ON THE WEIGHT OF THE EPIDIDYMISS, PANCREAS,
STOMACH AND OF THE SUBMAXILLARY GLANDS
OF THE ALBINO RAT (*MUS NORVEGICUS*
ALBINUS) ACCORDING TO BODY WEIGHT

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FOUR CHARTS

In my two previous papers ('13 and '14: see also Jackson, '13) the data on the weights of various organs of the albino rat between birth and maturity, according to either body weight or to age, have been given. The organs so far studied were as follows: heart, kidneys, liver, lungs, spleen, alimentary tract, thyroid, suprarenals, hypophysis, thymus, testes, ovaries, and eyeballs. Besides these there are available the extensive data on the weights of the brain and of the spinal cord (Donaldson, '08 and '09). There remain therefore several other organs which have not yet been studied. Owing to the importance of some of these organs in connection with various kinds of investigation, it was thought desirable to examine them, and I have thus far accumulated the data on the weights of the epididymis, stomach, pancreas and submaxillary glands. These data, accompanied by the mathematical formulas necessary for interpolation, I now wish to present.

MATERIAL

For the present investigation I have secured data from 149 male and 106 female albino rats at different body weights. All the rats here used were healthy. In addition I have examined four hybrid rats for the purpose of testing the range of applicability of the formulas, and the data for these are included in the tables and in charts given later.

Since I have already given, in my papers cited earlier, several practical suggestions regarding the various ways of using the formulas when the rats under examination were not normal to the calculated values, these suggestions will not be repeated. The more extensive suggestions for the use of the formulas under varied conditions are given by Donaldson ('15, pp. 3-6).

METHOD OF DISSECTION

Although all the organs under discussion can be easily isolated from their surrounding structures, I may describe my own method of separation.

EPIDIDYMIS

The epididymis of the adult rats is usually surrounded by a mass of fat. To separate the adipose tissue the caudal end of the organ is held firmly with strong forceps and then along the entire length of the epididymis this tissue is cut away with sharp scissors, care being taken not to injure the organ itself. A complete isolation of the fat is impossible, but the organ can be so nearly freed that the adhering particles do not modify the results. For practice it is advisable to dissect younger rats (15 to 25 days old) in which the adipose tissue is not abundant. Once the form and relations of the epididymis are learned from the younger rats, the removal of the fat in the adult is not difficult.

STOMACH AND PANCREAS

To remove the stomach and pancreas I have found it convenient to remove the entire alimentary tract from the body and then work with this on the dissecting pad.

The pancreas is rather difficult to isolate from the surrounding structures such as omentum, lymphatic nodules, fat, etc. It is advisable to work first on young rats of about twenty-five days of age. In this stage immediately after death the pancreas can be easily distinguished from the surrounding structures by its characteristic pinkish gray color. My own method is to cut the pancreas together with omentum from the line of attachment along the stomach and intestine. The adipose tissue can then be

easily torn off by gentle pulling from the more solid pancreatic tissue. The omentum and lymphatic nodules may be removed by means of sharp scissors. In the adult rat the pancreas looks gray or grayish pink immediately after death. Some practice with younger rats is advisable before removing the pancreas from the older animals.

The stomach is separated at the pyloric end where a deep constriction is clearly shown. The esophagus is cut close to the stomach—within a few millimeters. As soon as the stomach is removed, it is cut along the entire length and the contents are carefully removed by means of either the dull side of a knife or forceps. This can be easily done without injuring the stomach for the purpose of recording its weight.

SUBMAXILLARIES

These glands are easily isolated on account of their definite outline as well as their tough texture. Two or more lymphatic nodules are found beside the submaxillaries. These are to be excluded and are easily removed with sharp scissors.

DATA

In table 1 are given the mean values of the observed weights for all the organs examined, the data being arranged according to sex. Table 2 gives the calculated weights of the organs for the several values of the body weight. This table 2 has been used in making the charts which appear in the following pages.

The general form of the graph resembles that for the growth of the testes (see Hatai, '13, p. 106, chart 7) although its detail is somewhat different. As is shown in chart 1, the increase in weight is slow during the early period of life and this phase is followed by a rapid increase in weight from about 60 grams up to about 150 grams in body weight. After 150 grams in body weight, though the growth is steady, nevertheless its rate gradually diminishes.

The agreement between the observed and calculated values is satisfactory though the variation becomes larger with increas-

TABLE 1

Showing the mean values of the observed weights for all the organs examined. Arranged in groups according to body weight. The weights are given in grams

