

Table 1. Demographic characteristics of those who completed 4 food diary days in the UK Nat

		2008/09 - 2018/19 Survey-weighted %	
Age group (years)			
	Children (<18)	7165	20.01
	Adults (≥18)	8167	79.99
Sex			
	Male	7072	49.3
	Female	8260	50.7
Equivalised income tertiles			
	Lowest tertile	4449	25.83
	Middle tertile	4457	28.16
	Highest tertile	4474	31.18
	Missing	1952	14.84

This table represents the analytical sample, n = 15,332.

ional Diet and Nutrition Survey rolling programme Years 1-11 (2008/09 to 2018/19).

Table 2. Change in meat consumption behaviours by meat subtype in the UK National Diet and Nutrition Survey

	2008/09	2018/19	P for trend†
Total meat (N = 14,703)			
Meat-eating days	3.27 (0.04)	3.03 (0.05)	<0.001
Meat-eating occasions	1.24 (0.02)	1.13 (0.03)	0.009
Portion size (g)	85.76 (1.73)	76.12 (1.56)	<0.001
Processed meat (N = 12,365)			
Meat-eating days	1.77 (0.05)	1.59 (0.05)	<0.001
Meat-eating occasions	0.54 (0.02)	0.5 (0.02)	0.004
Portion size (g)	63.21 (2.08)	52.64 (1.57)	<0.001
Red meat (N = 11,237)			
Meat-eating days	1.56 (0.04)	1.23 (0.04)	<0.001
Meat-eating occasions	0.44 (0.01)	0.33 (0.01)	<0.001
Portion size (g)	89.73 (3.08)	69.69 (2.6)	<0.001
White meat (N = 12,100)			
Meat-eating days	1.42 (0.04)	1.57 (0.05)	<0.001
Meat-eating occasions	0.4 (0.01)	0.45 (0.02)	<0.001
Portion size (g)	84.65 (2.52)	79.74 (2.41)	0.18
No meat (N = 629)			
Meat-eating days	0.73 (0.04)	0.97 (0.05)	<0.001

Data are from the National Diet and Nutrition Survey (n = 15,332). †P for trend is calculated from Poisson (days) and linear (daily occasions and portion size) regression models across all survey years: 1 (2008/09) – 11 (2018/19). All values are displayed mean (Standard Error). Meat-eating days ranged from 0 to 4 days. P<0.05 denotes statistical significance. Meat-eating days were defined as the number of days in which any quantity of meat (>0g) was consumed across the 4-day food diary period. A meat-eating occasion was an eating occasion that contained any quantity of meat (>0g). We determined the portion size of meat (in grams) in each meat-eating occasion, and calculated participants' mean meat portion size across all meat-eating occasions over the 4 food diary days. All survey years are presented in SI Table 3.

and Nutrition Survey rolling programme Years 1-11 (2008/09 to 2018/19).

SI Table 1. Demographic characteristics of those who completed 4 food diary days in the National Diet and Nutrition Survey

		2008/09		2009/10		2010/11
		N	Survey-weighted %	N	Survey-weighted %	N
Age group (years)						
	Children (<18)	809	20.39	819	20.28	734
	Adults (≥18)	837	79.61	850	79.72	831
Sex						
	Male	756	47.72	787	49.62	732
	Female	890	52.28	882	50.38	833
Equivalised income tertiles						
	Lowest tertile	512	26.88	462	23.42	460
	Middle tertile	454	27.33	508	28.79	475
	Highest tertile	471	29.62	516	33.80	428
	Missing	209	16.17	183	13.99	202

This table represents the analytical sample, n = 15,332.

and Nutrition Survey rolling programme Years 1-11, across each survey year

0/11	2011/12		2012/13		2013/14		2014
Survey-weighted %	N	Survey-weighted %	N	Survey-weighted %	N	Survey-weighted %	N
20.52	863	18.89	540	17.90	662	22.24	613
79.48	1085	81.11	657	82.10	687	77.76	740
51.04	882	48.68	538	49.56	604	48.35	652
48.96	1066	51.32	659	50.44	745	51.65	701
24.83	542	23.31	374	30.97	374	25.63	402
30.53	539	29.92	345	26.05	403	28.79	426
29.11	561	31.16	341	31.03	407	33.77	359
15.53	306	15.60	137	11.95	165	11.80	166

4/15	2015/16		2016/17		2017/18		2018
Survey-weighted %	N	Survey-weighted %	N	Survey-weighted %	N	Survey-weighted %	N
19.47	622	20.43	576	19.77	562	20.00	508
80.53	748	79.57	677	80.23	649	80.00	586
52.10	620	46.50	590	52.61	546	48.61	500
47.90	750	53.50	663	47.39	665	51.39	594
27.00	389	26.66	370	25.61	351	24.73	322
30.37	365	24.04	356	26.83	347	28.60	312
28.62	431	33.26	361	32.01	341	30.90	315
14.00	185	16.05	166	15.56	172	15.78	145

Survey-
weighted %

20.45
79.55

47.57
52.43

26.24
27.31
30.09
16.35

SI Table 2. Survey-weighted mean meat consumption (grams per capita per day) in the National Diet an

