

Sports Sciences deals with the way of managing the variables to increase the quality of learning-teaching atmospheres; sustainability and continuity of children's motor performance developments depending on internal periods, sensorial, emotional, perceptual periods and environmental factors or obtaining and developing ranks professionally in a category as a performance. On the other hand, the suggestions for the way of getting under control of the variables which move ahead of a motionless life and the suggestions for gaining a person life-long daily movement activities in order to own a versatile health and realize himself are developed. No matter what is realized, the variables which affect a person's versatile performance need to be determined indeed and these determined variables need to be managed very well so as to reach the target result. No matter what perspectives are looked from, Sports Sciences canalises developing a person's versatile performance capacity by getting under control of the variables in the cognitive, physical, affective, perceptual, sensorial, emotional, social and communal fields.

SPORTS SCIENCES with DIFFERENT PERSPECTIVES



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DIFFERENT PERSPECTIVES

Edted by Mustafa ALTINKÖK

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**SPORTS
SCIENCES**
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Mustafa Altinkök**



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PREFACE

Taking into consideration of the development of scientific fields, it is seen that Sports Sciences is one of the new and dynamically developing scientific fields and its focus is basically on human movement experiences and the variables which affect those experiences. In today's world, Sports Sciences is a scientific field where researches are done to discover innovations and the solutions are produced for the problems that are encountered in the fields such as creating a culture related to sports, developing a performance professionally, directing a person right according to his capacity and skill, skills' acquisition and their development, movement model creation and description during a person's development period starting from pre-birth period. This field, which centers the human, deals with determining and directing skill capacities after gaining him movement models and skills primarily during his development period. Thereafter, it presents performance oriented suggestions or suggestions about getting under control of the variables which affects the arrangement of the atmosphere where he realizes himself in the recreational aimed activities and he answers his daily need for movement in accordance with his need, care and preferences depending on his ability and skill capacity.

Sports Sciences deals with the way of managing the variables to increase the quality of learning-teaching atmospheres; sustainability and continuity of children's motor performance developments depending on internal periods, sensorial, emotional, perceptual periods and environmental factors or obtaining and

developing ranks professionally in a category as a performance. On the other hand, the suggestions for the way of getting under control of the variables which move ahead of a motionless life and the suggestions for gaining a person life-long daily movement activities in order to own a versatile health and realize himself are developed. No matter what is realized, the variables which affect a person's versatile performance need to be determined indeed and these determined variables need to be managed very well so as to reach the target result. No matter what perspectives are looked from, Sports Sciences canalises developing a person's versatile performance capacity by getting under control of the variables in the cognitive, physical, affective, perceptual, sensorial, emotional, social and communal fields.

Accordingly, Sports Sciences is a multi, inter and trans-discipliner scientific field that searches for answers for the human movement mechanics in a wide gap from a daily physical activity to a high level sportive performance which forces a person's limits; for the way of the mechanics' arrangement, control and learning and to the extent of the way of interacting social, environmental and emotional factors with all these.

Assoc. Prof. Dr. Mustafa ALTINKÖK

Editor

Dedicated to my beloved son and my deceased father

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HEMSBALL AN EDUCATIONAL TOOL AS REACTION SPEED AND BALANCE BASED FOR EVERYONE

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Introduction

You can see that from birth onwards changes of various kinds are taking place in an individual's life. A human grows and develops, learns to walk, count, read, write and communicate and also learns to distinguish between right and wrong. We learn new things every day. In order to use what we have learned in our lives, we need education. Even though we differ from each other, we share many commonalities.

Education is not only a process of growing and developing. It aims at the fullest possible realisation of all the potentialities of humans. The things happening in the practical life also educate us.

Education is the vehicle of knowledge, selfpreservation and success (Bhardwaj, 2016).

