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SUBJECT: SPECTROGRAPHIC ANALYSIS OF NORMAL HUMAN TISSUE FROM MIAMI, FLORIDA

TO: K. Z. Morgan

FROM: I. H. Tipton, M. J. Cook, R. L. Steiner, J. M. Foland,
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Spectrographic Analysis of Normal Human Tissue from Miami, Florida

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All tissues included in this report were received from Miami, Florida and the majority are from Jackson Memorial Hospital. They were collected, ashed and analyzed according to the methods described in ORNL-CF-57-2-2.

The average value of the concentration for each element in a tissue is the average of the concentrations in only those samples of the tissue which contained the element. For example, if, of 25 livers analyzed, only 10 contained lead, the average value for lead in the liver is the average of those 10 values.

For those tissues in which an element does not appear in every sample, the lowest value is reported as less than the limit of sensitivity of the method for that element in that tissue.

For the elements, cesium, lithium and rubidium, the ash was a composited ash sample for each particular tissue. As an example, in lieu of analyzing 20 individual aortas, only one composited aorta ash was analyzed.

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Table 1

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Aorta (20 Samples Analyzed)

1.2% Average Ash
1.7% Highest Ash
0.7% Lowest Ash

39% Average Dry Weight
65% Highest Dry Weight
27% Lowest Dry Weight

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	20		0.39	1.6	0.15
Barium	20		0.110	0.35	0.02
Bismuth	3	1*	0.16	0.36	<0.03
Boron					
Cadmium	1	4*	0.54	0.54	<0.50
Calcium	20		600	1100	64
Cesium					
Chromium	15	3*	0.09	0.78	<0.001
Cobalt	3		0.08	0.09	<0.03
Copper	20		1.1	1.6	0.74
Gallium					
Gold	1	1*	0.14	0.14	<0.07
Iron	20		28	77	17
Lead	20		1.8	4.3	0.14
Magnesium	20		150	260	66
Manganese	20		0.15	0.37	0.05
Molybdenum					
Nickel	2		0.20	0.24	<0.07
Phosphorus	20		830	1350	320
Potassium	20		1300	2000	640
Silver	2	9*	0.007	0.008	<0.001
Strontium	20		0.80	1.5	0.27
Tin	18	1*	0.28	0.92	<0.07
Titanium	5	2*	0.24	0.37	<0.07
Vanadium					
Zinc	20		23	33	9

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 2

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Bone (23 Samples analyzed)

28% Average Ash

50% Highest Ash

11% Lowest Ash

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	23	1.8	4.3	0.5
Barium				
Bismuth				
Boron				
Cadmium	23	Not Determined		
Calcium		50,000	85,000	21,000
Cesium				
Chromium		3	0.25	0.40
Cobalt	23	0.58	0.91	0.30
Copper				
Gallium				
Gold				
Iron	23	76	186	24
Lead	23	7.4	30	1.1
Lithium	23	0.0034	0.0072	0.0013
Magnesium	23	1300	1900	500
Manganese				
Molybdenum				
Nickel				
Phosphorus		Not Determined		
Potassium	23	820	1250	480
Silver				
Sodium	23	1270	2500	600
Strontium	23	27	65	9
Tin				
Titanium				
Vanadium				
Zinc	23	88	120	36

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 3

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Brain (23 Samples Analyzed)

1.9% Average Ash
3.5% Highest Ash
1.4% Lowest Ash

26% Average Dry Weight
49% Highest Dry Weight
19% Lowest Dry Weight

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	23		0.24	0.69	0.11
Barium	3	1*	0.03	0.04	<0.003
Bismuth					
Boron					
Cadmium					
Calcium	23		110	200	61
Cesium					
Chromium	11	5*	0.013	0.035	<0.002
Cobalt					
Copper	23		6.3	11.5	3.0
Gallium					
Gold					
Iron	23		50	85	31
Lead	7	6*	1.23	3.8	<0.07
Magnesium	23		135	270	75
Manganese	23		0.27	0.54	0.17
Molybdenum					
Nickel					
Phosphorus	23		3300	4900	1600
Potassium	23		3700	5100	2900
Silver	16	5*	0.009	0.022	<0.002
Strontium	23		0.03	0.13	0.01
Tin					
Titanium		1*	<0.23*	<0.23*	<0.14
Vanadium					
Zinc	23		14	19	8

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 4

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Breast (3 Samples Analyzed)

0.5% Average Ash
0.5% Highest Ash
0.5% Lowest Ash

55% Average Dry Weight
69% Highest Dry Weight
43% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	3	0.17	0.25	0.08
Barium	1	0.025	0.025	<0.002
Bismuth				
Boron				
Cadmium				
Calcium	3	80	105	65
Cesium				
Chromium	3	0.033	0.065	0.008
Cobalt				
Copper	3	0.35	0.38	0.33
Gallium				
Gold				
Iron	3	6	7	5
Lead	1	0.05	0.05	<0.03
Magnesium	3	23	27	19
Manganese	3	0.03	0.04	0.01
Molybdenum				
Nickel				
Phosphorus	3	170	210	110
Potassium	3	340	390	250
Silver				
Strontium	3	0.09	0.17	0.04
Tin	2	0.08	0.10	<0.03
Titanium				
Vanadium				
Zinc	3	3.1	3.5	2.5

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 5

Concentrations of Elements in Wet Tissue
(Arranged by Elements)Tissue Breast - Pregnant (1 sample analyzed)

1.0% Average Ash

20.5% Average Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	1	0.18		
Barium	1	0.03		
Bismuth				
Boron				
Cadmium				
Calcium	1	100		
Cesium				
Chromium	1	0.076		
Cobalt				
Copper	1	1.1		
Gallium				
Gold				
Iron	1	14		
Lead				
Magnesium	1	72		
Manganese	1	0.10		
Molybdenum				
Nickel				
Phosphorus	1	750		
Potassium	1	110		
Silver				
Strontium	1	0.08		
Tin				
Titanium				
Vanadium				
Zinc	1	8		

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

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Table 6

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Diaphragm (20 samples analyzed)

0.97% Average Ash
1.3% Highest Ash
0.6% Lowest Ash

28% Average Dry Weight
38% Highest Dry Weight
23% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	20	0.30	1.6	0.07
Barium	9	0.019	0.033	<0.002
Bismuth	1	0.04	0.04	<0.02
Boron				
Cadmium	1*	<0.7*	<0.7*	<0.4
Calcium	20	71	135	34
Cesium				
Chromium	19	0.025	0.23	<0.001
Cobalt				
Copper	20	1.3	1.7	0.6
Gallium				
Gold				
Iron	20	47	230	17
Lead	13	0.24	0.90	<0.03
Magnesium	20	120	190	75
Manganese	20	0.11	0.24	0.04
Molybdenum				
Nickel				
Phosphorus	20	1100	1550	500
Potassium	20	2400	3900	1100
Silver	1	0.008	0.008	<0.001
Strontium	20	0.10	0.33	0.02
Tin	9	0.15	0.38	<0.04
Titanium	2	0.12	0.14	<0.06
Vanadium				
Zinc	20	40	65	14

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 7

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Esophagus (6 samples analyzed)

1.1% Average Ash	30% Average Dry Weight
1.3% Highest Ash	37% Highest Dry Weight
0.9% Lowest Ash	23% Lowest Dry Weight

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	6		0.97	2.0	0.16
Barium	4	2*	0.058	0.07	<0.004
Bismuth					
Boron					
Cadmium					
Calcium	6		150	210	77
Cesium					
Chromium	6		0.058	0.23	0.01
Cobalt	2		0.12	0.17	<0.04
Copper	6		1.5	2.5	0.95
Gallium					
Gold		1*	<0.10*	<0.10*	<0.09
Iron	6		46	100	20
Lead	4	2*	0.25	0.39	<0.05*
Magnesium	6		120	140	100
Manganese	6		0.15	0.49	0.05
Molybdenum	1		0.51	0.51	<0.09
Nickel		1*	<0.13*	<0.13*	<0.09
Phosphorus	6		950	1250	770
Potassium	6		2100	2900	1350
Silver		1*	<0.001*	<0.001*	<0.001
Strontium	6		0.16	0.31	0.05
Tin	5		0.79	2.2	<0.07
Titanium	2	2*	0.24	0.27	<0.09
Vanadium					
Zinc	6		25	36	20

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

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Table 8

Concentrations of Elements in Wet Tissue
(Arranged by Elements)Tissue Heart (25 samples analyzed)1.1% Average Ash
1.5% Highest Ash
0.9% Lowest Ash28% Average Dry Weight
40% Highest Dry Weight
21% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	25	0.36	3.0	0.09
Barium	6	1* 0.039	0.08	< 0.002
Bismuth				
Boron		1* <0.11*	<0.11*	<0.09
Cadmium				
Calcium	25	55	120	25
Cesium				
Chromium	25	0.014	0.07	0.003
Cobalt	1	0.06	0.06	< 0.04
Copper	25	4.0	5.5	2.7
Gallium				
Gold				
Iron	25	50	155	30
Lead	6	9* 0.31	0.72	< 0.05
Magnesium	25	135	200	63
Manganese	25	0.19	0.45	0.07
Molybdenum				
Nickel	1	<0.10*	<0.10*	<0.09
Phosphorus	25	1600	2200	1150
Potassium	25	2600	3800	1750
Silver	1	1* 0.006	0.006	< 0.001
Strontium	25	0.09	0.65	0.02
Tin	7	9* 0.15	0.39	< 0.05
Titanium	2	0.24	0.25	< 0.09
Vanadium				
Zinc	25	29	44	20

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium, and Zirconium were sought in every sample but were not detected.