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Total meat	103.75	97.51	98.60	94.69	95.10	93.69
Processed meat	33.75	32.52	32.44	30.78	30.41	32.47
Red meat	37.41	31.46	31.82	30.78	32.06	28.64
White meat	32.59	33.53	34.35	33.13	32.63	32.59

This table represents the analytical sample, n = 15,332.

d Nutrition Survey, years 1-11 (2008/09-2018/19)

2014/15	2015/16	2016/17	2017/18	2018/19
100.04	93.37	93.72	88.12	86.22
30.16	26.51	25.58	25.74	26.91
30.22	28.10	29.60	25.80	23.57
39.66	38.76	38.54	36.57	35.74

SI Table 3. Intake by consumption behaviour in the National Diet and Nutrition Survey rolling pr

	2008/09	2009/10	2010/11	2011/12	2012/13
Total meat					
Meat-eating days	3.27 (0.04)	3.19 (0.04)	3.17 (0.04)	3.14 (0.04)	3.26 (0.04)
Meat-eating occasions	1.24 (0.02)	1.2 (0.03)	1.17 (0.02)	1.19 (0.02)	1.22 (0.02)
Portion size (g)	85.76 (1.73)	81.96 (1.46)	85.81 (1.53)	79.97 (1.34)	78.91 (1.34)
Processed meat					
Meat-eating days	1.77 (0.05)	1.76 (0.05)	1.65 (0.05)	1.72 (0.05)	1.75 (0.05)
Meat-eating occasions	0.54 (0.02)	0.54 (0.02)	0.52 (0.02)	0.52 (0.02)	0.54 (0.02)
Portion size (g)	63.21 (2.08)	60.71 (1.78)	63.72 (1.88)	61.17 (1.74)	58.74 (1.86)
Red meat					
Meat-eating days	1.56 (0.04)	1.46 (0.04)	1.35 (0.04)	1.43 (0.04)	1.51 (0.05)
Meat-eating occasions	0.44 (0.01)	0.4 (0.01)	0.37 (0.01)	0.4 (0.01)	0.42 (0.02)
Portion size (g)	89.73 (3.08)	77.2 (2.28)	86.06 (2.45)	79.15 (2.71)	76.63 (2.14)
White meat					
Meat-eating days	1.42 (0.04)	1.4 (0.05)	1.46 (0.05)	1.48 (0.04)	1.47 (0.05)
Meat-eating occasions	0.4 (0.01)	0.4 (0.02)	0.41 (0.01)	0.43 (0.01)	0.42 (0.01)
Portion size (g)	84.65 (2.52)	83.04 (2.46)	86.85 (2.45)	83.04 (2.05)	81.27 (2.13)
No meat					
Meat-eating days	0.73 (0.04)	0.81 (0.04)	0.83 (0.04)	0.86 (0.04)	0.74 (0.04)

Data are from the National Diet and Nutrition Survey (n = 15,332). †P for trend is calculated from Poisson (days) and li values are displayed mean (Standard Error). Meat-eating days ranged from 0 to 4 days. P<0.05 denotes statistical signifi across the 4-day food diary period. A meat-eating occasion was an eating occasion that contained any quantity of meat (mean meat portion size across all meat-eating occasions over the 4 food diary days.

programme, from 2008/09 to 2018/19

2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	P for trend†
3.16 (0.04)	3.19 (0.04)	3.19 (0.05)	3.09 (0.05)	3.08 (0.05)	3.03 (0.05)	<0.001
1.18 (0.02)	1.21 (0.02)	1.21 (0.02)	1.17 (0.03)	1.15 (0.02)	1.13 (0.03)	0.009
81.25 (1.55)	82.26 (1.55)	79.3 (1.46)	80.93 (1.52)	77.27 (1.48)	76.12 (1.56)	<0.001
1.75 (0.05)	1.73 (0.05)	1.63 (0.05)	1.59 (0.05)	1.62 (0.05)	1.59 (0.05)	<0.001
0.54 (0.02)	0.54 (0.02)	0.5 (0.02)	0.48 (0.02)	0.49 (0.02)	0.5 (0.02)	0.004
59.73 (1.78)	55.5 (1.54)	55.38 (1.75)	53.01 (1.61)	51.09 (1.42)	52.64 (1.57)	<0.001
1.4 (0.05)	1.37 (0.04)	1.39 (0.05)	1.34 (0.05)	1.29 (0.04)	1.23 (0.04)	<0.001
0.39 (0.01)	0.39 (0.01)	0.39 (0.01)	0.38 (0.01)	0.35 (0.01)	0.33 (0.01)	<0.001
74.98 (2.56)	78.73 (2.61)	73.58 (2.19)	78.29 (2.91)	73.51 (2.51)	69.69 (2.6)	<0.001
1.43 (0.05)	1.59 (0.05)	1.63 (0.05)	1.57 (0.05)	1.62 (0.05)	1.57 (0.05)	<0.001
0.4 (0.01)	0.46 (0.02)	0.48 (0.02)	0.46 (0.02)	0.46 (0.02)	0.45 (0.02)	<0.001
82.16 (2.58)	88.58 (2.79)	83 (1.94)	84.43 (2)	80.14 (2.24)	79.74 (2.41)	0.18
0.84 (0.04)	0.81 (0.04)	0.81 (0.05)	0.91 (0.05)	0.92 (0.05)	0.97 (0.05)	<0.001

near (daily occasions and portion size) regression models across all survey years: 1 (2008/09) – 11 (2018/19). All
 chance. Meat-eating days were defined as the number of days in which any quantity of meat (>0g) was consumed
 >0g). We determined the portion size of meat (in grams) in each meat-eating occasion, and calculated participants'