Education is a continuous learning experience, learning from people, learning from success and failures, learning from leaders and followers. As was noted by Lachman (1997), learning is a change in behavior that is due to experience. But many researchers have claimed that such a simple functional definition of learning is not true (Domjan, 2010; Ormrod, 1999, 2008). According to the Tolman and Honzik (1930), latent learning effects suggest that changes in behavior are not necessary for learning to occur.

Today, many people prefer to learn with the help of physical activity at every stage of their life, especially in childhood. Thus, their bodies are ready for all kinds of difficulties. Physical activity culture is a part of human life and responsible for creating certain life attitudes and thus plays an important role in developing social relationships, interests and moral values (Hargreaves and Vertinsky, 2007). This definition of physical culture, can also disambiguating from the modern structural properties of sports.

Growing and aging is a natural and complex physiological process. It is influenced by many intrinsic (genetic) and extrinsic (psychosocial and environmental) factors (Glatt et al., 2007; Lupien & Wan, 2004). In addition to healthy nutrition and psychosocial well-being, physical activity must be done to

increase the quality of life. Scientific evidence indicates that regular physical activity and exercise are key determinants of health. Appropriate dose of regular physical activity provides male and female of all ages, with physical and mental health benefits (Kruk, 2009).

When people encounter physical difficulties that involve complex tasks in their daily lives, they have difficulty doing these. In addition, they can perform such tasks qualitatively in different ways (Cabeza et. al., 2004). People of all ages use fundamental motor skills, such as walking, jumping, throwing and grasping. In addition, they can perform such tasks qualitatively in different ways (Ketcham and Stelmach, 2001). Motor skills play a crucial role in all phases of the life span (Voelcker-Rehage, 2008). Endurance, strength, speed, flexibility, coordination, stability (balance) and reaction speed are known as basic motor skills (Baltes, 1987).

Motor development explains adaptive or functional changes and factors in movement behavior throughout life. It refers to sequential, continuous and age-related processes whereby movement behavior changes. Motor development encompasses learning and development as well as capacities and constraints (Schmidt and Lee, 1999).

Motor learning encompasses the acquisition of new skills as well as relearning and improvement of motor skills acquired in the past. It is difficult to distinguish motor development from

motor learning. Motor learning is not to be related to age. But not all changes in movement are development. Thus, motor learning is used to describe permanent changes in the capability for motor skills but related to training (Clark and Whittall, 1989).

A movement skill is an organized and well-coordinated sequence of voluntary body movements directed towards a desired outcome. Movements of different body parts must be coordinated to produce a movement skill. Inputs from sensory and cognitive processes are determining how the movements are organized and adjusted (Magill, 1993; Newell, 1986).

Hemsball started to be played in Turkey in 2011. It is different sport from traditional sports due to the characteristics of stability and reaction speed it contains. It is a game that attracts a lot of attention and can be easily played by people of all ages from the day it has started to be played. It also allows the player to use many different abilities during the game.

Balance is defined as the body's ability to keep the center of gravity on the support surface with minimum swing or maximum stability (Irrgang et. al., 1994). In other words, balance is the ability to stand, sit or move without falling. Maintaining balance is the main component of performing any physical movement. Balance is an innate ability and also a learned skill (Ruiz and Richardson, 2005). Balance refers to the effort to provide postural stability while stopping or moving when viewed from the motor skill window (Magill and Anderson, 2017).

Reaction time is a measure of how quickly an organism can respond to a particular stimulus. A choice that is made more quickly is assumed to be easier. Many factors have been shown to affect reaction times, including age, gender, physical fitness, fatigue, distraction, personality type, and whether the stimulus is auditory or visual. Reaction time is expressed as motor-cognitive response time, which represents both the speed of information processing and the motor response of coordinated peripheral movements (Mishra et. al., 2018).