Table 9

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Intestine-Jejunum (24 samples analyzed)

0.87% Average Ash 22% Average Dry Weight
1.6% Highest Ash 35% Highest Dry Weight
0.6% Lowest Ash 16% Lowest Dry Weight

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	24		0.57	4.2	0.10
Barium	22	1*	0.044	0.10	<0.002
Bismuth	2		0.09	0.16	<0.03
Boron	3	2*	0.22	0.30	<0.06
Cadmium	7	14*	0.64	0.90	<0.36
Calcium	24		78	155	15
Cesium					
Chromium	24		0.026	0.20	0.001
Cobalt	2		0.27	0.38	<0.03
Copper	24		1.9	3.8	0.90
Gallium					
Gold					
Iron	24		27	53	12
Lead	21	2*	0.62	8.7	<0.04
Magnesium	24		94	150	56
Manganese	24		0.64	1.8	0.13
Molybdenum	1		0.20	0.20	<0.06
Nickel	1	1*	0.05	0.05	<0.05
Phosphorus	24		1300	2500	750
Potassium	24		1600	2700	840
Silver	5	9*	0.004	0.013	<0.001
Strontium	24		0.23	0.54	0.03
Tin	24		0.61	5.8	0.04
Titanium	3	2*	0.15	0.22	<0.06
Vanadium					
Zinc	24		19	40	11

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 10

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Intestine - Sigmoid Colon (23 samples analyzed)

0.667% Average Ash 20% Average Dry Weight
1.2% Highest Ash 61% Highest Dry Weight
0.4% Lowest Ash 17% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	23	0.81	5.6	0.08
Barium	22 1*	0.036	0.10	<0.002*
Bismuth	3	0.04	0.06	<0.02
Boron	1 1*	0.12	0.12	<0.04
Cadmium	5*	<0.60*	<0.60*	<0.36
Calcium	23	92	155	7
Cesium				
Chromium	23	0.037	0.41	0.003
Cobalt	5 1*	0.47	1.1	<0.02
Copper	23	1.5	4.9	0.80
Gallium				
Gold	1*	<0.09*	<0.09*	<0.04
Iron	23	19	49	9
Lead	14 6*	0.21	0.66	<0.02
Magnesium	23	140	570	60
Manganese	23	0.33	1.2	0.07
Molybdenum	1	0.12	0.12	<0.04
Nickel	13 1*	0.12	0.60	<0.04
Phosphorus	23	780	1700	370
Potassium	23	1300	2100	570
Silver	6 6*	0.008	0.04	<0.001
Strontium	23	0.30	0.64	0.15
Tin	22	0.61	2.4	<0.04
Titanium	4 2*	0.09	0.12	<0.04
Vanadium	3 1*	0.03	0.04	<0.01
Zinc	23	18	32	10

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 11

13

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Kidney (26 samples analyzed)

1.2% Average Ash
1.4% Highest Ash
1.0% Lowest Ash

26% Average Dry Ash
35% Highest Dry Ash
21% Lowest Dry Ash

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	26	0.28	1.2	0.12
Barium	15	0.039	0.29	<0.002
Bismuth	4	1.4	2.9	<0.04
Boron	3	0.40	0.44	<0.10
Cadmium	26	30	57	10
Calcium	26	120	250	64
Cesium				
Chromium	23	0.015	0.05	<0.001
Cobalt	2	0.33 (2.2)	0.62 (5.9)	<0.04
Copper	26	3.0	4.0	2.1
Gallium				
Gold				
Iron	26	67	130	32
Lead	26	1.3	6.2	0.14
Magnesium	26	120	170	71
Manganese	26	1.1	1.9	0.55
Molybdenum	26	0.50	0.70	0.25
Nickel				
Phosphorus	26	1700	2000	1400
Potassium	26	2200	3200	1350
Silver	4	0.015	0.04	<0.001
Strontium	26	0.11	0.34	0.04
Tin	25	0.23	0.58	<0.06*
Titanium	1	0.20	0.20	<0.10
Vanadium				
Zinc	26	51	100	24

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 12

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Larynx (13 samples analyzed)

3.2% Average Ash
5.4% Highest Ash
1.5% Lowest Ash

38% Average Dry Weight
51% Highest Dry Weight
24% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	13	0.44	0.91	0.20
Barium	12	0.15	0.32	<0.03
Bismuth				
Boron				
Cadmium				
Calcium	13	1800	4200	210
Cesium				
Chromium	3	2* 0.03	0.042	<0.002
Cobalt				
Copper	13	1.0	1.6	0.65
Gallium				
Gold				
Iron	13	31	50	23
Lead	11	3.4	12	<0.08
Magnesium	13	270	490	140
Manganese	11	2* 0.21	0.57	<0.05*
Molybdenum				
Nickel				
Phosphorus	13	1900	3600	560
Potassium	13	1700	3000	770
Silver	2	1* 0.073	0.14	<0.002
Strontium	13	1.6	4.5	0.12
Tin	8	1* 0.32	0.55	<0.08
Titanium	2	2* 0.38	0.43	<0.15
Vanadium				
Zinc	13	33	72	11

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 13

15

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Liver (26 Samples Analyzed)

1.5% Average Ash 38% Average Dry Weight
2.1% Highest Ash 54% Highest Dry Weight
1.2% Lowest Ash 28% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	26	0.61	1.3	0.16
Barium	6	0.073	0.20	<0.002
Bismuth	4	0.22	0.59	<0.05
Boron	2	0.25	0.32	<0.12
Cadmium	26	2.4	4.4	0.78
Calcium	26	70	125	35
Cesium				
Chromium	15	0.012	0.035	<0.001
Cobalt	7	0.29	1.3	<0.05
Copper	26	9.6	>16	5.3
Gallium				
Gold				
Iron	26	180	750	31
Lead	26	2.2	10	0.48
Magnesium	26	160	290	96
Manganese	26	1.8	3.7	0.66
Molybdenum	26	1.5	2.6	0.35
Nickel				
Phosphorus	26	2900	3800	1800
Potassium	26	3400	5600	1800
Silver	21	0.016	0.11	<0.001
Strontium	26	0.05	0.21	0.007
Tin	25	0.35	0.85	<0.07*
Titanium	10	0.31	0.50	<0.12
Vanadium				
Zinc	26	46	78	27

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium, and Zirconium were sought in every sample but were not detected.

Table 14

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

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Tissue Lung (26 samples analyzed)

1.1% Average Ash
1.3% Highest Ash
0.8% Lowest Ash

24% Average Dry Weight
38% Highest Dry Weight
17% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	26	23	>66	1.7
Barium	26	0.13	0.85	0.02
Bismuth	1	0.21	0.21	<0.03
Boron	1	0.11	0.11	<0.10
Cadmium	4	7* 0.73	0.90	<0.50
Calcium	26	130	240	69
Cesium				
Chromium	26	0.14	0.59	0.01
Cobalt	2	0.83	1.6	<0.03
Copper	26	1.3	2.2	0.82
Gallium	1	1* 0.03	0.03	<0.01
Gold				
Iron	26	280	570	70
Lead	24	2* 0.79	6.0	<0.05*
Magnesium	26	88	160	56
Manganese	26	0.11	0.21	0.05
Molybdenum				
Nickel	2	0.13	0.15	<0.08
Phosphorus	26	1140	2300	790
Potassium	26	2200	3400	1400
Silver	3	3* 0.006	0.007	<0.001
Strontium	26	0.16	0.35	0.06
Tin	22	2* 0.44	1.6	<0.04
Titanium	26	2.4	>12	0.28
Vanadium	4	2* 0.04	0.06	<0.01
Zinc	26	14	27	9.4

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 15

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Muscle - Pectoral (5 samples analyzed)

0.98% Average Ash

30% Average Dry Weight

1.1% Highest Ash

39% Highest Dry Weight

0.6% Lowest Ash

18% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	5	0.16	0.24	0.10
Barium	2	0.015	0.017	<0.001
Bismuth				
Boron				
Cadmium				
Calcium	5	50	115	22
Cesium				
Chromium	4	1* 0.09	0.33	<0.001*
Cobalt				
Copper	5	0.79	1.2	0.5
Gallium				
Gold				
Iron	5	28	40	17
Lead	2	0.15	0.26	<0.05
Magnesium	5	110	140	60
Manganese	5	0.08	0.14	0.02
Molybdenum				
Nickel				
Phosphorus	5	1200	1550	550
Potassium	5	2400	3300	1800
Silver				
Strontium	5	0.05	0.12	0.01
Tin	1	0.20	0.20	<0.03
Titanium	1	1* 0.16	0.16	<0.06
Vanadium				
Zinc	5	40	55	12

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 16

18

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Muscle - Psoas (21 samples analyzed)

1.2% Average Ash 30% Average Dry Weight
1.7% Highest Ash 37% Highest Dry Weight
1.0% Lowest Ash 24% Lowest Dry Weight