Series of organs—Male albino rat

	BODY WEIGHT	BODY LENGTH	TAIL LENGTH	EPIDIDY-MIS (2)	PAN-CREAS	STOM-ACH	SUB-MAXILLARIES (2)	AGE	NO. OF RATS	REMARKS
		mm.	mm.					days		
1	4.4	46.2	15.0	0.0025	0.0193	0.0270	0.0169	1	9	
2	7.1	54.6	20.7	0.0069	0.0208	0.0420	0.0224	3	7	
3	13.1	72.1	41.0	0.0117	0.0403	0.0849	0.0376	12	15	
4	25.7	99.7	73.4	0.0251	0.1543	0.2285	0.0778	25	15	
5	32.5	108.9	84.2	0.0289	0.2569	0.2994	0.0978	29	10	
6	52.6	128.3	112.3	0.0821	0.3476	0.5139	0.1260	48	6	
7	65.5	138.5	116.7	0.0989	0.4754	0.5806	0.1573	46	11	
8	75.0	144.6	121.3	0.0987	0.5255	0.6540	0.1737	48	10	
9	87.4	151.6	126.8	0.1957	0.5748	0.6860	0.1974	55	4	
10	102.7	158.8	102.7	0.3164	0.5415	0.7684	0.2209	74	4	
11	124.4	171.6	149.1	0.3122	0.7467	0.9924	0.2664	72	6	
12	135.3	174.6	152.8	0.3432	0.6118	0.8776	0.2549	70	4	
13	144.9	176.8	152.2	0.4587	0.6738	0.9681	0.2899	99	5	
14	155.7	182.8	160.4	0.5123	0.7802	0.9736	0.3148	118	6	
15	166.5	190.2	163.4	0.4729	0.7343	1.0594	0.3405	79	7	6 age known
16	189.7	195.1	171.9	0.6364	0.9036	1.0765	0.4091	92	8	7 age known
17	223.2	204.8	174.5	0.8012	1.0976	1.2233	0.4459	179	6	5 age known
18	262.5	219.6	187.2	0.9068	1.1546	1.4171	0.5750	239	5	2 age known
19	295.5	226.5	194.5	0.8772	1.1205	1.2789	0.5247	363	6	5 age known
20	350.8	229.3	185.7	0.8810	1.6376	1.5974	0.6374	460	3	1 age known
21	394.5	243.7	193.7	0.9772	1.6459	1.7568	0.7756	503	3	2 extracted
22	460.8	257.0	194.5	1.1032	2.1202	1.8625	0.7718	664	2	F ₁ Gray
									152	
Series of organs—Female albino rat										
1	4.1	45.3	14.7		0.0189	0.0229	0.0158	1	3	
2	7.1	54.2	22.6		0.0298	0.0482	0.0226	3	5	
3	13.6	72.8	40.8		0.0475	0.0939	0.0393	12	15	
4	26.3	98.8	79.1		0.1865	0.2567	0.0881	27	10	
5	45.1	120.9	103.5		0.3548	0.4528	0.1220	41	11	
6	55.4	131.0	114.3		0.4256	0.5503	0.1431	47	10	
7	65.8	137.3	117.5		0.4883	0.6214	0.1687	45	6	
8	76.3	143.5	122.3		0.5453	0.5680	0.1699	51	6	
9	104.9	160.6	139.0		0.5815	0.7691	0.2306	71	5	
10	116.5	165.8	147.3		0.7883	0.6239	0.2589	68	6	
11	130.3	169.6	154.4		0.6981	0.8992	0.3007	70	4	
12	151.1	182.2	161.4		0.8844	1.0066	0.3286	92	5	
13	187.4	197.5	172.0		0.9723	1.0367	0.3749	393	8	
14	205.4	203.2	169.6		1.0896	1.1173	0.4240	335	5	
15	229.6	207.0	177.8		1.1157	1.2445	0.4357	433	6	
16	339.7	240.5	188.0		2.1422	2.0470	0.5463	654	2	1 age known 1 extracted
									107	

TABLE 2

*Showing the calculated weights of the organs for various values of the body weight.
The weights are given in grams*

BODY WEIGHT	EPIDIDYMS (2 MALES	PANCREAS		STOMACH, MALES AND FEMALES	SUBMAXILLAR- IES (2) MALES AND FEMALES
		Males	Females		
5	0.0047	0.0193 ¹	0.0189 ²	0.0302	0.0170
10	0.0074	0.0516	0.0516	0.0614	0.0341
15	0.0111	0.1396	0.1396	0.1009	0.0485
20	0.0158	0.1813	0.1813	0.1487	0.0614
30	0.0282	0.2426	0.2589	0.2803	0.0845
40	0.0446	0.2938	0.3238	0.3795	0.1056
50	0.0650	0.3408	0.3818	0.4611	0.1255
70	0.1178	0.4283	0.4858	0.5941	0.1632
100	0.2270	0.5519	0.6259	0.7530	0.2167
130	0.3943	0.6711	0.7558	0.8861	0.2683
170	0.5562	0.8262	0.9203	1.0412	0.3352
200	0.6504	0.9409	1.0395	1.1469	0.3845
230	0.7270	1.0546	1.1563	1.2464	0.4333
270	0.8116	1.2051	1.3092	1.3720	0.4978
300	0.8641	1.2874	1.4222	1.4621	0.5458
350	0.9366	1.5036	1.6083	1.6063	0.6254
400	0.9942	1.6889	1.7922	1.7449	0.7045
450	1.0404	1.8736	1.9744	1.8792	0.7833

¹ Observed body weight for average body weight of 4.4 grams.

