

(10 mg) and a net increase in minute volume frequently results from a rather small (3 to 5 mg) dose of the drug.

The contraction form shown by the R.K.G. corresponds to the RT interval of the E.C.G. in that ventricular contraction and discharge are not unduly prolonged. It is notable, however, that during much of diastole the left ventricle appears to pause at constant volume (diastasis). The R.K.G. film usually resembles extreme athletic bradycardia.

These studies are being continued with additional techniques. The first few experiments with the acetylene method have shown an increased stroke volume of the same general magnitude found with the R.K.G. method, so that apparently the dilatation does not invalidate the volume calculations.

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Effect of Relative Humidity on Insensible Weight Loss of the Newborn Infant.*

JOHN A. ANDERSON. (Introduced by Irvine McQuarrie.)

From the Department of Pediatrics, University of Minnesota, Minneapolis.

Although Rubner and von Lewschew¹ and Benedict and Carpenter² noted that high relative humidity of the environmental air produced a decrease in the rate of insensible weight loss in both man and experimental animals, recent investigators^{3, 4} have stated that, within the range of average environmental conditions, the relative humidity produces no significant effect. The failure of the insensible weight loss method in predicting accurately the energy metabolism of infants prompted this investigation of the effect of changes in relative humidity on the insensible weight loss. This report deals with 76 observations on the insensible weight loss in 41 unclothed newborn male infants at relative humidities ranging from 19% to 94% and at an environmental temperature of 31.2-32.5°C (87-89°F).

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¹ Rubner, M., and von Lewschew, *Arch. f. Hyg.*, 1897, **29**, 1.

² Benedict, F. G., and Carpenter, T. M., Carnegie Inst., Washington, 1910, Pub. No. 129.

³ Levine, S. Z., Wilson, J. R., and Kelly, M., *Am. J. Dis. Child.*, 1929, **37**, 791.

⁴ Yaglou, C. P., *J. A. M. A.*, 1937, **108**, 1708.

Each experiment was carried out under the following conditions: Thirty to 45 minutes after breast feeding, the infant was placed in an accurately controlled air-conditioned chamber[†] and weighed by means of a Sauter scale for 30 to 90 minutes. A condition of sleep and absence of sweating were required before measurements were made.

The results are summarized in Table I.

TABLE I.
Average Insensible Weight Loss at Various Humidities.

Case No.	% relative humidity		G insensible wt loss per hr		
	Range	Avg	Infant	Kg	Sq.M.
11	19-30	21.6	3.82	1.16	17.2
16	31-40	35.8	3.24	.94	13.7
5	41-50	48.5	2.67	.86	12.3
19	51-60	54.0	2.58	.80	11.7
8	61-70	65.0	1.99	.60	8.8
11	71-80	76.5	1.35	.39	4.7
6	81-94	88.0	1.19	.40	5.0

The average insensible weight loss for each 10% increase in relative humidity decreases in a straight line manner to a negligible value at 100% relative humidity. The generally accepted value⁵ for insensible weight loss of 1.0 g per kg per hour for infants falls between 25% and 35% relative humidity. This value is approximately twice that observed at 60% and 70% relative humidity. The general slope of the line indicates that for each 10% increase in relative humidity within the range studied, there is 0.46 g decrease in the hourly rate of insensible weight loss for the average newborn infant. From these data it appears that attempts to predict the energy metabolism of the newborn infant from the insensible weight loss according to the formulas of Benedict and Root for adults⁶ and Levine and Marples for infants⁷ are not valid unless the effect of the relative humidity is taken into consideration.

Summary. The rate of insensible weight loss in the unclothed, newborn male infant is decreased in a straight line manner by an increase in the relative humidity of the environmental air.

[†] This unit was constructed with the advice and assistance as well as the donation of special equipment from the Minneapolis Honeywell Regulator Company.

⁵ Levine, S. Z., Kelly, M., and Wilson, J. R., *Am. J. Dis. Child.*, 1930, **39**, 917.

⁶ Benedict, F. G., and Root, H. F., *Arch. Int. Med.*, 1926, **38**, 1.

⁷ Levine, S. Z., and Marples, E., *Am. J. Dis. Child.*, 1930, **40**, 269.