

Kinematic Examination of Some Basketball One-Handed Shooting Skill (Hook) Performance Metrics

Lec. Dr. Karrar Abdulkareem Khudhair ⁽¹⁾, Assist. Lec. Ahmed Hameed Jawad ⁽²⁾, PhD student. Mutaman Jabar Muhamed hussain ⁽³⁾

⁽¹⁾ Department of Physical Education and Sports Sciences, Kut University College, Kut, Wasit 52001, Iraq.

⁽²⁾ Department of Physical Education and Sports Sciences, Kut University College, Kut, Wasit 52001, Iraq.

⁽³⁾ Department of Physical Education and Sports Sciences, Kut University College, Kut, Wasit 52001, Iraq.

karrar.a.khudair@alkutcollege.edu.iq, ahmed.hameed@alkutcollege.edu.iq, mutaman.jabar@alkutcollege.edu.iq

Article Info

Page Number: 3294-3308

Publication Issue:

Vol. 71 No. 4 (2022)

Article History

Article Received: 25 March 2022

Revised: 30 April 2022

Accepted: 15 June 2022

Publication: 19 August 2022

Abstract

Physical education and many other sciences have been combined to create the sports industry, which has significantly benefited from the development of numerous scientific fields. The jump shot and one-handed shooting (the hook), which both require accuracy and technical improvement, were studied in this study. The purpose of the current study is to determine the values of a few kinematic variables for the performance of the basketball hook shot technique. The descriptive methodology used in a survey is what the current study relies on because it best serves the goals of the investigation. The findings of this study indicate that the sample possesses stability in the performance of the skill of jumping shooting because there was no statistically significant difference between the angle of inclination of the torso at the moment of shooting and the angle of attachment of the arm at that exact moment.

Keywords: Kinematic analysis, one-handed shooting, basketball

Introduction

This progress is due to fusing physical education with many other sciences such as physiology, biomechanics, psychology, kinesthetic learning, and sports training. The development of numerous scientific fields has significantly influenced the development of the sports field. All of this has a profound effect on how people live. Athletic performance results depend on using the most up-to-date technology tools, implementing lot and laboratory research findings, and adopting and selecting appropriate training methods in various sports activities and competitions (Gill, Williams & Reifsteck, 2017). One of the cutting-edge sciences in physical education is biomechanics, which focuses on the dynamic responsibility of a particular type of movement based on biome-based ones or foundations and makes the best possible use of the reciprocal effect of internal and external forces. Researchers considered quantitative and qualitative analysis of this skill to understand and discover the variables that affect performance, to provide helpful information and present it to the basketball coaches of our sports teams. The ability to jump and shoot with one hand (the hook) is one of the fundamental

skills in playing basketball and one of the pillars on which all sports teams determine the game (Kelly, 2019).

Problem Statement

One of the most crucial components of developing sports, especially basketball, is mastering motor abilities. The athlete's performance is highly influenced by the individual's mastery of the skills that allow him to operate in a way lost to the mechanism. The—thoughtful planning and effort, making it a process that uses the athlete's potential with the least amount of exercise load based on mechanical performance. This study's observations show that accuracy and technical improvement are needed for the jump and neoneanded shooting (hook). According to Gould, Voelker, Damarjian, and Greenleaf (2014), identifying the critical biocriticaletic characteristics that have a negative or positive impact on how well a shooter performs has a significant impact on avoiding deficiencies and enhancing performance.

Aim of the study

1. To determine the values of some kinematic variables for the performance of the basketball hook shot technique.

Hypotheses of the paper

1. There are no variations in the values of some kinematic variables when the basketball hook shot is executed with one hand.

Paper Areas:

- **Human field:** Basketball players for the Iraqi squad at Al-Kut University College for the coming academic year 2021–2022.
- **Spatial area:** Basketball court at Al-Kut University College.
- **Time range:** from December 17th, 2021, until February 18th, 2022.

