).

Adults from lower income groups are more likely to cite cost as an important influence on their eating habits. Results from The Low Income Diet and Nutrition Survey 2005 indicate that the cost of healthy food is a greater barrier for lower income households (Roberts and Marvin 2011). We can see a direct relationship in many areas of the country between income levels and health statistics for that area.

In several respects, adults' food consumption is associated with their household income. For example, the percentage of calories from fat tends to rise with income. While 25% of adults in the highest income households get more than 35% of their total calorie intake from fat, this was the case among 15% of those in the lowest income households (Garriguet. 2004).

This is a complex area of work in which much more research is needed to really understand how individuals can be motivated to make changes to their behaviour that will improve their health. It is clear that knowledge of and attitudes towards healthy eating and physical activity are significant determinants of eating and activity behaviour. Knowledge and attitudes ultimately impact on weight status, and may be central to the success of behaviour change interventions. The data also suggests that there are significant differences in barriers and motivators between those who are obese and those who are not (Roberts and Marvin 2011).

In this research, it has been studied whether the nutritional habits of the sporting life center members depend on the income level.

METHOD

The aim was prepared according to the survey, were applied members of two different sports and the life center (age range: 20-50, 62 men, 44 women) at the European side of Istanbul.

The questionnaire comprises of 34 questions. The first section of the survey includes demographical questions whereas the second section involves the nutritional habits.

The survey results were analyzed by SPSS 14.0 statistical program. Cronbach's alpha coefficient to determine the reliability of the questionnaire, the frequency and percent of surveyed members to determine the demographic characteristics of descriptive statistics, the income level of members' eating habits according to the chi-square (χ^2) test and Independent samples t-test have been employed to compare.

The results have been evaluated in 95% confidence interval with a significance level of $p \leq 0.05$ bi-directionally.

RESULTS

This section covers the facts about the demographical characteristics, healthy eating trends and habits of the sample group in the population respectively and the comments about these facts.

Table 1. Demographical distribution of the research participants

		Frequency	Percent (%)
Sex	**Male**	62	58.5
	Female	44	41.5
	Total	106	100.0
Age	**20 and under**	6	5.7
	21-30	36	34.0
	31-40	37	34.9
	41-50	18	17.0
	51 and over	9	8.5
	Total	106	100.0
Marital status	**Married**	56	52.8
	Single	44	41.5
	Divorced/Widowed	6	5.7
	Total	106	100.0

The male/female and married/single distribution of the participants being similar, they are predominately from the 20-50 years old age interval.

Table 2. Main meal number by the income level

Number of the daily main meals		Low income level	High income level	Total	x^2	sd	p
2	**Number**	6	10	16			
	Percent	27.3 %	12.5 %	15.7 %			
3	**Number**	13	62	75			
	Percent	59.1 %	77.5 %	73.5 %	3.407	2	0.182
4 and more	**Number**	3	8	11			
	Percent	13.6 %	10.0 %	10.8 %			
Total	**Number**	22	80	102			
	Percent	100.0 %	100.0 %	100.0 %			

The number of the daily main meals does not change by the income level (p>0.05). However, maximum "3 main meal" number and minimum "4 and more" main meals number have been observed for the high income level group.

Table 3. Meal skipping by the income level

Meal skipping		Low income level	High income level	Total	x^2	sd	p
Yes	**Number**	13	26	39			
	Percent	56.5 %	31.7 %	37.1 %			
No	**Number**	6	31	37			
	Percent	26.1 %	37.8 %	35.2 %	4.793	2	0.091
Sometimes	**Number**	4	25	29			
	Percent	17.4 %	30.5 %	27.6 %			
Total	**Number**	23	82	105			
	Percent	100.0 %	100.0 %	100.0 %			

Meal skipping does not change by income level (p>0.05). However, the maximum number for meal skipping is observed in the low income group.

Table 4. Meal skipping by the income level

Skipped meal		Low income level	High income level	Total	x^2	sd	p
Breakfast	Number	2	9	11			
	Percent	15.4 %	25.0 %	22.4 %			
Launch	Number	9	21	30			
	Percent	69.2 %	58.3 %	61.2 %			
Dinner	Number	1	6	7	3.886	3	0.274
	Percent	7.7 %	16.7 %	14.3 %			
All	Number	1	0	1			
	Percent	7.7 %	0.0 %	2.0 %			
Total	Number	13	36	49			
	Percent	100.0 %	100.0 %	100.0 %			

Among the meal skippers, the rate of the skipped meal does not change by the income level (p>0.05). However, it has been observed that the most frequently skipped meal is launch for both income groups.

Table 5. Daily water consumption by the income level

	Low income level		High income level		t	p
	Mean	Sd	Mean	Sd		
Daily water consumption	7.636	5.206	8.157	5.606	-0.393	0.695

Upon conducting a t-test in order to determine whether the average water consumption points of the participants depend on the income level, it has been observed that the difference between the group averages is not statistically significant (p>0.05).

Table 6. Eating manner by the income level

Eating manner		Low income level	High income level	Total	x^2	sd	p
Salted	Number	6	21	27			
	Percent	27.3 %	25.6 %	26.0 %			
Low salted	Number	14	49	63			
	Percent	63.6 %	59.8 %	60.6 %	0.458	2	0.796
No salt	Number	2	12	14			
	Percent	9.1 %	14.6 %	13.5 %			
Total	Number	22	82	104			
	Percent	100.0 %	100.0 %	100.0 %			

The eating manner does not change by the income level (p>0.05). However, low salted eating manner has been observed in both income groups.

Table 7. Alcohol consumption by the income level

Alcohol consumption		Low income level	High income level	Total	x^2	sd	p
No	Number	21	63	84			
	Percent	95.5 %	75.9 %	80.0 %			
Yes	Number	1	20	21	4.155	1	0.042
	Percent	4.5 %	24.1 %	20.0 %			
Total	Number	22	83	105			
	Percent	100.0 %	100.0 %	100.0 %			

It has been observed that the alcohol consumption rate is higher in the high income level group (p<0.05).

Table 8. Most frequently used household cooking methods by the income level

Most frequently used household cooking method		Low income level	High income level	Total	x^2	sd	p
In the pot with closed lid, without water addition	Number	4	27	31			
	Percent	57.1 %	57.4 %	57.4 %			
Cooking after browning in fat	Number	1	5	6			
	Percent	14.3 %	10.6 %	11.1 %			
Frying in fat	Number	1	3	4			
	Percent	14.3 %	6.4 %	7.4 %			
Roasting/baking	Number	0	7	7	2.441	5	0.785
	Percent	0.0 %	14.9 %	13.0 %			
Grill and barbecue	Number	1	3	4			
	Percent	14.3 %	6.4 %	7.4 %			
Boiling and eliminating the water	Number	0	2	2			
	Percent	0.0 %	4.3 %	3.7 %			
Total	Number	7	47	54			
	Percent	100.0 %	100.0 %	100.0 %			

The cooking methods do not change by the income level (p>0.05). However, it has been observed that "In the pot with closed lid, without water addition" method is more frequently used in both income groups.

Table 9. Most frequently used cooking fat type by the income level

Most frequently used cooking fat		Low income level		High income level		x^2	sd	p
		N	%	N	%			
Butter	Do not use	13	56.5%	61	73.5%	2.462	1	0.117
	Use	10	43.5%	22	26.5%			
Margarine	Do not use	19	82.6%	75	90.4%	1.078	1	0.299
	Use	4	17.4%	8	9.6%			
Olive oil	Do not use	8	34.8%	28	33.7%	0.009	1	0.925
	Use	15	65.2%	55	66.3%			
Hazelnut oil	Do not use	19	82.6%	77	92.8%	2.177	1	0.140
	Use	4	17.4%	6	7.2%			
Other vegetable oils	Do not use	13	56.5%	37	44.6%	1.031	1	0.310
	Use	10	43.5%	46	55.4%			
Canola oil	Do not use	23	100.0%	81	97.6%	0.565	1	0.452
	Use	0	0.0%	2	2.4%			

The most frequently used cooking fat does not change by the income level (p>0.05). However, it has been observed that the rate of those who do not use the margarine and hazelnut oil is high in both income levels and the canola oil is used in the high income level group, though the usage is limited.

Table 10. Vitamin/mineral tablet usage in addition to the daily nutrition by the income level

Vitamin/mineral tablet usage in addition to the daily nutrition		Low income level	High income level	Total	x^2	sd	p
Yes	Number	3	10	13			
	Percent	13.6 %	12.2 %	12.5 %			
No	Number	19	72	91	0.033	1	0.856
	Percent	86.4 %	87.8 %	87.5 %			
Total	Number	22	82	104			
	Percent	100.0 %	100.0 %	100.0 %			

The rate of vitamin/mineral tablet usage in addition to the daily nutrition does not change by the income level ($p>0.05$). However, it has been observed in both income groups that the rate of those who do not use "vitamin/mineral tablets in addition to the daily nutrition" is high.

