

**University of Baghdad
College of Physical Education & Sports Sciences
Postgraduate Department
Workshop entitled:**

*"Sports sciences and its role in developing
the analytical scientific study of sports"*

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WHAT IS SPORTS SCIENCE?

- **Sports science** is a discipline that studies how the healthy human body works during exercise, and how sports and physical activity promote health and performance from cellular to whole body perspectives. The study of sports science traditionally incorporates areas of [physiology \(exercise physiology\)](#), [psychology \(sport psychology\)](#), [anatomy](#), [biomechanics \(sports biomechanics\)](#), [biochemistry](#), and [kinesiology](#).

MOST PEOPLE MISJUDGE SPORTS AND EXERCISE SCIENCES THINKING IT IS JUST ABOUT EXERCISE AND PLAYING SPORT. PARTIALLY, IT IS TRUE YET THERE'S A LOT TO KNOW ABOUT PLAYING.



Exercise physiology

- Exercise physiology is the physiology of physical exercise.
- Understanding the effect of exercise involves studying specific changes in muscular, cardiovascular, and neuro-humoral systems that lead to changes in functional capacity and strength due to endurance training or strength training.
- The effect of training on the body has been defined as the reaction to the adaptive responses of the body arising from exercise or as "an elevation of metabolism produced by exercise".

Awtry, Eric H.; Balady, Gary J. (2007). *"Exercise and Physical Activity"*. In *Topol, Eric J.* (ed.). *Textbook of Cardiovascular Medicine (3rd ed.)*. Lippincott Williams & Wilkins. p. 83. [ISBN 978-0-7817-7012-5](#).



Cyclist may be trained and assessed by exercise physiologists to optimize performance.^[1]

Sports psychology

- **Sport psychology** was defined by the European Federation of Sport Psychology (FEPSAC) in 1996, as the study of the psychological basis, processes, and effects of sport.
- It involves the study of how psychological factors affect performance and how participation in sport and exercise affect psychological and physical factors.
- Sport psychologists teach cognitive and behavioral strategies to athletes in order to improve their experience and performance in sports.

1. Jarvis, Matt (2006). [*Sport psychology : a student's handbook*](#). Routledge. [ISBN 1-84169-581-5](#). [OCLC 60971762](#)



Sports Biomechanics

- **Sports biomechanics** is the quantitative based study and analysis of athletes and sports activities in general.
- It can simply be described as the physics of sports. Within this specialized field of [biomechanics](#), the [laws of mechanics](#) are applied in order to gain a greater understanding of athletic performance through [mathematical modeling](#), [computer simulation](#), and [measurement](#).

*Boone, Tommy. "[Basic Concepts in Sports Biomechanics](#)". Archived from [the original](#) on 28 October 2011. Retrieved 27 October 2011.

Kinesiology

- **Kinesiology** is the scientific study of human body movement. Kinesiology addresses [physiological](#), [anatomical](#), [biomechanical](#), [pathological](#), [neuropsychological](#) principles and mechanisms of movement.
- Applications of kinesiology to human health include biomechanics and [orthopedics](#); strength and [conditioning](#); [sport psychology](#); [motor control](#); skill acquisition and [motor learning](#); methods of [rehabilitation](#), such as [physical](#) and [occupational therapy](#); and sport and [exercise physiology](#).
- There are many different types of exercise interventions that can be applied in kinesiology to athletic, normal, and clinical populations. [Aerobic exercise](#) interventions help to improve cardiovascular endurance.

^ ["Home - Kinesiology"](#). [uwaterloo.ca](#). 20 August 2012. Archived from [the original](#) on 21 October 2012. Retrieved 27 April 2018.



Sports Sociology

- Sport and Exercise Sciences also explores how sport, health and fitness is viewed in society, understanding it through a social scientific and humanistic lens.
- While some think of the body as a machine that can be conditioned to become stronger and faster, we are also human beings with values, different cultures and deep sociological and psychological experiences.

More interrelated sciences with sports

- **Athletic training:** The conditioning of the internal systems through physical activity.
 - **Physical fitness:** It is the ability to carry out daily activities without excessive fatigue.
 - **Nutrition:** It is the scientific study of the food we eat and how the body uses it in relation to exercise.
 - **Tests and measurement:** Tests are instrument, process or a technique used for obtaining response from test taker. Measurement is the process of measuring a test.
 - **Statistics:** It is a mathematical science involving collection and analysis, explanation and presentation of data.
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- Wikipedia the free online encyclopedia. Retrieved 2024.
 - Harold M Barrow, Rosemary McGree and Kathleen A. Trischler, *Practical Measurement In Physical Education And Sport*. 4th ed, (London: Lea & Pediger, 1984), p4.

