

DECONDITIONING AND TIME-THERAPY

By

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IN view of the recent revival of interest in deconditioning, the treatment of a series of 35 cases of anxiety by this method may be of interest. This series has not been recorded previously although the treatment was carried out 20 years ago.

With great detail, Freeman and Kendrick (1960) have described the immediate cure of a case of cat phobia by conditioning, and Eysenck (1960) has reviewed the literature and dealt with the methods used. He refers to five types of conditioning therapy (*a*) Physical manipulation of the environment, e.g. removal of the offending substance; (*b*) Aversion therapy, i.e. the joining of the symptom to punishment and consequent avoidance of the symptom; (*c*) Positive conditioning; (*d*) Conditioned inhibition, i.e. practice of an activity setting up a fatigue-like state of inhibition, which ceases during rest periods; and (*e*) Reciprocal inhibition, i.e. the formation of a conditioned response antagonistic to the symptom.

The present paper deals with deconditioning by means of the last three methods. Examples will later be given of each.

The series of cases consisted of 49 serving soldiers, referred by medical officers on account of objective signs of excessive anxiety, either based on experiences during action in the British Expeditionary Force and its evacuation to this country in 1940 or during the dangers of air-raids. Of these, 6 showed no objective signs whilst in hospital and have been omitted from this investigation, whilst 8 underwent less than 5 stimuli, a figure arbitrarily selected as the minimum for study.

The deconditioning treatment consisted of undergoing the stimuli which gave rise to the anxiety, i.e. danger, in this case due to air-raids. The town in question, Plymouth, suffered from severe raids, the *Spectator* remarking of it on 2 May, 1941, that "whatever the reason, the result is a greater concentration of destruction than has fallen on any other city in England". By the end of the year 1941, 1,073 civilians had been killed and more than 50,000 houses had been damaged. On 2 nights in March, 1941, the estimated number of enemy planes engaged was 250, and in 5 nights of April of the same year, the figure was 750 (*Front Line*, H.M.S.O., 1942). Stoke Military Hospital, Devonport, to which the patients were admitted, was about 10 minutes walk from the Royal Naval Dockyard, an obvious enemy target. In consequence of these circumstances, an excellent opportunity existed to accustom the patients to danger.

METHODS

Records were kept of the dates and times of the air-raids, numbering 210, from 16 October, 1940 to 8 May, 1941. These raids took place frequently, there being 38 in October, 43 in November, 13 in December, 18 in January, 27 in February, 27 in March, 33 in April and 11 to 9 May.

During each raid, notes were made under the headings of bombs falling, heavy gunfire, gunfire, slight gunfire and no gunfire. These headings referred

to the sound in the wards and not to the actual occurrences in the surrounding town. That no exaggeration has occurred in these reports is seen by comparison with the official accounts of the dates of 7 heavy raids (*Front Line*, 1942) only 6 being recorded as heavy, one as slight. In deconditioning therapy, the appearances of the stimuli to the patient are important, not the actual occurrences.

The patients were admitted to a ground-floor ward of 8 beds. The walls were of thick stone with windows high up on one side only. As no air-raid shelters existed in the hospital grounds, the patients remained in this ward throughout the raids. As the patients' fear decreased they were transferred to a ward on the top, second, floor with windows on 3 sides. Whilst here, they were allowed, whenever they wanted, to descend to the ground floor ward during raids.

At the commencement of the raids, a few cases were noticed to show less fear progressively, as the number of raids through which they passed increased. From these casual observations, a plan was organized for constant records of the patients suffering from severe fear due to external danger, whether based on conscious or unconscious guilt. Records were made of the patients' objective signs by the psychiatrist and staff under the headings of severe fear, moderate fear, no fear or asleep. Although the sound of gunfire may have reached the unconscious in those asleep, the records relating to the patients who were asleep during raids have been omitted from this investigation. In order not to be inaccurate and to avoid being misled, subjective statements were ignored. In addition, the vast majority of persons felt fear during raids, although they showed no objective signs to any great extent.