SI Table 4. Change in portion sizes of meat in the National Diet and Nutrition Survey rolling programme, from

	2008/09	2009/10	2010/11	2011/12	2012/13
Breakfast (6:00-11:00AM)					
Total meat	102.01 (6.06)	120.77 (10.78)	96.87 (5.38)	104.12 (5.8)	83.49 (5.61)
Processed meat	95.57 (5.79)	120.86 (10.9)	93.16 (5.58)	103.46 (6.23)	87.26 (6.26)
Red meat	54.24 (12.88)	50.47 (13.01)	57.04 (11.66)	28.88 (4.19)	29.21 (5.48)
White meat	90.05 (25.05)	43.34 (9.55)	67.72 (12.58)	55.65 (8.33)	43.39 (9.53)
Lunch (12:00-3:00PM)					
Total meat	137.62 (4.68)	131.77 (5.29)	132.79 (4.64)	125.21 (3.86)	129.04 (4.24)
Processed meat	81.77 (3.86)	84.86 (3.14)	85.53 (3.49)	73.86 (2.93)	80.1 (3.34)
Red meat	95.84 (5.87)	68.66 (4.21)	84.27 (6.38)	80.96 (5.49)	76.52 (4.77)
White meat	81.45 (4.47)	91.62 (7.87)	98.43 (6.12)	84.24 (4.41)	90.84 (4.96)
Dinner (4:00-11:00PM)					
Total meat	284.89 (6.7)	274.78 (7.76)	279.72 (7.78)	265.14 (6.82)	259.47 (6.58)
Processed meat	105.29 (5.04)	98.64 (4.68)	118.23 (5.89)	100.37 (4.17)	96.65 (4.49)
Red meat	160.11 (5.72)	147.78 (5.56)	154.29 (6.05)	140.44 (5.39)	143.42 (5.96)
White meat	146.25 (5.72)	153.96 (7.72)	149.09 (5.94)	149.55 (5.19)	136.03 (4.6)

Data are from the National Diet and Nutrition Survey (n = 15,332). †P for trend is calculated from Poisson (days) or linear (portion size

1 2008/09 to 2018/19, by standard mealtime (breakfast, lunch, dinner)

2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	P for trend†
99.13 (6.81)	87.89 (5.09)	87.51 (5.25)	93.69 (9.23)	91.23 (6.76)	94.29 (6.55)	0.008
97.84 (7.07)	89.03 (5.42)	86.34 (4.73)	88.15 (10.05)	88.02 (5.21)	90.09 (6.1)	0.007
43.69 (9.24)	20.27 (3.86)	28.16 (4.45)	53.16 (15.94)	34.12 (8.09)	41.71 (5.5)	0.12
62.82 (11.46)	42.91 (6.67)	57.07 (17.38)	61.49 (10.89)	62.69 (15.98)	64.94 (12.96)	0.75
135.15 (5.54)	144.49 (5.31)	131.1 (4.31)	132.93 (5.5)	127.88 (4.8)	117.94 (4.29)	0.13
84.59 (4.38)	79.27 (4.51)	75.37 (3.14)	74.51 (3.48)	71.25 (3.32)	68.9 (2.94)	<0.001
76.66 (5.31)	90.51 (5.73)	76.33 (4.57)	79.66 (6.11)	79.1 (5.18)	77.74 (5.85)	0.23
90.19 (6.27)	98.13 (5.48)	100.58 (4.91)	99.38 (7.91)	94.34 (6.05)	90.21 (4.96)	0.07
253.91 (7.11)	272.15 (7.86)	256.03 (7.31)	264.12 (7.26)	246.78 (6.64)	241.52 (7.34)	<0.001
99.95 (5.07)	97.27 (4.72)	90.48 (4.36)	82.71 (3.98)	83.35 (4.79)	93.32 (5.38)	<0.001
128.53 (5.41)	140.69 (6.12)	132.03 (5.89)	137.42 (6.55)	129.44 (5.48)	119.11 (5.54)	<0.001
146.74 (6.46)	166.69 (6.35)	162.19 (6.42)	155.85 (6.14)	148.12 (6.03)	148.28 (6.35)	0.30

and daily occasions) regression models across all survey years: 1 (2008/09) – 11 (2018/19). All values are displayed mean (SE).