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	21		0.29	2.7	0.06
Barium	9	1*	0.045	0.18	<0.002
Bismuth	1		0.31	0.31	<0.04
Boron					
Cadmium					
Calcium	21		69	610	19
Cesium					
Chromium	16	4*	0.009	0.03	<0.001
Cobalt	1		4.2	4.2	<0.04
Copper	21		0.88	1.8	0.56
Gallium					
Gold					
Iron	21		34	48	23
Lead	6	7*	1.8	6.4	<0.05
Magnesium	21		150	260	87
Manganese	21		0.05	0.09	0.02
Molybdenum					
Nickel					
Phosphorus	21		1600	2300	1000
Potassium	21		3200	5100	2000
Silver	1	1*	0.005	0.005	<0.001
Strontium	19	2*	0.04	0.15	<0.005*
Tin	2	2*	0.07	0.08	<0.05
Titanium	1	2*	0.26	0.26	<0.10
Vanadium					
Zinc	21		45	59	34

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Omentum (12 samples analyzed)

0.29% Average Ash
0.6% Highest Ash
0.1% Lowest Ash

85% Average Dry Weight
94% Highest Dry Weight
68% Lowest Dry Weight

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	12		0.44	1.3	0.13
Barium	11	1*	0.035	0.09	<0.001*
Bismuth	1	1*	0.02	0.02	<0.004
Boron	2		0.03	0.03	<0.01
Cadmium	3	1*	0.33	0.6	<0.06
Calcium	12		53	170	8
Cesium					
Chromium	12		0.03	0.16	0.0005
Cobalt	3		0.06	0.16	<0.004
Copper	12		0.36	1.1	0.14
Gallium					
Gold					
Iron	12		20	50	6
Lead	10	1*	0.24	0.96	<0.01
Magnesium	12		27	84	6.5
Manganese	12		0.06	0.23	0.02
Molybdenum					
Nickel	8		0.04	0.07	<0.01
Phosphorus	12		220	630	100
Potassium	12		430	1100	175
Silver	6	5*	0.0019	0.005	<0.0001
Strontium	12		0.08	0.30	0.02
Tin	9	1*	0.05	0.14	<0.02
Titanium	11		0.07	0.11	<0.04
Vanadium					
Zinc	12		3.7	11	2

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 18

20

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Ovary (3 samples analyzed)

1.1% Average Ash 22.9% Average Dry Weight
1.5% Highest Ash 26.6% Highest Dry Weight
0.9% Lowest Ash 20.1% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	3	0.63	1.3	0.20
Barium	2	0.10	0.11	<0.02
Bismuth				
Boron				
Cadmium				
Calcium	3	406	990	90
Cesium				
Chromium	3	0.38	0.76	0.002
Cobalt				
Copper	3	1.1	1.2	0.75
Gallium				
Gold				
Iron	3	28	36	23
Lead	1	0.61	0.61	<0.05
Magnesium	3	87	120	70
Manganese	3	0.29	0.37	0.12
Molybdenum				
Nickel				
Phosphorus	3	1050	1050	1050
Potassium	3	1380	1500	1250
Silver	1*	<0.001*	<0.001*	<0.001
Strontium	3	0.50	0.90	0.30
Tin	1	0.45	0.45	<0.05
Titanium				
Vanadium				
Zinc	3	17	25	2

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 19

21

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Pancreas (25 samples analyzed)

1.3% Average Ash 34% Average Dry Weight
2.0% Highest Ash 74% Highest Dry Weight
0.7% Lowest Ash 22% Lowest Dry Weight

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	25		0.31	1.0	0.10
Barium	12	2*	0.033	0.064	<0.002
Bismuth	2	1*	0.05	0.05	<0.03
Boron	1	6*	0.15	0.15	<0.07
Cadmium	19	3*	1.1	2.5	<0.7
Calcium	25		130	300	70
Cesium					
Chromium	22 (1 high)	3*	0.019 (0.073)	0.087 (>1.2)	<0.001*
Cobalt	3		0.15	0.25	<0.03
Copper	25		1.7	2.6	1.0
Gallium					
Gold	1		0.33	0.33	<0.07
Iron	25		31	57	18
Lead	24		0.79	3.1	<0.06
Magnesium	25		140	240	68
Manganese	25		1.3	2.2	0.52
Molybdenum		1*	<0.11*	<0.11*	<0.08
Nickel		1*	<0.06*	<0.06*	<0.05
Phosphorus	25		2400	3300	1050
Potassium	25		2800	4700	1200
Silver	4	4*	0.009	0.02	<0.001
Strontium	25		0.11	0.27	0.02
Tin	8	5*	0.35	1.3	<0.05
Titanium	1	2*	0.10	0.10	<0.07
Vanadium					
Zinc	25		25	39	10

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Prostate (4 samples analyzed)

1.5% Average Ash
2.0% Highest Ash
1.3% Lowest Ash

30% Average Dry Weight
52% Highest Dry Weight
22% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	4	2.2	4.8	0.44
Barium	2	0.045	0.06	<0.003
Bismuth				
Boron	2*	<0.14*	<0.14*	<0.13
Cadmium	1	1.2	1.2	<0.78
Calcium	4	370	800	36
Cesium				
Chromium	4	0.016	0.028	0.007
Cobalt	1	0.07	0.07	<0.05
Copper	4	1.1	1.5	0.74
Gallium				
Gold				
Iron	4	29	36	20
Lead	4	0.87	1.7	0.17
Magnesium	4	220	280	160
Manganese	4	0.42	1.3	0.09
Molybdenum				
Nickel				
Phosphorus	4	1450	2500	940
Potassium	4	3000	3000	2900
Silver	1*	<0.001*	<0.001*	<0.001
Strontium	4	0.35	0.96	0.10
Tin	3	0.41	0.80	<0.07
Titanium	1	0.49	0.49	<0.13
Vanadium				
Zinc	4	180	380	26

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 21

23

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Spleen (25 samples analyzed)

1.5% Average Ash
3.4% Highest Ash
1.1% Lowest Ash

27% Average Dry Weight
30% Highest Dry Weight
24% Lowest Dry Weight

Element	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	25		0.38	1.8	0.11
Barium	7	1*	0.071	0.27	<0.002
Bismuth	2		0.09	0.10	<0.05
Boron	2	2*	0.34	0.45	<0.11
Cadmium		3*	<0.9	<0.9*	<0.8
Calcium	25		98	390	45
Cesium					
Chromium	16	1*	0.017	0.07	<0.001
Cobalt	1		1.9	1.9	<0.05
Copper	25		1.3	3.1	0.80
Gallium					
Gold					
Iron	25		260	880	21
Lead	20	4*	0.84	6.0	<0.06
Magnesium	25		120	160	80
Manganese	25		0.10	0.25	0.05
Molybdenum					
Nickel					
Phosphorus	25		2200	3000	1550
Potassium	25		3600	5100	2400
Silver	1	1*	0.006	0.006	<0.001
Strontium	25		0.08	0.78	0.01
Tin	18	5*	0.29	0.58	<0.06
Titanium	5	3*	0.24	0.35	<0.11
Vanadium					
Zinc	25		19	27	11

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 22

24

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Stomach (25 samples analyzed)

0.74% Average Ash
0.9% Highest Ash
0.5% Lowest Ash

26% Average Dry Weight
64% Highest Dry Weight
18% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	25	0.29	0.81	0.09
Barium	21	0.047	0.47	<0.001
Bismuth	1	0.04	0.04	<0.02
Boron	5	0.24	0.42	<0.05
Cadmium	2	0.58	0.8	<0.3
Calcium	25	110	500	44
Cesium				
Chromium	23	0.044	0.66	<0.001
Cobalt	3	0.48	0.72	<0.02
Copper	25	1.8	3.6	1.1
Gallium				
Gold	1	0.10	0.10	<0.05
Iron	25	26	58	11
Lead	18	0.15	0.80	<0.04*
Magnesium	25	84	135	47
Manganese	25	0.37	1.9	0.10
Molybdenum	4	0.21	0.38	<0.05
Nickel	3	0.08	0.16	<0.05
Phosphorus	25	1100	1450	570
Potassium	25	1400	2200	730
Silver	1	0.01	0.01	<0.001
Strontium	25	0.18	0.38	<0.05
Tin	20	0.68	7.5	<0.04
Titanium		<0.07*	<0.07*	<0.07
Vanadium				
Zinc	25	19	36	12

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 23

25

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Testis (14 samples analyzed)

1.1% Average Ash 22% Average Dry Weight
1.2% Highest Ash 39% Highest Dry Weight
0.9% Lowest Ash 16% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	14	0.42	1.4	0.10
Barium	6	2*	0.033	<0.002
Bismuth	2	0.89	1.4	<0.04
Boron				
Cadmium		2*	<0.60*	<0.60
Calcium	14	95	130	61
Cesium				
Chromium	14	0.020	0.054	0.004
Cobalt				
Copper	14	0.82	1.6	0.44
Gallium				
Gold				
Iron	14	23	40	14
Lead	11	1*	1.1	<0.05
Magnesium	14	100	150	78
Manganese	14	0.13	0.20	0.10
Molybdenum				
Nickel	1	0.18	0.18	<0.10
Phosphorus	14	1500	2300	1000
Potassium	14	2200	3100	1700
Silver	1	1*	0.006	<0.001
Strontium	14	0.08	0.22	0.02
Tin	7	3*	0.40	<0.05
Titanium	2	2*	0.15	<0.10
Vanadium				
Zinc	14	17	23	13