DISCUSSION

The challenges individuals face can be specific to the area in which they live, be it an urban, suburban or rural environment. Low income individuals might live in areas with restricted access to affordable, healthy/fresh foods. Another study, which investigated people's attitudes, concluded that motivation to participate in physical activity is correlated with perceptions of local surroundings. People are less motivated to be physically active if they perceive their local surroundings to be unsafe or unpleasant (Sallis et al. 2006).

The problems associated with poor diet, physical inactivity, and obesity affect most population segments; however, there are marked disparities in the impact that these problems have on various groups of people, particularly by race/ethnicity and by education level (Macera, www.cdc.gov/healthyyouth).

The nutritional habits of the individuals may depend on diverse variables such as, predominately the income level and culture, etc. and we can see a direct relationship in many areas of the country between income levels, socioeconomic status and health statistics for that area.

In one study, it has been observed that having health insurance, lower perceived susceptibility to cancer, and higher levels of social support were significantly related to healthy eating habits. Exposure to domestic violence, lower income and knowledge of risk factors, and lower perceived efficacy in changing health outcome were associated with lower levels of intent to change eating habits (Sanders-Phillips 1994). Adults in the highest income households were significantly more likely than those in any other income group to report having eaten something from a fast-food outlet the day before their interview. Adults in the highest income households are less likely than those in the lowest to have fewer than five daily servings of vegetables and fruit: 41% versus 58% (Garriguet. 2004). Also, Drewnowski and Specter (2004) have reported that among women, higher obesity rates tend to be associated with low incomes and low education levels. The association of obesity with low socioeconomic status (SES) has been less consistent among men (Drewnowski and Specter 2004).

This situation is also observed in the studies conducted on different populations in our country. For instance, in a research conducted on 1120 students with an average age of 21.6±1.9 years old, it has been found that 87.4% of the students skip meals and the most frequently skipped meal is the breakfast. The score of nutritional habit is higher for men whereas the nutritional information score is higher among women. It has been seen that the students living in urban areas before attending university have higher nutritional information scores and the difference is significant. It has been observed that the marital status, family type and the living place do not affect the nutritional information scores significantly. And a positive correlation has been established between the body-mass indexes and the nutritional habit scores and the individual monthly income of the students (Vançelik et al. 2007).

In another study conducted among the university students (1374 students), it has been concluded that the students care about consuming healthy food and prefer them, but they are not stable in terms of behaviors such as adopting a balanced and healthy diet as well as eating only during the meals. It has been seen that although the students know the right thing to do, they do not practice it in their lives; that they have a common attitude against the additive containing foods; that the female students prefer low fat food and that this may be due to the fact that the physical appearance and health are more important for the female students and thus more emphasized (*Sezek et al.* 2008).

In a study conducted on the academic members of the two universities in different regions, it has been reported that the food selection and consumption models of the academic members are physiological and also depends on their social and psychological satisfaction, traditional habits, education level and economical resources. The results of this research have revealed that the academic staff constituting an important section of the society are influenced by the consumption culture and adapt their life style in accordance with the current consumption culture of the society (Özdemir 1999).

Turkey is among the countries where the primary income distribution inequality is significant. This reveals itself also in the nutritional condition of the society. Our country seems both developing and experiencing the problems of the developed countries in terms of nutrition, at the same time. It has been officially announced that approximately 15% of our population is under starvation line and near to half eat inadequate and imbalanced. The groups affected by the inadequate and imbalanced nutrition issues are growing children, young people, fertile women, workers doing heavy jobs with low wages and unemployed people. Nevertheless, the level of fatness and related chronic diseases due to the over and malnutrition in the adult population is same with the level of the developed countries (Baysal 2003). While getting thin is an important problem among those working hard physically in the absence of adequate nutrition, in the adult population (30 years old and over) 21% of the males and 43% of the females are fat (BKİ over 30). 53% of the males and 38% of the females suffer dyslipidemia due to the over and malnutrition. The percentage of those having metabolic syndromes, where the insulin resistance, hypertension, dyslipidemia and type 2 diabetes are observed together, is similar to that in the developed Western populations (Onat et al. 2000).

As a result, this research has revealed that the nutritional habits of the people from different income groups are similar; that the higher income levels increase the alcohol consumption and change the fat consumption levels. Although two different sporting life centers have been selected from two different regions, the income classification among the research participants helps to explain the conflicting literature knowledge proposing that the nutritional habits of the low income group are not healthy. Also, the fact that these individuals attending the sporting life centers exercise at least three days a week may be accepted as an indicator of their healthy living awareness.

CONCLUSION AND RECOMMENDATIONS

The results obtained from the research investigating the nutritional habits of the individuals attending sporting life centers by high and low income levels are as follows:

- When the daily main meal numbers of the research participants have been analyzed, it has been seen that they eat 2, 3 or 4 meals a day. Analyzing the variation of the main meal numbers by the income level has revealed that the income level does not affect the number of the meals.
- The analysis regarding the meal skipping habits showed that meal skipping does not change by the income level. The income level does not affect meal skipping.
- The eating manner of the participants does not change by the income level. The income level does not affect the eating manner. It has been found that participants from various income levels eat salted, low-salted or no salt.
- Analyzing the daily water consumption of the sporting life center members has revealed that the daily water consumption is not affected by the income level.
- Analyzing the alcohol consumption of the members has revealed that the participants in the 31-40 years old age interval from the high income level group consume more alcohol.
- Analyzing the cooking methods used by the participants in terms of their nutritional attitude has revealed the income level does not affect the cooking methods.
- Analyzing the nutritional habits of the participants with regard to the various fat types has revealed that the type of fat used for cooking does not change by the income level. Also, it has been found that the margarine and canola oil consumptions are very limited among the participants in general.
- It has been observed that the additional vitamin/mineral supplement usage among the participants is low and not affected by the income level.

As the result of the research, the following is recommended to the subsequent researchers, members and managers of the sporting life centers:

- The different aspects of the members' nutritional habits can be analyzed on larger samples with diverse questions by the new researchers.
- The members of the high income group are suggested to reduce alcohol consumption and keep it at the reasonable level.
- The members are also suggested to consume a lot of water and to eat each meal without skipping, even if limited.
- The sporting life center managers are suggested to create the relevant forms and conduct surveys about the nutritional habits of the members and follow up these nutritional information.

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The Comparison of Acceleration and Sprint Features of Soccer Players According to Their Positions

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ABSTRACT

The purpose of this study was to investigate the relationship between acceleration and 30 m sprint features of soccer players according to their positions. 50 football players mean aged 17,9 were voluntarily participated in to this study. The participants' heights and weights were 174,8 cm, 67,9 kg respectively. Two tests were applied to the subjects to investigate acceleration (10 m) and sprint (30 m) capabilities of players by using Newtes2000 Sprint Timing System. As conclusions of this study; It was found that defence and forward players have the best accelerattion scores. Forward players have also the best 30 m sprint scores. The goalkeepers were found as the slowest players in both tests. However all these differences were not statistically significant.   There were no meaningfull differences between acceleration and sprint scores of players according to their positions. Based on these findings; the similarity of sprint and acceleration abilities in the players of different positions is thought to be because of the same training backgrounds.

Keywords: *Soccer, Sprint, Acceleration, Player Position*

INTRODUCTION

Soccer is a multifaceted sport that requires well developed physical fitness to be successfully played.[1] Strength, power, and their derivatives (acceleration, sprinting, and jumping) all make important contributions to the performance potential of soccer players.[2] High-speed actions are known to impact soccer performance and can be categorized into actions requiring maximal speed, acceleration, or agility.[3] Speed and acceleration are important qualities in field sports.[4] Acceleration is a significant feature of game-deciding situations in the various codes of soccer. However, little is known about the acceleration characteristics of soccer players, the effects of acceleration training, or the effectiveness of different training modalities .[5]

Sprint speed is an essential component of being successful in the sport of soccer. Sprinting requires the ability to quickly accelerate.[6] Speed is an important factor affecting the performance in football and it is defined as persons moving himself from one location to other with maximum speed, performing the movements with a speed as large as possible and the ability to move the body or one of its parts in a quick manner.[7] Although speed ability is an innate characteristic, it is improved by long term, deliberate trainings. From the general definitions of speed, the necessity of

partial abilities such as speed of sensing, speed of anticipation, speed of decision making, speed of reaction, speed of motion with and without the ball, and speed of action arise.[8-9]

While it is expected from a wing player to have advanced movement speed with and without the ball, it is primarily expected from a midfielder to have good decision making speed. The speed of the soccer players is a quiet sophisticated ability.[10] In the study carried out, the movement times of the players are measured. Reaction and sensing times are not taken into account. Therefore, the motor characteristics of players are being evaluated rather than sensing abilities.

Therefore, the aim of this study was to comparison acceleration and sprint features of soccer players according to their positions.

MATERIAL AND METHOD

A total of 50 soccer players, goalkeepers, defenders, midfielders and forwards were examined. Players were playing in two different team in amateur football league. The tests were applied in the match season. The aims of all tests were explained to the players before the tests were conducted. The tests were started after a 20-minute warm-up session.

