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INVOLUNTARY REST PAUSES IN TAPPING AS A FUNCTION OF DRIVE AND PERSONALITY

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Summary.—The hypothesis was tested that involuntary rest pauses occurring during massed practice on a tapping task would be more numerous for extraverted *Ss*; significant correlations in the predicted direction were obtained. It was also predicted that involuntary rests would be less numerous under conditions of high drive than under conditions of low drive; support for this hypothesis was suggested by the results of an analysis of covariance, but not at a statistically significant level. As anticipated, high-drive *Ss* produced a greater number of taps than did low-drive *Ss*.

Recent personality theory links the growth of reactive inhibition with extraverted personality patterns (Eysenck, 1957). According to Hull (1943) and Kimble (1949), I_R produces blocks or involuntary rest pauses during massed practice, and it would follow therefore that such involuntary rests should be more frequent for extraverts than for introverts, as well as appearing earlier in their practice. Direct measurement of such rests is difficult on the pursuit rotor, and other hypothetical consequences of the build-up of inhibition have been used, such as reminiscence (Eysenck, 1962b). Recently, efforts have been made to design tasks which would permit direct measurement of involuntary rests, and Spielman (1963) has shown on a tapping task that extraverted *Ss* produced almost 20 times as many such rests as did introverted *Ss*, and also produced them earlier. (Personality was measured on the M.P.I.; *Ss* were working-class people taken at random from a factory job. The 9 most introverted and the 9 most extraverted *Ss* of a total group of 90 were administered the tapping test.) The present paper reports an attempt to check this finding.

Kimble has also predicted that reminiscence scores would increase with increases in drive, high drive preventing the occurrence of many involuntary rests and Eysenck (1964) has shown that reminiscence is indeed a function of drive. The present experiment uses high-drive and low-drive groups to test directly the assumption that high-drive *Ss* would have fewer involuntary rests. The method used for manipulating drive has been explained in detail elsewhere (Eysenck, 1964). *Ss* were 78 industrial apprentices, half tested under conditions where they thought that their scores would be taken into consideration in determining their admission to a training course important for their future advance (high drive), half tested after admission (low drive). All *Ss* were male, ages varying between 16 and 18.

Ss were instructed to tap as fast as possible for 1 min. on a metal board with a metal stylus. Through a transistor switch and oscillator, the exact dura-

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tion of each tap, i.e., the length of time the stylus was in touch with the plate, was transferred to a magnetic tape running through a tape recorder. Gap duration, i.e., the length of time the stylus was *not* in touch with the plate, was similarly recorded. The tape was then fed into a sequential event timer and recorder, which causes events to be recorded to operate one or more of its eight high speed input relays, subsequent registration and transfer being effected by cold cathode trigger tubes. Clock pulses are also counted on three counter tubes, which can be reset to zero electronically when an event is recorded. Settings are read out via the store unit into the output unit, which operates a punch. Tape from the output unit can then be fed directly into electronic computers for detailed analysis.

Results.—(1) High-drive boys have shorter mean gap time ($t = 3.78$), but only insignificantly shorter mean tap time ($t = 1.39$) than low-drive boys. High drive thus produces a greater number of taps during practice.

(2) Extraversion, measured on the M.P.I. (Eysenck, 1962a) correlates positively with the number of involuntary rests, when these are defined as gaps more than 3 *SD*s longer than the mean for any particular *S*. The product-moment correlations were .24 and .23 for the high-drive and the low-drive groups, respectively. Separately these correlations fall short of statistical significance, but jointly they are significant ($p < .05$).

(3) Involuntary rests are insignificantly more numerous in the high-drive groups ($t = 1.20$); but, this cannot be taken as counter to prediction as the number of taps too is significantly higher in this group. An analysis of covariance shows that for equal number of taps the high-drive group has fewer involuntary rests, although the F of 3.64 falls just short of significance ($F = 3.98$ at $p < .05$).

We have concentrated more on gaps than on taps, following Spielman (1963), because gaps appear to give more relevant information. This may be due to the fact that the inevitable rebound of the metal stylus from the metal plate makes it inherently unlikely that involuntary rests could be taken during the tap; they are much more likely to be taken during the gap. It would require a voluntary act by *S* to force the stylus during a tap to remain in contact with the board, rather than to rebound. The data for taps show tendencies similar to those for gaps, but results are not significant.

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