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Common injuries and vulnerable part of injuries among basketball players

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Abstract

Basketball is a contact sport that involves intricate hops, spins, and direction changes that frequently result in musculoskeletal injuries to all parts of the body (Andreoli, 2018). Ankle injuries in basketball are among of the most frequent and serious injuries that can occur. An ankle injury accounted for more than half of the total time missed due to an injury in basketball, according to an Australian basketball study. Thus, it is clear that the understanding of injuries is important for the protection as well as the prevention of injuries. The proposed study tries to find out the common injuries and vulnerable part of injuries among basketball players so that further implementations can be done for prevention of injuries and betterment of the performances. A total of 100 players was selected by the researcher who participated in the inter-college, basketball championship for the proposed study. The questionnaire was developed with the help of panel of expert in the field for the required study. Percentage method was used by the researcher in order to get the result from the raw data and it was later exhibited in form of pie charts and tables with the help of MS Excel. Analyzing the data, the findings pertaining to questions related to common injuries have been presented from graphically in form of pie chart. When asked about the soft tissue injuries in basketball, 58% of the subject said sprain is the most common soft tissue injury that happens in basketball, 27% said strain is the most common injury in basketball and 15% said abrasion is the most common injury in basketball. The study concludes that soft tissues injuries are the most common and joint injuries are the least common injury in basketball, In soft tissue injury, sprain is the most common injury in basketball, In bone injury, oblique fracture is the most common fracture that occurs in basketball, In joint injury, sub-luxation is more common than luxation in basketball, The chances of getting an injury in the lower extremity is the highest and the middle part of the body is the lowest in basketball, In the lower extremity, the chances of injuries in ankle are the highest in basketball, In the upper extremity, the chances of injury in elbow are the highest in basketball, In the middle part of the body, the chances of injury in lower back are the highest in basketball.

Keywords: Basketball, musculoskeletal injuries, ankle injury

Introduction

Sports injuries happen when athletes are exposed to their specialized sport, and they do so under particular circumstances, at a certain time, and in a specific location. We are therefore all epidemiologists in sports medicine who are "concerned with quantifying injury occurrence with respect to who is affected by injury, where and when injuries occur, and what is their outcome-for the purposes of interpreting why and how injuries occur and identifying methods to control and prevent them" (Phillips, 2000) ^[1]. Sports injuries are wounds sustained while participating in physical activity or working out. They may be the consequence of mishaps, improper technique used while training, bad equipment, or abuse of a certain body region. Establishing participation in warm-ups, stretches, and exercises that target the major muscle groups frequently used in the sport of interest is crucial (Abou, 2016) ^[2].

Basketball is a contact sport that involves intricate hops, spins, and direction changes that frequently result in musculoskeletal injuries to all parts of the body (Andreoli, 2018) ^[3]. Ankle injuries in basketball are among of the most frequent and serious injuries that can occur. An ankle injury accounted for more than half of the total time missed due to an injury in basketball, according to an Australian basketball study.

The player may experience impairment and long-term effects from an ankle injury, with the most frequent symptoms being pain, a feeling of instability, crepitus, and weakness. However, chondral lesions were seen in 95% of chronic ankle injuries and 89% of newly injured ankles, according to arthroscopic surgery on 31 ankles. Preventive techniques must be created because ankle injuries are common, frequently accompanied by lingering symptoms that impede performance and chondral lesions. However, risk factors for ankle injuries must first be recognised and understood. (McKay, 2001) [4-5].

The injured body parts had a significant impact on how serious the injury was, with lower limb injuries being more severe than those in other body part (McKay, 2001) [4-5]. Thus, it is clear that the understanding of injuries is important for the protection as well as the prevention of injuries. The proposed study tries to find out the common injuries and vulnerable part of injuries among basketball players so that further implementations can be done for prevention of injuries and betterment of the performances.

Methodology

A total of 100 players was selected by the researcher who participated in the inter-college, basketball championship for the proposed study. Keeping in mind the feasibility criteria, availability of parameters and experts' opinion the researcher proposed two different variables.