The 10m and 30m times of the soccer players are determined by taking the best of three repetitions which have sufficient resting periods in between. Newtest 2000 electronic timing gates are used as the measurement tool. 10 m and 30 m sprints are carried out as being the acceleration time and the sprint time, respectively. The subjects made their start on foot from one meter distance to the photocell.

The descriptive data, mean and standard deviations of the athletes were found, the multiple comparison between the positions were carried out by Kruskal Wallis H method. SPSS 19 software was used for statistical evaluation and the significance level was determined as 0.05.

FINDINGS

Table 1. Descriptive data of the soccer players.

	Position				
	Goalkeeper	**Defence**	**Midfielder**	**Striker**	**Total**
N	5	18	17	10	50
Age	17.6	18.1	17.9	18.0	17.9
Sport Years	5.0	6.5	5.5	6.1	5.9
Height(cm)	182.9	177.6	171.9	170.9	174.8
Weight(kg)	75.2	69.2	65.1	67.1	67.9

Table 1 gives the defining data belonging to the soccer players. 5 goalkeepers, 18 defenders, 17 midfielders and 10 strikers participated in the study making a total of 50 soccer players. The average age of the players was 17,9 year, average sports age was 5,9 year and average height and weight were 174,8 cm and 67,9 kg.

Table 2. 10 m and 30m scores of the players with respect to their positions.

		N	Mean	Median	Std. Dev.	Min.	Max.
10m	G. Keeper	5	1.89	1.89	0.15	1.73	2.10
	Back	18	1.75	1.76	0.14	1.58	2.06
	Midfielder	17	1.80	1.77	0.23	1.54	2.36
	Striker	10	1.77	1.70	0.20	1.55	2.02
	Total	50	1.79	1.77	0.18	1.54	2.36
30m	G. Keeper	5	4.38	4.37	0.19	4.11	4.64
	Back	18	4.23	4.22	0.19	4.01	4.58
	Midfielder	17	4.22	4.12	0.21	3.94	4.58
	Striker	10	4.15	4.12	0.20	3.90	4.59
	Total	50	4.23	4.19	0.20	3.90	4.64

In table 2, the mean and median scores of the players are seen. While the mean 10 m acceleration score of all the sportsmen was 1.79 s; 30 m sprint score was 4.23 seconds.

Table 3. The comparison of 10 m and 30 m sprint scores between the Players positions.

	Ki-Squared	df	p
10 m	2.264	3	0.520
30 m	4.228	3	0.238

Table gives the comparison of the sprint times between the positions. The sprint times between the positions were not found to be statistically different in both distances ($p > 0.05$).

DISCUSSION AND RESULT

As result of this study, no significant relationship was found between acceleration and sprint features of soccer players according to their positions.

The study investigated the 10 meter and 30 meter sprint features of 50 soccer players consisting of 5 keepers, 18 defenders, 17 midfielders and 10 strikers, with respect to their positions. The sprint times of the players with respect to their positions are given in Table 2. It is seen that the strikers are faster in both distances. The goalkeepers were found as the slowest group in both distances as well. But the difference between the groups was not meaningful with a level of 0.05.

This study shows that there is no difference between the positions in acceleration and 30 m sprint scores of young footballers. The studies in the literature give similar results. In many studies, the sprint characteristics of the keepers were found to be slow and that of the soccer players were found to be the fastest. But there are few studies having statistical difference. For instance, Karavelioğlu compared 30 m scores of 77 sportsmen from the top six teams in the amateur league and obtained the result that the keepers are slower than all the other positions.[11] The stoppers were the slowest group in 60 m sprint in the study performed with 13 keepers, 22 stoppers, 24 side players, 35 midfielders and 41 offense players. Offense players were found to be faster than the keepers and the stoppers.[12]

In a study, while there were no differences in 5 m acceleration of soccer players with respect to their positions, the forward players outclassed the keepers in a statistically meaningful manner.[8] Many studies, though, have arrived the result that the sprint characteristic does not create difference between the positions, as it is the case in this study.

A study could not find meaningful differences in 10 and 30 m sprint of soccer players playing in Turkish Super League values with respect to their positions.[9] Cerrah et. al. have found the 10 m times for the keepers, defenders,

midfielders and forward players to be 1.72±0.11, 1.69±0.07, 1.72±0.08, 1.67±0.09, respectively; and 30 m times to be 4.31±0.22, 4.17±0.19, 4.25±0.17 and 4.15±0.20, in the same order.[13] As seen, the forward players are the fastest ones in both of the distances similar to the situation in this study. But this difference is again not statistically meaningful.

In another study the 10 meter sprint values were found to be defense 1.71 ± 0.1, midfield 1.6 ± 0.3 and forward 1.7 ± 0.1 and the 30 meter sprint values were found to be defense 4.2 ± 0.2, midfield 4.2 ± 0.1 and forward 4.2 ± 0.1.[14] No difference could be found between the positions. In the study performed by Taşkın in which the 30m sprint values did not differ between the positions, the defense players had the best time with 4.21 s.[15] Güner et. al., could not find any difference also in terms of running velocities between the midfielders and the forwards.[16]

The present findings suggest that specific testing procedures for acceleration and maximum speed should be utilized in soccer players. In the respect of these findings and the finding of this study, the positional difference in velocity times can be chance with the sample group. It seems future studies needed for a better comparison with measuring the agility as well as velocity times. It was thought that the indifference between positions may be the players from all positions have the same training experiences for years.

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Trajectory Analysis of the Natural Turn Movement Used in Ballroom Dance

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ABSTRACT

The aim of this study is analysis of short term demonstrations of the natural turn movement used in ballroom dance by trajectory analysis of video data. A high speed digital camera (1/240 s per frame) was sufficient to resolve the minute differences between the movement of a professional dancer and an amateur dancer. The analysis of video data using the two-dimensional trajectory analysis software confirmed that attaching light emitting diode (LED) lamps to the neck, elbow, waist, and knee was an effective method for determining the precise position of body parts. The trajectory data revealed a clear accent in the movement of the professional dancer, unlike the case of the amateur dancer. Further, the neck position and trunk angle of the professional dancer was very stable. The movement of a couple (male and female) was also analyzed. This revealed that the movement of the upper part of the dancer's body was strongly affected by the existence of the partner. Our study demonstrates that a simple video analysis is an effective method to improve ballroom dance movements and that this method can be used even in a small dance studio.

Keywords: *video analysis, two-dimensional, natural turn, education*

INTRODUCTION

Ballroom dance is a popular sport with a long history dating back to the 12th century (Raymond et al., 2005; Wyon et al., 2007; Hopper et al., 2011). From children to the elderly and from professionals to amateurs, the variety in the population of ballroom dancers is large. In 2011, dancing became a compulsory subject at junior high schools in Japan. Therefore, the development of convenient educational methods that can be used even at junior high schools or small dance studios, and not only at large institutions, is an important research subject. In fact, it is impressive that dance, as a form of exercise, is taught at a very large number of small dance studios. Thus, designing new educational methods that only require small and low-cost equipment is probably an effective approach to facilitate the application of these methods to small studios.

Competitive ballroom dance is an important field in dance sport. It is an official event at the World Games and is supported by the International Olympic Committee. There are many competitive ballroom dance events for not only professional dancers but also amateur dancers. These competitions provide motivation to a wide range of dancers. In competitive ballroom dance, precise movements are required to obtain high scores. If a method can verify proper dance movements in detail, it would be useful for training competitive ballroom dancers.

The progress in video recording techniques has drastically changed the training methods of various sports (Chen et al., 2009; Yu et al., 2009; Duarte et al., 2010; Chang and Lee, 1997). In particular, video analysis

of baseball and football has been used extensively over the last ten years (Bebie & Bieri, 2000; Thomas, 2007; Chen et al., 2010). Further, some reports have focused on trajectory analysis using the video data, especially in baseball (Theobalt et al., 2004; Graham, 2007; Chen et al., 2008) and football (Yu et al., 2006; Ren et al., 2009). By precisely visualizing the trajectory of the movements, improvements in the movements can be easily realized. Although the advantages of video analysis and trajectory analysis using video data are obvious, we could not find any studies that applied such methods to ballroom dance. Only a few very recent papers have demonstrated the analysis of ballet movements using video (Wyon et al., 2011).

In this work, we analyzed in detail the movement of the natural turn, which is one of the basic ballroom dance movements, by two-dimensional (2D) trajectory analysis. In particular, we focused our analysis on a short period of movement (3 s) that was recorded by a commercially available high speed camera (1/240 s per frame), and analyzed using 2D video analysis software. The use of light-emitting diode (LED) lamps to pinpoint the neck, elbow, waist, and knee positions was demonstrated to improve the accuracy of the analysis.

MATERIALS AND METHODS

Test subjects: Two Japanese adult men (Subject 1 and 2) and a Japanese adult women (Subject 3) performed the natural turn movement as test subjects. Subject 1 (S1), subject 2 (S2), and subject 3 (S3) hold a professional standard C, amateur standard C, and amateur C license, respectively, and the licenses were authorized by the Japan Ballroom Dance Federation (JBDF). S1, S2, and S3 had 7, 2, and 2 years of ballroom dancing experience, respectively. This study was approved by the Institutional Human Experimentation Committee. The informed consent was obtained from all the subjects by documents.

