

Eating Style and Body Weight

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Unobtrusive observations were made of eating behaviour of a large number of subjects of varying weights in a wide variety of eating establishments. Subjects who were relatively overweight took more bites per minute than those who were of normal weight or less. Males also ate faster than females. However, subjects who ate alone took less time over their meals than those who ate with others, irrespective of their weight or sex.

Until the mid-70's it was assumed, as a background to the behavioural control of obesity, that overweight persons eat at faster rates, with more bites and fewer pauses than persons of normal weight (Stuart & Davis, 1972). In the last five years there have been a handful of studies which have been addressed to the testing of this assumption.

Gaul, Craighead and Mahoney (1975) observed 100, 18 to 35 year-old obese and nonobese subjects in a hamburger and french fries establishment during the first five minutes of their meals. The obese took more bites, fewer chews per bite, and spent less time chewing than nonobese. This result was partially confirmed by Marston, London, Cohen and Cooper (1977) who observed 40 obese or thin subjects during the course of an evening meal in a restaurant. In comparison with thin persons, the obese took larger bites at a faster rate, made fewer responses extraneous to eating, left less of their food and spent more time at table after their meal.

Differences in eating patterns between obese and nonobese have also been shown for younger subjects. Epstein, Parker, McCoy and McGee (1976) studied the eating behaviour of three obese and three nonobese seven year-olds at lunch times over six months. They found differences in bite rate, sip rate, and other activities and developed an effective procedure to decrease bite rate in order to reduce amount consumed. Drabman, Cordua, Hammer, Jarvic and Horton (1979) studied 30 overweight and 30 normal weight pre-school children during their meal times using a time-sampling method. They found that the overweight children ate at a faster rate with fewer chews per bite than the children of normal weight.

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It would seem from these studies that the assumptions made about differences in eating styles between the obese and nonobese are borne out by empirical observation. However, each investigation has been centred on an observational procedure different from the others and has been restricted either as to time, place, or age of subject. The aim of the present study was to generalise these findings by comparing the time taken for meals and the consummatory habits of a wide range of persons of various weights and ages at all times of day in a variety of eating establishments.

Method

Subjects

Two hundred and ninety six people were observed in eating establishments ranging from snack meal student cafeterias to expensive, well-appointed restaurants. Working to criteria which had been established in a pilot study, observers made judgements as to a subject's age and sex, and ranked the subject's weight on a five-point scale ranging from very thin (1) to very fat (5). A record was also kept as to whether the subject was alone or in a group. Estimates of ages ranged from 6 to 70 years.

Procedure

Eating behaviours of each subject were unobtrusively observed and recorded by one of two observers, both of whom had previously assisted in setting up of the categories of behaviour to be observed and practised until their observations were consistent with each other. For each subject a record was kept of the total time taken over the meal, and the number of bites consumed per minute. Additional measures were food purchases, whether or not any food was left over, and the frequency with which the cutlery was put down during the meal. Since these measures occurred with low or variable frequencies they were not considered further.

Results

Table 1 presents the means for the four dependent measures collapsed over body type categories 1 and 2, 3, and 4 and 5 (owing to unacceptably small frequencies of subjects in some body-type categories). Table 1 also

Table 1
Means for all Independent Measures

Sex Social Condition Body Type	Male						Female					
	Alone			Group			Alone			Group		
	1&2	3	4&5	1&2	3	4&5	1&2	3	4&5	1&2	3	4&5
Total time (min.)	8.00	9.82	7.75	10.30	9.84	9.77	8.10	7.33	8.22	10.50	9.17	10.56
Mean bites per min.	4.00	3.44	4.33	3.56	3.44	4.05	3.21	3.17	4.02	3.24	3.15	3.66
Bites in first min.	3.83	3.35	4.60	3.40	3.45	4.30	2.73	2.73	4.44	3.28	3.15	3.96
Bites in final min.	3.50	3.06	3.25	3.10	2.66	3.33	2.80	2.80	3.11	3.04	2.43	2.81
Number of subjects	6	17	8	20	43	44	9	15	9	26	47	52

shows the number of subjects in each category. Each of these measures was submitted to a $2 \times 2 \times 3$ analysis of variance (sex \times social condition \times body type). Since no interactions were significant, all results are discussed solely in terms of main effects.

The total time taken for the meal was independent of body type and sex, but varied with social condition: meals taken alone were consumed in significantly shorter times (8.35 min) than those taken in the company of others (9.97 min), $F(1, 285) = 9.48, p < .001$.

With average bites of food per minute as the dependent measure, the main effects of both body type and sex were significant. Bites per minute averaged 3.41, 3.29 and 3.89 for body types 1 and 2, 3, and 4 and 5 respectively, $F(2, 284) = 7.80, p < .001$. The means for body types 1 and 2 versus 3 did not differ significantly. Thus subjects tending to overweight took more bites per minute than did normal weight or thin subjects. Males took significantly more bites per minute (3.73) than did females (3.39), $F(1, 284) = 5.72, p < .025$.

Separate analyses of the number of bites taken in the first and last minute of eating endorsed the results for average bites per minute. In the first minute, overweight subjects took more bites than those of normal weight, who in turn took more than those tending to underweight, (means of 4.18, 3.24 and 2.40 respectively), $F(2, 284) = 9.54, p < .001$. t tests showed differences between each of these means. In the final minute of eating males took significantly more bites than females (means 3.05 and 2.70), $F(1, 284) = 4.05, p < .05$.

Discussion

The present results have both reinforced and extended those from previous investigations of the eating styles of persons of different weights. They were based on the unobtrusive observations of a large number of subjects under varying social circumstances in a wide range of eating establishments.

In general, the present results indicate that overweight individuals are more rapid eaters

than those of normal weight or under, particularly at the beginning of the meal (Table 1). Males also eat faster than females. However, the total time taken to eat a meal is dependent only on whether the person eats alone or in the company of others, irrespective of body weight. Since overweight subjects ate faster than others, they therefore may take more food, if bite size remains constant.

As Gaul et al. (1975) have already observed, results such as this have important therapeutic implications. Stuart and Davis (1972) recommend that in order to reduce weight, individuals should increase the number of bites they take, an increase in bite rate if total eating time is to remain constant. But it is clear that overweight individuals already have a higher bite rate than those of normal weight and under. So, to cut down intake it would be necessary to decrease bite rate. The data suggest that eating with others rather than alone may provide a means by which bite rate can be reduced.

It would seem appropriate that the behavioural control of eating should depend primarily on amount of food consumed. However, given that there is a clear difference in eating style between the overweight and others, then the manipulation of this could have at least an important supportive role in therapy. This is particularly so, if attention is also paid to the social conditions in which eating occurs.

References

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