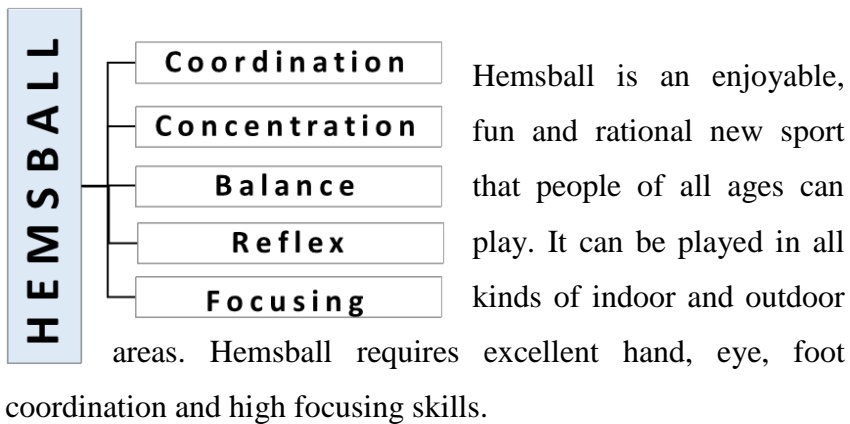
In Hemsball, many shooting techniques are used that require balance and reaction speed (fireball, zigzag, claw, reverse wrist, hose, transfix, altinay, drop, nail, pinwheel etc.). At the same time, balance and coordination are very important when shooting and defending. Players must respond to visual and kinesthetic stimuli. Players with faster reaction speeds are more likely to win the match. Players with a shorter reaction time have a better chance of winning the match.

The physical activity culture has been redeveloped from a variety of pre-existing applications such as traditional skills, weightlifting, gymnastics and military exercises. Today still some teachers, in physical education focuses on drills run in authoritarian style. Instead, it should allow some freedom to the humans to facilitate reflection and solving problems on their own and autonomously through creating new games, or other forms of playful activities (Capel, 2007).

Physical education has a broad range of traditional socialization forms. "Traditional" means associated with unattractive and emotionally and intellectually undemanding (Kirk, 1990). More inclusive, varied activities should be offered, as traditional, competitive sports are often not suitable for all people (Allender, 2006).

Unlike traditional education methods, Hemsball is a game that people of all ages can play. Hemsball can be easily played by adapting by children, young, old and disabled people. It can also be used for kinesthetic and physical development. It can be used for educational purposes in physical education classes in schools, as it can be played in any indoor or outdoor area.

Hemsball Game Rules



Hemsball is played on a flat, smooth and hard surface where the ball can bounce. It can also be played on parquet or synthetic floors. International categories are singles, couples and minors.

The name Hemsball was formed as a result of the combination of the initials of the dynamics in the sport.

H : Hand

E : Energy

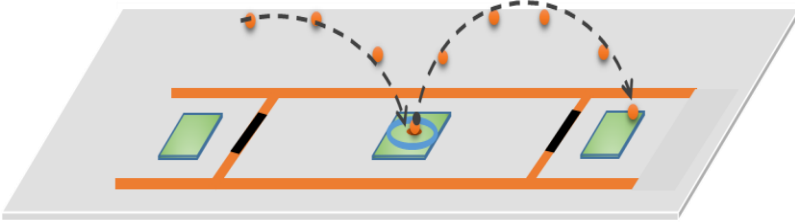
M : Move

S : Stability

BALL

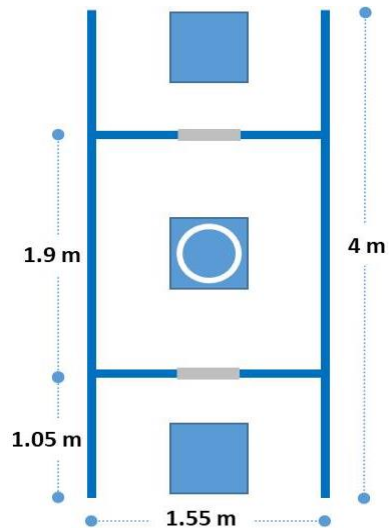
Hemsball aims to get the points by hitting the ball into the circle (on the target board) in the middle of the playing field to fall into the field of the opponent and to prevent the opponent from reaching the same goal. It continues until the ball touches the hoop, goes out or a player makes a mistake. The player who scores will be entitled to serve.