² Observed body weight for average body weight of 4.1 grams.

ing body weight. On account of the presence of two distinct phases of growth the following two formulas were used.

Weight of epididymis (2)

$$(1) = 0.003 + 0.00024 \text{ Bd. wt.} + 0.00002 \text{ Bd. wt.}^2$$

$$\text{Bd. wt.} \leq 100$$

$$(2) = 1.65 \log \text{ Bd. wt.} - 0.000762 \text{ Bd. wt.} - 2.9945$$

$$\text{Bd. wt.} \geq 100$$

It is interesting to note that even when the testis is atrophied the epididymis is not usually visibly affected. This is most probably due to its strong tubular structure contrasted with soft glandular structure of the testis.

Jackson ('13, p. 39) found that "the epididymis forms one-fifth or one-sixth of the weight of the testes proper in the young rats, which however increases (with irregular variation) to one-third

after the age of puberty, at about ten weeks. In extreme cases the weight of the epididymis is one half that of the testes proper." I have tested my own data and found that Jackson's generalization fits with remarkable closeness in the present case: that is the weight of epididymis in the rat whose body weighs more than 130 grams is approximately one-third (0.32 on the average) of the testes proper, while in rats less than 130 grams in body weight, the weight of the epididymis is nearly one-sixth of the weight of the testes (0.17 on the average).

Chart 1. Showing the weight of epididymes of the male albino rat according to body weight. The observed weights are represented by 152 male rats entered according to the groups given in table 1.

• observed weight. — calculated weight.

In the pancreas a sex difference is distinctly shown. The pancreas in the female is heavier than in the male; consequently the growth of the pancreas in weight is treated separately according to sex and is represented by the following formulas:

$$\text{Male} = 0.048 + 0.0036 (\text{Bd. wt.} - 9) + 0.09 \log (\text{Bd. wt.} - 9) \\ \text{Bd. wt.} \geq 10$$

$$\text{Female} = 0.00339 \text{ Bd. wt.} + 0.248 \log \text{Bd. wt.} - 0.2091 \\ \text{Bd. wt.} \geq 20$$

It is evident from the limits stated that the formulas do not apply to the body weight which is less than 10 grams, and furthermore that the pancreas of the female between 10 and 20 grams in body weight is represented by the formula employed for the male rats.

Chart 2 Showing the weight of the pancreas of the albino rat according to body weight. The observed weights are represented by 152 male rats and 107 female rats entered according to the groups given in table 1.

• Observed weight, male. ° Observed weight, female.
 — Calculated weight, male. - - - Calculated weight, females.

We notice several interesting points in the graph for the pancreas. The sex difference is not so great as that shown by some of the ductless glands, such as the suprarenals or hypophysis. The difference however appears at an earlier period than in the case of the ductless glands, that is the appearance is recognizable at 20 grams in body weight. The distribution of the observed averages is somewhat irregular and suggests a more complicated type of graph than has been assumed. I have however decided to treat the data with the simplest kind of formula which fairly represents the distribution. If the pancreas should readily change its dimensions, according to physiological conditions the determination of the norm of the weight becomes more difficult, but the present formula may serve until the facts bearing on the physiological state of the organ are better understood.

Whether or not a similar sex difference in the weight of the pancreas also exists in other vertebrates or other mammals than the albino rat, is not yet determined. Kellicott ('08) who studied the various organs of the smooth dog fish (*Mustelus canis*, Mitchill) did not find any indication of sex difference in the weight of the pancreas.

Welcker ('03) who accumulated a great deal of data on the weights of organs in representative animals of the entire vertebrate series, did not mention this matter. However an examination of the data given by Welcker makes it highly probable that the sex difference in the weight of the pancreas exists not only in other mammals, but in still lower class of vertebrates also.

An examination of the table reveals in seven of the nine forms examined, a sex difference in the pancreas weight when body weights are alike—the female pancreas being the heavier. The exceptions are the hedge hog and the frog. Although the data are too meager to justify a definite statement, nevertheless the high probability of a sex difference in mammals, represented by a heavier pancreas in the female, cannot be denied.

The growth of the stomach is represented by a graph similar to that for most of the other viscera; that is, the growth is relatively faster in the earlier stages, and after that brief period

TABLE 3

Showing the weight of the pancreas in both sexes of animals belonging to various classes of vertebrates (compiled from Welcker's tables)

SPECIES	SEX	GROSS WEIGHT	PAN-CREAS	SERIES	SEX	GROSS WEIGHT	PAN-CREAS
		grams	grams			grams	grams
Rana esculenta*	♂	3.762	0.092	Hedgehog* (Erinaceus europaeus)	♂	258.65	4.54
	♀	5.507	0.071		♀	389.00	3.30
Salamandra maculosa	♂	15.705	0.021	Mus musculus	♂	14.122	0.089
	♀	14.251	0.048		♀	15.866	0.136
Lacerta agilis	♂	2.637	0.021	Cat	♂	2833.0	5.9
	♀	2.819	0.052		♀	2001.0	5.3
Bat (Plecotus auritus)	♂	5.434	0.015	Dog, 108 days old . . .	♂	4859.0	16.06
	♀	5.412	0.050		♀	4988.26	20.05
Shrew	♂	7.545	0.100				
	♀	7.570	0.119				

* Male pancreas the heavier.

the rate becomes slower with increasing body weight. The relation between the weight of the stomach and that of the body after the end of rapid growth is represented by a nearly straight line. On account of the peculiarity of the graph during the earlier period, two formulas were used in order to represent the entire range of the observations from 4 grams up to 450 grams in body weight.

