



Influences on Meat Avoidance Among British Students

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Male and female undergraduates (18–23 years old; 68% in their first year; $N=158$) who had just chosen a vegetarian dish in a campus dining hall or restaurant reported a diversity of meat avoidance habits before arrival at University a few weeks previously. More women than men had avoided meat and other flesh foods, with the exception of fish. Consistently with the distinction between “red” and “white” meats, chicken and turkey were the least often avoided flesh foods among men and women. The only clear gradation from flesh-eating to vegetarianism was eating poultry and either beef/lamb or pork, eating only poultry and eating neither; fish was not on this Guttman scale, contrary to previous assumptions.

Reasons for avoiding meat and perceived influences on preferences for food in their chosen vegetarian dish were elicited by open-ended interviews in 41 women from the meat-avoidance survey. Rationales spontaneously offered were as diverse as reported in previous studies, but always included at least two of the following: ethics of raising/killing animals, concern for health, sensory factors, disgust and influence of friends. In contrast, choices among described variants of the familiar dish were largely controlled by its sensory and nutritional features, presumably because other attributes had been factored out.

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INTRODUCTION

Vegetarianism and meat avoidance have been reported to be prevalent among young people, especially women (Social Surveys, 1995; Griffin, 1992; Erlichman, 1991; Draper & Wheeler, 1990; The Realeat Survey Office, 1990; Freeland-Graves, Greninger & Young, 1986; Twigg, 1983; Sims, 1978). Twigg (1983) reported that “vegetarianism has had links with feminism from at least the 1880s”. Additionally, Twigg cited the *Vegetarian Messenger* (July 1850, appendix piii) and pointed out the popular attributed masculine characteristics of red meat, such as strength, power and stimulating passions. Mennell, Murcott and van Otterloo (1992) reviewed evidence that white meat is supposed to be more appropriate for eating by women, sick people and children. Beardsworth & Keil (1992, 1991a & b), Draper and Wheeler (1990) and Twigg (1983) claimed that, in the process of becoming a vegetarian, “red meat” (beef, lamb) usually is the first type of animal-derived food to be excluded from the diet, followed by “white meat” (e.g. poultry) and in a final stage by fish.

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Possibly more important than gender in giving up "red meat" first is the ethical meaning of the visible presence of blood, associating the food with the death of a fellow-animal (Elias, 1978).

The expectations that flesh-avoidance would follow a pattern of dropping red meat, then white meat and finally fish, were tested in a survey of undergraduates who had just selected the vegetarian dish on offer in their refectory. An additional purpose of this survey was to identify potential interviewees for analysis of influences on individuals' particular pieces of meat-avoidance behaviour. Reasons for choosing a vegetarian dish and preferences for food in the chosen dish that were reported at the first post-survey interview are also presented, for comparison with previous studies.

METHOD

Survey

A meat-avoidance questionnaire was administered to undergraduates (18–23 years old; 68% in their first year) who chose a vegetarian dish in a Hall of Residence dining hall or restaurants at the University of Birmingham in October 1993. Approximately 240 questionnaires were returned but only 158 (33 men and 125 women) were usable as the others failed to include an appropriate identification as to their age or gender.

Frequencies of use of different meats before coming to University were reported. The reported patterns of flesh avoidance were fitted to a Guttman gradation (Dawes, 1972) to test the cross-sectional data for evidence of a progression of individuals over time towards a vegetarian diet.

Interviews

Forty-one female students (33 from the meat-avoidance survey and eight other volunteers) were open-endedly interviewed about avoidance of flesh-foods in general and about the reasons for their choice of the dish they had just selected when recruited. Women were selected for the interview instead of men as they were more representative of the meat avoidance process than men and, moreover, there were more females than males who completed the questionnaire. Also, it has been observed in the literature that vegetarianism and/or meat avoidance has a greater incidence among young females. The interviewees' choice of dish was dependent on the food available at the moment, which varied from place to place. Therefore, the most frequently chosen dishes were vegetarian chilli, Italian pasta, vegetable moussaka and sandwiches. For comparisons of the reasons offered for choice of foods, the interviewees were divided into two groups on the basis of their reported behaviour, partial meat avoiders who avoided at least one type of flesh food including fish, and vegetarians who avoided any kind of flesh food but who still ate animal products (eggs, milk and milk products) from animals not killed for food.