Recording of movement: The natural turn movements performed by S1 and S2 were recorded with a digital camera (EXILIM EX-FH25, CASIO Co., Tokyo, Japan) as AVI format files. The shutter speed was 1/240 s per frame. The movement duration was 2.5 to 3 s. To check for reproducibility, five natural turn movements were recorded per subject. Further, the experiment was repeated one month after the first experiment. During the recording, small LED lights (GENTOS LED HELP LIGHT, HC-12SL, SAINT GENTLEMAN Co. Ltd., Tokyo, Japan) were attached at the fifth cervical vertebra (neck), the olecranon (elbow), the fifth lumber vertebra (waist), and on the knee cap (knee) of the subjects during some trials in order to pinpoint the positions of the neck, elbow, waist, and knee.

Trajectory analysis: The positions of the neck, elbow, waist, and knee of each subject were determined using 2D video analysis software (Move-tr/2D 7.0, Library Co., Tokyo, Japan) with the centroid mode (Murase et al., 2011, Murase et al., 2012). The trajectories of each body part were drawn using the same software. The velocity, acceleration, and angle of the trunk of the body were calculated based on the determined positions.

RESULTS

Figure 1 shows the setup used in our experiments. In each experiment, the subject (S) moved from left to right. This movement direction was defined as the *x* axis, and the distance travelled was 300 cm for both a single test subject and a couple. A digital camera was located on the right side of the subject. The distance between the camera and the center position of the subject's course was 250 cm and 310 cm for a single test subject and a couple, respectively. The movements of the subjects were recorded by the camera, and then analyzed using the 2D trajectory analysis software.

A series of snapshots of the natural turn movement are shown in Fig. 2. The movement was completed in almost 3 s, and the video was comprised of a series of still images that were captured 240 times per second. The LED lights attached at the neck, elbow, waist, and knee can be observed as bright spots in each image. Using the 2D video analysis software, the positions of each LED in each image were determined. The positions of the neck and elbow, elbow and waist, and waist and knee were connected with straight lines. The time course of the LED positions and the lines connecting the positions revealed a substantial amount of information.

In order to verify the reproducibility of the analysis, the video recording experiment was performed five times. Figure 3 shows the average trajectory of the five trials. The standard deviation of each data point is indicated by the black bands. The standard deviations of the neck, elbow, and waist movements were rather small for both S1 and S2, as shown in Fig. 3(a) and (b), respectively.

Figure 4 shows the velocity profile of each LED. The velocity is calculated from the derivative of the positions, and thus, detailed characteristics of the velocity profile can be highlighted. The velocities of neck, elbow, waist and knee were repeated increase and decrease even within 3 seconds both in S1 and S2.

To evaluate the fluctuations in the movement of the trunk of the body, an angle analysis was carried out (Fig. 5). For the angle analysis, the neck and elbow positions were connected by a straight line. Then, the angle between this line and a normal to the floor was determined. In both of S1 and S2, the angle was increased according to time, however, the profile was not similar in the two subjects.

Finally, we applied the trajectory analysis to a pair of test subjects as they danced (S2 and S3). In this case, the movement of the female (S3) was monitored. Figure 6 (a)–(c) shows a series of snapshots of S3 without S2. S3 wore LED lights on the left side of her body. Further, similar snapshots of S2 and S3 are shown in Fig. 6 (d)–(f). In this case, both S2 and S3 wore LED lights. The trajectories of the neck, elbow, waist, and knee are superimposed in each picture.

The velocity profile of each LED during the pair dancing is shown in Figure 7. From the data recorded while the pair was dancing, the data representing the movement of S3 (female) are plotted.

DISCUSSIONS

Difference of trajectories between S1 and S2 can be discussed in Figure 2. At the origin ($t = 0$), in the case of S1 (Fig. 2(a)), the lines between the subject's neck, elbow, waist, and knee were almost perpendicular to the floor, although the subject's elbow was tilted slightly backward. However, in the case of S2 (Fig. 2(b)), position of the elbow was obviously located plane behind the subject's body, and the neck-elbow and elbow-waist angles were almost 90°. The difference between S1 and S2 is clearly visible in the pictures on account of the connecting lines.

At the mid-point of the movement, the elbow and knee locations of S1 and S2 differed. S1's elbow and knee were in front of and behind his body, respectively (Fig. 2(b)), whereas the reverse was true for S2 (Fig. 2(e)). The difference between the time that S1 and S2 reached the mid-point of the movement was only 0.26 s (time taken to reach the mid-point was 1.58 s and 1.32 s for S1 and S2, respectively), and the snapshot clearly illustrates the difference between the movement of S1 and S2.

At the final position, the complete trajectories of the neck and the elbow revealed valuable information. S1's neck followed a very slow arc trajectory, and his neck was tilted slightly downward at the mid-point of the movement. This suggests that S1's neck was almost at a constant height. In contrast, the trajectory of S2's neck was a large arc. This means that S2 squatted lower than S2 in the middle portion of the movement. The above data clearly demonstrate that S2 (amateur license) can identify problems with his movements by comparing his recorded data with the data of S1 (professional license) using this video analysis method.

Figure 3 revealed the reproducibility of the movements of S1 and S2. The averaged data of five times trials showed small standard deviations. This means that the movements of S1 and S2 did not fluctuate significantly across the five individual trials, and thus, each subject shows relatively consistent movements, even for a short movement. Figure 3(c) shows the trajectory of S1's movement that was analyzed using data from the experiment performed without the LED lights. In this case, the standard deviation values were very large, even for the neck, elbow, and waist positions. Clearly, wearing LED lights is an important technique for ensuring that the dance movement is traced accurately.

Figure 4 clearly showed difference of velocity profiles between S1 and S2. In the case of the neck velocity profile (Fig. 4(a)), S1's data contained three clear peaks. In the case of S2, although there were three peaks, the peaks were not clearly distinguishable. This difference likely indicates that S1 exhibited a more prominent accent in his movements even in short movement. Similar results were observed with the elbow

data. Although two clear peaks were observed in S1's data, there was one large peak and fluctuations in S2's data. As we mentioned in relation to Fig. 2, S2 positioned his elbow behind his body (Fig. 2(d)), and the elbow pointed downward at the mid-point of the movement (Fig. 2(e)). The fluctuations in the velocity were probably related to the distortion of the trajectory of S2's elbow. For the waist profile, S1's data contained three clear peaks, as observed in the neck profile. This suggests that the movement of the neck and waist of S1 was synchronized, making his trunk movements very stable. The shapes of the neck and waist profiles for S1 were also similar. However, the peaks in the profile of S2's neck and waist were not clearly synchronized. For the knee profile, large differences in the velocity profiles of S1 and S2 were observed.

Figure 5 showed angle analysis during the natural turn movement. In the case of S1, the angle was almost zero at the beginning of the movement. The angle was within 5°until the mid-point of the movement. The angle then increased gradually to 10°by the end of the movement. However, the angle profile of S2 was completely different. The angle was almost 5°at the beginning of the movement. This suggests that the trunk of S2's body was not perfectly vertical i.e., not perpendicular to the floor, at the beginning of the movement. The angle increased to 25°in an undulating manner. The analysis clearly demonstrates the difference in angle of S1 and S2's trunk to the floor.

Figure 6 and 7 showed results of pair dancing. Trajectory analysis was possible even with the pair of subjects dancing, although sometimes, the LEDs on one dancer were hidden by the body of the partner. If perfect detection of the eight lights is expected, additional equipment such as a three-dimensional camera setup may be necessary. However, such a complicated system is beyond the scope of this work because we are trying to conceptualize a simple system that can be applied even at typical small studios.

Velocity analysis of the pair dancing was shown in Fig. 7. For the waist and knee, there is no significant difference between the data from the single dancer and pair of dancers. For the waist data, three clear peaks are observable in both cases (see the arrows in Fig. 7(c) and (g)). Similarly, three peaks are observable in the knee data (see the arrows in Fig. 7(d) and (h)). This indicates that movement of the waist and knee was not affected by the presence of S2.

On the other hand, movements of the neck and elbow were strongly affected by the presence of S2. In the case of the neck movements, when S3 performed the test movement alone, the LED was observed from 0 s to 2.3 s (Fig. 7(a)). The LED was then hidden, which was probably because of her body's rotation. However, when S3 performed the same natural turn movement with S2, the velocity profile changed dramatically (Fig. 7(e)). In this case, the LED was hidden from 0 s to 2 s. This suggests that the lateral angle of S3's neck was strongly affected by the presence of S2.

In the case of the elbow movement, the velocity profiles from 0 s to 1.1 s shown in Fig. 7(b) and (f) are almost the same, and show one small peak. However, the LED was hidden after 1.1 s when S3 danced alone. S3's arm was likely to have been heavily bent when performing alone.

The results suggest that the upper body of S3 was strongly affected by the interaction with S2 although the lower part of her body was not affected. The upper body of S3 was in direct contact with S2, and thus, the angle of the neck and elbow of S3 may have been strongly influenced by the presence of S2. This suggests that exercises with a partner are important to precisely study the ballroom dance movements of a subject.