Weight of stomach

$$(1) = 0.00375 \text{ Bd. wt.} + 0.00016666 \text{ Bd. wt.}^2 + 0.0073$$

$$\text{Bd. wt.} \leq \frac{4}{20}$$

$$(2) = 0.00204 \text{ Bd. wt.} + 0.631 \log \text{ Bd. wt.} - 0.7130$$

$$\text{Bd. wt.} \geq 20$$

As will be seen from the chart there are not found any indications of a difference in weight according to sex.

It is interesting to note that the weight of the stomach is nearly one-ninth that of the entire alimentary tract (for the data see Hatai, '13, p. 95, table 1) in all stages examined with the exception of the new born, in which the weight of the stomach is

relatively large compared with that of the alimentary tract. (The average value found for body weights which range between 15–100 grams was 0.119, while between 130–450 grams it was 0.110).

In my previous paper (Hatai, '13) the weight of the alimentary tract has been given. Since the alimentary tract represents besides the intestine, the stomach, pancreas and omentum, we are now able to estimate the weight of the intestine plus omentum by subtracting the values given for the stomach and pancreas from the values given for the entire alimentary tract.

The weight of the submaxillaries (2) on the body weight is represented by the following formula:

Chart 3 Showing the weight of the stomach of the albino rat according to body weight. The observed weights are represented by 152 male rats and 107 female rats, entered according to the groups given in table 1.

● Observed weight, male. ○ Observed weight, female.

— Calculated weight.

$$\begin{aligned} &\text{Weight of submaxillaries (2)} \\ &= 0.00152 (\text{Bd. wt.} + 5) + 0.0542 \log (\text{Bd. wt.} + 5) - 0.0524 \\ &\qquad\qquad\qquad \text{Bd. wt.} \geq 5 \end{aligned}$$

The form of the graph is similar to that for most of the visceral organs: that is it has a period of rapid increase during earlier life (up to about 25 grams in weight) which in turn is followed by a somewhat slower rate. The relation between the weight of the submaxillaries and that of the body is, after 25 grams in body weight, practically linear. There is no indication of a sex difference so far as the weight is concerned.

Chart 4 Showing the weight of submaxillary glands (2) of the albino rat according to body weight. The observed weights are represented by 152 male rats and 107 female rats, entered according to the groups given in table 1.

• Observed weight, male. ° Observed weight, female.

— Calculated weight.

SUMMARY

The growth of the epididymis, pancreas, stomach and the submaxillary glands in weight has been studied on the basis of data obtained from 149 male and 106 female standard albino rats. Four hybrid rats were also utilized to study the condition of these organs in the rat in which the body weight is more than 350 grams in the case of the male and more than 300 grams in the case of the female. For each organ the mathematical formula based on the observed data has been worked out for the purpose of interpolation, as well as for the study of the form of the graph. The following points seem worthy of emphasis.

1. Before puberty the weight of epididymis is approximately one-sixth that of the testes and after puberty the weight of the former is approximately one-third that of the latter. Thus my own data fully confirm this weight relation first pointed out by Jackson ('13).

2. The weight of the stomach is approximately one-ninth of the weight of the alimentary tract, except in the new born rat in which the stomach is relatively heavier.

3. The pancreas shows a distinct sex difference in weight; the female sex having a heavier pancreas than the male of the same body weight. The difference appears clearly at as early a stage as 20 grams in body weight. An examination of Welcker's data ('03) reveals the existence of similar sex difference not only in other mammals, but also in several of the lower vertebrates.

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Appended is a table which gives for each sex and for each millimeter of body length the respective body weights and for the stomach, pancreas, both submaxillaries and the epididymides—the weights computed by the formulas presented in the body of the foregoing paper.

Giving for each sex and for each millimeter of body length the weights of body, stomach, pancreas, both submaxillaries and epididymis for each millimeter of body length