1. Common injuries
2. Vulnerable parts of the injuries

Construction of the questionnaire

The questionnaire was developed with the help of panel of expert in the field for the required study. In the questionnaire, all the questions were objective in nature. To get the required

responses various questions were formed. After the first attempt, Changes/modifications were done as per the recommendation of the experts before the final draft was created. After the final draft was created, the questionnaire was sent for a trial run in order to understand if the questions/statements were clear to the subjects or not. It was found that the questions were adequate to obtain the desired information. With the suggestion made by the experts, the final draft of the questionnaire was prepared.

Procedure

In order to get approval to participate and extend sincere cooperation for the study the researcher personally visited different colleges of Delhi University. The subjects were asked to read the questions properly and ask any questions if required. The purpose of the study was clearly explained to the subject, and it was also made sure that the questions were properly understood by the subjects.

Statistical Analysis

Percentage method was used by the researcher in order to get the result from the raw data and it was later exhibited in form of pie charts and tables with the help of MS Excel.

Result of the study

After analyzing the data, the findings pertaining to questions related to common injuries have been presented from table 1 to table 5 and graphically represented in form of pie chart from figure 1 to 5 and the findings pertaining to questions related to vulnerable parts of injuries have been presented from table 6 to table 10 and graphically represented in form of pie chart from figure 6 to 10.

Table 1: Common injuries in Basketball

Sr. No.	Injuries	Responses In Percentage
1.	Soft tissue injuries	65%
2.	bone Injuries	20%
3.	Joint injuries	15%
	Total	100%

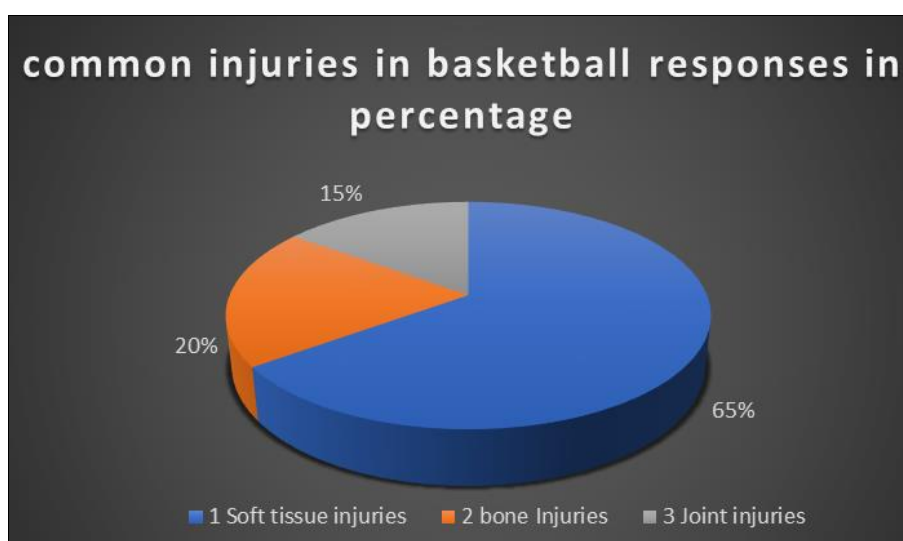


Fig 1: Common injuries in Basketball

From table 1 and figure 1 it is clear that when asked about the common injuries in basketball 65% of the subjects have said soft tissue injury is the most common injury in basketball,

20% subject said bone injury is the most common in basketball and 15% said joint injury is the most common in basketball.

Table 2: Soft Tissue injuries in Basketball

Sr. No.	Soft Tissue Injuries	Responses
1.	Sprain	32
2.	Strain	15
3.	Abrasion	8
4.	Any Other	0
	Total	55