RESULTS

Food-choice Patterns Before University

More than half of the women reported consuming vegetarian food before university, which was significantly different from an even distribution among the

TABLE 1
Number and percentage of respondents reporting food-choice patterns before university

Patterns	Women (125)		Men (33)		Total (158)	
	<i>N</i>	%	<i>N</i>	%	<i>N</i>	%
Flesh eaters	22	18	8	24	30	19
Partial meat/fish avoiders	29	23	12	36	41	26
Eaters of fish only	19	15	3	9	22	14
Vegetarians	55	44	10	30	65	41

TABLE 2
Percentage (number) of respondents reporting the eating or not eating of vegetarian dishes at university and previously at home, (N = 158)

	Women (<i>N</i> = 125)				Men (<i>N</i> = 33)			
	Vegetarian at university		Vegetarian at university		Vegetarian at university		Vegetarian at university	
	Yes	No	Yes	No	Yes	No	Yes	No
Vegetarian at home	Yes	66 (83)	6 (8)		Yes	42 (14)	33 (11)	
	No	15 (19)	12 (15)		No	6 (2)	18 (6)	

vegetarian and three flesh-eating categories, $\chi^2(3) = 25.8, p < 0.0005$ (Table 1). However, fewer men reported vegetarian eating than partial flesh-eating before university (Table 1), although the number of men sampled was insufficient to provide statistical support for a gender difference.

There was however a significant gender difference within each category of food choice, Flesh eaters $\chi^2(1) = 6.5, p = 0.011$; Partial meat/fish avoiders $\chi^2(1) = 7.0, p = 0.008$; Eaters of fish only $\chi^2(1) = 11.6, p = 0.001$ and Vegetarians $\chi^2(1) = 31.2, p < 0.0005$. It should be noted that a substantial minority of these choosers of a vegetarian dish reported eating flesh food before university.

Vegetarian Choices Before and at University

The proportion of women who professed to make vegetarian choices at university was significantly greater than the proportion reporting vegetarianism at home, $\chi^2(1) = 20.6, p < 0.0005$ (Table 2). This is consistent with the continued progression towards vegetarianism in young female adults. Although the number of men sampled was too small to show a significant change from home to university, the men differed from the women in reporting vegetarian choices at university in fewer numbers than reported at home, overall $\chi^2(3) = 23.2, p < 0.0005$.

TABLE 3
Percentage (number) of fish consumers among pre-university eaters (N=52) and avoiders (N=106) of beef or lamb and among eaters (N=65) and avoiders (N=93) of chicken or turkey

	Women (N=125)				Men (N=33)				
	Beef and/or lamb				Beef and/or lamb				
		Yes	No		Yes	No		Yes	No
Fish	Yes	24 (30)	23 (29)	Yes	33 (11)	18 (6)			
	No	6 (8)	46 (58)	No	9 (3)	39 (13)			
	Chicken and/or turkey				Chicken and/or turkey				
		Yes	No		Yes	No		Yes	No
	Fish	Yes	32 (40)	15 (19)	Yes	36 (12)	15 (5)		
No		8 (10)	45 (56)	No	9 (3)	39 (13)			

Fish Consumption Before University

Avoiders of fish were more frequent among avoiders of red meat or of white meat than among eaters of the same meats (Table 3), $\chi^2(1)=43.9$, $p<0.0005$ and $\chi^2(1)=38.2$, $p<0.0005$, respectively, collapsed across sexes (which did not differ significantly). However, similar proportions of female eaters and avoiders of beef and/or lamb ate fish (Table 3, top left). Among men, on the other hand, the proportion of fish eaters among eaters of beef and/or lamb was double that among beef and/or lamb avoiders (Table 3, top right), but in this small sample that difference was not significant, $\chi^2(1)=1.0$, $p>0.3$. The proportion of fish eaters among poultry eaters for both sexes was also double that among poultry avoiders (Table 3, bottom), but again the difference was not significant, $\chi^2(1)=0.05$, $p>0.8$.