MALES						FEMALES			
Body length	Body weight	Stomach	Pancreas	Both submaxillaries	Epididymis (2)	Body weight	Stomach	Pancreas	Both submaxillaries
mm.	gms.	gms.	gms.	gms.	gms.	gms.	gms.	gms.	gms.
47	4.9				0.0047	4.7			
48	4.9	0.030		0.017	0.0047	4.7	0.029		0.016
49	5.0	0.030		0.017	0.0047	4.9	0.030		0.017
50	5.1	0.031		0.017	0.0047	5.0	0.030		0.017
51	5.2	0.031		0.018	0.0047	5.1	0.031		0.017
52	5.3	0.032		0.018	0.0049	5.3	0.032		0.018
53	5.4	0.032		0.019	0.0049	5.5	0.033		0.019
54	5.6	0.034		0.019	0.0049	5.8	0.035		0.020
55	5.8	0.035		0.020	0.0051	6.2	0.037		0.022
56	6.1	0.036		0.021	0.0052	6.5	0.039		0.023
57	6.4	0.038		0.022	0.0053	6.9	0.041		0.024
58	6.8	0.041		0.024	0.0055	7.2	0.043		0.025
59	7.1	0.042		0.025	0.0057	7.6	0.045		0.026
60	7.5	0.045		0.026	0.0059	8.0	0.048		0.028
61	7.9	0.047		0.027	0.0061	8.4	0.051		0.029
62	8.2	0.049		0.028	0.0063	8.7	0.053		0.030
63	8.6	0.052		0.030	0.0066	9.1	0.055		0.031
64	9.0	0.055		0.031	0.0068	9.5	0.058		0.033
65	9.4	0.057		0.032	0.0071	9.9	0.061		0.034
66	9.8	0.060		0.034	0.0073	10.3	0.064	0.063	0.035
67	10.1	0.062	0.056	0.035	0.0074	10.8	0.067	0.078	0.037
68	10.6	0.066	0.072	0.036	0.0077	11.2	0.070	0.087	0.038
69	11.0	0.069	0.082	0.037	0.0080	11.6	0.073	0.095	0.039
70	11.4	0.072	0.091	0.038	0.0083	12.0	0.076	0.102	0.040
71	11.8	0.075	0.098	0.040	0.0086	12.5	0.080	0.110	0.042
72	12.2	0.078	0.105	0.041	0.0089	12.9	0.083	0.115	0.043
73	12.7	0.082	0.112	0.042	0.0092	13.4	0.087	0.122	0.044
74	13.1	0.085	0.118	0.043	0.0095	13.9	0.092	0.128	0.046
75	13.6	0.089	0.124	0.045	0.0100	14.3	0.095	0.132	0.047
76	14.0	0.092	0.129	0.046	0.0103	14.8	0.099	0.138	0.048
77	14.5	0.097	0.134	0.047	0.0107	15.3	0.104	0.143	0.049
78	15.0	0.101	0.140	0.049	0.0111	15.8	0.108	0.147	0.051
79	15.4	0.105	0.144	0.050	0.0114	16.3	0.113	0.152	0.052
80	15.9	0.109	0.148	0.051	0.0119	16.8	0.117	0.156	0.053

MALES						FEMALES			
Body length	Body weight	Stomach	Pancreas	Both submaxillaries	Epididymis (2)	Body weight	Stomach	Pancreas	Both submaxillaries
<i>mm.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>
81	16.4	0.113	0.153	0.052	0.0123	17.3	0.122	0.161	0.055
82	16.9	0.118	0.157	0.054	0.0128	17.9	0.128	0.165	0.056
83	17.4	0.123	0.161	0.055	0.0133	18.4	0.133	0.169	0.057
84	18.0	0.129	0.166	0.056	0.0138	19.0	0.139	0.174	0.059
85	18.5	0.134	0.170	0.058	0.0142	19.5	0.144	0.178	0.060
86	19.0	0.139	0.174	0.059	0.0148	20.1	0.150	0.182	0.062
87	19.6	0.145	0.179	0.060	0.0154	20.7	0.160	0.188	0.063
88	20.1	0.150	0.182	0.062	0.0159	21.2	0.167	0.192	0.064
89	20.7	0.160	0.186	0.063	0.0166	21.8	0.176	0.197	0.066
90	21.3	0.169	0.189	0.065	0.0172	22.4	0.185	0.202	0.067
91	21.9	0.178	0.194	0.066	0.0179	23.1	0.195	0.207	0.069
92	22.4	0.185	0.198	0.067	0.0184	23.7	0.203	0.212	0.070
93	23.0	0.193	0.202	0.069	0.0191	24.3	0.211	0.217	0.072
94	23.7	0.203	0.206	0.070	0.0199	25.0	0.220	0.222	0.073
95	24.3	0.211	0.210	0.072	0.0206	25.6	0.228	0.227	0.075
96	24.9	0.219	0.213	0.073	0.0214	26.3	0.237	0.232	0.076
97	25.6	0.228	0.218	0.075	0.0222	27.0	0.245	0.237	0.078
98	26.2	0.235	0.221	0.076	0.0230	27.7	0.254	0.243	0.079
99	26.9	0.244	0.225	0.078	0.0240	28.4	0.262	0.248	0.081
100	27.5	0.251	0.229	0.079	0.0247	29.1	0.270	0.253	0.083
101	28.2	0.260	0.233	0.081	0.0257	29.8	0.278	0.258	0.084
102	28.9	0.268	0.237	0.082	0.0266	30.5	0.286	0.262	0.086
103	29.6	0.276	0.241	0.084	0.0276	31.3	0.295	0.268	0.087
104	30.3	0.284	0.244	0.085	0.0287	32.0	0.302	0.273	0.089
105	31.1	0.292	0.249	0.087	0.0298	32.8	0.310	0.278	0.091
106	31.8	0.300	0.252	0.088	0.0308	33.6	0.319	0.283	0.092
107	32.5	0.307	0.256	0.090	0.0319	34.4	0.327	0.289	0.094
108	33.3	0.316	0.260	0.092	0.0332	35.2	0.335	0.294	0.096
109	34.1	0.324	0.264	0.093	0.0345	36.0	0.342	0.299	0.097
110	34.9	0.332	0.268	0.095	0.0358	36.9	0.351	0.305	0.099
111	35.7	0.340	0.273	0.097	0.0371	37.7	0.359	0.310	0.101
112	36.5	0.347	0.277	0.098	0.0384	38.6	0.367	0.315	0.103
113	37.3	0.355	0.281	0.100	0.0398	39.5	0.375	0.321	0.105
114	38.2	0.363	0.285	0.102	0.0414	40.3	0.382	0.326	0.106
115	39.0	0.371	0.289	0.104	0.0428	41.3	0.391	0.332	0.108
116	39.9	0.379	0.293	0.105	0.0444	42.2	0.399	0.337	0.110
117	40.8	0.387	0.298	0.107	0.0461	43.1	0.406	0.342	0.112
118	41.6	0.394	0.302	0.109	0.0476	44.1	0.415	0.348	0.114
119	42.6	0.402	0.306	0.111	0.0495	45.0	0.422	0.354	0.116
120	43.5	0.410	0.311	0.113	0.0512	46.0	0.430	0.359	0.118