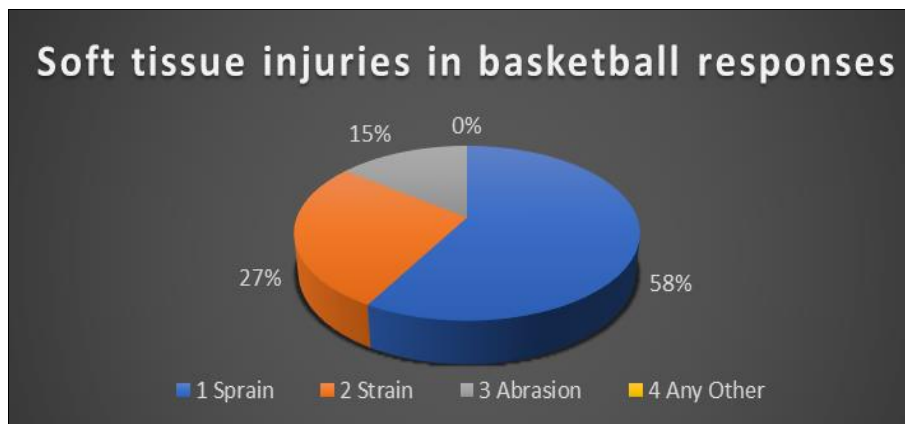
**Fig 2:** Soft Tissue injuries in Basketball

Table 2 and Figure 2 shows that when asked about the soft tissue injuries in basketball, 58% of the subject said sprain is the most common soft tissue injury that happens in basketball,

27% said strain is the most common injury in basketball and 15% said abrasion is the most common injury in basketball.

Table 3: Bone injuries in Basketball

Sr. No.	Bone Injuries	Responses
1.	Oblique Fracture	18
2.	Transverse Fracture	7
3.	Communicated Fracture	0
4.	Any Other	0
	Total	27

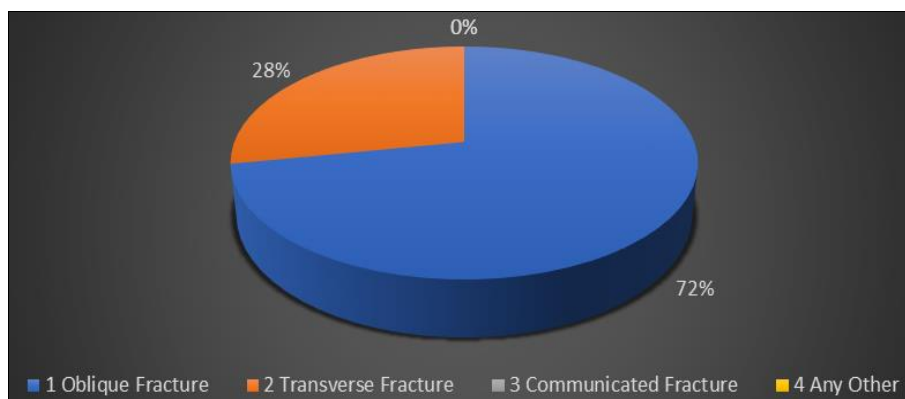
**Fig 3:** Bone injuries in Basketball

Table 3 and figure 3 depicts the responses of the subjects when asked about the bone injuries that occur in basketball. As per the result, 72% of the subjects said oblique fracture is

the most common fracture in basketball and 28% said transverse fracture is the most common fracture in basketball.