Literature review

The role of motor learning and learning in performance

Finding these terms will aid in understanding the meaning of that area and its literature. Each branch of the pure and educational sciences has its terms and techniques for gathering, interpreting, and measuring information. We can infer from this statement that an internal process occurs, the outcome of which is a change in motor behaviour. Learning is a pure change in the nerves brought on by accumulated experience. The majority of definitions converge on the idea that motor learning is an ongoing modification of motor behaviour brought about by practice and feedback. Change can only be assessed indirectly through motor behavior rather than directly. It should be remembered that learning occurs as a result of practice or training, not of maturity or motivation. The individual's growth and maturity cause various changes in motor behaviour that seem natural; as a result, these changes cannot be made within a circle of kinesthetic learning. Motor performance is the outward manifestation of motor learning. Motor

performance is the visible outcome of that change if motor learning is an internal or intangible process. Because performance is a temporary formula or process, whereas motor performance is a quick form or function, it should be recognised that motor performance cannot always be depended upon to gauge learning. The process of learning never stops. Many times, factors like motivation, excitement, and exhaustion have an impact on performance. Therefore, it is essential to provide the right conditions and manage the variables when measuring learning by mince so that performance accurately reflects the learning process (Tokuhamma-Espinosa, 2010).

Motor learning stages

gaining knowledge about the initial and raw compatibility:

- a) It is the initial execution of sports movements, during which the person learns the fundamental movement of the activity in a raw form. After the movement has been executed, the movement's raw coordination occurs.
- b) When the learner executes the first movement, its meaning is the first form of exercise, but the raw consistency is different.
- c) The overuse of force and occasionally incorrect application of power are the apparent characteristics of the motor performance of raw coordination, which indicates the presence of mistakes in the energy used in movement (Nicklas, 1988).

Specific Compatibility:

From a physiological perspective, compatibility refers to the ability of inhibitions or the nervous system's capacity to control muscular activity. Real compatibility refers to the external and functional look of the body.

Due to the lack of a distinction between each level, the movement cannot be broken down into stages. Instead, the action develops according to the plan laid out, and precise conformity involves planning the internal forces' work to operate in harmony with the exterior troops and prevent excessive movements. As a result, consistency in organisation and compatibility, organisation requirement for motion, i.e., the force applied during performance ance, arise (Gould et .al, 2014).

The capacity to keep its mechanism stable:

According to Gentile (1988), skill stability refers to the ability to execute under various circumstances and with varying demands. And the peace of movement refers to the muscular sensation of skill, which is the stage of complete comprehension of the requirements of the action. This refers to the usage of the movement sections to attain the objective, the varied expression, and the capability of motor performance. The third stage of learning involves moving from the level of exact compatibility to the location at which the learners do the movement successfully under all conditions, including under demanding conditions that are unfamiliar to them—the movement's goal and meeting all the prerequisites for achieving high athletic accomplishment.

Technical foundations for a leaping shot:

The shooting is typically seen as the ultimate phase of the team attack. All motor skills that promote collaboration among team members are a form of practice for the actual shooting process at the basket. The final phase of the team's attack is typically considered to be archery, and all the motor skills used to coordinate with one team's members are only preparing for the act of shooting at the basket. Numerous academics have classified shooting into different categories, some based on steadiness and others on movement (Yaseen & Hussein 2022).

Wissam Falah Attia: The impact of feedback on assessing a few biomechanical factors for jump shooting in basketball measured using three points, University of Al-Qadisiyah College of Physical Education Journal of Physical Education Research and Studies, No. 20, p. 6.

According to Khalaf (2018), this manoeuvre thrives against the defense since it is executed when the attacking player receives the ball and assumes an excellent situation with their body facing the goal. This player shoots with three points regardless of whether he is close to the goal or far away from it because doing so increases the likelihood the scoring more points. Basketball, the sport with the most excellent most incredible, has this type of shot as one of its crucial shots, particularly from medium and long ranges. A player shoots correctly when they use all the joints in their shooting hand before finishing with their wrist and fingers.

Three categories comprise the leaping shooting's technical foundations:

Stages Sectional preparation (step of practice):

Many different viewpoints have been expressed regarding this phase. Some have classified it into many categories and counted it as a preparation and beginning-of-movement pause, including:

They are putting the other feet on the ground while standing with the feet parallel to each other. They are separated from one another in both situations by the breadth of the chest.

According to Yaseen and Hussein (2022), there are three different standby stances: the parallel stance, in which the player's feet are placed parallel to the ground; the boxer stance, in which one foot is presented; and the fencer stance, which resembles the boxer stance but with the back foot turned slightly to the side. Various poses when the player's feet are open to a width roughly equal to their chest to achieve the proper balance needed to control the ball. As the first fundamental skill taught to beginners in basketball, placing the hand in the preparatory phase must be followed by returning it to holding the ball.