MALES						FEMALES			
Body length	Body weight	Stomach	Pancreas	Both submaxillaries	Epididymis (2)	Body weight	Stomach	Pancreas	Both submaxillaries
<i>mm.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>
121	44.4	0.417	0.315	0.115	0.0531	47.0	0.438	0.365	0.120
122	45.4	0.425	0.320	0.117	0.0551	48.0	0.446	0.371	0.122
123	46.3	0.433	0.324	0.118	0.0570	49.1	0.454	0.377	0.124
124	47.3	0.440	0.328	0.120	0.0591	50.1	0.462	0.382	0.126
125	48.3	0.448	0.333	0.122	0.0613	51.2	0.470	0.388	0.128
126	49.3	0.456	0.338	0.124	0.0634	52.3	0.478	0.394	0.130
127	50.4	0.464	0.343	0.126	0.0659	53.4	0.486	0.400	0.132
128	51.4	0.472	0.347	0.128	0.0681	54.5	0.494	0.406	0.134
129	52.5	0.480	0.352	0.130	0.0707	55.6	0.502	0.412	0.136
130	53.6	0.487	0.357	0.133	0.0734	56.8	0.510	0.419	0.139
131	54.7	0.495	0.362	0.135	0.0759	58.0	0.518	0.425	0.141
132	55.8	0.503	0.367	0.137	0.0787	59.2	0.526	0.431	0.143
133	56.9	0.511	0.372	0.139	0.0815	60.4	0.534	0.437	0.145
134	58.1	0.519	0.377	0.141	0.0844	61.6	0.542	0.444	0.148
135	59.3	0.527	0.382	0.143	0.0875	62.9	0.550	0.450	0.150
136	60.5	0.535	0.388	0.146	0.0907	64.2	0.559	0.457	0.153
137	61.7	0.543	0.393	0.148	0.0939	65.5	0.567	0.463	0.155
138	62.9	0.550	0.398	0.150	0.0972	66.8	0.575	0.470	0.157
139	64.1	0.558	0.403	0.152	0.1006	68.1	0.583	0.476	0.160
140	65.4	0.566	0.409	0.155	0.1042	69.5	0.591	0.483	0.162
141	66.7	0.574	0.414	0.157	0.1080	70.9	0.599	0.490	0.165
142	68.0	0.582	0.420	0.160	0.1118	72.3	0.608	0.497	0.167
143	69.3	0.590	0.425	0.162	0.1156	73.7	0.616	0.504	0.170
144	70.7	0.598	0.431	0.165	0.1200	75.2	0.624	0.511	0.173
145	72.1	0.606	0.437	0.167	0.1243	76.7	0.633	0.518	0.175
146	73.5	0.615	0.443	0.170	0.1286	78.2	0.641	0.526	0.178
147	74.9	0.623	0.449	0.172	0.1332	79.7	0.649	0.533	0.181
148	76.3	0.631	0.455	0.175	0.1377	81.3	0.658	0.540	0.184
149	77.8	0.639	0.461	0.178	0.1428	82.8	0.666	0.547	0.186
150	79.3	0.647	0.467	0.180	0.1478	84.4	0.675	0.555	0.189
151	80.8	0.655	0.474	0.183	0.1530	86.1	0.684	0.563	0.192
152	82.4	0.664	0.480	0.186	0.1586	87.7	0.692	0.570	0.195
153	83.9	0.672	0.486	0.188	0.1639	89.4	0.701	0.578	0.198
154	85.5	0.681	0.493	0.191	0.1697	91.1	0.709	0.586	0.201
155	87.1	0.689	0.500	0.194	0.1756	92.9	0.718	0.594	0.204
156	88.7	0.697	0.506	0.197	0.1817	94.6	0.727	0.602	0.207
157	90.4	0.706	0.513	0.200	0.1881	96.4	0.736	0.610	0.210
158	92.1	0.714	0.520	0.203	0.1947	98.3	0.745	0.618	0.214
159	93.8	0.723	0.527	0.206	0.2015	100.1	0.754	0.626	0.217
160	95.6	0.732	0.534	0.209	0.2087	102.0	0.763	0.635	0.220