Gradation from Carnivore to Herbivore

Women and men reported choices before university that lay close to a Guttman gradation from eating both "red" meats (beef and/or lamb) and "white" meats (chicken and/or turkey), through avoiding those "red" meats but still eating fowl, to avoiding both these categories of meat (Table 4, top), overall $\chi^2(3)=90.8$, women $\chi^2(1)=74.9$, men $\chi^2(1)=15.9$, all p values <0.0005 . However, some male eaters of beef and/or lamb avoided poultry, contrary to the hypothesised shift from meat-eating to vegetarianism by first avoiding "red" meats.

Similar results were obtained for pork (Table 4, bottom): women's choices were exactly on a Guttman gradation from eating pork and chicken and/or turkey, through avoiding pork but not fowl, to avoiding both these categories, whereas some male eaters of pork avoided poultry, overall $\chi^2(3)=75.3$, $p<0.0005$, women $\chi^2(1)=64.5$, $p<0.0005$, men $\chi^2(1)=10.8$, $p<0.001$.

TABLE 4
Percentage (number) of respondents' reported patterns of choice of red meats (upper panels) or pork (lower panels) and white meats before university (N=158)

	Women (N=125)				Men (N=33)				
	Beef and/or lamb				Beef and/or lamb				
		Yes	No		Yes	No		Yes	No
Poultry	Yes	30 (37)	10 (13)		Yes	36 (12)	9 (3)		
	No	1 (1)	59 (74)		No	6 (2)	48 (16)		
Pork	Pork				Pork				
		Yes	No		Yes	No		Yes	No
	Yes	26 (32)	14 (18)		Yes	33 (11)	12 (4)		
	No	0 (0)	60 (75)		No	9 (3)	45 (15)		

TABLE 5
Percentage frequencies of respondents interviewed on mentioning their first and other reasons for avoiding flesh foods (N=41)

Reason	Partial meat avoiders (N=28)		Vegetarians (N=13)	
	First	Others	First	Others
Ethical	32	18	54	38
Dislike	11	25	15	46
Disgust	18	29	8	38
Health	14	32	0	0
Social influences	11	7	8	8
Other reasons	14	21	15	8

Reasons for Avoiding Flesh Foods

All of the 41 interviewees gave at least one primary reason for avoiding flesh foods. Most gave at least one other reason. Ethical principles questioning the killing or even the raising of animals, dislike of meat and disgust with "bloody" and/or "fatty" raw meat and also influences of others were commonly mentioned by partial meat avoiders and by vegetarians.

Ethical principles and dislike of meat were mentioned first slightly more often by vegetarians than by partial meat avoiders (Table 5), although this difference was not statistically supported, $\chi^2(5)=3.8$, $p>0.5$. Partial meat avoiders may have given a more diverse range of first reasons including ethical, disgust at meat, and health, as well as dislike of meat and social influences; however, this difference was not statistically supported either, $\chi^2(5)=5.4$, $p>0.3$. On the other hand, most vegetarians

TABLE 6
Frequencies of respondents interviewed who mentioned good and bad aspects of the dish they had just chosen (N=33)

	Partial meat avoiders (N=23)		Vegetarians (N=10)	
	N	%	N	%
<i>Good aspects</i>				
Sensory	14	61	8	80
Health	3	13	3	30
Vegetarian	3	13	1	10
Economic	1	4	1	10
<i>Bad aspects</i>				
Sensory	19	83	6	60
Lack of choice	5	22	3	30
Other	2	8	3	30

Note: More than one aspect was mentioned by some respondents and so percentages do not add up to 100.

mentioned ethical principles as their principal motive for avoiding flesh foods, followed by “dislike” of meat, $\chi^2(5)=14.2$, $p=0.015$. Other reasons for avoiding these foods (Table 5) included fashion, curiosity, rebelliousness, convenience, economy, religion, ecological concerns and liking animals.

Evaluation of Vegetarian Dish Chosen

When the partial meat avoiders and vegetarians were interviewed later and asked about the good and not-so-good aspects of the dish that they had just chosen in the eatery when given the questionnaire, sensory aspects were mentioned most often (Table 6). “Health” or “vegetarian” aspects were also mentioned as good aspects of the chosen dish by both groups. Some in both groups complained about lack of choice of dishes (generally, only one hot vegetarian dish was provided on a given day). The bad aspects of the dish not specified in Table 6 included monotony, expense, preparation, unhealthiness and, for a respondent who saw no acceptable choice but fish, that the dish still included an animal source. Since not all these categories are mutually exclusive, the above statements cannot be statistically evaluated.