Relax your hands and get close to the body. Since the elbow plays a crucial role in the mechanics of shooting, it needs to be in the correct posture and pointed in the direction of the target. The shooter's ability to fire successfully will depend on any obstructions to this position.

The main section:

The ball is released at a different angle by a variety of factors, including the length of the player, the height of the starting point of the ball, the speed of the ball launch, the player's physical

ability, the player's distance from the basket, the type of shot selected. The second section is where the motor transfer process from the feet to the arms takes place (Kim,2014).

Final Section:

If the follow-up of the ball after the shot is done by extending all the joints of the shooting hand until the ball comes out of the fingers following the extension of her wrist, then this represents the follow-up of the ball after the shot and landing. According to Khaled Negm, quoting Farley, as the arm achieves its most excellent extension, the wrist must be stretched forward while the ball leaves the tips of the fingers. The hand must also rotate forward at this time, and the ball must be released in the proper arc and back rotation (Deng, Liu, Mao, Lan, Liu, & Li, 2017). One of the most crucial steps that the player and the ball go through during the shooting process, from stability, which serves as the foundation for the jump shooting process, is described in this explanation. After receiving the ball and reaching the last movement stage (as in the previous section), the player links the jump with the throw. In this instance, one requirement for the jump is that it be high and that the ball be traveling towards the goal to control the basket and prevent making a mistake against the defender. The player escapes the horizontal movement by jumping vertically to the top (Article 44 of the Law). Walker (2006), the high height that a player can reach in jumping depends mainly on raising the center of gravity of the body through the vertical velocity of the player's body at the moment of pushing, which is the final station of the speed in the air. That is, the jump shot must be performed in a way that helps bring the ball up and in front of the body.

Field techniques and research methodology

Research Methodology

Since the descriptive approach in a survey method is the most appropriate way to achieve the goals of the research, we assume that the nature of the problem to be examined, the research method employed from this point of view, and the researchers utilized this approach.

Research sample

p	Variables	measuring unit	Arithmetic mean	standard deviation	Variation coefficient
1	height	centimeter	180,6	1,33	% 0.73
2	weight	Kg	71,6	6,26	%8.74
3	arm length	centimeter	79, 8	0,83	%1.04

The research sample comprised (41.66 percent) of the initial population and was purposefully chosen by the researchers because it represented (5) players out of (12) players and they represent the team of the Faculty of Physical Education and Sports Sciences, Kut University College for the academic year 2021. The researchers used the coefficient of variation for each

of the aforementioned variables less than (30%), which indicates homogeneity the sample is as shown in Table, in order to be certain of the homogeneity of the research sample members in the variables of height, weight, and some parts of the body (1).

Means of gathering information

- 1- Arabic sources
- 2- Survey instruments
- 3- Observation and analysis
- 4- Videography
- 5- Utilized computer programs and applications
- 6- Team supporting work

Devices and tools used

- 1- A national video camera with a frame rate of 20
- 2- Type of calculator
- 3- Scale diagram
- 4- Measuring tape
- 5- Medical scale
- 6- Basketball

experience with exploration

On Sunday, 2/1/2022, at precisely nine in the morning on the basketball court in the College of Physical Education and Sports Sciences, Kut University College, the researchers conducted a pilot experiment using a camera with the purpose of identifying the work obstacles that face the benefits of field experiment procedures. The aim was to:

- 1- Verify the reliability of the tools and equipment used.
- 2- Recognizing the camera's height above the ground.
- 3- Being aware of the camera's distance from the focal point of the shot.

techniques for field experiments

The ability to be evaluated

Basketball players' most fundamental ability is the one-handed shot, or the "hook," which is calculated using two points from the center of the free-throw circle.

Videography

The research sample was photographed on the basketball court in the College of Physical Education and Sports Sciences, Kut University College, on Tuesday, 3/1/2022, at precisely nine o'clock as a preliminary choice using a machine in order to clarify and characterize the kinematic variables to perform the skill of shooting with one hand (hook) calculated with two points. The player performing the skill was on the right side of the camera, with the lens set at a height of (1.5) meters above the playing field and at a vertical angle dependent on the player's transverse body axis. A shooting god was placed at a distance of (9) meters from the center of the free throw. For the research sample, the full skill performance can be captured on camera. The researchers then re-shot the identical players seven days later, as seen in Figure (1).