Table 4: Joint injuries in Basketball

Sr. No.	Joint Injuries	Responses
1.	Luxation	8
2.	Sub - Luxation	12
	Total	20

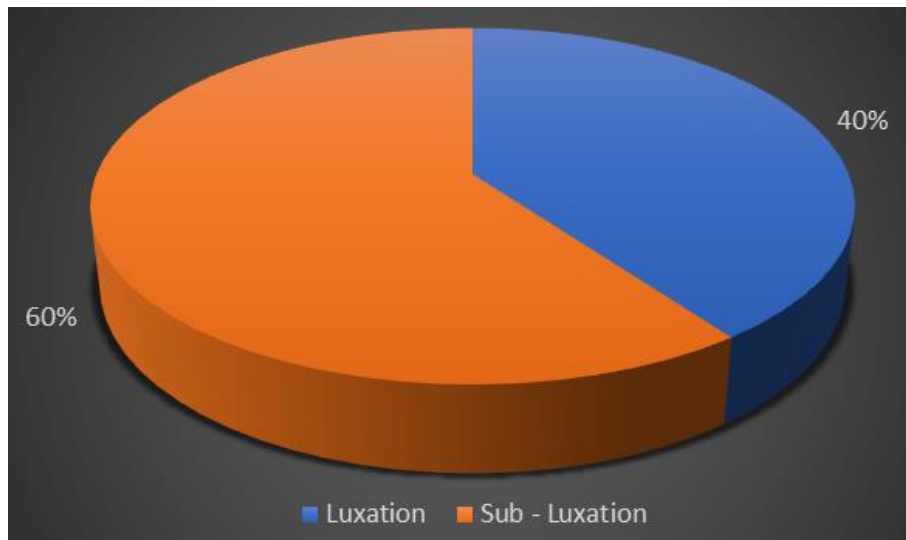


Fig 4: Joint injuries in Basketball

Table 4 and figure 4 depicts the result of the subjects when asked about the joint injuries that occurs in basketball. As per the result 60% of the subject said sub-luxation is the most

common joint injury in basketball and 40% of the subject said luxation is the most common injury in basketball.

Table 5: Ranking of common injuries in Basketball

Sr. No.	Common Injuries	Injuries responses in thier specific category	Ranking
1.	Soft Tissue Injury (55)	Sprain	32
		Strain	15
		Abrasion	8
2.	bone Injuries (25)	Oblique Fracture	18
		Transverse Fracture	7
3.	Joint injuries (20)	Luxation	8
		Sub - Luxation	12
		Total	100

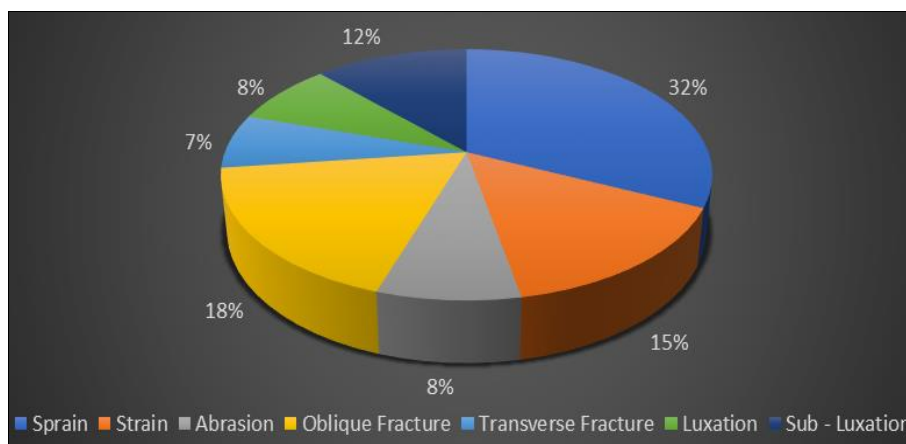


Fig 5: Ranking of common injuries in Basketball

Table 5 and figure 5 shows the ranking of the injuries that occur in basketball. As per the result, sprain is ranked first with a total of 32 responses, oblique fracture is ranked second with a total of 18 responses, Strain is ranked third with a total

of 15 responses, sub-luxation is ranked fourth with a total of 12 responses, abrasion and luxation is ranked fifth with a total of 8 responses and transverse fracture is ranked sixth with a total of 7 responses.

Table 6: Vulnerable parts of injuries in Basketball

Sr. No.	Site	Responses In Percentage
1.	Upper Extremity	20%
2.	Lower Extremity	75%
3.	Middle Part of the Body	5%
	total	100%