Objective signs especially noted were tremor, weeping, standing in a corner, lying under the bed, placing the head under the pillow, running downstairs, lying on top of a cupboard (i.e. as in a cave) and general excitement. Additional signs reported by Brend (1941) are vomiting, hyperhidrosis and frequency of micturition. Sargant and Slater (1940) reported a Parkinsonian condition. Diarrhoea, so common in other causes of anxiety, e.g. examinations, was not a feature of the present series.

Brend (1941) drew attention to the cases who showed accentuation of the normal response to danger. The reaction is likely to be re-evoked when the stimulus is repeated in milder form or even when there is only a threat of it. In these cases, the symptoms are conditioned reflexes.

One patient of this series showed the excessive dependence upon the family described by Sutherland (1941). He was distressed that he was so far away from his home and relations. He wished to impress that he was "nervous" only when alone.

Men often lay under their beds during raids. In one instance, 3 men were on the floor during the whole of a severe raid. During the next night, an even heavier raid took place, but after about 1½ hours of lying on the floor, 2 of the patients rose and lay on the tops of their beds.

RESULTS OF TREATMENT

Of 35 patients who, on admission to hospital, showed objective evidence of fear during one or more raids and who passed through at least 5 raids, 16 showed decrease of their objective signs. In 19, no change was observed and in none was an increase present at the end of treatment.

Of the patients who improved, 3 underwent heavy gunfire after the beginning of their improvement without deteriorating.

Although hypnotics were administered, no analysis, conscious suggestion or hypno-therapy was used. As those asleep during raids were not included in the investigation, the use of hypnotics would have no material effect upon the results.

Table I shows the number of raids through which the patients passed without deterioration subsequent to the initial improvement.

TABLE I
Numbers of Raids in which Improvement was Maintained, with Relapses

Improvement After	No. of Cases	Raids with Maintained Improvement
2 raids	1	2
3 raids	1	20+ relapses in 9 raids
4 raids	3	2 0 0
5 raids	3	2 4+ relapses in 4 raids 8+ relapses in 1 raid
7 raids	2	3+ relapses in 1 raid 5
9 raids	1	4+ relapses in 2 raids
10 raids	1	2+ relapses in 1 raid
11 raids	1	2+ relapses in 4 raids
22 raids	1	19+ relapses in 1 raid
33 raids	1	8
61 raids	1	7+ relapses in 3 raids

Although only 5 cases showed no relapses, that the cases showed a change for the better is seen when the proportion of the occurrences of objective fear before improvement is compared with that after the initial improvement. Of 164 patient-raids before improvement took place, objective fear was seen in 65.2 per cent., but of 123 patient-raids following the initial improvement, it occurred in only 30.1 per cent.

Table II shows that improvement when only the greatest stimuli are considered is less than when all stimuli, or all degrees of gunfire, are considered. This difference is unlikely to be due to time-interval between the heavy raids as no relationship could be found between improvement and interval between raids in 622 intervals varying from 30 minutes to 16 days in length.

TABLE II
Improvement Rates to Different Stimuli

	Patients	Improved	No Change	Worse
Raid warnings*	36	16 (46%)	19	0
All gunfire	19	9 (47%)	7	3
Heavy gunfire	13	2 (15%)	9	2

* With or without gunfire.

Harrison (1941) reported that the most upsetting process was a long series of raids or very intermittent raids with long lulls between, so that conditioning does not take place. The findings in the present series do not support this. Over

14 days, 4 patients were observed in from 34 to 39 raids each. In each case, more raids were accompanied by fear during the first week than during the second so that the series of raids during the first week, from 21 to 24 did not upset the patients during the second week. The total reactions were, in the first week 50 fear and 41 no fear observations and, in the second week, 20 fear and 38 no fear recordings. Notes on 2 men undergoing raids with the 17-day interval showed that more fear reactions occurred before the 17-day interval than following it in both patients. The total figures before the interval were 16 fear and 2 no fear observations, and after the interval, 5 fear and 4 no fear records, showing that a long lull had not upset these 2 men.

The reason for the difference in the improvement rate between all degrees of gunfire and only heavy gunfire must be that the greater gunfire was too great a threat of danger for conditioning to take place as readily as with lesser degrees of noise.