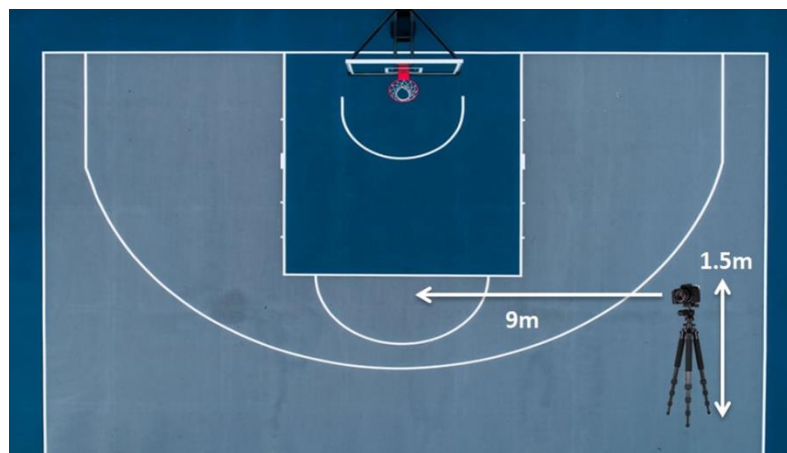


Figure (1) shows the location of the camera

Biomechanical analysis

It was necessary to use a calculator with a high speed and accuracy specification in order to arrive at the results of the analysis of the biomechanical variables in an objective and accurate form and to convert films from images and movements to numerical values of the variables by following the steps of the analysis by the calculator. In order to accomplish the purpose of the research, the videos were recorded using a calculator, followed by biomechanical analysis using a program (KINOVEA) that specializes in the analysis of sports movements.

Paper variables

To examine the effectiveness of the jumping with one hand and shooting talent, few crucial criteria were chosen (hook).

The biomechanical variables are given in Table (2)

p	Variables
1	Flexion angle of the knee joint
2	Angle of the knee at the time of shooting
3	As the gun was fired, the trunk's inclination angle
4	Angle of the shooting arm's elbow joint

Kinematic variables

Flexion angle of the knee joint¹-

From the point of the ankle joint through the point of the knee joint to the point of the hip joint at its greatest flexion, at the angle formed by the leg line and the thigh line.

Knee angle at the moment of shooting²-

It is the angle between the leg line and the thigh line at the time of shooting, measured from the ankle joint through the knee joint and to the area of the hip joint.

As the gun was fired, the trunk's inclination angle³-

The throwing arm is parallel to the ball in the last image at the angle formed by the torso line at the point of the shoulder joint and the horizontal line passing through the point of the hip joint.

Angle of the shooting arm's elbow joint⁴-

It is the angle formed between the humerus line and the forearm line at the point of the shoulder joint just prior to firing (Scholz, Schöner, & Latash, 2000). This line runs from the wrist joint of the aiming arm through the elbow joint.

Statistical means:

The following procedures were taken from the statistical application (SPSS V26) that the researchers used collectively to process the data:

- 1- Percentage
- 2- Mathematical mean
- 3- Standard deviation
- 4- Variation coefficient
- 5- Correlated sample T-test

4- Presenting and discussing the findings

1-4 Results of several biokinetic factors for the skill (hook) of the research sample are presented and discussed.

The statistical importance of some biokinetic variables for the (hook) skill is shown in Table 3 along with the values for the arithmetic means, pre and dimensional standard deviations, the estimated (T) value, and the values of the arithmetic means.

Variables	measuring unit	pretest		Post-test		Calculated T value	Statistical significance
		s	p	s	p		

knee joint angle when flexing	Degree	108.84	1.91	107.81	1.14	2.669	nonfunction
Knee joint angle at the moment of shooting	Degree	173.18	1.21	170.73	3.01	2.753	nonfunction
Trunk inclination angle	Degree	87.83	2.74	89.43	1.38	-2.518	nonfunction
shooting moment							
Angle of the elbow joint of the shooting arm	Degree	155.92	4.51	151.36	7.98	1.729	nonfunction