SI Table 5a. Change in meat consumption behaviours in the National Diet and Nutrition Survey, from 2008/0

	Me					
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Total meat						
Meat-eating days	3.34 (0.05)	3.29 (0.06)	3.3 (0.06)	3.31 (0.05)	3.43 (0.06)	3.34 (0.06)
Meat-eating occasions	1.31 (0.03)	1.29 (0.04)	1.28 (0.03)	1.3 (0.03)	1.35 (0.03)	1.32 (0.04)
Portion size (g)	96.19 (2.94)	90.19 (2.17)	91.48 (2.29)	85.86 (2.02)	84.52 (2.15)	89.5 (2.45)
Processed meat						
Meat-eating days	1.89 (0.07)	1.86 (0.07)	1.83 (0.08)	1.92 (0.07)	1.97 (0.08)	1.98 (0.08)
Meat-eating occasions	0.59 (0.02)	0.59 (0.03)	0.6 (0.03)	0.59 (0.02)	0.62 (0.03)	0.64 (0.03)
Portion size (g)	74.34 (3.55)	67.29 (2.87)	68.64 (2.83)	68.03 (2.54)	64.35 (2.8)	68.07 (2.82)
Red meat						
Meat-eating days	1.61 (0.07)	1.51 (0.06)	1.47 (0.07)	1.5 (0.06)	1.71 (0.07)	1.53 (0.07)
Meat-eating occasions	0.47 (0.03)	0.43 (0.02)	0.41 (0.02)	0.42 (0.02)	0.49 (0.02)	0.43 (0.02)
Portion size (g)	101.59 (5.5)	87.04 (3.53)	92.23 (3.54)	83.51 (4.49)	80.76 (3.31)	79.99 (3.99)
White meat						
Meat-eating days	1.4 (0.06)	1.5 (0.07)	1.49 (0.07)	1.53 (0.06)	1.48 (0.08)	1.46 (0.07)
Meat-eating occasions	0.41 (0.02)	0.43 (0.03)	0.43 (0.02)	0.45 (0.02)	0.42 (0.02)	0.41 (0.02)
Portion size (g)	92.88 (4.25)	86.44 (3.92)	91.53 (3.99)	86.8 (2.91)	87.57 (3.16)	88.98 (4.48)

Data are from the National Diet and Nutrition Survey (n = 15,332). †P for trend is calculated from Poisson (days) or linear (portion size).

9 to 2018/19, by sex (male, female)

n	2014/15	2015/16	2016/17	2017/18	2018/19	P for trend†	2008/09	2009/10
	3.31 (0.06)	3.42 (0.05)	3.21 (0.08)	3.24 (0.06)	3.13 (0.08)	0.08	3.2 (0.06)	3.1 (0.06)
	1.31 (0.04)	1.35 (0.03)	1.27 (0.04)	1.23 (0.04)	1.25 (0.04)	0.31	1.17 (0.03)	1.11 (0.03)
	89.85 (2.37)	85.24 (2.22)	86.59 (2.24)	82.6 (2.32)	81.28 (2.09)	<0.001	75.88 (1.58)	73.52 (1.73)
	1.9 (0.08)	1.89 (0.08)	1.76 (0.08)	1.77 (0.08)	1.75 (0.08)	0.15	1.66 (0.06)	1.67 (0.07)
	0.62 (0.03)	0.58 (0.03)	0.55 (0.03)	0.54 (0.03)	0.57 (0.03)	0.20	0.5 (0.02)	0.49 (0.02)
	60.19 (2.25)	62.84 (2.64)	57.04 (2.41)	54.43 (2.16)	58.34 (2.34)	<0.001	52.57 (1.91)	53.81 (1.94)
	1.46 (0.06)	1.57 (0.07)	1.48 (0.07)	1.37 (0.06)	1.27 (0.07)	0.003	1.51 (0.05)	1.41 (0.06)
	0.42 (0.02)	0.44 (0.02)	0.42 (0.02)	0.38 (0.02)	0.35 (0.02)	0.003	0.41 (0.02)	0.38 (0.02)
	85.86 (4.16)	76.12 (3.28)	86.01 (4.07)	77.58 (3.89)	73.37 (4.12)	<0.001	78.57 (2.69)	67.22 (2.49)
	1.64 (0.07)	1.73 (0.08)	1.59 (0.07)	1.7 (0.07)	1.65 (0.08)	<0.001	1.44 (0.06)	1.3 (0.06)
	0.47 (0.02)	0.52 (0.03)	0.47 (0.02)	0.49 (0.02)	0.49 (0.03)	<0.001	0.4 (0.02)	0.36 (0.02)
	98.16 (4.55)	87.74 (2.85)	89.09 (3.01)	85.4 (3.55)	86.22 (3.57)	0.49	77.04 (2.54)	79.28 (2.82)

se and daily occasions) regression models across all survey years: 1 (2008/09) – 11 (2018/19). All values are displayed mean (SE). Meat-