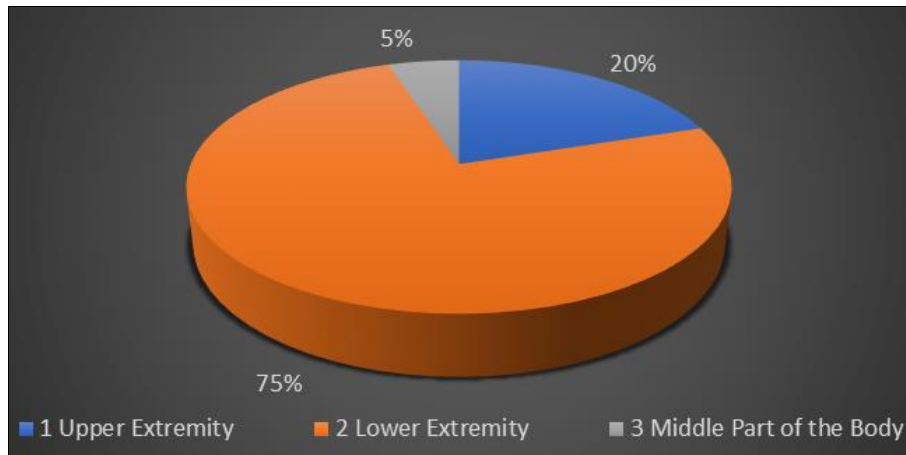


Fig 6: Vulnerable parts of injuries in Basketball

Table 6 and figure 6 shows the vulnerable parts of the body in which the injuries occur in basketball. As per the results. 75% of the injuries happen in lower extremity, 20% of the injuries

happen in upper extremity and 5% of the injury happens in middle part of the body.

Table 7: Injuries in Upper Extremities

Sr. No.	Injuries in Upper Extremity	Responses	Percentage
1.	Shoulder	4	20%
2.	Elbow	6	30%
3.	Wrist	10	50%
4.	Any Other	0	0%
	Total	20	100%

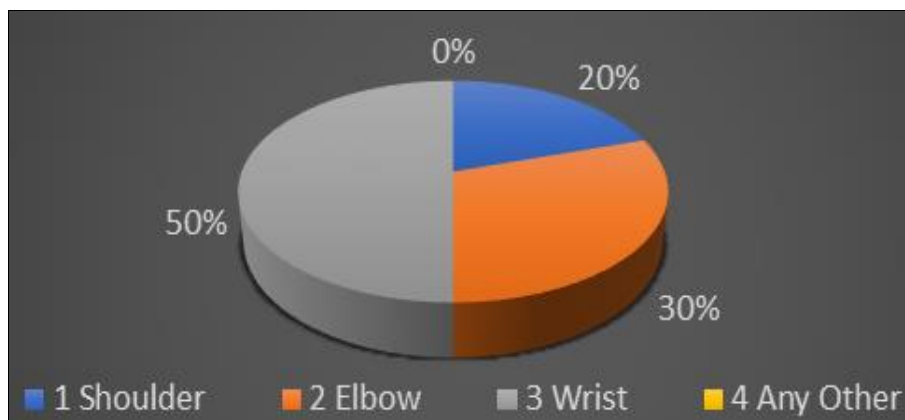


Fig 7: Injuries in Upper Extremities

Table 7 and figure 7 shows the result of the subjects when asked about the injury prone areas in upper extremity of basketball players. As per the result 50% of the injuries

happen in wrist, 30% of the injury happens in elbow and 20% of the injury happen in shoulder.

Table 8: Injuries in Lower Extremities

Sr. No.	Injuries in Lower Extremity	Responses	Percentage
1.	Hips	4	5%
2.	Knee	36	47%
3.	Ankle	35	48%
4.	Any Other	0	0%
	Total	75	100%

