

The Influence of Age, Gender and Weight on Sex Hormone Levels and Histological Development of Reproductive Organs in Arabi Sheep

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ABSTRACT

This study was conducted in the College of Agriculture - University of Basra from 1/9/2020 to 15/1/2021 by collecting 120 blood samples from males and females of the Arabi sheep breed, as well as taking samples from reproductive organs (testes and ovaries) to evaluate the effect of age, weight and sex of animals on sexual hormone levels. Samples were divided into three age groups (5-8 months, 9-12 months and 1-1.5 years) and three body weight groups (15-25, 26-36, 37-47) kg. The results showed a significant ($P < 0.05$) increase in the concentration of gonadotropin hormones (FSH, LH) and steroidal hormones (estrogen, progesterone and testosterone) in animals older than 9 months. The concentration of FSH and LH hormones were higher females compared to males. All levels of sex hormones significantly ($P < 0.05$) increased when the body weight increased to more than 26 kg in both sexes. Reproductive organs in both sexes (testes and ovaries) developed when the animal age and weight increased.

KEYWORDS: Arabi sheep; sexual hormones; reproductive organs; age; weight.

الخلاصة

أجريت هذه الدراسة في كلية الزراعة - جامعة البصرة في الفترة من 2020/9/1 إلى 2021/1/15 من خلال جمع 120 عينة دم من ذكور وإناث سلالة الاغنام العراقية ، وكذلك أخذ عينات من الأعضاء التناسلية (الخصيتين والمبيضين) لتقييم تأثير عمر الحيوانات ووزنها وجنسها في مستويات الهرمونات الجنسية. قسمت العينات إلى ثلاث فئات عمرية (5-8 أشهر ، 9-12 شهرًا و1-1.5 سنة) وثلاث مجاميع لوزن الجسم (15-25 ، 26-36 ، 37-47) كغم. أظهرت النتائج زيادة معنوية ($P > 0.05$) في تركيز هرمونات مغذيات الغدد التناسلية (FSH ، LH) والهرمونات الستيرويدية (الإستروجين والبروجسترون والتستوستيرون) في الحيوانات الأكبر من 9 أشهر. كان تركيز هرمونات FSH و LH أعلى عند الإناث مقارنة بالذكور. زادت جميع مستويات الهرمونات الجنسية معنويًا ($P > 0.05$) عندما زاد وزن الجسم إلى أكثر من 26 كجم في كلا الجنسين. تطورت الأعضاء التناسلية في كلا الجنسين (الخصيتين والمبايض) مع زيادة عمر الحيوان ووزنه.

INTRODUCTION

The Arabi sheep is one of the three main local breeds in Iraq, it is located in the southern portion of the country, and it is smaller than the Al-Karadi and Al-Awassi breeds [1]. The age of sexual puberty in sheep differs between males and females, depending on the age, weight, season, critical body weight, development of the reproductive organs (testes, ovaries) and increase the effectiveness of the endocrine gland secretions [2,3]. Sex hormones play an efficient role in the completion of the sexual process in male and female sheep [4]. In addition, Biological and physiological processes in the animal body affect by many factors such as energy intake, season, sex, age, temperature, productive and hormonal

secretions [5,6]. [4] indicated in his study on Belclare ewes that the rate of ovulation increases high weight females This research group suggested that the animal weight plays an important role in improving the endocrine secretion of sex hormones and a positive reflection on the development of the reproductive activity in females. Most sex hormones, including testosterone hormone, affected by growth, age, sex, weight and physiological status in buffalo calves [7]. [8] reported that it is necessary to study the histological development of the animal reproductive organs to explain the relationship between the growth of these organs and the secretion of sex hormones. Therefore, the objective of the present study is to discover the effect of age, sex and weight on sex hormones and reproductive tissue development in