CONCLUSION

Our results revealed that the characteristics of the natural turn movement used in ballroom dance can be analyzed using a commercially available video camera at a typical small dance studio. By analysis using a 1/240 s shutter speed, very minute differences between two subjects who had professional and amateur licenses could be clearly observed using a trajectory and velocity profile. We believe that this method can be applied in order to provide corrective ballroom dance instructions even at small dance studios and schools.

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FIGURE CAPTIONS

Figure 1

Setup for video recording of the natural turn movement used in ballroom dancing.

Figure 2

Series of snapshots of the natural turn movement. Trajectories of the neck, elbow, waist, and knee are superimposed. (a)–(c) and (d)–(f) are snapshots of the motion of S1 and S2, respectively.

Figure 3

Average trajectories of the five trials. The black bands indicate the standard deviations. (a) S1 with LED lights. (b) S2 with LED lights. (c) S1 without LED lights.

Figure 4

Velocity profiles of the neck, elbow, waist, and knee. (a)–(d) and (e)–(h) indicate velocity profiles of the motion of S1 and S2, respectively.

Figure 5

Angle change of the trunk of (a) S1 and (b) S2.

Figure 6

Snapshots of the natural turn movement. Trajectories are superimposed. (a)–(c) and (d)–(f) show snapshots of the single dancer and the pair dancing, respectively.

Figure 7

Velocity profiles of the neck, elbow, waist, and knee of S3. (a)–(c) and (d)–(f) show profiles corresponding to the single dancer and the pair dancing, respectively.
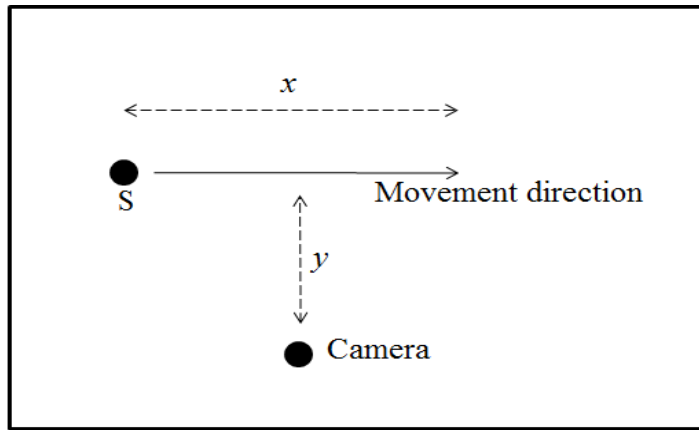
Figure 1   Umemura *et al*.
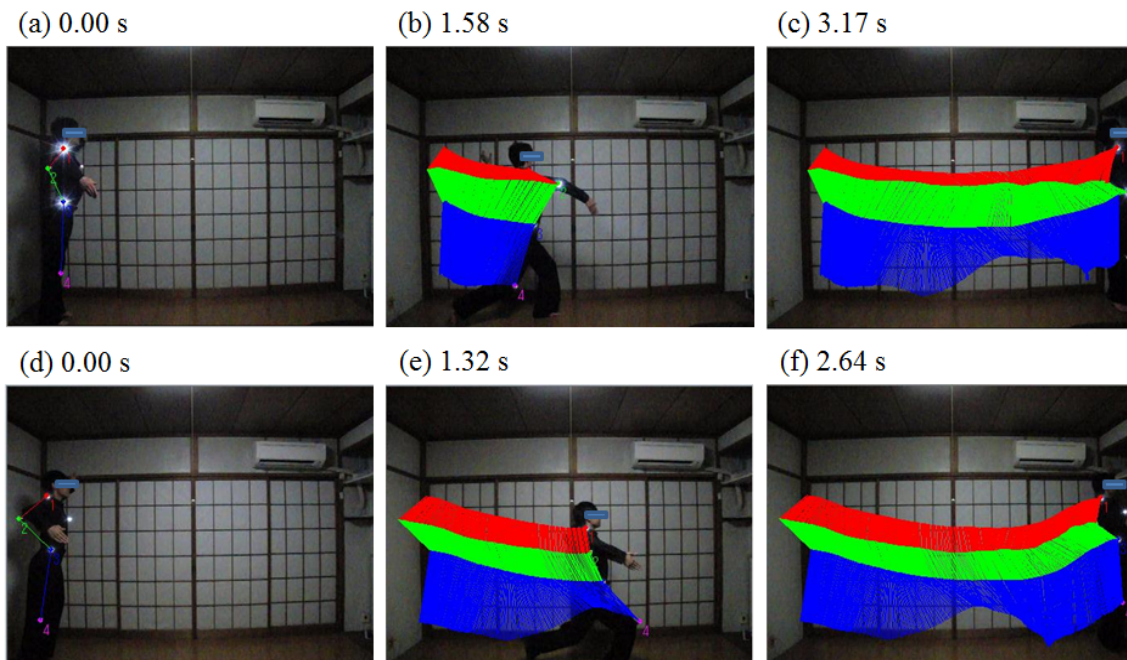
Figure 2   Umemura *et al*.
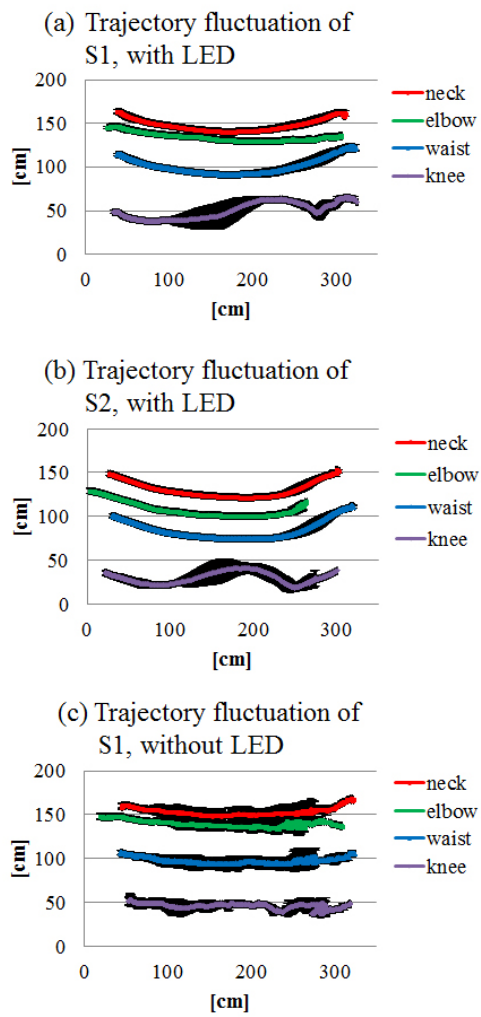
Figure 3   Umemura *et al.*
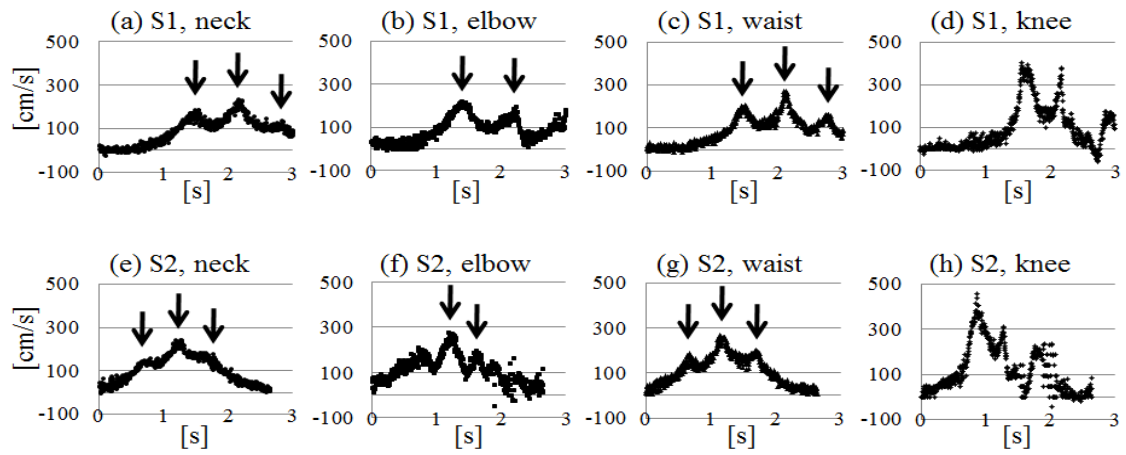
Figure 4   Umemura *et al*.

Figure 5   Umemura *et al*.

(a) S3, single, 0.00 s

(b) S3, single, 1.53 s

(c) S3, single, 3.07 s

(d) S3, pair, 0.00 s

(e) S3, pair, 1.57 s

(f) S3, pair, 3.33 s

Figure 6   Umemura *et al*.