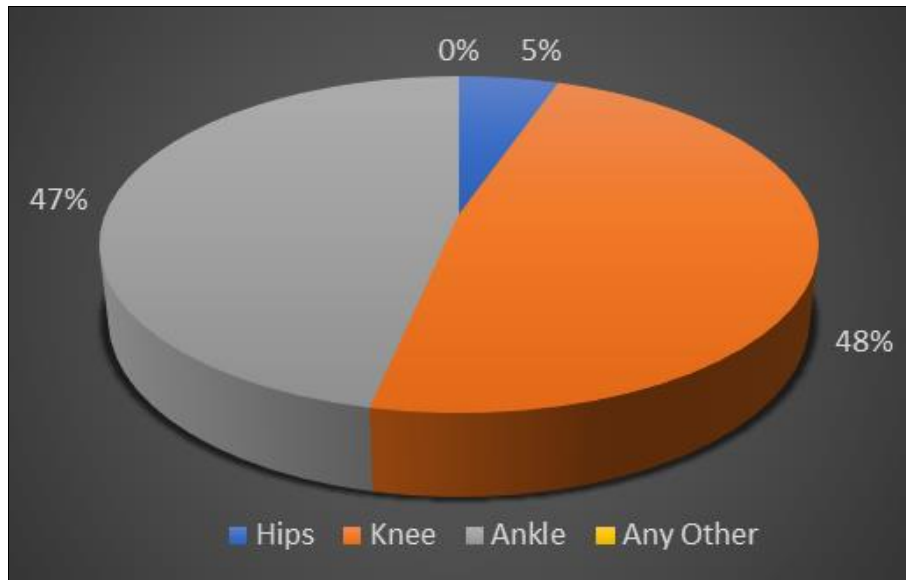


Fig 8: Injuries in Lower Extremities

Table 8 and figure 8 shows the result of the subject when asked about the injury prone areas in lower extremity of basketball player. As per the result, 48% of the injuries

happen in ankle, 47% of the injuries happen in knees and 5% of the injury happen in hips.

Table 9: Injuries in middle part of the body

Sr. No.	Injuries in Middle Part of the Body	Responses	Percentage
1.	Lower Back	5	100%
2.	Upper Back	0	0%
3.	Abdominal	0	0%
4.	Any Other	0	0%
	Total	5	100%

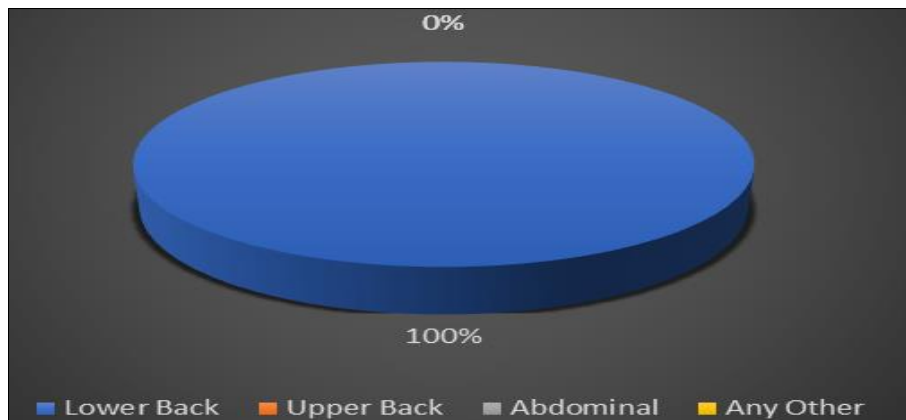


Fig 9: Injuries in middle part of the body

Table 9 and figure 9 shows the result of subjects when asked about the injury prone areas in the middle part of the body

100% of the subjects have replied that the most prone area in the middle part of the body for injury to happen is lower back.

Table 10: Ranking of Injuries in different body parts

Sr. No.	Common Injuries	Injuries responses in thier specific category	Ranking	
1.	Upper Extremity (20)	Shoulder	4	VI (A)
		Elbow	6	IV
		Wrist	10	III
2.	Lower Extremity (75)	Hips	4	VI (B)
		Knee	36	I
		Ankle	35	II
3.	Middle Part (5)	Lower Back	5	V
	Total	100		