The defending player has every right to hold. However, he cannot step or touch outside the footboard on which he stands.



The playing field is 3 x 1.23 m for minors, 4 x 1.55 m for adults and 4.15 x 2.10 m for the couples. There is at least 2 m clearance from all directions outside the boundaries of the field.

All lines that determine the playing field are 4 cm wide in singles, 5 cm wide in pairs. The lines must be in contrasting and different from the colors of the ground, which players and referees can clearly see.



Hemsball ball sizes vary by age groups and categories. Standard Hemsball ball is made of rubber, filled inside, 55 mm. in diameter, and weighs 95gr+2. There is an equal amount of embossments outwards on the Hemsball balls that have characteristic features. The official ball for adults is orange.

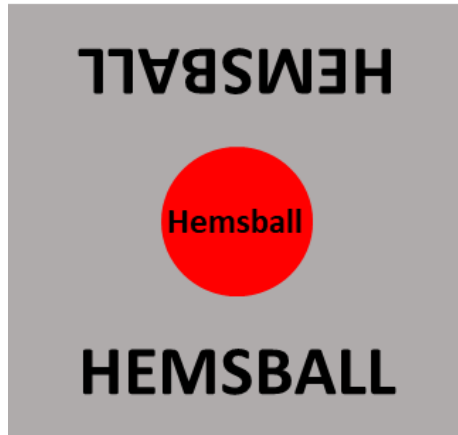
The ball used in the minors category may be made of sponge, plastic or rubber. It is 45-55mm. in diameter and weighs 52-95gr.+2. There is an equal amount of embossments outwards on the Hemsball ball that have characteristic features. Balls in any colour can be used in the minors category.



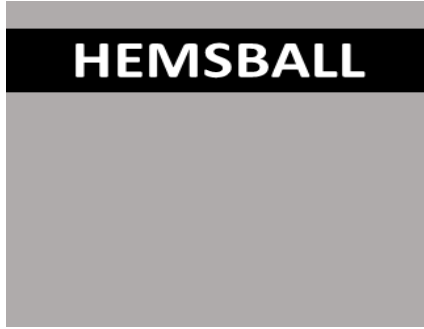
The circle placed in the middle of the field in the Hemsball game is 30 cm in diameter, 18 mm in width and 20 mm in height. Circles can be used in all colors except orange. The circle should be placed on the target board.



The Hemsball target board is a square board with a Hemsball lettering on both sides, measuring 34.5 cm on each side, on which the circle is placed. The target point in the middle of the board is 10 x 10 cm in sizes in red.



The Hemsball footboard (field table) is a 50x40 cm board where players have to stand with one or both feet during the competition, and where they can only touch.



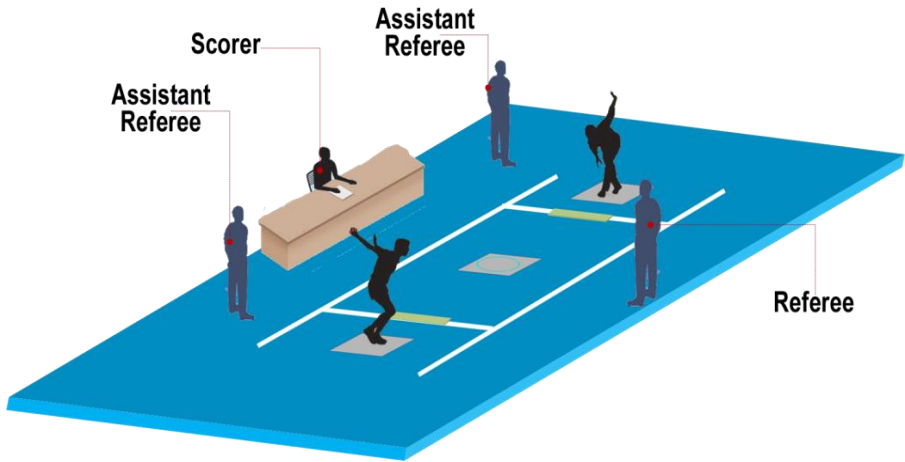
Hemsball area lines are 4 cm x 35 cm sized strips placed on the front line determined for each player and Hemsball is written on them.