(a) S3, single, neck

(b) S3, single, elbow

(c) S3, single, waist

(d) S3, single, knee

(e) S3, pair, neck

(f) S3, pair, elbow

(g) S3, pair, waist

(h) S3, pair, knee
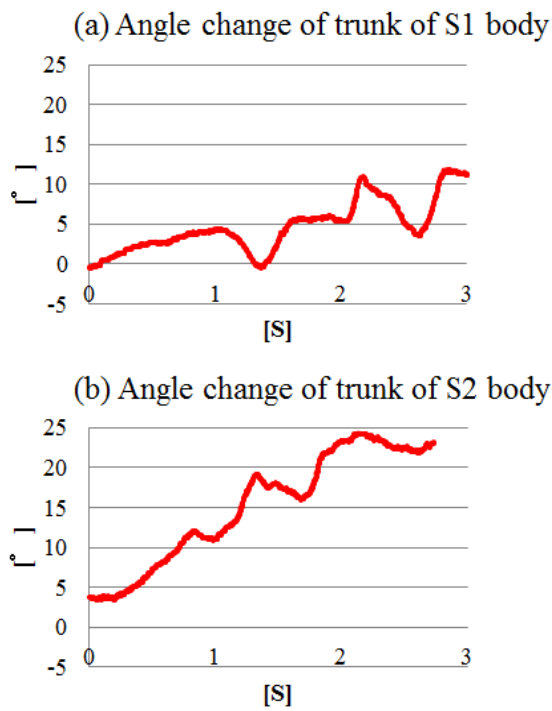
Figure 7   Umemura *et al*.

Investigation of the Motivations of Parents Leading Their Disabled Children to Sports

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ABSTRACT

The aim of this study is to determine the motivations of the families that leading their children with mental disabilities to sports. The study is important to identify the ideas of the families living in the provinces of Muğla and Adana with children with mental disabilities intended for routing their children sports and the benefits of sports. A total of 35 families from Muğla and Adana provinces participated in the survey on a voluntary basis.The questionnaire of th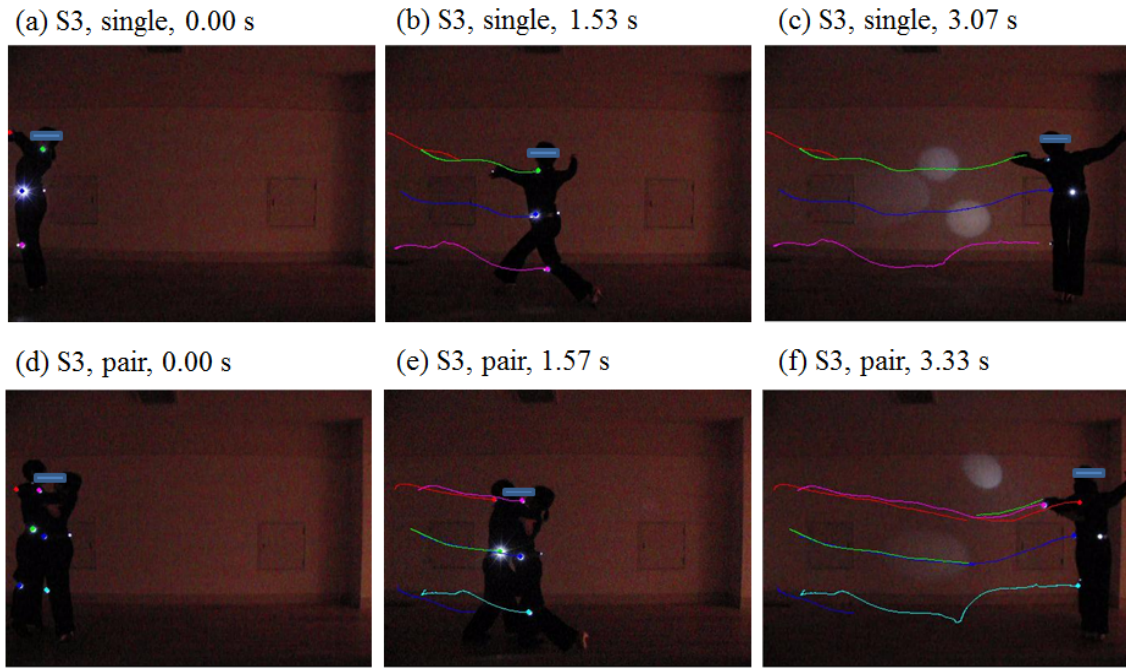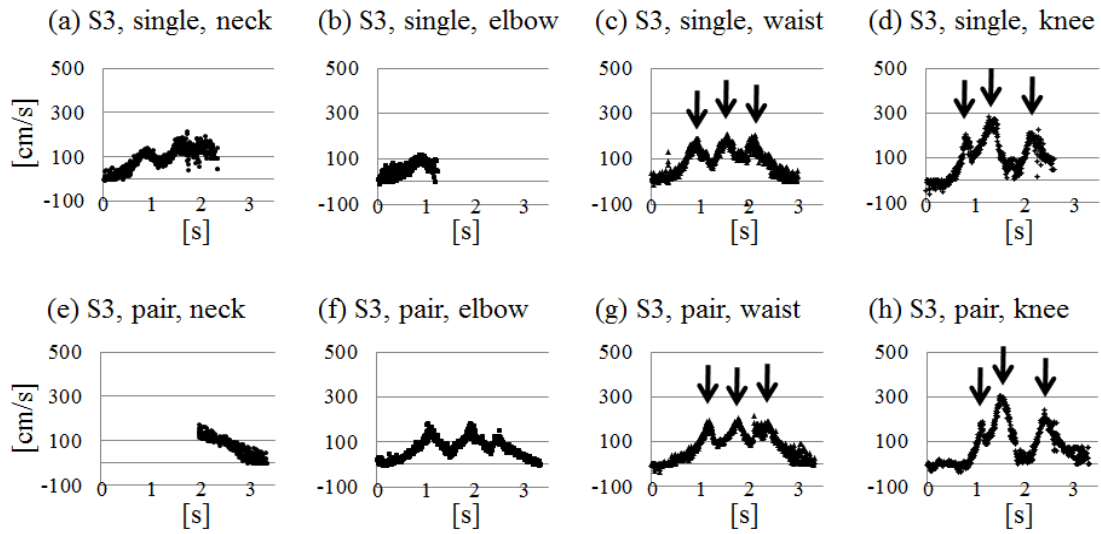e research is excerpted from Keskin's (2006) study "Expectations of parents leading their children to sports". Statistical analysis was conducted using SPSS 17 package program. The evaluation of research data is based on frequency and percentage analysis.%58,33 of the families participating in the study stated that "children spend their free time in sports", %66,66of the families participating in the study stated that "the discharge of the child's energy in a positive way through sport spend", %52,7 of the families participating in the study stated that "children learn to control the aggressiveness of the child through sport", %50 of the families participating in the study stated that "sports will help the child to acquire new people and make new friends encounter", %33,3 of the families participating in the study stated that "mentally disabled children stay away from harmful substances (i.e. alcohol and cigarettes) thought to sporting events, %52,7 of the families participating in the study stated that "sports activities would be a positive contribution to the development of physical and physiological of the children with mental disabilities" and %33,3 stated that "want their children to be a successful athlete in the future".In conclusion, it could be stated that the parents are leading their disabled children to sports to spend children's free time in sports,to discharge their energy in a positive way through sport spend and to control the aggressiveness of the child through sport.

Keywords: *Family, Mental Disabilities, Sports*

INTRODUCTION

It is well known that sport and physical education are necessary for a healthy life and important for all people. Sport is one of the most important tools for mentally retarded individuals who face many obstacles in normal life in order to make themselves accepted in the society. Regardless of the obstacles' degree, moving and taking parts in sports activities bring an indefinable happiness to each individual. This happiness triggers the individual's motivation for life. Along with sharing the loneliness with other people, sport also plays an important role in providing the progression of

physical and mental abilities in a healthy way (Akın, 2006).

Sport in children is generally about body control, body coordination; in other words, it means the development of neural and muscular systems. The development of basic movements such as running, jumping, climbing creates the basis of motor development (Erkal, 1996).

Family, on the other hand, is a social institution which provides the continuation of its type as a result of biological relationships and has biological, psychological, economic, legal, and similar aspects that transfer material and spiritual wealth formed in the society from the very beginning of socialization process to the day when mutual relations were started to be arranged according to some certain rules (Doğan, 2000).

A person's life starts with a social group and ends in a social group. Individuals need other people's help, support, and cooperation in order to meet their needs and lead their lives (Öztürk, 1998).

Sports activities which today concern people from all ages and is a natural requirement has become a sector that involve different application techniques according to individuals' characteristics and abilities and concern the whole society (Kale ve Ersen, 2003).

Mental disability is the condition which leads to a continuous slowness, discontinuation, and regression in mental developments and functions due to various reasons and as a result brings retardation and inability in effective, compatible behaviors (Baysal, 1986).

Being mentally retarded is; having mental functions under normal standards and having a limitation of two or more behaviors in terms of communication, self-care, domestic life, social abilities, academic functions, orientating yourself, health and security, leisure time, learning and socialization (Er, 2001). In order to determine an individual's disability, it is important to know to what extent not performing some activities affect that individual in fulfilling his roles required by his domestic, work, and social life (Özer, 2001).