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 24

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Testis-Sterile (1 sample analyzed)

1.3% Average Ash

22.6% Average Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	1	0.31		
Barium	1	0.012		
Bismuth				
Boron				
Cadmium				
Calcium	1	105		
Cesium				
Chromium	1	0.025		
Cobalt				
Copper	1	1.1		
Gallium				
Gold				
Iron	1	41		
Lead	1	0.09		
Magnesium	1	125		
Manganese	1	0.14		
Molybdenum				
Nickel	1	0.13		
Phosphorus	1	1800		
Potassium	1	3000		
Silver				
Strontium	1	0.18		
Tin	1	0.34		
Titanium				
Vanadium				
Zinc	1	18		

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Thymus (1 sample analyzed)

0.6% Average Ash

60.4% Average Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	1	0.13		
Barium	1*	<0.002*		
Bismuth				
Boron				
Cadmium				
Calcium	1	57		
Cesium				
Chromium	1	0.010		
Cobalt				
Copper	1	0.55		
Gallium				
Gold				
Iron	1	27		
Lead	1	0.05		
Magnesium	1	36		
Manganese	1	0.02		
Molybdenum				
Nickel				
Phosphorus	1	580		
Potassium	1	880		
Silver	1*	<0.001*		
Strontium	1	0.07		
Tin	1	0.05		
Titanium				
Vanadium				
Zinc	1	6		

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Tongue (1 sample analyzed)

1.0% Average Ash

27.5% Average Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	1	0.20		
Barium	1	0.08		
Bismuth				
Boron				
Cadmium				
Calcium	1	84		
Cesium				
Chromium	1	0.012		
Cobalt				
Copper	1	1.5		
Gallium				
Gold				
Iron	1	26		
Lead				
Magnesium	1	110		
Manganese	1	0.12		
Molybdenum				
Nickel				
Phosphorus	1	1300		
Potassium	1	2500		
Silver	1*	0.001*		
Strontium	1	0.06		
Tin				
Titanium				
Vanadium				
Zinc	1	25		

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium, and Zirconium were sought in every sample but were not detected.

Table 27

29

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue		Trachea (6 samples analyzed)		
		2.1% Average Ash	44% Average Dry Weight	
		3.4% Highest Ash	65% Highest Dry Weight	
		1.4% Lowest Ash	32% Lowest Dry Weight	
Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	6	2.4	8	0.20
Barium	6	0.11	0.19	0.04
Bismuth				
Boron				
Cadmium				
Calcium	6	690	1500	55
Cesium				
Chromium	5	0.047	0.085	<0.001
Cobalt	1	0.08	0.08	<0.06
Copper	6	0.88	1.3	0.75
Gallium				
Gold				
Iron	6	38	62	20
Lead	5	1.9	3.5	<0.17*
Magnesium	6	180	230	125
Manganese	6	0.17	0.25	0.09
Molybdenum				
Nickel				
Phosphorus	6	900	1050	620
Potassium	6	2100	3800	1300
Silver	1	0.005	0.005	<0.001
Strontium	6	0.75	1.3	0.20
Tin	5	0.56	0.95	<0.17
Titanium	3	1.0	1.2	<0.14
Vanadium				
Zinc	6	21	34	6

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 28

30

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue: Urinary Bladder (20 samples analyzed)

0.8% Average Ash
1.3% Highest Ash
0.3% Lowest Ash

23% Average Dry Weight
62% Highest Dry Weight
23% Lowest Dry Weight

Elements	Number of Samples Containing Element		Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	20		0.29	0.88	0.10
Barium	17	2*	0.040	0.12	<0.002
Bismuth	3		0.013	0.02	<0.02
Boron	3	1*	0.39	0.45	<0.05
Cadmium					
Calcium	20		120	210	63
Cesium	1		2.7	2.7	<1
Chromium	19	1*	0.022	0.09	<0.001*
Cobalt	2		0.11	0.19	<0.02
Copper	20		0.81	1.6	0.38
Gallium					
Gold					
Iron	20		20	78	8
Lead	11	7*	0.28	0.78	<0.04
Magnesium	20		91	145	52
Manganese	20		0.21	0.20	0.04
Molybdenum					
Nickel					
Phosphorus	20		740	1800	360
Potassium	20		1600	3000	540
Silver	3	1*	0.002	0.002	<0.001
Strontium	20		0.24	0.92	0.06
Tin	17	2*	0.23	1.6	<0.04
Titanium	3	2*	0.09	0.16	<0.05
Vanadium					
Zinc	20		21	38	10

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 29

31

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Uterus (6 samples analyzed)

1.0% Average Ash 28% Average Dry Weight
1.3% Highest Ash 34% Highest Dry Weight
0.8% Lowest Ash 21% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aluminum	6	0.46	0.99	0.15
Barium	4 1*	0.05	0.10	<0.002
Bismuth	1	0.13	0.13	<0.03
Boron	2*	<0.10*	<0.10*	<0.08
Cadmium	1 1*	0.56	0.56	<0.5
Calcium	6	160	330	18
Cesium				
Chromium	5(1 high)	0.018	0.032(3.5)	0.014
Cobalt	1	0.66	0.66	<0.03
Copper	6	0.95	1.4	0.66
Gallium				
Gold				
Iron	6	22	47	12
Lead	2 3*	0.2	0.21	<0.05
Magnesium	6	100	130	77
Manganese	6	0.10	0.13	0.06
Molybdenum				
Nickel				
Phosphorus	6	1000	1150	680
Potassium	6	1750	2500	920
Silver	1	0.006	0.006	<0.001
Strontium	6	0.21	0.39	0.08
Tin	5	0.37	0.82	0.05
Titanium	1	0.22	0.22	0.08
Vanadium				
Zinc	6	18	30	11

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Table 30

32

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Uterus Pregnant (2 samples analyzed)

1.2%	Average Ash	24%	Average Dry Weight
1.4%	Highest Ash	26%	Highest Dry Weight
0.9%	Lowest Ash	21%	Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum				
Barium	2	105	140	70
Bismuth				
Boron				
Cadmium	1*	<0.001*	<0.001*	<0.001
Calcium				
Cesium				
Chromium	1*	<0.001*	<0.001*	<0.001
Cobalt				
Copper	2	1.3	1.8	0.75
Gallium				
Gold				
Iron	2	53	90	16
Lead				
Magnesium	2	110	150	73
Manganese	2	0.11	0.14	0.08
Molybdenum				
Nickel				
Phosphorus	2	1000	1400	630
Potassium	2	2900	3300	2400
Silver	2	0.15	0.15	0.14
Strontium	2	0.16	0.17	0.14
Tin				
Titanium				
Vanadium				
Zinc	2	24	25	22

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Thallium and Zirconium were sought in every sample but were not detected.

Table 31

33

Concentrations of Elements in Wet Tissue
(Arranged by Elements)

Tissue Vagina (4 samples analyzed)

0.83% Average Ash	33% Average Dry Weight
1.0% Highest Ash	39% Highest Dry Weight
0.6% Lowest Ash	27% Lowest Dry Weight

Elements	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aluminum	4	0.21	0.26	0.15
Barium	2	0.028	0.036	<0.002*
Bismuth		1*	<0.04*	<0.03
Boron		1*	<0.10*	<0.06
Cadmium	1	0.36	0.36	<0.36
Calcium	4	140	200	80
Cesium				
Chromium	4	0.018	0.027	0.01
Cobalt	1	0.78	0.78	<0.03
Copper	4	0.77	1.0	0.50
Gallium				
Gold				
Iron	4	22	45	12
Lead	2	0.15	0.16	<0.05*
Magnesium	4	67	92	45
Manganese	4	0.07	0.07	0.05
Molybdenum				
Nickel				
Phosphorus	4	520	660	400
Potassium	4	1200	1450	950
Silver				
Strontium	4	0.22	0.32	0.16
Tin	4	0.23	0.59	0.09
Titanium	1	0.13	0.13	<0.06
Vanadium				
Zinc	4	14	16	12

* Trace

Antimony, Arsenic, Beryllium, Lanthanum, Niobium, Ruthenium, Thallium and Zirconium were sought in every sample but were not detected.