2010/11	2011/12	2012/13	2013/14	Women	2015/16	2016/17
				2014/15		
3.03 (0.06)	2.98 (0.06)	3.09 (0.05)	2.98 (0.06)	3.06 (0.06)	2.99 (0.07)	2.95 (0.06)
1.05 (0.03)	1.09 (0.03)	1.09 (0.02)	1.06 (0.03)	1.11 (0.03)	1.08 (0.03)	1.05 (0.03)
79.84 (1.88)	74.19 (1.7)	73.34 (1.51)	73.25 (1.7)	73.96 (1.8)	73.9 (1.81)	74.66 (1.99)
1.46 (0.06)	1.53 (0.06)	1.53 (0.06)	1.53 (0.06)	1.54 (0.07)	1.4 (0.06)	1.4 (0.06)
0.43 (0.02)	0.44 (0.02)	0.45 (0.02)	0.45 (0.02)	0.46 (0.02)	0.42 (0.02)	0.41 (0.02)
58.32 (2.33)	53.91 (2.29)	52.51 (2.28)	50.8 (1.94)	49.91 (1.94)	47.7 (2.11)	48.45 (2.03)
1.22 (0.06)	1.36 (0.06)	1.31 (0.06)	1.28 (0.06)	1.28 (0.06)	1.24 (0.06)	1.19 (0.06)
0.33 (0.02)	0.38 (0.02)	0.36 (0.02)	0.35 (0.02)	0.36 (0.02)	0.34 (0.02)	0.33 (0.02)
79.24 (3.18)	74.61 (2.97)	72.06 (2.52)	69.89 (3.03)	70.48 (2.73)	71.01 (2.82)	68.8 (3.89)
1.44 (0.06)	1.42 (0.06)	1.46 (0.06)	1.4 (0.06)	1.53 (0.06)	1.55 (0.07)	1.54 (0.07)
0.4 (0.02)	0.4 (0.02)	0.42 (0.02)	0.39 (0.02)	0.44 (0.02)	0.45 (0.02)	0.44 (0.02)
82.12 (2.75)	79.36 (2.8)	75.33 (2.78)	75.55 (2.43)	77.93 (2.76)	78.57 (2.59)	79.09 (2.57)

eating days ranged from 0 to 4 days.

2017/18	2018/19	P for trend†	P interaction
2.93 (0.07)	2.93 (0.07)	<0.001	0.16
1.07 (0.03)	1.03 (0.03)	0.003	0.29
71.9 (1.71)	71.4 (2.23)	0.02	0.02
1.48 (0.06)	1.45 (0.07)	<0.001	0.13
0.44 (0.02)	0.43 (0.02)	0.002	0.39
47.78 (1.77)	46.98 (1.92)	<0.001	0.02
1.22 (0.06)	1.18 (0.06)	<0.001	0.19
0.33 (0.02)	0.32 (0.02)	<0.001	0.78
69.2 (3.04)	66.24 (3.21)	0.003	0.03
1.55 (0.06)	1.49 (0.06)	0.002	0.40
0.43 (0.02)	0.42 (0.02)	0.001	0.43
74.86 (2.58)	73.75 (3.18)	0.16	0.80

SI Table 5b. Change in meat consumption behaviours in the National Diet and Nutrition Survey, from 2008/09

	2008/09	2009/10	2010/11	2011/12	2012/13	Adults (2013/14)
Total meat						
Meat-eating days	3.26 (0.05)	3.17 (0.05)	3.12 (0.05)	3.11 (0.05)	3.25 (0.05)	3.12 (0.05)
Meat-eating occasions	1.23 (0.03)	1.18 (0.03)	1.14 (0.03)	1.18 (0.03)	1.21 (0.03)	1.16 (0.03)
Portion size (g)	92.35 (2.07)	87.54 (1.78)	92.19 (1.82)	85.38 (1.57)	83.48 (1.56)	87.54 (1.9)
Processed meat						
Meat-eating days	1.73 (0.05)	1.71 (0.06)	1.59 (0.06)	1.68 (0.05)	1.72 (0.06)	1.7 (0.06)
Meat-eating occasions	0.52 (0.02)	0.52 (0.02)	0.5 (0.02)	0.5 (0.02)	0.52 (0.02)	0.53 (0.02)
Portion size (g)	65.85 (2.54)	63.14 (2.19)	66.88 (2.31)	63.34 (2.08)	60.1 (2.2)	62.81 (2.17)
Red meat						
Meat-eating days	1.64 (0.05)	1.54 (0.05)	1.38 (0.05)	1.49 (0.05)	1.57 (0.06)	1.48 (0.06)
Meat-eating occasions	0.47 (0.02)	0.43 (0.02)	0.37 (0.01)	0.42 (0.02)	0.44 (0.02)	0.41 (0.02)
Portion size (g)	97.59 (3.65)	82.08 (2.71)	93.39 (2.94)	85.64 (3.14)	81.07 (2.47)	81.02 (3.08)
White meat						
Meat-eating days	1.39 (0.05)	1.36 (0.06)	1.43 (0.06)	1.42 (0.05)	1.45 (0.06)	1.35 (0.05)
Meat-eating occasions	0.4 (0.02)	0.39 (0.02)	0.4 (0.02)	0.41 (0.02)	0.41 (0.02)	0.38 (0.02)
Portion size (g)	90.72 (3.09)	89.44 (3.09)	93.76 (3.02)	89.37 (2.47)	86.42 (2.48)	89.19 (3.26)

Data are from the National Diet and Nutrition Survey (n = 15,332). †P for trend is calculated from Poisson (days) or linear (portion size).

