din system is not significant in the natural defenses of the mouse, the results obtained do not contribute evidence to support the suggested importance of this system.

Summary. Injection of complement (guinea pig serum) into the laboratory albino mouse failed to alter capacity of these animals to withstand parenterally induced bacterial infection with *K. pneumoniae* or *S. typhimurium*. Addition of complement to mouse serum failed to induce bactericidal activity *in vitro*.

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Total Exchangeable Potassium in Systemic Lupus Erythematosus with Reference to "Triamcinolone Myopathy".* (26212)

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Muscular weakness and atrophy have been described following prolonged use of adrenal steroids, particularly triamcinolone(1,2). This has been referred to as triamcinolone myopathy(3). Histologic changes in the muscles of such patients were relatively minimal and consisted of scattered areas of muscle vacuolization and proliferation of sarcolemmal muscle. Increased creatine synthesis and decreased ability to store this substance have been suggested as a cause of the creatinuria observed in these patients. Potassium loss also has been considered as a possible pathogenic factor although serum potassium levels have been normal in triamcinolone myopathy.

To elucidate the effect of adrenal steroids on total body potassium stores, 2 groups of patients with systemic lupus erythematosus (SLE) were studied. One group of patients had a mild form of the disease and received only symptomatic therapy with salicylates and antimalarials. The other group was severely affected and had been treated with various adrenal corticoids.

Total exchangeable potassium (Ke) was determined according to the method of Corsa *et al.*(4). Radioactive potassium (K-42) was given orally in tracer doses of 300-500 μc.‡ The specific activity of K-42 was .2-.4 mc/mg so that only a minute amount of stable inorganic potassium was administered. Radioactive potassium (K-42) and stable potassium (K-39) concentrations were deter-

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TABLE I. Total Exchangeable Potassium Values in (1) A Group of Female Controls, (2) Female Patients with Systemic Lupus Erythematosus on Non-Steroid Therapy, and (3) Female Patients with Systemic Lupus Erythematosus on Steroid Therapy.

Age	K^{39}, meq/l urine	K^{42}, μc/l urine	Ke, meq	Ke, meq/kg	
		Female controls			
32	32	7.53	2045	36.5	
68	62	12.00	1520	30.8	
51	48	6.02	2300	39.7	
63	29	3.53	2340	29.1	
39	8.5	1.22	1980	31.2	
53	42	5.07	2300	36.2	
Mean Ke 2081 ± 311* meq or 33.9 ± 4.1* meq/kg					
		Female S.L.E. non-steroid therapy			
43	28	4.56	2153	49.3	
29	30	3.79	2678	32.2	
27	27	4.18	2179	38.1	
32	8.4	1.28	1870	35.6	
47	14	1.77	2220	31.1	
Mean Ke 2220 ± 291 meq or 37.3 ± 7.3 meq/kg					
		Female S.L.E. on steroids			Therapy
51	19	3.8	1742	20.8	Steroids 1 yr; triamcinolone, >4 mg/day/4 mo, 4 mg/day/2 mo
43	51	10.5	1370	26.2	Dexamethasone, 1 mg/day/4 mo
41	9.5	2.18	1730	29.7	Hydrocortisone, 50 mg/day/1 mo; triamcinolone discontinued for 2 mo; cortisone discontinued for 1 mo
29	22.5	5.2	1947	36.8	Medrol, 12 mg/day; Diuril, 1.0 g/day
38	58	11.9	2142	44	Triamcinolone, 40 mg/day/2 mo; cortisone, 100 mg/day/2 mo
Mean Ke 1786 ± 288 meq or 31.5 ± 9.1 meq/kg					

* Stand. dev.

mined after complete exchange had taken place (24 hours) and spot samples of urine at 25, 29 and 30 hours were examined to be certain that complete exchange had taken place.

Our mean normal values and their standard deviations were:

3530 ± 873 meq or 46.5 ± 8.4 meq/kg for 6 male control subjects and

2081 ± 311 meq or 33.9 ± 4.1 meq/kg for 6 female control subjects.

Total exchangeable potassium (Ke) values of the patients with systemic lupus erythematosus on non-steroid therapy and those on steroids do not differ significantly from those of the normal control group (Table I).

Control group *vs* SLE on non-steroid therapy $0.3<p<0.4$

Control group *vs* SLE on steroid therapy $0.5<p<0.6$

SLE on steroids *vs* SLE on non-steroid therapy $p = 0.3$

Patient B.D. had 3 separate determinations done over a period of one year during which time she received triamcinolone, cortisone, hydrocortisone and symptomatic therapy. At time of the second test, as she was much weaker, cortisone was added to triamcinolone to ascertain whether this might reverse the "myopathic" action of triamcinolone. There was no clinical improvement until this latter steroid was stopped (Table II). The changes in Ke are not striking and could not be attributed to triamcinolone, since such changes should have been apparent at time of first Ke determination, after 9 months of triamcinolone therapy. The variations in total exchangeable potassium are more likely due to progression of the disease.

Urinary potassium excretions in all the

TABLE II. Serial Total Exchangeable Potassium Values in a Patient (B.D., 32-Year-Old Female) with Systemic Lupus Erythematosus on Various Steroid Regimens.

	Wt, kg	Ke, meq	Ke, meq/kg	Urinary K^{39}, meq/l	Therapy
Dec. 1958	58	1995	34.2	27	Triamcinolone, 8-32 mg every day for 9 mo; marked proximal muscle weakness
Jan. 1959	58	1464	25.1	48	Triamcinolone continued plus cortisone, 50 mg every day; K Triplex, 6 g every day for subsequent 5 wk; exceedingly weak; no change in clinical picture
March 1959	58	1731	29.8	9.5	Triamcinolone DC—2 mo; cortisone DC—1 mo; hydrocortisone, 50 mg every day for 1 mo, strength normal

patients with SLE did not vary from those of the normal control subjects.

It is concluded that total exchangeable potassium in patients with SLE did not vary significantly from that of normal female control subjects and that triamcinolone as well as other corticosteroids did not appear to have a demonstrable effect on it.

Summary. Total exchangeable potassium, using K^{42}, was determined in a group of female control subjects and 2 groups of patients with systemic lupus erythematosus. One of these groups was receiving adrenal cortical steroids including triamcinolone, the other salicylates and antimalarials only. Serial determinations were also done on one patient receiving long term steroid therapy. No significant differences in total exchangeable potassium values could be demonstrated among the 3 groups, and steroid therapy, including triamcinolone, did not appear to have an effect on total exchangeable potassium.

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Erythropoietic Stimulating Factor Production in Pubescent Mice after a Single Exposure to Hypoxia. (26213)

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After chronic exposure of mature animals to hypoxia, the first morphological evidence of the resulting polycythemia is reticulocytosis which becomes maximal on the third or fourth day after initial exposure(1). After that, the number of mature erythrocytes gradually increases for 7 or 8 weeks(*,2). The results of the present experiment show that BDF1 mice have a reticulocytic response greater than baseline value after puberty when subjected to a single hypoxic exposure, but do not have this capacity before puberty. Furthermore, if production of erythropoietic stimulating factor (ESF) is accepted as the prerequisite to the reticulocytosis, it can be said that the endocrine changes at puberty are concomitant with the animals' ability to increase production of ESF.

* Unpublished results.

Methods. The experiment was carried out