Concentrations of Elements in Wet Tissue
(Arranged by Tissue)

Element: Aluminum

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)
Aorta	20	20	0.39	1.6	0.15
Bone	23				
Brain	23	23	0.24	0.69	0.11
Breast					
Normal	3	3	0.17	0.25	0.08
Pregnant	1	1	0.18	0.18	
Diaphragm	20	20	0.30	1.6	0.07
Esophagus	6	6	0.97	2.0	0.16
Heart	25	25	0.36	3.0	0.09
Intestine					
Jejunum	24	24	0.57	4.2	0.10
Sigmoid colon	23	23	0.81	5.6	0.08
Kidney	26	26	0.28	1.2	0.12
Larynx	13	13	0.44	0.91	0.20
Liver	26	26	0.61	1.3	0.16
Lung	26	26	23	>66	1.7
Muscle					
Pectoral	5	5	0.16	0.24	0.10
Psoas	21	21	0.29	2.7	0.06
Omentum	12	12	0.44	1.3	0.13
Ovary	3	3	0.63	1.3	0.20
Pancreas	25	25	0.31	1.0	0.10
Prostate	4	4	2.2	4.8	0.44
Spleen	25	25	0.38	1.8	0.11
Stomach	25	25	0.29	0.81	0.09
Testis-normal	14	14	0.42	1.4	0.10
Sterile	1	1	0.31	0.31	
Thymus	1	1	0.13	0.13	
Tongue	1	1	0.20	0.20	
Trachea	6	6	2.4	8	0.20
Urinary Bladder	20	20	0.29	0.88	0.10
Uterus					
Normal	6	6	0.46	0.99	0.15
Pregnant	2				
Vagina	4	4	0.21	0.26	0.15

* Trace

Table 33

35

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Barium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)
Aorta	20	20	0.11	0.35	0.02
Bone	23	23	1.8	4.3	0.5
Brain	23	3	0.03	0.04	<0.003
Breast					
Normal	3	1	0.025	0.025	<0.002
Pregnant	1	1	0.03	0.03	<0.002
Diaphragm	20	9	0.019	0.033	<0.002
Esophagus	6	4	0.058	0.07	<0.004*
Heart	25	6	0.039	0.08	<0.002
Intestine					
Jejunum	24	22	0.044	0.10	<0.002
Sigmoid colon	23	22	0.036	0.10	<0.002*
Kidney	26	15	0.039	0.29	<0.002
Larynx	13	12	0.15	0.32	<0.03
Liver	26	6	0.073	0.20	<0.002
Lung	26	26	0.13	0.85	0.02
Muscle					
Pectoral	5	2	0.015	0.017	<0.001
Psoas	21	9	0.045	0.18	<0.002
Omentum	12	11	0.035	0.09	<0.001*
Ovary	3	2	0.10	0.11	<0.02
Pancreas	25	12	0.033	0.064	<0.002
Prostate	4	2	0.045	0.06	<0.003
Spleen	25	7	0.071	0.27	<0.002
Stomach	25	21	0.047	0.47	<0.001
Testis-normal	14	6	0.03	0.033	<0.002
Sterile	1	1	0.012	0.012	
Thymus	1		<0.002*	<0.002*	<0.002*
Tongue	1	1	0.08	0.08	
Trachea	6	6	0.11	0.19	0.04
Urinary Bladder	20	17	0.040	0.12	<0.002
Uterus					
Normal	6	4	0.05	0.10	<0.002
Pregnant	2	2	105	140	70
Vagina	4	2	0.028	0.036	<0.002*

* Trace

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

36

Element: Bismuth

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element (μg/g)	Highest Value (μg/g)	Lowest Value (μg/g)	
Aorta	20	3*	1*	0.16	0.36	0.03
Bone	23					
Brain	23					
Breast						
Normal	3					
Pregnant	1					
Diaphragm	20	1		0.04	0.04	<0.02
Esophagus	6					
Heart	25					
Intestine						
Jejunum	24	2		0.09	0.16	<0.03
Sigmoid colon	23	3		0.04	0.06	<0.02
Kidney	26	4		1.4	2.9	<0.04
Larynx	13					
Liver	26	4		0.22	0.59	<0.05
Lung	26	1		0.21	0.21	<0.03
Muscle						
Pectoral	5					
Psoas	21	1		0.31	0.31	<0.04
Omentum	12	1	1*	0.02	0.02	<0.004
Ovary	3					
Pancreas	25	2	1*	0.05	0.05	<0.03
Prostate	4					
Spl��						

* Trace

Table 35

37

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Boron

Tissues	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20					
Bone	23					
Brain	23					
Breast						
Normal	3					
Pregnant	1					
Diaphragm	20					
Esophagus	6					
Heart	25	1*	1*	<0.11*	<0.11*	<0.09
Intestine						
Jejunum	24	3*	2*	0.22	0.30	<0.06
Sigmoid colon	23	1	1*	0.12	0.12	<0.04
Kidney	26	3		0.40	0.44	<0.10
Larynx	13					
Liver	26	2		0.25	0.32	<0.12
Lung	26	1		0.11	0.11	<0.10
Muscle						
Pectoral	5					
Psoas	21					
Omentum	12	2		0.03	0.03	<0.01
Ovary	3					
Pancreas	25	1	6*	0.15	0.15	<0.07
Prostate	4	2*	2*	<0.14	<0.14	<0.13
Spleen	25	2	2*	0.34	0.45	<0.11
Stomach	25	5	4*	0.24	0.42	<0.05
Testis						
Normal	14					
Sterile	1					
Thymus	1					
Tongue	1					
Trachea	6					
Urinary Bladder	20	3	1*	0.39	0.45	<0.05
Uterus						
Normal	6	2*	2*	<0.10*	<0.10*	<0.08
Pregnant	2					
Vagina	4	1*	1*	<0.10*	<0.10*	<0.06

* Trace

Table 36
Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Cadmium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	1	4* 0.54	0.54	<0.50
Bone	23		Not Determined		
Brain	23				
Breast					
Normal	3				
Pregnant	1				
Diaphragm	20		1* <0.7*	<0.7*	<0.4*
Esophagus	6				
Heart	25				
Intestine					
Jejunum	24	7	14* 0.64	0.90	<0.36
Sigmoid colon	23		5* <0.60*	<0.60*	<0.36*
Kidney	26	26	30	57	10
Larynx	13				
Liver	26	26	2.4	4.4	0.78
Lung	26	4	7* 0.73	0.90	<0.50
Muscle					
Pectoral	5				
Psoas	21				
Omentum	12	13	1* 0.33	0.6	<0.06
Ovary	3				
Pancreas	25	19	3* 1.1	2.5	<0.7
Prostate	4	1	2* 1.2	1.2	<0.78
Spleen	25		3* <0.9	<0.9*	<0.8
Stomach	25	12	9* 0.58	0.8	<0.3
Testis-normal	14		2* <0.60*	<0.60*	<0.60
Sterile	1				
Thymus	1				
Tongue	1				
Trachea	6				
Urinary Bladder	20				
Uterus-normal	6	1	1* 0.56	0.56	<0.5
Pregnant	2		1* <0.001*	<0.001*	<0.001
Vagina	4	1	1* 0.36	0.36	<0.36

* Trace

Table 37

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Calcium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	600	1100	64
Bone	23	23	50,000	85,000	21,000
Brain	23	23	110	200	61
Breast					
Normal	3	3	80	105	65
Pregnant	1	1	100	100	
Diaphragm	20	20	71	135	34
Esophagus	6	6	150	210	77
Heart	25	25	155	120	25
Intestine					
Jejunum	24	24	78	155	15
Sigmoid colon	23	23	92	155	7
Kidney	26	26	120	250	64
Larynx	13	13	1800	4200	210
Liver	26	26	70	125	35
Lung	26	26	130	240	69
Muscle					
Pectoral	5	5	50	115	22
Psoas	21	21	69	610	19
Omentum	12	12	53	170	8
Ovary	3	3	406	990	90
Pancreas	25	25	130	300	70
Prostate	4	4	370	800	36
Spleen	25	25	98	390	45
Stomach	25	25	110	500	44
Testis-normal	14	14	95	130	61
Sterile	1	1	105	105	
Thymus	1	1	57	57	
Tongue	1	1	84	84	
Trachea	6	6	690	1500	55
Urinary Bladder	20	20	120	210	63
Uterus					
Normal	6	6	160	330	18
Pregnant	2				
Vagina	4	4	140	200	80

* Trace

Table 38

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Chromium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element (µg/g)	Highest Value (µg/g)	Lowest Value (µg/g)	
Aorta	20	15	3*	0.09	0.78	<0.001
Bone	23	3		0.25	0.40	<0.09
Brain	23	11	5*	0.013	0.035	<0.002
Breast						
Normal	3	3		0.033	0.065	0.008
Pregnant	1	1		0.076	0.076	
Diaphragm	20	19		0.025	0.23	<0.001
Esophagus	6	6		0.058	0.23	0.01
Heart	25	25		0.014	0.07	0.003
Intestine						
Jejunum	24	24		0.026	0.20	0.001
Sigmoid colon	23	23		0.037	0.41	0.003
Kidney	26	23	2*	0.015	0.05	<0.001
Larynx	13	3	2*	0.03	0.042	<0.002
Liver	26	15	4*	0.012	0.035	<0.001
Lung	26	26		0.14	0.59	0.01
Muscle						
Pectoral	5	4	1*	0.09	0.33	<0.001*
Psoas	21	16	4*	0.009	0.03	<0.001
Omentum	12	12		0.03	0.16	0.0005
Ovary	3	3		0.38	0.76	0.002
Pancreas	25	22	3*	0.19	0.087	<0.001*
		(1 High)	(0.073)	(1.2)		
Prostate	4	4		0.016	0.028	0.007
Spleen	25	16	1*	0.017	0.07	<0.001
Stomach	25	23	1*	0.044	0.66	<0.001
Testis						
Normal	14	14		0.020	0.054	0.004
Sterile	1	1		0.025	0.025	
Thymus	1	1		0.010	0.010	
Tongue	1	1		0.012	0.012	
Trachea	6	5		0.047	0.085	<0.001
Urinary Bladder	20	19	1*	0.022	0.09	<0.001*
Uterus						
Normal	6	5		0.018	0.032	0.014
		(1 High)		(3.5)		
Pregnant	2		1*	<0.001*	<0.001*	<0.001
Vagina	4	4		0.018	0.027	0.01