Before the Hemsball competition, players are given 5 minutes to warm up mutually on the court. At the end of 5 minutes, the game starts by flipping a coin. The player who loses the lot in the draw has the right to choose the field or ball.

The first service is used in a way that does not exceed the line. The opponent keeps the ball coming to him without dropping it on the ground, and without touching outside of the footboard. During the match, players can catch the ball or throw it to the other side by reaching out and crossing the field line and field strip with their arms with the exception of the first service. The first service rule is not applied in the couples category.

There are 4 referees in competitions.



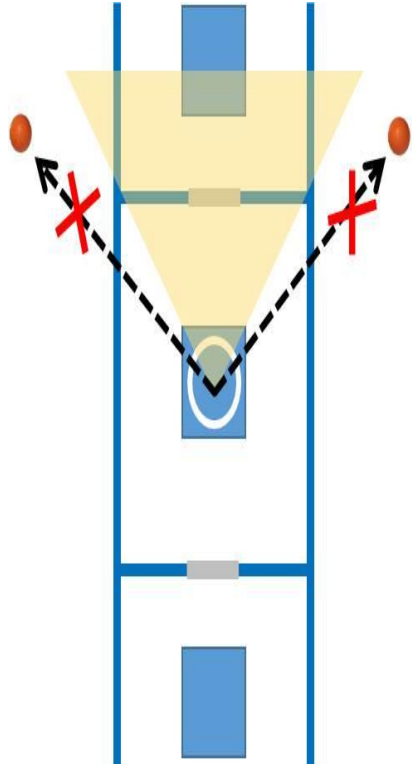
In Hemsball competition, 5 sets are played in the adult category and 3 sets are played in the junior category. Winner of 3 sets in the adult category, winner of 2 sets in the junior category are considered as the winner of the game.

Each set is 12 points. If the points are 11-11, the set continues until there are 2 differences. The field is changed after each set. After each set, players are given a 2-minute rest period.

Each player in a set has 1 time-out and the time-out is 30 seconds.

The following rules apply during the competition:

- The defending player must hold the ball that crosses the field strip and field line without dropping it on the ground and touching the ground outside the footboard. If players touch the ground while they are meeting the ball, the opponent will score 1 point even if they keep the ball.
- In the shooting, after the ball touches in the circle, it has to cross the field line and the lane of the opponent. In non-passing shots, the opponent wins 1 point.
- The player who scores will have the right to serve.
- If the ball thrown in the service or at the time of the competition does not touch the circle, the opponent will win 1 point.
- If the ball hits anywhere on the circle, the opponent receives 1 point.
- The opponent player gets 1 point in the throws that are taken out of the area when the opponent's hands are in the rightmost or leftmost position.



- If the ball touches in front of or on the lane after touching the circle, the opponent will score 1 point.
- The circle cannot be corrected with the foot, the player who corrects it gives the opponent 1 point.
- The ball cannot be hit by a foot, the player who kicks the ball gives 1 point to the opponent.
- The hemsball ball can be held or thrown with one or both hands while serving, meeting the service in the footboard or during the competition.
- The ball can be held by bouncing on the body.
- If the ball comes out of the hand and falls into the footboard, this ball can be held. The footboard is considered within the player's movement area.
- If the player wishes, s/he can shoot by descending in the footboard.
- The player can hold the ball by jumping on the condition of not leaving the field during the match.
- The player can catch and throw the ball on one foot.
- During the rally, the player can hold the ball from any area s/he can reach.
- The player can take her foot out of the footboard without touching the ground.
- You cannot shoot backwards.
- Hemsball is not played with bare feet.

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