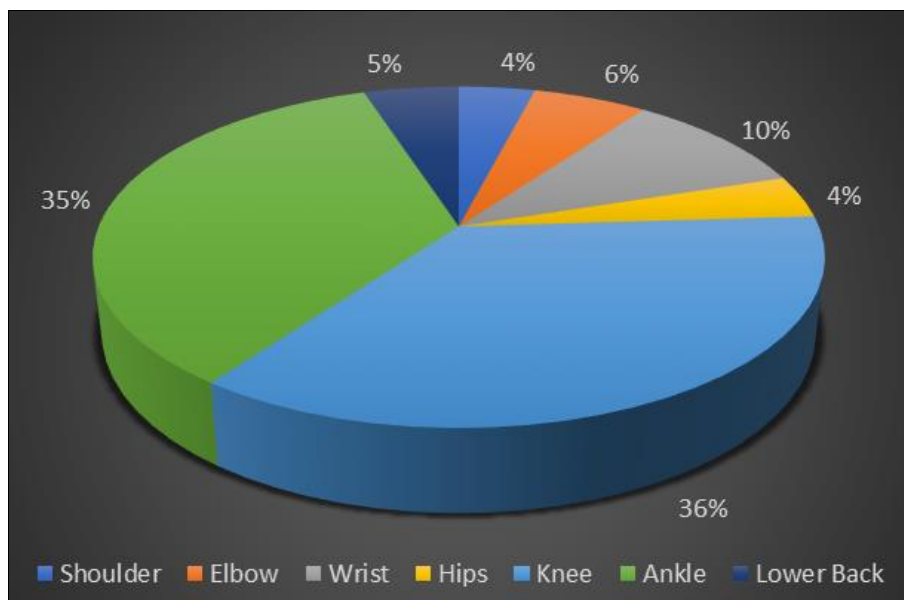


Fig 10: Ranking of Injuries in different body parts

Table 10 and figure 10 shows the ranking of injuries that happens in different body parts while playing basketball. As per the result, knee is ranked first with a total of 36 responses, ankle is ranked second with a total of 35 responses, wrist is ranked third with a total of 10 responses, elbow is ranked fourth with a total of 6 responses, Lower back is ranked fifth with a total of 5 responses and shoulder is ranked six along with hips with a total of 4 responses.

Discussion of the findings

From the results obtained it is clear that when asked about the common injuries in basketball 65% of the subjects have said that soft tissue injury is the most common injury in basketball, 20% subject said that bone injury is the most common in basketball and 15% said joint injury is the most common injury in basketball. When asked about the soft tissue injuries in basketball, 58% of the subject said sprain is the most common soft tissue injury that happens in basketball, 27% said strain is the most common injury in basketball and 15% said abrasion is the most common injury in basketball. When asked about the bone injuries that occur in basketball 72% of the subjects said oblique fracture is the most common fracture in basketball and 28% said transverse fracture is the most common fracture in basketball. When asked about the joint injuries that occurs in basketball 60% of the subject said sub-luxation is the most common joint injury in basketball and 40% of the subject said luxation is the most common injury in basketball.

When compared the ranking of the injuries that occur in basketball the results showed that sprain is ranked first with a total of 32 responses, oblique fracture is ranked second with a total of 18 responses, Strain is ranked third with a total of 15 responses, sub-luxation is ranked fourth with a total of 12 responses, abrasion and luxation is ranked fifth with a total of 8 responses and transverse fracture is ranked sixth with a total of 7 responses.

When asked about the vulnerable parts of the body in which the injuries occur in basketball it was clear from subject's responses that 75% of the injuries happen in lower extremity,

20% of the injuries happen in upper extremity and 5% of the injury happens in middle part of the body. When asked about the injury prone areas in upper extremity of basketball players subjects responded that 50% of the injuries happen in wrist, 30% of the injury happens in elbow and 20% of the injury happen in shoulder. When asked about the injury prone areas in lower extremity of basketball player subjects responded that 48% of the injuries happen in ankle, 47% of the injuries happen in knees and 5% of the injury happen in hips. When asked about the injury prone areas in the middle part of the body subjects responded that 100% injury happen in lower back.

When compared the ranking of injuries that happens in different body parts while playing basketball the results showed that knee is ranked first with a total of 36 responses, ankle is ranked second with a total of 35 responses, wrist is ranked third with a total of 10 responses, elbow is ranked fourth with a total of 6 responses, Lower back is ranked fifth with a total of 5 responses and shoulder is ranked six along with hips with a total of 4 responses.

Conclusion

From the result of the study following conclusions were made

1. Soft tissues injuries are the most common and joint injuries are the least common injury in basketball.
2. In soft tissue injury, sprain is the most common injury in basketball.
3. In bone injury, oblique fracture is the most common fracture that occurs in basketball.
4. In joint injury, sub-luxation is more common than luxation in basketball.
5. The chances of getting an injury in the lower extremity is the highest and the middle part of the body is the lowest in basketball.
6. In the lower extremity, the chances of injuries in ankle are the highest in basketball.
7. In the upper extremity, the chances of injury in elbow are the highest in basketball.

8. In the middle part of the body, the chances of injury in lower back are the highest in basketball.

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