

Table 1

Mean activity (no. of squares entered) in the open field

Treatment	Trials	
	1	2
Adrenalin, 6-9 days	48.67	29.61
Adrenalin, 12-15 days	49.83	20.28
D-amphetamine, 6-9 days	41.68	22.68
D-amphetamine, 12-15 days	37.12	17.58
Water, 6-9 days	53.06	40.06
Water, 12-15 days	56.41	32.29

injected with d-amphetamine appear to be the least active (most emotional), with the Ss born to water-injected mothers displaying the greatest activity (least emotional) ($p = .05$). For all groups the second trial, following the immobilization stress, showed lowered activity scores ($p = .01$). Ss injected between 12 and 15 days post-conception tended to show greater decrements in activity between trials than did the earlier-injected Ss ($p = .01$).

The number of ulcerative Ss per group of 12 varied from 2 to 7. A series of Fisher Exact Probability Tests established one significant difference among the frequencies, with those Ss whose mothers were injected with adrenalin at the time the fetal stomach and intestine were developing exhibiting a greater frequency of ulcers (7) than did Ss whose mothers had been injected with water ($p = .05$).

Adrenalin, injected prenatally, appears to have had its greatest effect in facilitating a specific physiological breakdown following the immobilization stress, while d-amphetamine had its greatest effect on behavioral manifestations of emotionality. The greater ulceration in those Ss whose mothers were injected while the fetal stomach and intestine were developing suggests possible specific changes, structural or chemical, in

these organs. This is consistent with other reports of specific structural deficiencies produced prenatally (e.g. Thompson & Goldenberg, 1962).

Although exogenous injections of chemicals may not reproduce exactly the internal state accompanying strong emotionality, it is certain that neurohumoral agents are accompaniment of emotional stress (Gellhorn et al, 1941), and it is unlikely that the permeability of the placenta differs between endogenous and exogenous sources of hormones. The present study and similar research suggest that the variability of stress reactions of individuals may, in part, be explicable in terms of prenatal humoral events, possibly initiated by differential maternal emotionality.

References

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Notes

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2. Dosage levels of drugs were adapted from those used in similar investigations (Thompson & Goldenberg, 1962; Ross & Schnitzer, 1963) based upon a pilot study, which showed that adrenalin produces much more intense effects than d-amphetamine when equated in dosage.
3. For detailed information concerning the effects of immobilization stress on ulceration, see Sines (1959).

Abstract

MOYER, K. E. (Carnegie Tech.). Effect of ACTH on open field behavior, avoidance, startle, and food and water consumption. *J. genet. Psychol.*, in press.—86 naive albino male rats were divided into four experimental and two control groups. Experimental groups received 10 days of ACTH injections in the following doses: Group I, 0.125 USP/100 gm; Group II, 0.25 USP/100 gm; Group III, 0.5 USP/100 gm; Group IV, 1.0 USP/100 gm; Group V received control gelatin. Group VI was a normal control. Ss had food and water ad lib 23 hr. a day throughout the experiment and consumption measures were taken. On the fifth through the

ninth injection days Ss were tested for open field activity and defecation. On Day 10 the Ss startle response to shot and shock was tested. After the termination of injections, Ss were tested for acquisition and extinction of an avoidance response. Ss were also weighed before and after the injection series. Although clinical studies strongly indicate that differences among the groups might be found, analysis of variance of the various measures indicated that there were no significant differences among the groups on any of the dependent variables. (Prepublication copies are available upon request to the author.)