* Trace

Table 39

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Cobalt

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	3	0.08	0.09	<0.03
Bone	23				
Brain	23				
Breast					
Normal	3				
Pregnant	1				
Diaphragm	20				
Esophagus	6	2	0.12	0.17	<0.04
Heart	25	1	0.06	0.06	<0.04
Intestine					
Jejunum	24	2	0.27	0.38	<0.03
Sigmoid colon	23	5 1*	0.47	1.1	<0.02
Kidney	26	2 (1 High)	0.33 (2.2)	0.62 (5.9)	<0.04
Larynx	13				
Liver	26	7 1*	0.29	1.3	<0.05
Lung	26	2	0.83	1.6	<0.03
Muscle					
Pectoral	15				
Psoas	21	1	4.2	4.2	<0.04
Omentum	12	3	0.06	0.16	<0.004
Ovary	3				
Pancreas	25	3	0.15	0.25	<0.03
Prostate	4	1	0.07	0.07	<0.05
Spleen	25	1	1.9	1.9	<0.05
Stomach	25	3 1*	0.48	0.72	<0.02
Testis					
Normal	14				
Sterile	1				
Thymus	1				
Tongue	1				
Trachea	6	1	0.08	0.08	<0.06
Urinary Bladder	20	2	0.11	0.19	<0.02
Uterus					
Normal	6	1	0.66	0.66	<0.03
Pregnant	2				
Vagina	4	1	0.78	0.78	<0.03

* Trace

Table 40

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Copper

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	1.1	1.6	0.74
Bone	23	23	0.58	0.91	0.30
Brain	23	23	6.3	11.5	3.0
Breast					
Normal	3	3	0.35	0.38	0.33
Pregnant	1	1	1.1	1.1	
Diaphragm	20	20	1.3	1.7	0.6
Esophagus	6	6	1.5	2.5	0.95
Heart	25	25	4.0	5.5	2.7
Intestine					
Jejunum	24	24	1.9	3.8	0.90
Sigmoid colon	23	23	1.5	4.9	0.80
Kidney	26	26	3.0	4.0	2.1
Larynx	13	13	1.0	1.6	0.65
Liver	26	26	9.6	>16	5.3
Lung	26	26	1.3	2.2	0.82
Muscle					
Pectoral	5	5	0.79	1.2	0.5
Psoas	21	21	0.88	1.8	0.56
Omentum	12	12	0.36	1.1	0.14
Ovary	3	3	1.1	1.2	0.75
Pancreas	25	25	1.7	2.6	1.0
Prostate	4	4	1.1	1.5	0.74
Spleen	25	25	1.3	3.1	0.80
Stomach	25	25	1.8	3.6	1.1
Testis					
Normal	14	14	0.82	1.6	0.44
Sterile	1	1	1.1	1.1	
Thymus	1	1	0.55	0.55	
Tongue	1	1	1.5	1.5	
Trachea	6	6	0.88	1.3	0.75
Urinary Bladder	20	20	0.81	1.6	0.38
Uterus-Normal	6	6	0.95	1.4	0.66
Pregnant	2	2	1.3	1.8	0.75
Vagina	4	4	0.77	1.0	0.50

* Trace

Table 41

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Gallium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20				
Bone	23				
Brain	23				
Breast					
Normal	3				
Pregnant	1				
Diaphragm	20				
Esophagus	6				
Heart	25				
Intestine					
Jejunum	24				
Sigmoid colon	23				
Kidney	26				
Larynx	13				
Liver	26				
Lung	26	1	1*	0.03	0.03 <0.01
Muscle					
Pectoral	5				
Psoas	21				
Omentum	12				
Ovary	3				
Pancreas	25				
Prostate	4				
Spleen	25				
Stomach	25				
Testis					
Normal	14				
Sterile	1				
Thymus	1				
Tongue	1				
Trachea	6				
Urinary Bladder	20				
Uterus					
Normal	6				
Pregnant	2				
Vagina	4				

* Trace

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Gold

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	1	0.14	0.14	<0.07
Bone	23				
Brain	23				
Breast					
Normal	3				
Pregnant	1				
Diaphragm	20				
Esophagus	6	1*	<0.10*	<0.10*	<0.09
Heart	25				
Intestine					
Jejunum	24				
Sigmoid colon	23	1*	<0.09*	<0.09*	<0.04
Kidney	26				
Larynx	13				
Liver	26				
Lung	26				
Muscle					
Pectoral	5				
Psoas	21				
Omentum	12				
Ovary	3				
Pancreas	25	1	0.33	0.33	<0.07
Prostate	4				
Spleen	25				
Stomach	25	1	0.10	0.10	<0.05
Testis					
Normal	14				
Sterile	1				
Thymus	1				
Tongue	1				
Trachea	6				
Urinary Bladder	20				
Uterus					
Normal	6				
Pregnant	2				
Vagina	4				

* Trace

Table 43

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Iron

Tissues	Number of Samples Analyzed	Number of Samples Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	28	77	17
Bone	23	23	76	186	24
Brain	23	23	50	85	31
Breast					
Normal	3	3	6	7	5
Pregnant	1	1	14	14	
Diaphragm	20	20	47	230	17
Esophagus	6	6	46	100	20
Heart	25	25	50	155	30
Intestine					
Jejunum	24	24	27	53	12
Sigmoid colon	23	23	19	49	9
Kidney	26	26	67	130	32
Larynx	13	13	31	50	23
Liver	26	26	180	750	31
Lung	26	26	280	570	70
Muscle					
Pectoral	5	5	28	40	17
Psoas	21	21	34	48	23
Omentum	12	12	20	50	6
Ovary	3	3	28	36	23
Pancreas	25	25	31	57	18
Prostate	4	4	29	36	20
Spleen	25	25	260	880	21
Stomach	25	25	26	58	11
Testis					
Normal	14	14	23	40	14
Sterile	1	1	41	41	
Thymus	1	1	27	27	
Tongue	1	1	26	26	
Trachea	6	6	38	62	20
Urinary Bladder	20	20	20	78	8
Uterus-Normal	6	6	22	47	12
Pregnant	2	2	53	90	16
Vagina	4	4	22	45	12

* Trace

Table 44

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Lead

Tissues	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20		1.8	4.3	0.14
Bone	23	23		7.4	30	1.1
Brain	23	7	6*	1.23	3.8	<0.07
Breast						
Normal	3	1	1*	0.05	0.05	<0.03
Pregnant	1					
Diaphragm	20	13	5*	0.24	0.90	<0.03
Esophagus	6	4	2*	0.25	0.39	<0.05
Heart	25	6	9*	0.31	0.72	<0.05
Intestine						
Jejunum	24	21	2*	0.62	8.7	<0.04
Sigmoid colon	23	14	6*	0.21	0.66	<0.02
Kidney	26	26		1.3	6.2	0.14
Larynx	13	11		3.4	12	<0.08
Liver	26	26		2.2	10	0.48
Lung	26	24	2*	0.79	6.0	<0.05*
Muscle						
Pectoral	5	2		0.15	0.26	<0.05
Psoas	21	6	7*	1.8	6.4	<0.05
Omentum	12	10	1*	0.24	0.96	<0.01
Ovary	3	1		0.61	0.61	<0.05
Pancreas	25	24		0.79	3.1	<0.06
Prostate	4	4		0.87	1.7	0.17
Spleen	25	20	4*	0.84	6.0	<0.06
Stomach	25	18	7*	0.15	0.80	<0.04*
Testis						
Normal	14	11	1*	0.09	1.1	<0.05
Sterile	1	1		0.09	0.09	
Thymus	1	1		0.05	0.05	
Tongue	1					
Trachea	6	5	1*	1.9	3.5	<0.17*
Urinary Bladder	20	11	7*	0.28	0.78	<0.04
Uterus						
Normal	6	2	3*	0.2	0.21	<0.05
Pregnant	2					
Vagina	4	2	2*	0.15	0.16	<0.05*

* Trace

Table 45

Concentrations of Elements in Wet Tissue:
(Arranged by Tissues)

Element: Magnesium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	150	260	66
Bone	23	23	1300	1900	500
Brain	23	23	135	270	75
Breast					
Normal	3	3	23	27	19
Pregnant	1	1	72		
Diaphragm	20	20	120	190	75
Esophagus	6	6	120	140	100
Heart	25	25	135	200	63
Intestine					
Jejunum	24	24	94	150	56
Sigmoid colon	23	23	140	570	71
Kidney	26	26	120	170	71
Larynx	13	13	270	490	140
Liver	26	26	160	290	96
Lung	26	26	88	160	56
Muscle					
Pectoral	5	5	110	140	60
Psoas	21	21	150	260	87
Omentum	12	12	27	84	65
Ovary	3	3	87	120	70
Pancreas	25	25	140	240	68
Prostate	4	4	220	280	160
Spleen	25	25	120	160	80
Stomach	25	25	84	135	47
Testis					
Normal	14	14	100	150	78
Sterile	1	1	125		
Thymus	1	1	36		
Tongue	1	1	110		
Trachea	6	6	180	230	125
Urinary Bladder	20	20	91	145	52
Uterus-normal	6	6	100	130	77
Pregnant	2	2	110	150	73
Vagina	4	4	67	92	45

