



# A comparative Study Between the Upper and Lower Limbs of the Quail Fetus

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## ABSTRACT

The study aims to comparative Between the Upper and Lower Limbs of the Quail Fetus , the result showed increases in weight until it reaches maturity . As for monitoring the length of the bird's body to know that the bird's body grows in all its organs, then as the length of the body increases, the length of the organs (limbs) increases The growth and development of the limbs appear in the form of lateral swellings in the mesoderm, then the distal end of the limb bud flattens, then rapid growth occurs in the mesoderm cells to gradually turn into cartilage in the limbs, and the cartilage hardens to form the limb bones .

**Keywords:**

Quail Fetus, limbs , bird's body

## Introduction

The quail is one of the important productive birds due to its abundant egg production, as the female of the improved breeds lays approximately 300 eggs annually. All of these things make the generation period short. (1) . This bird is distinguished by many characteristics, the most important of which is that its meat has a special taste and a delicious flavor that is desired by many consumers. In addition to that, it has encouraging productive qualities and its low rearing costs compared to the costs of feeding chickens, its high speed of growth, and its early sexual maturity, which gives great opportunities for progress in genetics and reproductive research. (2).The economic importance of quail birds in scientific experiments comes from their early sexual maturity, as females )begin to lay the first egg at the age of 35-42 days, which is the age at which females reach sexual maturity, with an average weight of 140-150 grams. (3) Studying the development of the limbs of the quail embryo is very important through the movement of the lower limbs and learning to fly short distances for the upper limbs. The aim of this research is to study a comparison between the development of the upper limbs and the lower limbs. (4)

## Materials and methods

This study was carried out by measuring the lengths of the upper limbs and the lengths of the lower limbs of quail birds at the age of 1-45 days. The eggs of 130 local fertilized eggs were collected from the city of Kut. The study was carried out during the time period from 10/29/2023 to 11/14/ 2023, and the samples were divided into two groups of equal numberThe first group represents the control group, and the second group represents the experimental group, which is the one on which the study experiment is based (5).The sample is prepared by placing the quail eggs in the incubator at a temperature of 37.5 and a humidity of 50% to 55% from day 1 to day 14. The eggs are turned automatically from the third day every 120 minutes, and the turning is stopped on day 15 and the

humidity is raised from 60. % to 70% until the egg shell softens to facilitate the embryo's exit from the egg (6). Measurements of the limb lengths of the quail embryo are taken from the age of one day to the maturity stage, which is 42 to 45 days old. (7).

## Results and discussion

Measuring the weight of the quail during the experiment indicates that the bird grows and increases in weight until it reaches maturity (8). As for monitoring the length of the bird's body to know that the bird's body grows in all its organs, then as the length of the body increases, the length of the organs (limbs) increases (9). The growth and development of the limbs appear in the form of lateral swellings in the mesoderm, then the distal end of the limb bud flattens, then rapid growth occurs in the mesoderm cells to gradually turn into cartilage in the limbs, and the cartilage hardens to form the limb bones (10).

**Table No. (1) Represents the averages of limb length measurements for birds at the age of (1-6) weeks.**

weeks.	Quail weight (g)	Quail length (cm)	Upper limb length (cm)	Lower limbs length (cm)
1	24.79	8.35	4.94	2.26
2	57.96	13.03	9.15	6.56
3	97.29	16.6	14.3	7.55
4	146.55	19.5	15.00	9.65
5	162.5	21.7	16	10
6	184.10	21.9	16	10

The growth of the limbs in birds comes from the mesoderm, meaning that the upper and lower limbs come from one source (10), but it is noted from the results of the study (Table 1) that the weight of the quail increases double during weeks 1, 2, and 3, and then begins to grow gradually. This is confirmed by (11), and the growth of body length is similar to the growth of weight, and this agrees with (12). Growth and increase in the length of the upper limbs is observed during weeks 1, 2, and 3. It is 4.94, 9, 15, and 14.3. This indicates the growth and increase of cells in the mesoderm in a doubly high manner, and this agrees with (13). Likewise, the growth of the lower limbs is doubly so, but less than the upper limbs. In length. As for the growth and increase of the upper limbs in weeks 4 and 5, it is slow due to the development of the wings and the development of their muscles, and this is consistent with (14). As for the growth and development of the lower limbs during the same period, it is in a way that the same growth rate is also for the development of the muscles in the lower limbs. As for the growth and development of the limbs during the last After two weeks of study, growth has stopped almost completely due to the quail reaching puberty, and this is consistent with (15)

## Conclusions

It is concluded from this study

- 1- The growth of the upper limbs differs from the lower limbs, as the growth of the upper limbs is greater than that of the lower limbs.
- 2- The growth of the limbs in the first weeks is rapid and exponential.
- 3- The growth of the limbs is slow in the middle weeks.
- 4- The growth of the limbs in the last weeks is almost halted and stops completely in the sixth week of the study.

## Recommendations

- 1- An increase in research work on quails in Wasit Governorate.
- 2- Supporting quail breeding projects due to the economic importance of this bird.
- 3- Preventing the hunting of quail during the mating season.

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