The importance of Sciences in Sports

- Finally, sports sciences are important because:
- They are used to help identify strengths and weaknesses so that a training program can be individualized for everyone from athletes to the elderly, and everyone in-between.
- Sports Scientists ensure that athletes are up to date with current training protocols, testing, and preparation.

Topics for Discussion

Session(A):10.30-11.30

1	Biomechanics & Fencing Sport	Enas Khalid
		Hasnaa Sameer
2	Biomechanics in Football	Zaid Akram
		Mohammad Abdullah
3	Learning Methods in Swimming for Kids	Sroud Yaseen
		Sajad Muaeen
		Lina Yaseen
4	The Dominant Energy System in Fencing	Najwa Safaa
		Omar Ibrahim
		Muna Ali
5	Sports History: History of Football	Ahmed Oda
		Dhergham Jaber

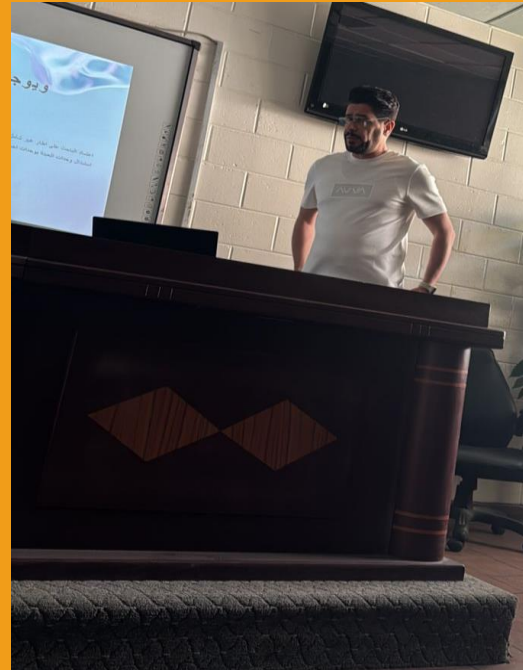
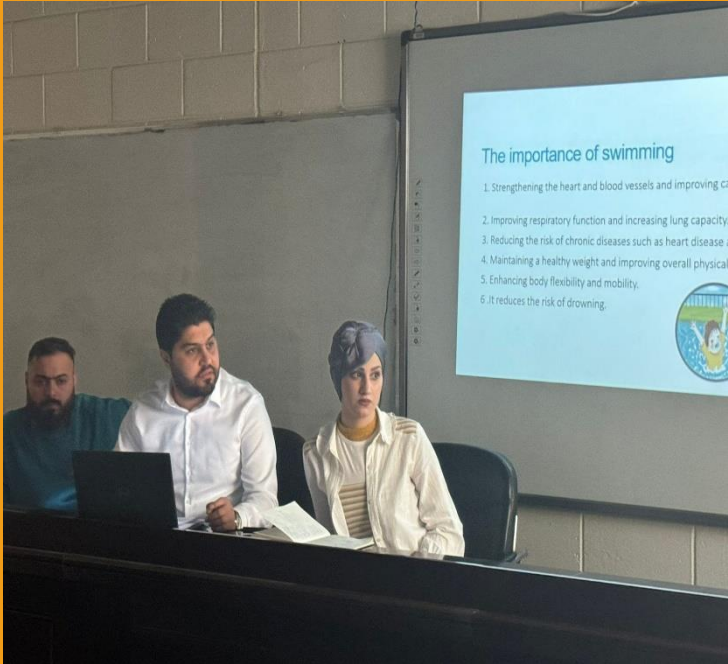
Topics for Discussion

Session (B):12.30-1.30

1	Exercises for using Assistive Devices in Basketball	Ahmed Othman
		Mohammad Adil
2	Feedback in Futsal	Haider Ali Shebeeb
3	Feedback in Squash	Shahad Raed
		Sajad Satar
4	Feedback in Volleyball	Temba Basim
5	Physiological Variables of 100m Running	Shajan Yaseen
6	Social Integration of Sitting Volleyball players	Mustafa Emad
		Mohammad Hussein
7	Technical Performance Analysis Technology in Futsal	Mustafa Adil
8	Training Using Basketball Auxiliary Tools	Abdullah Khalid
		Diana Majed
9	Sports History: World cup Achievement	Karar Muhsin
10	Cell Energy in Volleyball Training	Abeer Abbas
		Alaa Taha

Discussion committee

Asst. Prof. Mayada Zuhair Alkhafaji	Chairman
Professor. Ansam Yaroub	Member
Lect. Dr. Ilham Ahmed	Member
Lect. Noor Abdul Sahib	Member



23/4/2024



Thank You