4)and the error rate (0.05) (

The statistical relevance of some biomechanical variables for the (hook) skill of the research sample is shown in Table 3 together with the values of the arithmetic means, pre and dimensional standard deviations, computed and tabular T value, and the results. It is clear from Table (3) that the value of the variable mean of the knee joint angle at flexion in the pre-test was (108.84) degrees with a standard deviation of (1.91), While the arithmetic mean in the post-test for the same variable was (107.81) degrees, with a standard deviation of (1.14) In order to test the hypothesis related to the significance of the differences between the two averages, the (T) test was used As it turned out that the calculated (T) value, which amounted to (0.056) at the degree of freedom (4) and the level of morality (0.05), is less than the tabular (T) value of (2.669), which indicates that there are no differences between the two averages, which means that the college team players Physical Education and Sports Sciences of Al-Kut University College have stability and a mechanism in the performance of the jump shot calculated by two points in basketball. Also, the nature of the skill requires various knee joints in the preparatory stage for correction, as we find that bending the knee joint was a small and simplified bend, which indicates the development of the speed characteristic of the muscles of the legs in the research sample, and this was confirmed by (Mohammed Al-Sheikh, 1989) The muscle force, on the other hand, acts to arrest this decline and has an effect that is opposite to the direction of the gravitational force's influence at the top, so there must be a muscular force bigger than the force of gravity, indicating that there is a positive force (18).

To test the hypothesis regarding the significance of the differences between the two averages, the arithmetic mean value of the knee joint angle variable at the time of shooting in the tribal test was (173.18) degrees and a standard deviation of (1.21), while the dimensional mean was

(170.73) degrees and a standard deviation of (3.01). In light of the fact that the computed (T) value, which came to (0.051), and the morale level (0.05), are both lower than the tabular (T) value of (2.753), which suggests that there are no differences between the two averages, the (T) test was then applied which means that the college team players Physical education and sports sciences at Al-Kut University College possess stability and a mechanism in the performance of the jump shot, which is calculated by two points in basketball.

It implies that the basketball jump shot, which is judged by two points, is performed by the team of the Faculty of Physical Education and Sports Sciences at the University College of Kut with stability and a mechanism. Wissam Falah (2002) stated that "the correcting process depends on a lot of repetition until its performance becomes a mechanical habit and soon an acquired reaction without deep thought" in order to explain this (19). According to Adel Abdel-Baseer (1998), "The movement begins as soon as the amount of muscle strength exceeds the weight of the body (the force of gravity), which means that the sum of the force becomes positive and goes upwards. With the continuous increase in muscle strength, the body accelerates strongly, that is, its speed increases until the joints reach the joints. When the thrust is over, the body will be fully extended(20). (19) (20) The trunk inclination angle variable's arithmetic mean value at the time of shooting in the pre-test was (87.38), with a degree and a standard deviation of (2.74). The dimensional mean was (89.43) degrees, with a standard deviation of (1.38). In order to test the theory related to the significance of the differences, the (T) test was used. , as it became clear that the calculated (T) value, which amounted to (0.066) with a significant level (0.05), is less than the tabular (T) value of (-2.518), which indicates that there are no differences between the two averages, and this indicates the stability of the mechanism level among the players of the College of Education team Athletic basketball in the performance of the jump shot, calculated by two points. The researchers reinforce the reason for this that the nature of the performance of the skill of shooting by jumping requires the torso to lean forward a little and not to exaggerate the inclination of the torso more than necessary in order to make the compound of exploitation of the product of the vertical thrust more and at the expense of the horizontal vehicle for thrust (meaning that the vertical vehicle becomes larger than the horizontal (for thrust) in order to gain the ball kinetic energy ($\frac{1}{2} \times \text{mass} \times \text{speed}$) and thus to give it the appropriate arc of flight and then achieve the accuracy of shooting, as (Kamal Aref and Raad Jaber, 1987) indicated that the torso is straight and the head is high and the focus is maintained in the gaze towards the goal and not at the ball (21).

"The movement begins as soon as the quantity of muscle strength surpasses the weight of the body (the force of gravity), which implies that the total of the force becomes positive and moves upward," asserts Adel Abdel-Baseer (1998). The body accelerates fast as a result of the constant development in muscular strength; that is, its speed rises until the joints are reached. Upon completion of the thrust, the body will be fully extended (20). (19) (20) At the time of shooting in the pre-test, the trunk inclination angle variable's arithmetic mean value was (87.38), with a degree and a standard deviation of (2.74). According to Adel Abdel-Baseer, "The movement begins as soon as the amount of muscle strength exceeds the weight of the body (the force of gravity) and suggests that the sum of the forces becomes positive and advances upward" (1998). The steady increase in muscular strength causes the body to accelerate quickly; this causes it

to do so until it reaches the joints. When the thrust is finished, the body will be fully extended (20). (19) (20) The trunk inclination angle variable's arithmetic mean value at the time of shooting in the pre-test was (87.38), with a degree and a standard deviation of (2.74).

