

grams per 100 c.c. of blood for the normal animals and between 0.04 and 0.05 for the thyroidectomized ones. (A sharper division was observed when the blood was obtained several hours after the morning meal. The normal animals showed 0.1 – 0.12 grams per 100 c.c.; the thyroidectomized group showed 0.06 – 0.07 grams per 100 c.c.)

The values observed for N. P. N. were as follows: For normal sheep, 40–42 mgms. per 100 c.c., for thyroidectomized sheep 28–32 mgms.

Other data are incomplete, and will be reported later in connection with a new series of analyses to be undertaken on animals under better experimental control.

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213 (1960)

Basal metabolism of premature and undersized infants.

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The basal metabolism of infants must be obtained during sleep and infants naturally sleep best when recently fed. Following the procedure employed by Bailey and Murlin¹ the infants of the present series were studied under those conditions while exposed in the respiration incubator² to an environing temperature of 27 to 29° C.

Studies on two premature infants were reported by Rubner and Langstein³ in 1915 and a preliminary report of several cases has been made recently by Talbot.⁴ The former authors found the metabolism of a 2 months' premature infant on the 27th day after birth to be 973 calories per sq. meter per 24 hours (Meeh-

¹ Bailey and Murlin, *Journ. of Obstet.*, 1915, lxxi, No. 3.

² Murlin, J. R., *Amer. Journ. Dis. of Children*, 1915, ix, 42–58.

³ Rubner and Langstein, *Archiv. f. Physiologie*, 1915, p. 39.

⁴ Talbot, F. B., *PROC. SOC. EXP. BIOL. AND MED.*, 1922, xix, 309.

METABOLISM OF PREMATURE AND UNDERSIZED INFANTS.

Name.	Sex.	Birth Weight.	Maturity.	Date.	Age (Days).	CO ₂ (Liters).	O ₂ (Liters).	R.Q.	Calories per Sq. M.	Calories per Kgm.
Levine Twin I.	F.	2213 gms.	Full	1-31-22	6	0.5832	0.7173	0.81	26.15	2.06
				2- 2-22	8	0.5978	0.6578	0.77	23.74	1.87
				2- 8-22	8	0.6528	0.7767	0.84	25.15	1.95
Levine Twin II.	F.	2156 gms.	Full	1-31-22	6	0.6639	0.9436	0.70	29.14	2.26
				2- 2-22	8	0.5455	0.6319	0.87	25.70	2.01
				2- 8-22	8	0.4708	0.5059	0.93	18.79	1.47
				2- 2-22	8	0.7423	0.9349	0.79	26.83	2.07
Jex.	F.	2770 gms.	8½ mo.	4-30-21	5	0.7261	0.9349	0.78	26.60	2.05
				4-30-21	5	0.8027	0.8635	0.93	27.57	2.19
				4-30-21	5	0.5900	0.7194	0.82	26.81	2.13
Tecklow ¹ .	M.	2326 gms.	8½ mo.	3- 6-22	1	0.6297	0.9020	0.70	27.57	2.12
Graham ² .	M.	2383 gms.	8½ mo.	4- 5-22	23	0.6606	0.7998	0.83	24.06	2.09
Schlinger.	F.	1589 gms.	8½ mo.	3-13-22	3	0.5351	0.7453	0.70	24.95	2.21
				3-17-22	7	0.5707	0.8719	0.65	23.04	2.04
				3-17-22	7	0.4175	0.4995	0.84	23.42	2.07
Payne ³ .	M.	1872 gms.	7½ mo.	3- 1-22	4	0.4510	0.5997	0.75	25.84	2.13
				3- 1-22	4	0.3786	0.5102	0.74	22.73	1.87
				3- 1-22	4	0.3487	0.4283	0.81	17.70	1.46
				3- 3-22	6	0.3815	0.3982	0.96	20.78	1.72
				3- 3-22	6	0.3745	0.4527	0.83	20.68	1.71
				3- 3-22	6	0.2649	0.3933	0.67	26.19	2.06
				3- 3-22	6	0.4712	0.6389	0.74	29.85	2.32
				3- 3-22	6	0.6344	0.5584	1.14	28.46	2.28
Molyneux Twin I.	M.	2213 gms.	7 mo.	2- 6-22	10	0.6868	0.7993	0.86	19.50	1.95
Molyneux Twin II.	M.	2043 gms.	7 mo.	2- 8-22	12	0.6802	0.9083	0.75		
Brown ³ .	F.	1248 gms.	7 mo.	2- 6-22	10	0.9040	1.009	0.90		
				3-14-21	9	0.5826	0.6550	0.89		

¹ Caesarean birth; died.² Case of sclerema monotarium; died.³ Died.

Rubner formula), or 40 calories per sq. meter per hour. This metabolism includes the normal muscular activity (crying) of the infant for the day. Bailey and Murlin found the basal as an average of 13 separate determinations on six infants born at term, within the age of 12 days, to be 23.7 calories per sq. meter per hour (Meeh-Rubner formula), or 27.3 calories for the Lissauer formula. Benedict and Talbot¹ found 25.5 calories per sq. meter (Lissauer) an hour as the average for 94 newborn infants at an average of two days.

The present report includes results on ten newborn infants all of whom were under 5 lbs. 5 oz. at birth. Two (twins) were born at term, three at 8½ months, one at 7½ months and three, two of whom were twins, at 7 months. The average heat production (basal) was 24.63 calories per sq. meter (Lissauer) per hour. The table epitomizes the results. Four of the ten, one a Cæsarean, one a case of sclerema monatorum and two from prematurity only subsequently died. All the others at last reports were growing.

The respiratory quotients found range from 0.70 to 0.93 according to state of nutrition, *i.e.*, time from feeding.

Of the four who died the basal metabolism of all except the Cæsarean case, at the time of observation were distinctly below the average for infants born at term (see above). The average of the remaining six was 25.8 calories per sq. meter per hour (Lissauer).

Since basal metabolism is the best single measure of vitality yet found it is probable that this test will prove to be an important means of prognosis in prematurity.

¹ Benedict and Talbot. Carnegie Inst. of Wash. Publ. No. 233. 1915.