9 to 2018/19, by age group (≥ 18 , adults; < 18 , children)

(≥ 18 y)							
2014/15	2015/16	2016/17	2017/18	2018/19	P for trend†	2008/09	2009/10
3.17 (0.05)	3.19 (0.05)	3.04 (0.06)	3.04 (0.06)	2.97 (0.06)	<0.001	3.32 (0.05)	3.28 (0.05)
1.21 (0.03)	1.2 (0.03)	1.14 (0.03)	1.13 (0.03)	1.1 (0.03)	0.009	1.28 (0.02)	1.25 (0.03)
88.12 (1.85)	85.03 (1.75)	87.2 (1.82)	82.59 (1.77)	81.28 (1.87)	<0.001	60.22 (1.32)	60.03 (1.24)
1.72 (0.06)	1.6 (0.06)	1.5 (0.06)	1.58 (0.06)	1.54 (0.06)	0.004	1.91 (0.06)	1.99 (0.06)
0.54 (0.02)	0.48 (0.02)	0.45 (0.02)	0.47 (0.02)	0.48 (0.02)	0.02	0.61 (0.02)	0.62 (0.02)
57.42 (1.85)	58.03 (2.13)	55.55 (2.02)	52.27 (1.7)	54.26 (1.89)	<0.001	53.13 (1.49)	51.8 (1.52)
1.42 (0.05)	1.44 (0.06)	1.36 (0.05)	1.32 (0.05)	1.23 (0.05)	<0.001	1.25 (0.05)	1.14 (0.05)
0.41 (0.02)	0.41 (0.02)	0.38 (0.02)	0.36 (0.02)	0.34 (0.02)	<0.001	0.34 (0.01)	0.31 (0.01)
84.2 (3.1)	79.08 (2.61)	85.95 (3.47)	80.55 (3.04)	74.74 (3.14)	<0.001	55.03 (2.53)	55 (2.4)
1.56 (0.06)	1.62 (0.06)	1.53 (0.06)	1.59 (0.06)	1.52 (0.06)	<0.001	1.54 (0.05)	1.55 (0.05)
0.45 (0.02)	0.48 (0.02)	0.45 (0.02)	0.45 (0.02)	0.44 (0.02)	<0.001	0.43 (0.02)	0.44 (0.02)
95.48 (3.42)	89.65 (2.38)	91.11 (2.41)	85.89 (2.73)	85.82 (2.96)	0.27	62.17 (2.16)	60.77 (1.76)

e and daily occasions) regression models across all survey years: 1 (2008/09) – 11 (2018/19). All values are displayed mean (SE). Meat-

Children (<18y)							
2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18
3.33 (0.04)	3.28 (0.05)	3.28 (0.05)	3.29 (0.05)	3.25 (0.05)	3.2 (0.06)	3.31 (0.05)	3.26 (0.06)
1.26 (0.03)	1.26 (0.03)	1.27 (0.03)	1.26 (0.03)	1.24 (0.03)	1.25 (0.03)	1.3 (0.03)	1.23 (0.03)
61.66 (1.3)	57.16 (1.52)	58.01 (1.34)	59.7 (1.47)	58.67 (1.47)	56.83 (1.41)	56.99 (1.34)	56.54 (1.31)
1.88 (0.06)	1.87 (0.06)	1.88 (0.07)	1.91 (0.06)	1.78 (0.06)	1.74 (0.07)	1.96 (0.07)	1.78 (0.07)
0.59 (0.02)	0.58 (0.02)	0.58 (0.02)	0.6 (0.02)	0.55 (0.02)	0.56 (0.03)	0.62 (0.02)	0.54 (0.02)
52.52 (1.95)	51.91 (1.91)	52.5 (1.95)	49.72 (1.96)	47.72 (1.61)	45.17 (1.66)	44.28 (1.34)	46.52 (1.78)
1.23 (0.05)	1.15 (0.05)	1.26 (0.05)	1.15 (0.05)	1.19 (0.06)	1.19 (0.05)	1.26 (0.05)	1.2 (0.05)
0.33 (0.02)	0.32 (0.01)	0.34 (0.02)	0.32 (0.01)	0.32 (0.02)	0.32 (0.02)	0.35 (0.02)	0.33 (0.02)
56.13 (2.34)	47.25 (2.06)	53.78 (2.31)	51.57 (2.21)	54.35 (2.54)	50.93 (2.06)	47.74 (2.38)	46.05 (2.22)
1.59 (0.06)	1.72 (0.06)	1.58 (0.06)	1.69 (0.05)	1.72 (0.06)	1.7 (0.06)	1.72 (0.05)	1.75 (0.06)
0.45 (0.02)	0.5 (0.02)	0.45 (0.02)	0.47 (0.02)	0.49 (0.02)	0.49 (0.02)	0.5 (0.02)	0.5 (0.02)
63.06 (1.96)	58.74 (2.05)	59.2 (2.23)	60.56 (1.93)	62.31 (2.26)	58.58 (1.87)	59.97 (2.15)	58.89 (2.03)

eating days ranged from 0 to 4 days.

2018/19	P for trend†	P interaction
3.26 (0.05)	0.17	0.07
1.25 (0.03)	0.53	0.13
56.93 (1.48)	0.002	0.08
1.79 (0.07)	0.02	0.65
0.56 (0.03)	0.02	0.80
46.79 (1.62)	<0.001	0.06
1.22 (0.06)	0.79	<0.001
0.33 (0.02)	0.80	<0.001
50.73 (2.98)	0.004	0.05
1.74 (0.06)	<0.001	0.66
0.51 (0.02)	<0.001	0.86
57.79 (2.11)	0.10	0.96

SI Table 5c. Change in meat consumption behaviours in the National Diet and Nutrition Survey, from 2008/09