In our society, it is not easy to be different from the majority and this is the same not only in our society but also in all societies. Individuals with a difference do not regard themselves as a part of that society and feel as if they do not belong to that majority. Therefore, identifying the children who are different and have unusual needs, determining how these needs can be met and how their diagnosis should be done are the issues that must be handled carefully (Ataman, 2003).

Parents' interest and level of knowledge have an impact on sport's becoming widespread in a conscious way, gaining a social dimension, and raising a healthy generation (Yetim, 2005) and the way parents nurture and direct their children decides how these children live and behave throughout their lives (Tümer, 2001) .

In the light of these data, the aim of this study is to research families' reasons for directing their children with mental disability to sports and determining these reasons.

RESEARCH INSTRUMENT AND THE METHODOLOGY

Research Model

In this research, a questionnaire was used in order to reach the views of families who direct their mentally retarded children to sport or support their children's interest in sports regarding the sport's effect on physical, social,

psychological, and mental developments; to identify their attitudes towards recreations; to determine their expectations concerning children's showing a compatible personality through sports and controlling their aggression. .

Population and Sample

While the research population was the families of mentally retarded children living in Muğla and Adana provinces, the research sample was the families of mentally retarded children who direct their children to sports and live in Muğla and Adana provinces.

Data Collection Tools

The questionnaire applied in this research was taken from a study by Keskin(2006) called 'The Expectations of Parents Who Direct Their Children to Sports'. The questionnaire consists of two parts. In the first part, parents' distinctive features such as age, gender, and educational status were identified; in the second part, parents' reasons and expectations for directing their children to sports were defined. The questionnaire was delivered by hand to respondents and then collected.

Data Analysis

In analyzing the questionnaires, SPSS 14 package program was used.

FINDINGS

Comparing the age distribution of participants, it can be observed that the highest was 46-50 age range with %33,3, second was 51-55 age range with %27,7, and third was 40-45 age range with %22,2 whereas the lowest was 56-63 age range with % 16,6.

Regarding the respondents, 36 people including 16 men and 20 women participated in this study. While %55,55 of the participants were female, %44,44 of them were male.

Table 1.Occupational Distribution of Respondents

Occupation	frequency	percentage
Teacher	8	22,22
Academic	1	2,77
Doctor	2	5,55
Self-employed	4	11,11
Officer	6	16,66
Worker	4	11,11
Housewife	9	25
Engineer	2	5,55
Total	36	100

In Table 1, occupational distribution of respondents was provided. According to this table, the highest percentage belongs to housewife with n=9 and %25, second was teacher with n=8 and %22,22, third was officer with n=6 and %16,66, fourth one was self-employed and worker with the same percentage %11,11 and frequency n=4, it was followed by doctor and engineer with n=2 and %5,55, and the lowest percentage belongs to academic with % 2,77 and n=1.

Table 2.Educational Status of Respondents

Educational Status	Frequency	Percentage
Primary School	9	25
Secondary School	5	13,8
High School	7	19,4
Associate Degree	1	2,7
Bachelor's Degree	7	19,4
Master's Degree	2	5,5
Doctorate	3	8,3
Illiterate	2	5,5
Total	36	100

In Table 2, educational statuses of respondents were given. According to this data, the highest percentage belongs to primary school with %25 and n=9, second was high school and bachelor's degree with n=7 and % 19, 44, third was secondary school with n=5 and %13,88, fourth was doctorate with n=3 and %8,3, it was followed by master's degree and illiterate with n =2 and %5,5 whereas the lowest percentage belongs to associate degree with %2,7 and n=1.

Table 3. Respondents' Views on "I want my child to spend his free time with sports activities"

	Frequency	Percentage
Strongly Agree	21	58,33
Agree	15	41,66
Total	36	100

Analyzing the responses in Table 3 with regard to "I want my child to spend his free time with sports activities", it was observed that with n=21 and %58,33 the participants replied 'strongly agree' and with n=15 and %41 they responded 'agree'.

Table 4. Respondents' Views on "I believe that my child will spend his energy in a positive way through sports"

	Frequency	Percentage
Strongly Agree	24	66,66
Agree	12	33,33
Total	36	100

In Table 4, respondents' views on I think that my child can spend his energy in a positive way through sports" were given. According to this, with n=24 and %66,66 they answered 'strongly agree' and with n=12 and %33,33 they replied 'agree'.

Table 5. Respondents' Views on "I believe that my child will control his aggression through sports"

	Frequency	Percentage
Strongly Agree	19	52,7
Agree	10	27,7
Undecided	6	16,6
Disagree	1	2,7
Total	36	100

In Table 5, respondents' views on "I think that my child will control his aggression through sports" were provided. According to this data, the highest was 'strongly agree' with n=19 and %52.7, then 'agree' with n=6 and %27,72, it was followed by 'undecided' with n=6 and %16,6 while the lowest was 'disagree' with n =1 and %2.7.

Table 6. Respondents' Views on "I believe that my child will develop a compatible personality through sports activities"

	Frequency	Percentage
Strongly Agree	18	50
Agree	10	27,7
Undecided	8	22,2
Total	36	100

In Table 6, respondents' views on "I believe that my child will develop a compatible personality through sports activities" were presented. Regarding this data, the highest was 'strongly agree' with n=18 and %50 and it was followed by 'agree' with n=10 and %27,7 while the lowest was 'undecided' with n=8 and %22,2.

Table 7. Respondents' Views on "I believe that sports will help my child meet new people and make new friends"

	Frequency	Percentage
Strongly Agree	18	50
Agree	17	47,2
Undecided	1	2,7
Total	36	100

In Table 7, respondents' views on "I believe that sports will help my child meet new people and make new friends" were provided. According to this; the highest was 'strongly agree' with n=18 and %50 and it was followed by 'agree' with n=17 and %47,2 whereas the lowest was 'undecided' with n=1 and %2,7.

Table 8. Respondents' Views on "I believe that my child will develop a sense of responsibility through sports"

	Frequency	Percentage
Strongly Agree	14	38,8
Agree	11	30,5
Undecided	8	22,2
Disagree	3	8,3
Total	36	100

In Table 8, the distribution of respondents' views on "I believe that my child will develop his sense of responsibility through sports" was illustrated. According to this; the highest was 'strongly agree' with n=14 and %38,8, second was 'agree' with n=11 and %30,5, it was followed by 'undecided' with n=8 and %22,2, and the lowest was 'disagree' with n=3.

Table 9. Respondents' Views on "I think that my child will avoid selfishness through sports activities"

	Frequency	Percentage
Strongly Agree	12	33,3
Agree	13	36,1
Undecided	4	11,1
Disagree	7	19,4
Total	36	100

In Table 9, respondents' answers about "I think that my child will avoid selfishness through sports activities" were presented. According to this data; the highest was 'agree' with' n=13 and %36,1, second was 'strongly agree' with n=12 and %33,3, it was followed by 'undecided' with n=7 and %19,4, and the lowest was 'disagree' with n=4 and %11,1.

Table 10. Respondents' Views on "I believe that my child will develop his sense of cooperation through sports activities"

	Frequency	Percentage
Strongly Agree	16	44,4
Agree	11	30,5
Undecided	5	13,8
Disagree	4	11,1
Total	36	100

In Table 10, respondents' views on "I believe that my child will develop his sense of cooperation through sports activities" were given. According to this; the highest was 'strongly agree' with n=16 and %44,4, second was 'agree' with n=11 and %30,5, it was followed by 'undecided' with n=5 and %13.8, and the lowest was 'disagree' with n=4 and %11,1.

Table 11. Respondents' Views on "I believe that my child will have a healthier and better posture through sports activities"

	Frequency	Percentage
Strongly Agree	16	44,4
Agree	13	36,1
Undecided	6	16,6
Disagree	1	2,77
Total	36	100

In Table 11, respondents' views on "I believe that my child will have a healthier and better posture through sports activities" were shown. According to results; the highest percentage belongs to 'strongly agree' with %44,4 and n=16, second was 'agree' with n=13 and %36,1, third was 'undecided' with n=6 and %16,6, and the lowest was 'disagree' with n=1 and %2,7.

Table 12. Respondents' Views on "Sports activities help my child avoid and eliminate stress"

	Frequency	Percentage
Strongly Agree	16	44,4
Agree	15	41,6
Undecided	3	8,3
Disagree	2	5,5
Total	36	100

In Table 12, respondents' views on "Sports activities help my child avoid and eliminate stress" were provided. According to this table; the highest was 'strongly agree' with n=16 and %44,4, second was 'agree' with n=15 and %41,6, third was 'undecided' with n=3 and %8,3, and the lowest was 'disagree' with n=2 and %5,5.

Table 13. Respondents' Views on "Sports activities help my child increase his creativity"

	Frequency	Percentage
Strongly Agree	12	33,3
Agree	13	36,1
Undecided	8	22,2
Disagree	3	8,3
Total	36	100

In Table 13, respondents' views on "Sports activities help my child increase his creativity" were illustrated. Regarding the table, it was observed that responses of 'agree' with n=13 and %36,1, 'strongly agree' with n=13 and %33,3, 'undecided' with n=8 and %22,2, and 'disagree' with n=3, and %8,3 were given.