DISCUSSION

The flesh foods reported to be most commonly abstained from by choosers of a vegetarian dish were beef and/or lamb. This is consistent with the claims that red meat is avoided earlier than white meat when moving into vegetarianism (Beardsworth & Keil, 1992, 1991a, b; Draper & Wheeler, 1990; Twigg, 1983). Consumption of pork is not usually mentioned in published studies concerning vegetarianism; in this sample, pork appeared to function as an alternative to beef and/or lamb. This finding is in accordance with a recent report (Meat and Livestock Commission, 1988–1992)

that in the U.K. there has been an increase in consumption of pork (and poultry) to the detriment of beef and lamb. Possibly pork is regarded as sufficiently similar in origin and/or appearance to beef and/or lamb for regular eaters of mammalian flesh. Alternatively, some of the red-meat avoiders from this sample might have given preference to pork's less "bloody" colour than beef. In this sample, women appeared to eat more in accord with the gradation towards vegetarianism, since there were some male eaters of red meat or pork who avoided poultry. These men might have given preference to the commonly assumed masculine characteristics of red meat (Twigg, 1983). Beef is also more satisfying than chicken (French, Wainwright & Booth, 1992) and so might be considered more appropriate to a hearty male appetite.

In this sample, fish was chosen by similar minorities among eaters and avoiders of beef and/or lamb and of poultry. Therefore, the evidence is that fish is not always the last flesh food consumed just before moving to full vegetarianism. On the contrary, it appeared that a minority like fish and did not regard it as being of objectionable animal origin. Possibly, this acceptance of piscine flesh is related to the idea that white fish is "pure". Toussaint-Samat (1992), for example, argued that this concept of pureness permitted fish to be consumed in Lent, unlike mammalian meat and some other products, such as fat and eggs, which were thought to stimulate passions which the Church regarded as inappropriate. The observation that only a minority in each group eat fish reflects the general low consumption of fish in the U.K., especially among young people (The National Food Survey Committee, 1992; 1994; LeGrand, 1992).

Eating more vegetarian foods after moving from home to university, mainly among women, could possibly be a result of no longer being under the traditional control of food exerted by parents (Beardsworth & Keil, 1991b). Moreover, students away from home might have to prepare meals more and so have more direct contact with food, in this case from animal origin. Cooking carried out by others would commonly prevent the sight of raw pieces of dead animals. The new proximity to food would provide the smell and touch, as well as the sight of raw meat with blood, fat and other reminders of an animal's body, such as skin, bones and eyes. Such experiences are likely to arouse feelings of repugnance at eating an animal that has been farmed and killed to feed them (Elias, 1978). Such possibilities are supported by the "disgust" and "dislike" towards meat expressed by some of the students in this sample. Indeed, "dislike" of meat may not mean unpalatability; "dislike" may be given as a reason to avoid meat instead of "disgust" in order not to seem strange in a society where the slaughtering is out of sight of most people and the portions of meat available in the shops show few reminders of the living animal (Elias, 1978).

The fully vegetarian students interviewed were concerned mainly with ethical issues widely discussed in the media, although "dislike" of meat was also given as a major reason for avoiding it. Possibly such rationales help to sustain the strict behaviour. On the other hand, partial meat avoiders need to justify their equivocal position on the issues of meat-eating and vegetarianism. Indeed, they might be regarded as hypocrites by their peers, whether flesh eaters or vegetarians. This may be why they gave signs of a more diverse range of reasons than vegetarians did.

Selection among dishes depends on, among other factors, the presentation of the foods: the preparation of the dish and the extent to which the food has been cooked may or may not appeal to the consumer. The vegetarian dish chosen by the majority of the partial meat avoiders and vegetarians in this sample was subsequently

characterised as unattractive in taste. The respondents also complained about a lack of choice (there often being only one hot vegetarian dish on offer). Thus, students eating in campus facilities may have to give lower priority to palatability than to ethics, health and other motives for their choices. In other words, despite some superficial disparities, these students' account of their behaviour in the written questionnaire is consistent with their profession of principle in the oral interview.