* Trace

Table 46

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element	Manganese				
Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	0.15	0.37	0.05
Bone	23				
Brain	23	23	0.27	0.54	0.17
Breast					
Normal	3	3	0.03	0.04	0.01
Pregnant	1	1	0.10	0.10	
Diaphragm	20	20	0.11	0.24	0.04
Esophagus	6	6	0.15	0.49	0.05
Heart	25	25	0.19	0.45	0.07
Intestine					
Jejunum	24	24	0.64	1.8	0.13
Sigmoid colon	23	23	0.33	1.2	0.07
Kidney	26	26	0.50	0.70	0.25
Larynx	13	11	0.21	0.57	0.05*
Liver	26	26	1.8	3.7	0.66
Lung	26	26	0.11	0.21	0.05
Muscle					
Pectoral	5	5	0.08	0.14	0.02
Psoas	21	21	0.05	0.09	0.02
Omentum	12	12	0.06	0.23	0.02
Ovary	3	3	0.29	0.37	0.12
Pancreas	25	25	1.3	2.2	0.52
Prostate	4	4	0.42	1.3	0.09
Spleen	25	25	0.10	0.25	0.05
Stomach	25	25	0.37	1.9	0.10
Testis					
Normal	14	14	0.13	0.20	0.10
Sterile	1	1	0.14		
Thymus	1	1	0.02		
Tongue	1	1	0.12		
Trachea	6	6	0.17	0.25	0.09
Urinary Bladder	20	20	0.12	0.20	0.04
Uterus					
Normal	6	6	0.10	0.13	0.06
Pregnant	2	2	0.11	0.14	0.08
Vagina	4	4	0.07	0.07	0.05

* Trace

Table 47

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Molybdenum

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20				
Bone	23				
Brain	23				
Breast					
Normal	3				
Pregnant	1				
Diaphragm	20				
Esophagus	6	1	0.51	0.51	<0.09
Heart	25				
Intestine					
Jejunum	24	1	0.20	0.20	<0.06
Sigmoid colon	23	1	0.12	0.12	<0.04
Kidney	26	26	0.50	0.70	0.25
Larynx	13				
Liver	26	26	1.5	2.6	0.35
Lung	26				
Muscle					
Pectoral	5				
Psoas	21				
Omentum	12				
Ovary	3				
Pancreas	25	1*	< 0.11*	< 0.11*	< 0.08
Prostate	4				
Spleen	25				
Stomach	25	4	0.21	0.38	< 0.05
Testis					
Normal	4				
Sterile	1				
Thymus	1				
Tongue	1				
Trachea	6				
Urinary Bladder	20				
Uterus					
Normal	6				
Pregnant	2				
Vagina	4				

*Trace

Table 48

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Nickel

Tissues	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	2		0.20	0.24	<0.07
Bone	23					
Brain	23					
Breast						
Normal	3					
Pregnant	1					
Diaphragm	20					
Esophagus	6	1*		<0.13*	<0.13*	<0.09
Heart	25	1		<0.10*	<0.10*	<0.09
Intestine						
Jejunum	24	1		0.05	0.05	<0.05
Sigmoid colon	23	13		0.12	0.60	<0.04
Kidney	26					
Larynx	13					
Liver	26					
Lung	26	2		0.13	0.15	<0.08
Muscle						
Pectoral	5					
Psoas	21					
Omentum	12	8		0.04	0.07	<0.01
Ovary	3					
Pancreas	25	1*		<0.06*	<0.06*	<0.05
Prostate	4					
Spleen	25					
Stomach	25	3		0.08	0.16	<0.05
Testis						
Normal	14	1		0.08	0.18	<0.10
Sterile	1	1		0.13	0.13	
Thymus	1					
Tongue	1					
Trachea	6					
Urinary Bladder	20					
Uterus						
Normal	6					
Pregnant	2					
Vagina	4					

* Trace

Table 49

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Phosphorus

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	830	1350	320
Bone	23	Not Determined			
Brain	23	23	3300	4900	1600
Breast					
Normal	3	3	170	210	110
Pregnant	1	1	750		
Diaphragm	20	20	1100	1550	500
Esophagus	6	6	950	1250	770
Heart	25	25	1600	2200	1150
Intestine					
Jejunum	24	24	1300	2500	750
Sigmoid colon	23	23	780	1700	370
Kidney	26	26	1700	2000	1400
Larynx	13	13	1900	3600	560
Liver	26	26	2900	3800	1000
Lung	26	26	1140	2300	790
Muscle-Pectoral	5	5	1200	1550	550
Psoas	21	21	1600	2300	1000
Omentum	12	12	220	630	100
Ovary	3	3	1050	1050	1050
Pancreas	25	25	2400	3300	1050
Prostate	4	4	1450	2500	940
Spleen	25	25	2200	3000	1550
Stomach	25	25	1100	1450	570
Testis					
Normal	14	14	1500	2300	1000
Sterile	1	1	1800		
Thymus	1	1	580		
Tongue	1	1	1300		
Trachea	6	6	900	1050	620
Urinary Bladder	20	20	740	1800	360
Uterus					
Normal	6	6	1000	1150	680
Pregnant	2	2	1000	1400	630
Vagina	4	4	520	660	400

* Trace

Table 50

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Potassium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	1300	2000	640
Bone	23	23	820	1250	480
Brain	23	23	3700	5100	2900
Breast					
Normal	3	3	340	390	250
Pregnant	1	1	1100	1100	
Diaphragm	20	20	2400	3900	1100
Esophagus	6	6	2100	2900	1350
Heart	25	25	2600	3800	1750
Intestine					
Jejunum	24	24	1600	2700	840
Sigmoid colon	23	23	1300	2100	570
Kidney	26	26	2200	3200	1350
Larynx	13	13	1700	3000	770
Liver	26	26	3400	5600	1800
Lung	26	26	2200	3400	1400
Muscle					
Pectoral	5	5	2400	3300	1800
Psoas	21	21	3200	5100	2000
Omentum	12	12	430	1100	175
Ovary	3	3	1380	1500	1250
Pancreas	25	25	2800	4700	1200
Prostate	4	4	3000	3000	2900
Spleen	25	25	3600	5100	2400
Stomach	25	25	1400	2200	730
Testis-normal	14	14	2200	3100	1700
Sterile	1	1	3000	3000	
Thymus	1	1	880	880	
Tongue	1	1	2500	2500	
Trachea	6	6	2100	3800	1300
Urinary Bladder	20	20	1600	3000	540
Uterus-normal	6	6	1750	2500	920
Pregnant	2	2	2900	3300	2400
Vagina	4	4	1200	1450	950

* Trace

Table 51

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Silver

Tissues	Number of Samples Analyzed	Number of Samples Containing Element		Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	2	9*	0.007	0.008	<0.001
Bone	23					
Brain	23	16	5*	0.009	0.022	<0.002
Breast						
Normal	3					
Pregnant	1					
Diaphragm	20	1		0.008	0.008	<0.001
Esophagus	6		1*	<0.001*	<0.001*	<0.001*
Heart	25	1	1*	0.006	0.006	0.001*
Intestine						
Jejunum	24	5	9*	0.004	0.013	<0.001
Sigmoid colon	23	6	6*	0.008	0.04	<0.001
Kidney	26	4	1*	0.015	0.04	<0.001
Larynx	13	2	1*	0.073	0.14	<0.002
Liver	26	21	4*	0.016	0.11	<0.001
Lung	26	3	3*	0.006	0.007	<0.001
Muscle						
Pectoral	5					
Psoas	21	1	1*	0.005	0.005	<0.001
Omentum	12	6	5*	0.0019	0.005	<0.0001
Ovary	3		1*	<0.001*	<0.001*	<0.001
Pancreas	25	4	4*	0.009	0.02	<0.001
Prostate	4		1*	<0.001*	<0.001*	<0.001
Spleen	25	1	1*	0.006	0.006	<0.001
Stomach	25	1	4*	0.01	0.01	<0.001
Testis						
Normal	14	1	1*	0.006	0.006	<0.001
Sterile	1					
Thymus	1		1*	<0.001*	0.001*	<0.001*
Tongue	1		1*	<0.001*	0.001*	<0.001*
Trachea	6	1		0.005	0.005	<0.001
Urinary Bladder	20	3	1*	0.002	0.002	<0.001
Uterus-Normal	6	1		0.006	0.006	<0.001
Pregnant	2	2		0.15	0.15	0.14
Vagina	4					