MALES						FEMALES			
Body length	Body weight	Stomach	Pancreas	Both submaxillaries	Epididymis (2)	Body weight	Stomach	Pancreas	Both submaxillaries
<i>mm.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>
161	97.3	0.740	0.541	0.212	0.2157	103.9	0.772	0.643	0.224
162	99.2	0.749	0.549	0.215	0.2236	105.9	0.781	0.652	0.227
163	101.0	0.758	0.556	0.219	0.2356	107.9	0.790	0.661	0.231
164	102.8	0.766	0.563	0.222	0.2470	109.9	0.799	0.670	0.234
165	104.7	0.775	0.571	0.225	0.2585	111.9	0.808	0.678	0.237
166	106.7	0.785	0.579	0.228	0.2707	114.0	0.818	0.688	0.241
167	108.6	0.793	0.586	0.232	0.2818	116.1	0.827	0.697	0.245
168	110.6	0.802	0.594	0.235	0.2935	118.3	0.836	0.706	0.248
169	112.6	0.811	0.602	0.239	0.3047	120.5	0.846	0.716	0.252
170	114.7	0.821	0.611	0.242	0.3164	122.7	0.855	0.725	0.256
171	116.7	0.829	0.619	0.246	0.3273	125.0	0.865	0.735	0.260
172	118.9	0.839	0.627	0.249	0.3390	127.3	0.875	0.744	0.264
173	121.0	0.848	0.636	0.253	0.3499	129.6	0.885	0.754	0.268
174	123.2	0.858	0.644	0.257	0.3610	132.0	0.894	0.764	0.272
175	125.4	0.867	0.653	0.260	0.3721	134.4	0.904	0.774	0.276
176	127.7	0.877	0.662	0.264	0.3834	136.8	0.914	0.785	0.280
177	130.0	0.886	0.671	0.268	0.3943	139.3	0.924	0.795	0.284
178	132.3	0.896	0.680	0.272	0.4053	141.9	0.934	0.806	0.288
179	134.6	0.905	0.689	0.276	0.4158	144.4	0.944	0.816	0.293
180	137.0	0.915	0.698	0.280	0.4267	147.1	0.955	0.827	0.297
181	139.5	0.925	0.708	0.284	0.4378	149.7	0.965	0.838	0.301
182	142.0	0.935	0.718	0.289	0.4486	152.4	0.975	0.849	0.306
183	144.5	0.945	0.728	0.293	0.4592	155.2	0.986	0.860	0.311
184	147.0	0.955	0.737	0.297	0.4695	158.0	0.997	0.872	0.315
185	149.6	0.965	0.748	0.301	0.4801	160.8	1.007	0.883	0.320
186	152.3	0.975	0.758	0.306	0.4909	163.7	1.018	0.895	0.325
187	155.0	0.985	0.768	0.310	0.5014	166.6	1.029	0.907	0.330
188	157.7	0.996	0.779	0.315	0.5117	169.6	1.040	0.919	0.335
189	160.5	1.006	0.790	0.320	0.5223	172.6	1.051	0.931	0.340
190	163.3	1.017	0.801	0.324	0.5326	175.7	1.062	0.943	0.345
191	166.2	1.027	0.812	0.329	0.5429	178.8	1.073	0.956	0.350
192	169.1	1.038	0.823	0.334	0.5530	182.0	1.084	0.968	0.355
193	172.0	1.049	0.834	0.338	0.5630	185.2	1.096	0.981	0.360
194	175.0	1.059	0.845	0.343	0.5731	188.5	1.107	0.994	0.366
195	178.1	1.071	0.857	0.349	0.5835	191.9	1.119	1.008	0.371
196	181.2	1.082	0.869	0.354	0.5934	195.3	1.131	1.021	0.377
197	184.3	1.093	0.881	0.359	0.6032	198.7	1.143	1.035	0.382
198	187.5	1.104	0.893	0.364	0.6131	202.2	1.155	1.048	0.388
199	190.8	1.115	0.906	0.369	0.6231	205.8	1.167	1.062	0.394
200	194.1	1.127	0.919	0.375	0.6328	209.4	1.179	1.076	0.400