The findings from this report resulted from the analysis of aggregated data. Individualized analysis of the reasons for choice or avoidance on repeated occasions is required to ascertain similarities and diversity in motivational structure among individuals and their changes over time (Booth & Armstrong, 1993; Freeman, Richardson, Kendal-Reed & Booth, 1993) and such work is being undertaken for meat avoidance in a subsample from the present report. Nevertheless, the present analyses of grouped, cross-sectional data are sufficient to challenge the assumption that fish is the final bastion of flesh-avoidance and to raise questions about the cognitive processes by which rational, emotional and sensory factors interact as individuals change their food choices from animal to plant sources.

REFERENCES

- Beardsworth, A. & Keil, T. (1992). The vegetarian option: varieties, conversions, motives and careers. *Sociological Review*, 40, 253–293.
- Beardsworth, A. & Keil, T. (1991a). Health-related beliefs and dietary practices among vegetarians and vegans: a qualitative study. *Health Education Journal*, 50, 38–42.
- Beardsworth, A. D. & Keil, E. T. (1991b). Vegetarianism, veganism and meat avoidance: recent trends and findings. *British Food Journal*, 93, 19–24.
- Booth, D. A. & Armstrong, M. (1993). Cognitive anthropology of snacking habits. *Appetite*, 20, 146. (From *First international multidisciplinary Conference on Food Choice Abstracts*, 1993/1992).
- Dawes, R. M. (1972). Interlocking techniques. In Katz, D. (Ed.), *Fundamentals of attitude measurement*. (Pp. 45–59. New York: John Wiley & Sons.
- Draper, A. & Wheeler, E. (1990). The values and attitudes of vegetarians in greater London. *Report for the Ministry of Agriculture, Fisheries and Food* (supplied by authors).
- Elias, N. (1978). *The civilizing process—the history of manners* (E. Jephcott, Trans.) Oxford: Basil Blackwell. (Original work published 1939).
- Erlichman, J. (1991). Vegetarians face dairy dilemma. The meat factory. *The Guardian*, October 18, Pp. 5.
- Freeland-Graves, J. H., Greninger, S. A. & Young, R. K. (1986). A demographic and social profile of age and sex matched vegetarians and non-vegetarians. *Journal of the American Dietetic Association*, 7, 907–913.
- Freeman, R. P. J., Richardson, N. J., Kendal-Reed, M. S. & Booth, D. A. (1993). Bases of a cognitive technology for food quality. *British Food Journal*, 95, 37–44.
- French, J. A., Wainwright, C. J. & Booth, D. A. (1992). Effects of meat species and particle size on postprandial satiety [Abstract]. *Proceedings of the Nutrition Society*, 51, 57A.
- Griffin, K. (1992). Food and drink: the vegans bite back. Vegetarians and vegans have gone to war over a new world order of militancy and puritanism. *The Guardian*, March 21, Pp. t17.
- LeGrand, L. (1992). Fish products: a summary of trends in the U.K. *British Food Journal*, 94, 31–36.
- Meat and Livestock Commission. (1988–1992). *Meat demand trends*. Milton Keynes: Meat and Livestock Commission and Health Education Authority, cited by Richardson 1994.
- Mennell, S., Murcott, A., van Otterloo, A. H. (1992). *The sociology of food: eating, diet and culture*. London: SAGE Publications.
- Richardson, N. J. (1994). UK consumer perceptions of meat. *Proceedings of the Nutrition Society*, 53, 281–287.

- Sims, L. S. (1978). Food-related value-orientations, attitudes, and beliefs of vegetarians and non-vegetarians. *Ecology of Food and Nutrition*, 7, 23–35.
- Social Surveys [Gallup] Ltd. (1995). The 1995 Realeat Survey. *British Food Journal*, 97, 41–42.
- The National Food survey Committee. (1994). *National Food Survey 1993*. London: HMSO.
- The National Food Survey Committee. (1992). *Household food consumption and expenditure 1991*. London: HMSO.
- The Realeat Survey Office. (1990). *The Realeat survey 1984–1990: changing attitudes to meat consumption*. London: The Realeat Survey Office.
- Toussaint-Samat, M. (1992). *A history of food* (A. Bell, Trans.). Cambridge (U.S.A): Basil Blackwell. (Original work published 1987).
- Twigg, J. (1983). Vegetarianism and the meanings of meat. In Murcott, A. (Ed.), *The sociology of food and eating*. Pp. 18–30. Aldershot (England): Gower Publishing Company.

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