*. Trace

Table 52

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Strontium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	0.08	1.5	0.27
Bone	23	23	27	65	9
Brain	23	23	0.03	0.13	0.01
Breast					
Normal	3	3	0.09	0.17	0.04
Pregnant	1	1	0.08	0.08	
Diaphragm	20	20	0.10	0.33	0.02
Esophagus	6	6	0.16	0.31	0.05
Heart	25	25	0.09	0.65	0.02
Intestine					
Jejunum	24	24	0.23	0.54	0.03
Sigmoid colon	23	23	0.30	0.64	0.15
Kidney	26	26	0.11	0.34	0.04
Larynx	13	13	1.6	4.5	0.12
Liver	26	26	0.05	0.21	0.007
Lung	26	26	0.16	0.35	0.06
Muscle-pectoral	5	5	0.05	0.12	0.01
Psoas	21	19	0.04	0.15	<0.005*
Omentum	12	12	0.08	0.30	0.02
Ovary	3	3	0.50	0.90	0.30
Pancreas	25	25	0.11	0.27	0.02
Prostate	4	4	0.35	0.96	0.10
Spleen	25	25	0.08	0.78	0.01
Stomach	25	25	0.18	0.38	0.05
Testis					
Normal	14	14	0.08	0.22	0.02
Sterile	1	1	0.18	0.18	
Thymus	1	1	0.07	0.07	
Tongue	1	1	0.06	0.06	
Trachea	6	6	0.75	1.3	0.20
Urinary Bladder	20	20	0.24	0.92	0.06
Uterus-normal	6	6	0.21	0.39	0.08
Pregnant	2	2	0.16	0.17	0.14
Vagina	4	4	0.22	0.32	0.16

* Trace

Table 53

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Tin

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	18	1*	0.28	0.92 <0.07
Bone	23				
Brain	23				
Breast					
Normal	3	2		0.08	0.10 <0.03
Pregnant	1				
Diaphragm	20	9	6*	0.15	0.38 <0.04
Esophagus	6	5		0.79	2.20 <0.07
Heart	25	7	9*	0.15	0.39 <0.05
Intestine					
Jejunum	24	24		0.61	5.8 0.04
Sigmoid colon	23	22		0.61	2.4 <0.04
Kidney	26	25	1*	0.23	0.58 <0.06*
Larynx	13	8	1*	0.32	0.55 <0.08
Liver	26	25	1*	0.35	0.85 <0.07*
Lung	26	22	2*	0.44	1.6 <0.04
Muscle-pectoral	5	1		0.20	0.20 <0.03
Psoas	21	2	2*	0.07	0.08 <0.05
Omentum	12	9	1*	0.05	0.14 <0.02
Ovary	3	1		0.45	0.45 <0.05
Pancreas	25	8	5*	0.35	1.3 <0.05
Prostate	4	3		0.41	0.80 <0.07
Spleen	25	18	5*	0.29	0.58 <0.06
Stomach	25	20	2*	0.68	7.5 <0.04
Testis					
Normal	14	7	3*	0.17	0.40 <0.05
Sterile	1	1		0.34	0.34
Thymus	1	1		0.05	0.05
Tongue	1				
Trachea	6	5		0.56	0.95 <0.17
Urinary Bladder	20	17	2*	0.23	1.6 <0.04
Uterus					
Normal	6	5		0.37	0.82 <0.05
Pregnant	2				
Vagina	4	4		0.23	0.59 0.09

* Trace

Table 54

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)Element: Titanium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	5	2*	0.24	0.37 <0.07
Bone	23				
Brain	23		1*	<0.23*	<0.23* <0.14
Breast					
Normal	3				
Pregnant	1				
Diaphragm	20	2	3*	0.12	0.14 <0.06
Esophagus	6	2	2*	0.24	0.27 <0.09
Heart	25	2		0.24	0.25 <0.09
Intestine-Jejunum	24	3	2*	0.15	0.22 <0.06
Sigmoid Colon	23	4	2*	0.09	0.12 <0.04
Kidney	26	1	3*	0.20	0.20 <0.10
Larynx	13	2	2*	0.38	0.43 <0.15
Liver	26	10	2*	0.31	0.50 <0.12
Lung	26	26		2.4	>12 0.28
Muscle					
Pectoral	5	1	1*	0.16	0.16 <0.06
Psoas	21	1	2*	0.26	0.26 <0.10
Omentum	12	11		0.07	0.11 <0.04
Ovary	3				
Pancreas	25	1	2*	0.10	0.10 <0.07
Prostate	4	1		0.49	0.49 <0.13
Spleen	25	5	3*	0.24	0.35 <0.11
Stomach	25		3*	<0.07*	<0.07* <0.07*
Testis					
Normal	14	2	2*	0.13	0.15 <0.10
Sterile	1				
Thymus	1				
Tongue	1				
Trachea	6	3		1.0	1.2 <0.14
Urinary Bladder	20	3	2*	0.09	0.16 <0.05
Uterus					
Normal	6	1		0.22	0.22 <0.08
Pregnant	2				
Vagina	4	1		0.13	0.13 <0.06

* Trace

Table 55

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Vanadium

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20				
Bone	23				
Brain	23				
Breast					
Normal	3				
Pregnant	1				
Diaphragm	20				
Esophagus	6				
Heart	25				
Intestine					
Jejunum	24				
Sigmoid colon	23	3	1*	0.03	0.04 <0.01
Kidney	26				
Larynx	13				
Liver	26				
Lung	26	4	2*	0.04	0.06 <0.01
Muscle					
Pectoral	5				
Psoas	21				
Omentum	12				
Ovary	3				
Pancreas	25				
Prostate	4				
Spleen	25				
Stomach	25				
Testis					
Normal	14				
Sterile	1				
Thymus	1				
Tongue	1				
Trachea	6				
Urinary Bladder	20				
Uterus					
Normal	6				
Pregnant	2				
Vagina	4				

* Trace

Table 56

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element: Zinc

Tissues	Number of Samples Analyzed	Number of Samples Containing Element	Average Value for Samples Containing Element ($\mu\text{g/g}$)	Highest Value ($\mu\text{g/g}$)	Lowest Value ($\mu\text{g/g}$)
Aorta	20	20	23	33	9
Bone	23	23	88	120	36
Brain	23	23	14	19	8
Breast					
Normal	3	3	3.1	3.5	2.5
Pregnant	1	1	8	8	
Diaphragm	20	20	40	65	14
Esophagus	6	6	25	36	20
Heart	25	25	29	44	20
Intestine					
Jejunum	24	24	19	40	11
Sigmoid colon	23	23	18	32	10
Kidney	26	26	51	100	24
Larynx	13	13	33	72	11
Liver	26	26	46	78	27
Lung	26	26	14	27	9.4
Muscle					
Pectoral	5	5	40	55	12
Psoas	21	21	45	59	34
Omentum	12	12	3.7	11	2
Ovary	3	3	17	25	12
Pancreas	25	25	25	39	10
Prostate	4	4	180	380	26
Spleen	25	25	19	27	11
Stomach	25	25	19	36	12
Testis					
Normal	14	14	17	23	13
Sterile	1	1	18	18	
Thymus	1	1	6	6	
Tongue	1	1	25	25	
Trachea	6	6	21	34	6
Urinary Bladder	20	20	21	38	10
Uterus					
Normal	6	5	18	30	11
Pregnant	2	2	24	25	22
Vagina	4	4	14	16	12

* Trace

Table 57

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element Cesium

Tissues	Number of Samples Composited	Composite Value ($\mu\text{g/g}$)
Aorta	20	
Bone	23	
Brain	23	
Diaphragm	20	<0.05*
Esophagus	6	
Heart	25	
Intestine		
Jejunum	24	
Sigmoid colon	23	
Kidney	26	
Larynx	13	
Liver	26	
Lung	26	
Muscle	26	0.06
Omentum	12	
Ovary	3	
Pancreas	25	0.09
Prostate	4	N.D.
Spleen	25	
Stomach	25	
Testes	14	
Thymus	1	
Thyroid		N.D.
Trachea	6	N.D.
Urinary Bladder	20	
Uterus	6	
Vagina	4	

* Trace

N.D. Not Determined

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Table 58

Concentrations of Elements in Wet Tissue
(Arranged by Tissues)Element Lithium

Tissues	Number of Samples Composited	Composite Value ($\mu\text{g/g}$)
Aorta	20	0.024
Bone	23	
Brain	23	
Diaphragm	20	<0.005*
Esophagus	6	0.010
Heart	25	<0.006
Intestine		
- Jejunum	24	0.004
- Sigmoid colon	23	0.008
Kidney	26	
Larynx	13	
Liver	26	
Lung	26	0.024
Muscle	26	
Omentum	12	
Ovary	3	0.012
Pancreas	25	
Prostate	4	
Spleen	25	
Stomach	25	0.007
Testes	14	0.008
Thymus	1	
Thyroid		N.D.
Trachea	6	N.D.
Urinary Bladder	20	0.013
Uterus	6	
Vagina	4	

* Trace

• N.D. Not Determined

Table 59

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Concentrations of Elements in Wet Tissue
(Arranged by Tissues)

Element Rubidium

Tissues	Number of Samples Composited	Composite Value ($\mu\text{g/g}$)
Aorta	20	14
Bone	23	
Brain	23	30
Diaphragm	20	15
Esophagus	6	15
Heart	25	15
Intestine		
Jejunum	24	19
Sigmoid colon	23	5
Kidney	26	20
Larynx	13	
Liver	26	90
Lung	26	9.4
Muscle	26	26
Omentum	12	
Ovary	3	4.1
Pancreas	25	56
Prostate	4	N.D.
Spleen	25	66
Stomach	25	12
Testes	14	11
Thymus	1	
Thyroid		N.D.
Trachea	6	N.D.
Urinary Bladder	20	7.2
Uterus	6	
Vagina	4	

* Trace

N.D. Not Determined