Loss of response is exemplified by a patient who showed fear during 13 of 15 raids but only once during the subsequent 20 raids.

Conditioned inhibition is seen in a patient who showed fear in 19 of 21 raids in 7 consecutive days but showed no fear in 16 of 25 raids in the subsequent 14 days. This period of 14 days was a relative period of rest, the raids being only one half as frequent, and the inhibition dissipated, fear again re-appearing during the consecutive 5 days in 13 of 14 raids. Inhibition again occurred, no fear being observed in all of 7 raids during 7 days. In this case, 3 raids a day appeared to be necessary to produce fear. This case is a good example of the practice of an activity setting up a fatigue-like state of inhibition in spite of a continuation of a less frequently-repeated stimulus.

Reciprocal inhibition was demonstrated by a man who showed fear and went downstairs from the top floor in each of 8 raids. In the 9th raid, he showed fear but remained upstairs. In only 1 of the subsequent 10 raids was fear observed. In this case, the conditioned response antagonistic to the symptom was to remain upstairs, resulting in an increase of self-esteem.

The emergence of a conditioned reflex as noted by Brend is seen in the case of a man who underwent 17 raids and whose response to those without gunfire was nil in the first 4, but moderate in the next 2, following heavy and slight gunfire. Following the first heavy gunfire to which he responded with only moderate fear, he responded with severe fear to each of 2 raids with slight gunfire and one raid of heavy gunfire. The responses increased although the stimuli were constant in the instance of no gunfire, and the responses also increased although the stimuli decreased from heavy to slight gunfire.

The possibility of improvement being due to the passage of time must be considered. In one case, an amnesia occurred following the explosion of a bomb 8 yards distant. The officer had time in which to kneel down, but he was struck on the back by the blast, but not injured or concussed. For some 10 days he was unable to recall what he had been doing for a few seconds before the explosion, but by about the 14th day, the amnesic gap had been filled in without any conscious effort on his part. During the period of recovery of memory, he was not undergoing raids, but was in a raid-free area so that deconditioning could have had no part in the recovery.

Another case also demonstrated improvement without treatment during the passage of time but of a greater length, approximately 12 months in duration. A pilot, after being shot down when flying in the First World War, suffered from nightmares of falling for about one year only, although he continued to fly for 2 years after the end of the War. He began flying again during the Second

World War, including operational flights, but no nightmares recurred, although he broke down with headaches and diarrhoea without nightmares during severe stress at Flying Control Duties in a raid-free area (Gibraltar).

These cases show that symptoms due to fear can cease without treatment during the passage of time. The length of time may be short or great. Consequently, it follows that any treatment may be unnecessary for the resolution of the symptoms. Of the cases of this series, all were sent by medical officers to the psychiatrist on account of marked and persistent fear. Yet, by the time they had been admitted to hospital 6 of the 49 (or 12 per cent.), showed no signs of fear. These had presumably improved through the passage of time in spite of being admitted into a dangerous situation.

The fact that no patients became worse, although they continued to undergo dangerous stimuli, suggests that the signs of fear are not cumulative. If improvement were due to the passage of time only, then as each new equal stimulus occurred the response should be less, as each stimulus would be removed further from the onset of the fear. As this was not the case in the patients who failed to improve and in few who did improve, it appears that the improvement was not due, at any rate solely, to the passage of time. In fact in 3 of those who improved, the intensity of response to similar stimuli remained the same over as many as 7, 10 and 14 days respectively. Some form of deconditioning had taken place.

SUMMARY

This treatment demonstrates that the signs of fear were reduced and abolished during repetitions of the fear-producing stimulus. This, of course, is a well-known principle of daily life, such as in learning to drive.

No relationship between interval between stimuli and the response to them was found.

Of 35 cases undergoing repeated stimuli, 16 improved in that their fear was reduced. No patient became worse. No psychotherapy, either analysis or hypno-therapy was used, but hypnotics were given at times. As patients when asleep have been omitted from this investigation, the administration of these preparations would not materially affect the results.

Cases are described of improvement over short and long periods of time, without treatment.

Consideration is given to the causes of improvement, the conclusion being reached that deconditioning to danger can produce improvement in the physical signs of fear.

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