Conclusions

- 1- The knee joint angle at the time of shooting did not statistically differ between the first shooting and the second shooting, indicating that the sample exhibits stability in the performance of the skill of shooting by jumping. The knee joint angle is at its maximum flexion.
- 2- There was no statistically significant difference between the first and second shots in the angle of the torso's inclination at the time of firing or the angle at which the arm was attached. This suggests that the jumping shooting skill is consistently performed by the sample.
- 3- The players on the team from the College of Physical Education and Sports Sciences, Kut University College, consistently perform at a level that earns them two points in the shooting skill from jumping with one hand (the hook).

Recommendations

The researchers offer the following advice in light of the discussion of the findings and what may be inferred from the data statistical analysis:

- 1- Stressing the significance of honing the aspects of strength and speed because, from a physical standpoint, they are directly connected and this connection results in the investment of the energy created in the best possible way and in the shortest amount of time.
- 2- Stressing the significance of lengthening the radii of the body components in order to boost the ball's circumferential velocity and be compatible with the skill's nature.
- 3- 3. Utilizing biomechanical analysis to identify minute movement and expertise using contemporary tools and cameras.
- 4- The need for similar research on other fundamental basketball abilities.

References

1. Deng, H., Liu, D., Mao, X., Lan, X., Liu, H., & Li, G. (2017). Phosphodiesterase-5 inhibitors and vacuum erection device for penile rehabilitation after laparoscopic nerve-preserving radical proctectomy for rectal cancer: A prospective controlled trial. *American Journal of Men's Health*, 11(3), 641-646.
2. Flanders, M., Tillery, S. I. H., & Soechting, J. F. (1992). Early stages in a sensorimotor transformation. *Behavioral and Brain Sciences*, 15(2), 309-320.
3. Gentile, A. M. (1972). A working model of skill acquisition with application to teaching. *Quest*, 17(1), 3-23.
4. Alalmai, Ali, and Dr Gulnaz Fatma. "A., Arun & Aarif, Mohd.(2022). Significance and Challenges of Online Education during and After Covid-19. *Türk Fizyoterapi ve*

Rehabilitasyon Dergisi." Turkish Journal of Physiotherapy and Rehabilitation 32: 6509-6520.

5. Arun, M., Alalmai, A., & Aarif, M. (2022). Student's Anticipation in Procuring Post Graduation Programme in Hotel Management through Distance Learning.
6. Kumar, A., Bhatt, B. R., Anitha, P., Yadav, A. K., Devi, K. K., & Joshi, V. C. (2022, March). A new Diagnosis using a Parkinson's Disease XGBoost and CNN-based classification model Using ML Techniques. In 2022 International Conference on Advanced Computing Technologies and Applications (ICACTA) (pp. 1-6). IEEE.
7. Chopra, P., Gollamandala, V. S., Ahmed, A. N., Babu, S. B. G., Kaur, C., Achyutha Prasad, N., & Nuagah, S. J. (2022). Automated Registration of Multiangle SAR Images Using Artificial Intelligence. Mobile Information Systems, 2022.
8. Sharma, N., Yadava, A. K., Aarif, M., Anandaram, H., Alalmai, A., & Singh, C. (2022). Business Opportunities And Challenges For Women In The Travel And Tourism Industry During Pandemics Covid-19. Journal of Positive School Psychology, 897-903.
9. Yadava, A. K., Khan, I. A., Pandey, P., Aarif, M., Khanna, G., & Garg, S. (2022). Impact of marketing communication and information sharing on the productivity of India's small and medium-sized businesses (SMEs). International Journal of Health Sciences, 6(S2), 12745–12755. <https://doi.org/10.53730/ijhs.v6nS2.8352>
10. Preetha, M., Anil Kumar, N., Elavarasi, K., Vignesh, T., & Nagaraju, V. (2022). A Hybrid Clustering Approach Based Q-Leach in TDMA to Optimize QOS-Parameters. Wireless Personal Communications, 123(2), 1169-1200.
11. Kaur, D. (2022). Incorporating sentimental analysis into development of a hybrid classification model: A comprehensive study. International Journal of Health Sciences, 6, 1709-1720.
12. Sumithra, M. (2022). Role of Embedded Systems in Industrial Section-By considering the Automotive Industry as an Example. JOURNAL OF OPTOELECTRONICS LASER, 41(3).
13. Kaur, Chamandeep & Boush, Mawahib & Hassen, Samar & Hakami, Wafaa & Abdalraheem, Mohammed & Galam, Najla & Hadi, Nedaa & Benjeed, Atheer. (2022). Incorporating sentimental analysis into development of a hybrid classification model: A comprehensive study. International Journal of Health Sciences. 6. 1709-1720. [10.53730/ijhs.v6nS1.4924](https://doi.org/10.53730/ijhs.v6nS1.4924).
14. Lourens, M., Neela, V., Jambukesh, H. J., Khan, H., & Pant, B. (2022, April). To Understand the Critical Measures of Enhanced Security in Cloud Computing for Creating Better Data Protection. In 2022 2nd International Conference on Advance Computing and Innovative Technologies in Engineering (ICACITE) (pp. 1261-1265). IEEE.
15. Ashreetha, B., Devi, M. R., Kumar, U. P., Mani, M. K., Sahu, D. N., & Reddy, P. C. S. (2022). Soft optimization techniques for automatic liver cancer detection in abdominal liver images. International journal of health sciences, 6.
16. Bosco Ekka, D. G., Prince Verma, D., & Harishchander Anandaram, D. (2022). A Review Of The Contribution Of Youth To Sustainable Development And The Consequences Of This Contribution. Journal of Positive School Psychology, 3564-3574.

