A QUALITATIVE HISTOMORPHOMETRIC STUDY OF THE REPRODUCTIVE SYSTEM OF THE GENETICALLY OBESE MALE ZUCKER RAT

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I hereby recommend that this thesis prepared under my direction by Joel Abram Piser entitled A Qualitative Histomorphometric Study of the Reproductive System of the Genetically Obese Male Zucker Rat be accepted as fulfilling the thesis requirement of the degree of Master of Science.

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TABLE OF CONTENTS

Page

ACKNOWLEDGMENTS ii

LIST OF FIGURES iii

LIST OF TABLES iv

ABSTRACT v

1. INTRODUCTION 1

2. MATERIALS AND METHODS 2

Preliminary Study of Testosterone Sensitive Structures 2
Examination of Spermatozoan Motility 2
Gross Weight and Histological Preparation of the Testis 3
Histomorphometric and Qualitative Evaluation of the Testis 3

3. RESULTS 5

Examination of Testosterone Sensitive Structure. . . . 5
Examination of Spermatozoan Motility 5
Weight of the Testis 6
Histomorphometric and Qualitative Evaluation of the Testis 6

4. DISCUSSION 8

Examination of Spermatozoan Motility 8
Gross Weights of the Testis, Seminal Vesicle and Coagulating Gland 9
Histomorphometric and Qualitative Evaluation of the Testis 9

BIBLIOGRAPHY. 11

TABLES 13

FIGURES AND PLATE 16

ABSTRACT

Fat-lean littermate pairs of genetically obese male Zucker rats were sacrificed and their left testis, seminal vesicle, coagulating gland, and the glans penis were removed. Spermatozoa obtained from the right epididymis and testis of fat and lean rats exhibited motility characteristic of normal rats. The testis and accessory glands were weighed and no differences between fats and leans were noted. The general macroscopic appearance of all organs from fat and lean rats was normal. Tissues were fixed in Bouin's solution and prepared according to standard histological procedure. Six micron sections taken at 60 micron intervals were stained by the Masson trichrome method. The cytology of the seminal vesicle epithelium and glans penis was similar in the fat and lean Zucker rats suggesting that androgen levels may be similar. Qualitative histological observations of the testis indicated seminiferous epithelium and Leydig cells were normal. The histomorphometric evaluation using Chalkey's method (1943) established that the relative gram-volume per cent composition of seminiferous tubules, interstitial space and Leydig cells did not differ in fat and lean rats. These findings indicate that both fat and lean male Zucker rats are capable of sexual reproduction.