MALES						FEMALES			
Body length	Body weight	Stomach	Pancreas	Both submaxillaries	Epididymis (2)	Body weight	Stomach	Pancreas	Both submaxillaries
mm.	gms.	gms.	gms.	gms.	gms.	gms.	gms.	gms.	gms.
201	197.4	1.138	0.931	0.380	0.6423	213.1	1.191	1.091	0.406
202	200.8	1.150	0.944	0.386	0.6520	216.8	1.203	1.105	0.412
203	204.3	1.162	0.957	0.392	0.6618	220.7	1.216	1.120	0.418
204	207.8	1.173	0.971	0.397	0.6712	224.5	1.229	1.135	0.424
205	211.4	1.185	0.984	0.403	0.6808	228.4	1.241	1.150	0.431
206	215.0	1.197	0.998	0.409	0.6902	232.4	1.254	1.166	0.437
207	218.7	1.210	1.012	0.415	0.6996	236.5	1.267	1.181	0.444
208	222.5	1.222	1.026	0.421	0.7090	240.6	1.280	1.197	0.450
209	226.3	1.235	1.041	0.427	0.7184	244.8	1.294	1.213	0.457
210	230.2	1.247	1.055	0.434	0.7276	249.1	1.307	1.230	0.464
211	234.1	1.260	1.070	0.440	0.7366	253.4	1.321	1.246	0.471
212	238.1	1.273	1.085	0.446	0.7458	257.8	1.334	1.263	0.478
213	242.2	0.286	1.101	0.453	0.7548	262.3	1.348	1.280	0.485
214	246.3	1.299	1.116	0.460	0.7638	266.9	1.363	1.297	0.493
215	250.5	1.312	1.132	0.467	0.7726	271.5	1.377	1.315	0.500
216	254.7	0.325	1.148	0.473	0.7813	276.2	1.391	1.333	0.508
217	259.1	1.339	1.164	0.480	0.7904	281.0	1.405	1.351	0.515
218	263.5	1.352	1.181	0.487	0.7990	285.8	1.420	1.369	0.523
219	267.9	1.366	1.197	0.494	0.8076	290.8	1.435	1.388	0.531
220	272.5	1.380	1.215	0.502	0.8163	295.8	1.450	1.407	0.539
221	277.1	1.394	1.232	0.509	0.8246	300.9	1.465	1.426	0.547
222	281.8	1.408	1.249	0.517	0.8331	306.1	1.480	1.445	0.556
223	286.5	1.422	1.267	0.524	0.8414	311.3	1.495	1.465	0.564
224	291.4	1.437	1.285	0.532	0.8499	316.7	1.511	1.485	0.573
225	296.3	1.451	1.304	0.540	0.8580	322.1	1.527	1.505	0.581
226	301.3	1.466	1.322	0.548	0.8663	327.7	1.543	1.526	0.590
227	306.4	1.481	1.341	0.556	0.8744	333.3	1.559	1.547	0.599
228	311.5	1.496	1.360	0.564	0.8824	339.0	1.575	1.568	0.608
229	316.8	1.511	1.380	0.573	0.8904	344.8	1.592	1.589	0.617
230	322.1	1.527	1.400	0.581	0.8983	350.7	1.608	1.611	0.627
231	327.5	1.542	1.420	0.590	0.9060	356.7	1.625	1.633	0.636
232	333.0	1.558	1.440	0.599	0.9138	362.8	1.642	1.656	0.646
233	338.6	1.574	1.461	0.607	0.9215	369.0	1.660	1.678	0.656
234	344.3	1.590	1.482	0.616	0.9290	375.3	1.677	1.702	0.666
235	350.0	1.606	1.504	0.625	0.9366	381.7	1.695	1.725	0.676
236	355.9	1.623	1.525	0.635	0.9439	388.2	1.713	1.749	0.686
237	361.9	1.640	1.548	0.644	0.9514	394.9	1.731	1.774	0.696
238	367.9	1.657	1.570	0.654	0.9586	401.6	1.749	1.798	0.707
239	374.1	1.674	1.593	0.664	0.9659	408.4	1.768	1.823	0.718
240	380.3	1.691	1.616	0.674	0.9729	415.4	1.787	1.849	0.729

MALES						FEMALES			
Body length	Body weight	Stomach	Pancreas	Both submax-illaries	Epididymis (2)	Body weight	Stomach	Pancreas	Both submax-illaries
<i>mm.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>	<i>gms.</i>
241	386.6	1.708	1.639	0.683	0.9799	422.4	1.806	1.874	0.740
242	393.1	1.726	1.663	0.694	0.9869	429.6	1.825	1.900	0.751
243	399.6	1.744	1.688	0.704	0.9936	436.9	1.844	1.927	0.763
244	406.3	1.762	1.712	0.715	1.0004	444.3	1.864	1.954	0.774
245	413.1	1.781	1.737	0.725	1.0073	451.9	1.884	1.981	0.786
246	419.9	1.799	1.762	0.736	1.0136	459.5	1.904	2.009	0.798
247	426.9	1.818	1.788	0.747	1.0202	467.3	1.925	2.037	0.810
248	434.0	1.837	1.815	0.758	1.0267	475.2	1.946	2.066	0.823
249	441.2	1.856	1.841	0.769	1.0329	483.3	1.967	2.095	0.836
250	448.5	1.875	1.868	0.781	1.0392	491.5	1.988	2.125	0.848