17. Fatma, G. (2012). A Short History of the Short Story: Western and Asian Traditions. Loving Healing Press.
18. Sumithra, M. (2022). Role of Embedded Systems in Industrial Section-By considering the Automotive Industry as an Example. JOURNAL OF OPTOELECTRONICS LASER, 41(3).
19. Kaur, Chamandeep. (2022). THE INFLUENCE OF THE HYBRID STAGING ENVIRONMENT OF INTERNET OF THINGS AND CLOUD COMPUTING ON HEALTHCARE MANAGEMENT SYSTEM: OPPORTUNITIES, CHALLENGES AND DECEPTIVE PROBLEMS.
20. Chopra, Pooja & Gollamandala, Vijay & Ahmed, Ahmed & Bala Gangadhara Tilak Babu, Sayila & Kaur, Chamandeep & Prasad N, Achyutha & Nuagah, Stephen. (2022). Automated Registration of Multiangle SAR Images Using Artificial Intelligence. Mobile Information Systems. 2022. 1-10. 10.1155/2022/4545139.
21. Alalmai, A. A., Fatma, G., Arun, A., & Aarif, M. Significance and Challenges of Online Education during and After Covid-19. Turkish Journal of Physiotherapy and Rehabilitation, 32(2).
22. Chopra, Pooja, et al. "Automated Registration of Multiangle SAR Images Using Artificial Intelligence." Mobile Information Systems 2022 (2022).
23. Kaur, Chamandeep & Hassen, Samar & Sharafeldin, Mawahib & Boush, Adam & Hussain, Mohammed & Begum, Ahmed. (2022). KOREA REVIEW OF INTERNATIONAL STUDIES DISTANCE ACADEMIC ADVISING ROLES AND SKILLS DURING PANDEMIC: A SURVEY OF JAZAN UNIVERSITY.
24. Prathosh, A. P., Kar, A. K., & BANGALORE, A. (2022). Machine Learning-based ABA treatment recommendation and personalization for Autism Spectrum Disorder: An exploratory study.
25. Alalmai, A., & Fatma, D. G. A., Arun & Aarif, Mohd.(2022). Significance and Challenges of Online Education during and After Covid-19. Türk Fizyoterapi ve Rehabilitasyon Dergisi. Turkish Journal of Physiotherapy and Rehabilitation, 32, 6509-6520.
26. Fatma, D. G. (2012). Asian Literary Supplement (ISSN 2278-5051) Identity, Homelessness and Isolation in" The Room on the Roof. Asian Literary Supplement, 2278-5051.
27. Aarif, M., & Alalmai, A. (2019). Importance of Effective Business Communication for promoting and developing Hospitality Industry in Saudi Arabia. A case study of Gizan (Jazan).
28. Burayk, D., Mohammed, D., & Kaur, C. (2022). PURCHASE INFLUENCE DETERMINANTS OF PRESCHOOLERS AND PRIMARY SCHOOL-GOING CHILDREN. International Journal of Early Childhood Special Education, 14, 2022.
29. Alalmai, A. A., Fatma, G., Arun, A., & Aarif, M. Significance and Challenges of Online Education during and After Covid-19. Turkish Journal of Physiotherapy and Rehabilitation, 32(2).
30. Aarif, Mohd. "A STUDY ON THE ROLE OF HEALTHCARE INDUSTRY IN THE PROMOTING OF HEALTH TOURISM IN INDIA." A CASE STUDY OF DELHI-NCR (2018).

