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**Electrolyte Content of Human Autopsy Tissue.\***

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During the last few years increasing attention has been given to the electrolyte content of tissues (particularly heart tissue). Some time ago we began a study with the purpose of comparing the electrolyte content of tissues from cases with renal disease with that of tissues from patients who had died with other diseases. At present our series does not include a sufficient number of renal cases to make this comparison significant. That is, since the electrolyte content of a given tissue may vary quite widely, a fairly large number of cases must be obtained. Therefore, the purpose of the present report is to present a summary of the results which have been obtained on a series of miscellaneous cases.

The tissues (right ventricle, left ventricle, skeletal muscle, kidney, liver and spleen) were analyzed for water, chloride, phosphorus, sodium, potassium, calcium and magnesium in a manner similar to that outlined by Cullen and Wilkins.<sup>1</sup> Table I presents the maximum, minimum and average values found. The parentheses indicate the number of cases used in computing the average. It will be seen that in addition to the analyses made by Cullen, Wilkins, and Harrison<sup>2</sup> and Wilkins and Cullen,<sup>3</sup> the present study includes the determination of the electrolyte concentration of spleen, the determination of the calcium and magnesium concentrations of kidney and liver and the determination of the sodium concentration of muscle, kidney and liver. The difference between the electrolyte content of right ventricle and left ventricle has already been discussed by the above workers. The data of the present series are in agreement with their findings with the exception that the average magnesium content of the right ventricle is slightly greater than that of the left ventricle. The above workers found that the left ventricle had a slightly greater content of magnesium than the right ventricle. In general, it will be seen from the average values obtained on the 6

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<sup>1</sup> Cullen, G. E., and Wilkins, W. E., *J. Biol. Chem.*, 1933, **102**, 403.

<sup>2</sup> Cullen, G. E., Wilkins, W. E., and Harrison, T. R., *J. Biol. Chem.*, 1933, **102**, 415.

<sup>3</sup> Wilkins, W. E., and Cullen, G. E., *J. Clin. Invest.*, 1933, **12**, 1063.

TABLE I.  
The Electrolyte Content of Human Autopsy Tissue.  
(Values expressed in terms of mg. per 100 gm. of fresh tissue)

	Right Ventricle	Left Ventricle	Skeletal Muscle	Kidney	Liver	Spleen
Water	Max.	84.7	80.4	83.3	85.1	80.4
	Min.	73.8	75.8	71.6	79.6	68.8
	Aver.	(10) 79.9	(11) 79.0	(15) 77.9	(14) 82.4	(15) 76.1
Chloride	Max.	222	195	167	276	207
	Min.	136	98	55	155	72
	Aver.	(10) 182	(11) 139	(15) 96	(14) 208	(15) 149
Phosphorus	Max.	172	210	252	232	291
	Min.	126	132	92	113	189
	Aver.	(11) 147	(18) 180	(15) 169	(14) 151	(15) 226
Sodium	Max.	197	132	232	240	233
	Min.	75	83	52	91	88
	Aver.	(8) 126	(11) 99	(15) 102	(14) 143	(15) 114
Potassium	Max.	240	322	397	216	304
	Min.	146	184	251	114	138
	Aver.	(11) 206	(18) 269	(15) 324	(14) 175	(14) 233
Calcium	Max.	15.1	10.8	9.2	12.5	8.9
	Min.	4.4	4.7	2.6	3.8	2.0
	Aver.	(8) 8.4	(10) 7.2	(15) 6.5	(14) 7.1	(14) 6.5
Magnesium	Max.	28.3	26.1	29.8	19.3	24.2
	Min.	13.4	10.4	12.7	12.6	10.6
	Aver.	(8) 20.3	(10) 18.7	(15) 17.0	(14) 16.1	(14) 16.3

tissues examined that the water concentration is highest in the kidney and lowest in the liver; the chloride is highest in the kidney and lowest in skeletal muscle; the phosphorus is highest in the liver and lowest in the right ventricle; the sodium is highest in the kidney and lowest in the left ventricle; the potassium is highest in skeletal muscle and lowest in kidney; and calcium and magnesium are highest in the right ventricle and lowest in the spleen.