	2008/09	2009/10	2010/11	2011/12	2012/13	1st tertile 2013/14
Total meat						
Meat-eating days	3.26 (0.08)	3.24 (0.08)	3.23 (0.07)	3.15 (0.08)	3.23 (0.07)	3.01 (0.1)
Meat-eating occasions	1.29 (0.05)	1.2 (0.04)	1.22 (0.04)	1.17 (0.05)	1.16 (0.04)	1.12 (0.05)
Portion size (g)	81.11 (3.43)	74.89 (2.41)	79.57 (2.95)	74.86 (2.35)	77.94 (2.52)	77.33 (2.89)
Processed meat						
Meat-eating days	1.79 (0.09)	1.81 (0.1)	1.65 (0.1)	1.79 (0.09)	1.59 (0.1)	1.67 (0.11)
Meat-eating occasions	0.56 (0.03)	0.55 (0.04)	0.52 (0.04)	0.54 (0.03)	0.47 (0.03)	0.51 (0.04)
Portion size (g)	65.7 (5.11)	61.68 (3.16)	64.42 (3.95)	57.34 (2.71)	62.6 (4.01)	59.54 (3.32)
Red meat						
Meat-eating days	1.58 (0.09)	1.39 (0.09)	1.38 (0.09)	1.27 (0.08)	1.53 (0.08)	1.27 (0.09)
Meat-eating occasions	0.45 (0.03)	0.38 (0.02)	0.38 (0.03)	0.34 (0.02)	0.43 (0.03)	0.35 (0.03)
Portion size (g)	75.8 (4.3)	63.87 (3.79)	75.81 (4.57)	71.83 (5.89)	70.46 (3.63)	73.05 (6.12)
White meat						
Meat-eating days	1.53 (0.08)	1.39 (0.1)	1.5 (0.09)	1.46 (0.09)	1.45 (0.09)	1.35 (0.09)
Meat-eating occasions	0.43 (0.02)	0.39 (0.03)	0.43 (0.03)	0.42 (0.03)	0.41 (0.03)	0.36 (0.02)
Portion size (g)	78.2 (4.23)	80.95 (3.96)	78.84 (4.4)	79.46 (3.41)	77.76 (3.41)	83.01 (6.79)

Data are from the National Diet and Nutrition Survey (n = 15,332). †P for trend is calculated from Poisson (days) or linear (portion size)

to 2018/19, by equivalised household income

: (lowest)						P for trend†		
	2014/15	2015/16	2016/17	2017/18	2018/19		2008/09	2009/10
	3.13 (0.09)	3.07 (0.09)	3.1 (0.11)	3.09 (0.1)	3.12 (0.09)	0.07	3.38 (0.07)	3.18 (0.08)
	1.19 (0.04)	1.15 (0.05)	1.15 (0.06)	1.15 (0.05)	1.15 (0.04)	0.07	1.24 (0.04)	1.2 (0.05)
	80.21 (2.82)	75.12 (2.94)	79.54 (3.05)	76.88 (3.67)	69.4 (2.31)	0.01	90.06 (3.81)	81.17 (2.89)
	1.59 (0.09)	1.53 (0.1)	1.43 (0.1)	1.7 (0.1)	1.56 (0.1)	0.09	1.84 (0.09)	1.71 (0.09)
	0.49 (0.03)	0.48 (0.03)	0.43 (0.03)	0.52 (0.03)	0.49 (0.03)	0.09	0.54 (0.03)	0.53 (0.03)
	57.61 (2.91)	52.38 (3.88)	51.85 (2.97)	54.77 (3.04)	51.76 (2.87)	0.01	66.25 (3.08)	60.65 (3.41)
	1.31 (0.08)	1.3 (0.1)	1.29 (0.09)	1.2 (0.08)	1.27 (0.08)	0.007	1.56 (0.08)	1.48 (0.08)
	0.37 (0.02)	0.36 (0.03)	0.36 (0.03)	0.34 (0.03)	0.35 (0.02)	0.01	0.43 (0.02)	0.41 (0.02)
	83.69 (5.43)	72.66 (3.92)	73.26 (5.16)	66.94 (5.09)	67.38 (5.04)	0.002	93.85 (4.87)	78.7 (4.26)
	1.52 (0.09)	1.51 (0.1)	1.68 (0.1)	1.63 (0.09)	1.52 (0.09)	0.37	1.36 (0.08)	1.35 (0.08)
	0.45 (0.03)	0.45 (0.04)	0.5 (0.04)	0.45 (0.03)	0.44 (0.03)	0.51	0.39 (0.03)	0.41 (0.04)
	88.8 (7.22)	77.8 (3.72)	81.54 (3.87)	76.71 (4.88)	72.56 (4.41)	0.77	85.9 (5.52)	82.97 (5.61)

: and daily occasions) regression models across all survey years: 1 (2008/09) – 11 (2018/19). All values are displayed mean (SE). Meat-c