31. Mawahib, S., & Kaur, C. (2022). A Design for the Bandwidth Improvement for the Microstrip Patch Antenna for Wireless Network Sensor. *International Journal of Scientific Research in Computer Science Engineering and Information Technology*, 9(396), 10-32628.
32. Alalmai, A. A., Arun, A., & Aarif, M. (2020). Implementing Possibilities and Perspectives of Flipped Learning in Hotel Management Institutions. *Test Engineering and Management*, 83, 9421-9427.
33. Alalmai, A. A., & Aarif, M. (2019). Importance of Effective Business Communication for Promoting and Developing Hospitality Industry in Saudi Arabia A Case Study of Gizan (Jazan).
34. Mawahib, Sharafeldin & Kaur, Chamandeep. (2022). A Design for the Bandwidth Improvement for the Microstrip Patch Antenna for Wireless Network Sensor. *International Journal of Scientific Research in Computer Science Engineering and Information Technology*. 9. 396. 10.32628/IJSRSET2293130.
35. Gill, D. L., Williams, L., & Reifsteck, E. J. (2017). *Psychological dynamics of sport and exercise*. Human Kinetics.
36. Gould, D., Voelker, D. K., Damarjian, N., & Greenleaf, C. (2014). Imagery training for peak performance.
37. Jawad, W. K., & Ahmed, A. A. The effect of dynamic balance according to the audio-visual balance on the accuracy of scoring skill from the (6) m penalty kick in futsal football. *Turkish Journal of Physiotherapy and Rehabilitation*, 32, 3.
38. Kelly, L. E. (2019). *Adapted physical education national standards*. Human Kinetics Publishers.
39. Khalaf, A. T. (2018, December). Environmental and microbial study of some wells water in Samarra city compared to some wells in the vicinity. In *IOP Conference Series: Materials Science and Engineering* (Vol. 454, No. 1, p. 012102). IOP Publishing.
40. Kim, K. C. (2014). A novel method for minimization of cogging torque and torque ripple for interior permanent magnet synchronous motor. *IEEE Transactions on Magnetics*, 50(2), 793-796.
41. Nicklas, R. B. (1988). The forces that move chromosomes in mitosis. *Annual review of biophysics and biophysical chemistry*, 17(1), 431-449.
42. Salah Mohamed, A., & Mahmoud Ahmed, F. (2019). Kinematic Inferential Indicators of the Front Round Kick Skill (Kisame Mawashi Jerry). *Assiut Journal of Sport Science and Arts*, 2019(2), 132-149.
43. Scholz, J. P., Schöner, G., & Latash, M. L. (2000). Identifying the control structure of multijoint coordination during pistol shooting. *Experimental brain research*, 135(3), 382-404.
44. Tokuhamma-Espinosa, T. (2010). *Mind, brain, and education science: A comprehensive guide to the new brain-based teaching*. WW Norton & Company.
45. Walker, J. (2006). *The flying circus of physics*. John Wiley & Sons.
46. Wiryani, F., Setiawan, Y. I. S., Nasser, M., & Najih, M. (2021). Disclosure of medical secrets in handling corona virus disease (Covid)-19 cases. *Indian Journal of Forensic Medicine & Technology*, 15(3).

47. Yaseen, S. M., & Hussein, R. A. A. (2022). THE LINEAR MOMENTUM OF THE STEPS OF APPROACHING AND RELATIONSHIP WITH THE ACCURACY AND SPEED OF THE BALL TO THE SKILL OF SMASH HIGH SPIKE IN VOLLEYBALL. *ResearchJet Journal of Analysis and Inventions*, 3(05), 117-128.