Table 14. Respondents' Views on "My child spends his free time in an entertaining and joyful way by gaining the habit of doing sports"

	Frequency	Percentage
Strongly Agree	22	61,1
Agree	13	36,1
Undecided	1	2,7
Total	36	100

In Table 14, respondents' views on "My child spends his free time in an entertaining and joyful way by gaining the habit of doing sports" were given. According to this table; responses were 'strongly agree' with n=22 and %61,1, 'agree' with n=13 and %36,1, and 'undecided' with n=1 and %2,7.

Table 15. Respondents' Views on "My child improves his self-confidence by experiencing a sense of success through sports activities"

	Frequency	Percentage
Strongly Agree	14	38,8
Agree	15	41,6
Undecided	2	5,5
Disagree	5	13,8
Total	36	100

In Table 15, respondents' views on "My child improves his self-confidence by experiencing a sense of success through sports activities" were provided. According to table; the results were 'agree' with n=15 and %41.6, 'strongly agree' with n=14 and %38,8, 'disagree' with n=5 and %13,8, and 'undecided' with n=2 and %5,5.

Table 16. Respondents' Views on "I believe that my child will have a healthier body through sports activities"

	Frequency	Percentage
Strongly Agree	**17**	**47,2**
Agree	**16**	**44,4**
Undecided	**3**	**8,3**
Total	**36**	**100**

In Table 16, respondents' views on "I believe that my child will have a healthier body through sports activities" were shown. Regarding the table, the responses were 'strongly agree' with n=17 and %47,2, 'agree' with n=16 and %44,4, and 'undecided' with n=3 and %8,3.

Table 17. Respondents' Views on "I believe that my child will develop an active life style through sports activities"

	Frequency	Percentage
Strongly Agree	**16**	**44,4**
Agree	**10**	**27,7**
Undecided	**5**	**13,8**
Disagree	**3**	**8,3**
Strongly Disagree	**2**	**5,5**
Total	**36**	**100**

In Table 17, respondents' views on "I believe that my child will develop an active life style through sports activities" were given. According this table, responses were; 'strongly agree' with n=16 and %44,4, 'agree' with n=10 and %27,7, 'undecided' with n=5 and %13,8, 'disagree' with n=3 and %8,3, and 'strongly disagree' with n=2 and %5.5.

Table 18. Respondents' Views on "I believe that my child will make friends and experience the sense of sharing through sports activities"

	Frequency	Percentage
Strongly Agree	**15**	**41,6**
Agree	**12**	**33,3**
Undecided	**4**	**11,1**
Disagree	**5**	**13,8**
Total	**36**	**100**

In Table 18, respondents' views on "I believe that my child will make friends and experience the sense of sharing through sports activities" were presented. The responses were; 'strongly agree' with n=15 and %41,6, 'agree' with n=12 and %33,3, 'disagree' with n=5 and %13,8, and 'undecided' with n=4 and %11,1.

Table 19. Respondents' Views on "My child gains the habit of an adequate and balanced diet through sports activities"

	Frequency	Percentage
Strongly Agree	**14**	**38,8**
Agree	**19**	**52,7**
Undecided	**3**	**8,3**
Total	**36**	**100**

In Table 19, respondents' views on "My child gains the habit of an adequate and balanced diet through sports activities" were illustrated. According to this table, the highest was 'agree' with n=19 and %52,7, it was followed by 'strongly agree' with n=14 and %38,8, and the lowest was 'undecided' with n=3 and %8,3.

Table 20. Respondents' Views on "I believe that my child will avoid smoking, alcohol, and other harmful substances through sports activities"

	Frequency	Percentage
Strongly Agree	11	30,5
Agree	12	33,3
Undecided	11	30,5
Disagree	2	5,5
Total	36	100

In Table 20, respondents' views on "I believe that my child will avoid smoking, alcohol, and other harmful substances through sports activities" were given. The responses were; 'agree' with n=12 and %33,3, 'strongly agree' and 'undecided' with n=11 and %30,5, and then 'disagree' with n=2 and % 5,5.

Table 21. Respondents' Views on "I directed my child to sports as I wanted him to be a successful sportsman in the future"

	Frequency	Percentage
Strongly Agree	1	2,7
Agree	9	25
Undecided	3	8,3
Disagree	11	30,5
Strongly Disagree	12	33,3
Total	36	100

In Table 21, respondents' views on "I directed my child to sports as I wanted him to be a successful sportsman in the future" were provided. According to this table, the results were; 'strongly disagree' with 'de n=12 and %33,3, 'disagree' with n=11 and %30,5, 'agree' with n=9 and %25, 'undecided' with n=3 and %8,3, and 'strongly agree' with n=1 and %2,7.

Table 22. Respondents' Views on "I believe that sports activities will have a positive effect on my child's physical and physiological development"

	Frequency	Percentage
Strongly Agree	19	52,7
Agree	14	38,8
Undecided	3	8,3
Total	36	100

In Table 22, respondents' views on "I believe that sports activities will have a positive effect on my child's physical and physiological development" were presented. The responses were; 'strongly agree' with n=19 and %52,7, 'agree' with n=14 and %38,8, and 'undecided' with n=3 and %8,3.

DISCUSSION AND CONCLUSION

In this study, a questionnaire was applied in order to determine the reasons and expectations of families who direct their mentally retarded children to sports and live in Muğla and Adana provinces.

Regarding the age distribution of respondents, it can be observed that the highest was 46-50 age range with %33,3, second was 51-55 age range with %27,7, and third was 40-45 age range with %22,2 whereas the lowest was 56-63 age range with % 16,6.

Concerning the gender distribution of respondents, 36 people including 16 men and 20 women participated in

this study. While %55, 55 of the participants were female, %44,44 of them were male.

Regarding the occupational distribution of the respondents, it was observed that the highest percentage belongs to housewife with %25. It was followed by teacher with %22,22, officer with %16,66, self-employed and worker with %11,11, doctor and engineer with %5,55, and the lowest percentage belongs to academic with % 2,77.

In terms of the respondents' educational status, it was pointed that highest percentage belongs to primary school with %25, then high school and bachelor's degree with % 19, 44, secondary school with %13,88, doctorate with %8,3, master's degree and illiterate with %5,5, and the lowest percentage belongs to associate degree with %2,7.

It was noted that the majority of the respondents wanted their children to spend their free time with sports activities as %58,33 of respondents answered 'strongly agree' and %41 of them replied 'agree'. It was found that these results show parallelism with the results of a similar study by Keskin (2006). It is remarkable that in this study respondents preferred their children to spend their free time with sports activities.

It was observed that concerning the statement about believing that children would spend their energy in a positive way through sports, respondents gave an affirmative response since %66,66 of them replied 'strongly agree' and %33,33 of them answered 'agree'.

Regarding the statement about believing that children would control their aggression through sports activities, the majority of respondents with %52.7 replied 'strongly agree' and %27,72 of them answered 'agree'.

It was noticed that concerning the statement about believing that sports would help children meet new people and make new friends, %50 of respondents stated 'strongly agree' and %47,2 of them remarked 'agree'.

Analyzing the percentages of a statement about believing that their mentally retarded children would avoid smoking, alcohol, and other harmful substances through sports activities, %33,3 of respondents replied 'agree' and %30,5 of them answered 'strongly agree'. Also, in a study called "The Expectation of Parents Who Direct Their Children to Sports" by Keskin (2006), it was acknowledged that parents believed that sports would keep their children away from smoking, alcohol, and other harmful substances and the percentage for male respondents was %79,2 and %75,4 for female respondents.

It was observed that the answers of the respondents who believed that sports would have a positive effect on their children's physical and physiological development was 'strongly agree' with %52,7 and 'agree' with %38,8.

The responses about directing children to sports for being a successful sportsman in the future were as following; 'strongly disagree' with %33,3, 'disagree' with %30,5, 'agree' with %25, 'undecided' with %8,3 and 'strongly agree' with %2,7. According to this study, it was found out that the majority of parents did not direct their children to sports in order to be successful sportsman in the future.

It was not encountered a specific research about the disabled children parents' motivation leading them towards sports in literature. But in general, a lot of research can be found about motivation of families orienting children in sport. Gill et al. (1983) listed the main motivations of parents directing the children in sports as "acquire the habit of making regular sport", "team spirit", "health protection and development". Çekipkurt(2005), found that in his research made with the parents who is showing extreme interest in their child's sport; for these parents the main participation

factors are listed as physical development, athletic skill and competition. On the other hand in a study made by Kilcigil (2003) with Turkish parents, their main answers for leading their children in football were "that's what the kid want" and "to obtain financial gain from child" has listed. Pehlivan (2009), found that the most important expectations of families referring their children to sports were "acquire the habit of making regular sport" and "to gain team spirit (sharing, cooperation, and solidarity)" in another study.

As a result, in this study, it was observed that the effective reasons for parents to direct their children to sports were that they preferred their children to spend their free time with sports activities and they believed that their children would learn how to control their aggression and spend their energy in a positive way.

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