2010/11	2011/12	2012/13	2nd tertile (middle)		2015/16	2016/17	2017/18
			2013/14	2014/15			
3.17 (0.08)	3.04 (0.09)	3.3 (0.08)	3.2 (0.08)	3.25 (0.07)	3.28 (0.08)	3.19 (0.08)	3.18 (0.08)
1.18 (0.04)	1.16 (0.04)	1.28 (0.04)	1.2 (0.04)	1.25 (0.04)	1.23 (0.05)	1.21 (0.05)	1.17 (0.04)
89.79 (3.07)	83.02 (2.61)	79.86 (2.51)	81.68 (2.59)	81.53 (2.9)	84.76 (3.23)	79.05 (2.55)	75.94 (2.18)
1.76 (0.1)	1.68 (0.08)	1.86 (0.09)	1.77 (0.1)	1.76 (0.09)	1.59 (0.11)	1.73 (0.1)	1.49 (0.09)
0.57 (0.03)	0.5 (0.03)	0.58 (0.03)	0.55 (0.03)	0.56 (0.03)	0.48 (0.04)	0.54 (0.03)	0.45 (0.03)
63.12 (3.64)	66.16 (3.73)	62.24 (3.76)	59.22 (3.01)	54.79 (2.66)	59.04 (3.86)	55.89 (2.75)	48.41 (2.65)
1.27 (0.08)	1.47 (0.07)	1.57 (0.1)	1.43 (0.08)	1.35 (0.07)	1.43 (0.09)	1.42 (0.09)	1.29 (0.08)
0.35 (0.02)	0.41 (0.02)	0.45 (0.03)	0.39 (0.02)	0.39 (0.02)	0.4 (0.03)	0.39 (0.02)	0.34 (0.02)
92.98 (4.12)	77.17 (4.47)	80.54 (4.1)	76.38 (4.42)	72.33 (4.64)	70.46 (4.07)	75.86 (5.72)	77.44 (4.4)
1.47 (0.09)	1.34 (0.07)	1.42 (0.1)	1.54 (0.09)	1.71 (0.08)	1.74 (0.12)	1.53 (0.1)	1.74 (0.1)
0.4 (0.02)	0.39 (0.02)	0.41 (0.03)	0.44 (0.03)	0.49 (0.03)	0.5 (0.04)	0.45 (0.03)	0.5 (0.03)
91.1 (5.14)	86.69 (4.36)	78.59 (3.63)	77.64 (3.69)	88.68 (4.29)	86.6 (3.79)	84 (4.1)	77.93 (3.39)

ating days ranged from 0 to 4 days.

2018/19	P for trend†	P interaction	2008/09	2009/10	2010/11	2011/12	2012/13
3.16 (0.09)	0.51	0.19	3.31 (0.06)	3.24 (0.06)	3.05 (0.08)	3.2 (0.08)	3.27 (0.08)
1.23 (0.05)	0.99	0.12	1.26 (0.04)	1.19 (0.04)	1.08 (0.04)	1.24 (0.04)	1.25 (0.04)
81.7 (3.06)	0.004	0.70	86.07 (2.02)	86.34 (2.52)	89.19 (2.85)	81.52 (2.71)	78.76 (2.35)
1.8 (0.11)	0.15	0.52	1.8 (0.09)	1.81 (0.08)	1.55 (0.09)	1.77 (0.08)	1.77 (0.1)
0.56 (0.04)	0.33	0.39	0.56 (0.03)	0.54 (0.03)	0.46 (0.03)	0.54 (0.03)	0.56 (0.04)
56.17 (2.95)	<0.001	0.88	59.12 (2.87)	59.49 (3.27)	65.06 (2.99)	61.41 (3.28)	54.39 (2.71)
1.32 (0.09)	0.05	0.27	1.59 (0.07)	1.51 (0.07)	1.4 (0.07)	1.44 (0.08)	1.5 (0.09)
0.37 (0.03)	0.07	0.22	0.44 (0.02)	0.41 (0.02)	0.38 (0.02)	0.41 (0.03)	0.41 (0.03)
72.93 (4.83)	<0.001	0.30	93.66 (3.99)	81.2 (3.73)	89.18 (4.76)	88.69 (5.45)	79.54 (3.92)
1.65 (0.09)	<0.001	0.06	1.47 (0.07)	1.44 (0.09)	1.35 (0.08)	1.58 (0.08)	1.54 (0.09)
0.46 (0.03)	<0.001	0.13	0.41 (0.02)	0.39 (0.03)	0.38 (0.02)	0.46 (0.03)	0.44 (0.03)
87.08 (5.32)	0.55	0.92	90.08 (3.78)	85.13 (3.51)	88.88 (4.27)	82.61 (3.68)	84.24 (4.19)

3rd tertile (highest)						P for trend†	P interaction
2013/14	2014/15	2015/16	2016/17	2017/18	2018/19		
3.21 (0.07)	3.24 (0.1)	3.28 (0.07)	3.06 (0.09)	3.01 (0.09)	3.01 (0.09)	0.009	0.70
1.21 (0.04)	1.27 (0.05)	1.27 (0.04)	1.18 (0.05)	1.14 (0.05)	1.11 (0.04)	0.33	0.27
82.86 (2.91)	82.79 (2.85)	82.15 (2.43)	84.96 (3.01)	79.31 (2.68)	78.65 (2.78)	0.006	0.43
1.85 (0.08)	1.92 (0.1)	1.74 (0.08)	1.73 (0.1)	1.65 (0.09)	1.63 (0.1)	0.46	0.27
0.59 (0.03)	0.61 (0.04)	0.53 (0.03)	0.53 (0.03)	0.48 (0.03)	0.5 (0.04)	0.50	0.28
59.17 (3.29)	53.94 (3.17)	57.03 (2.79)	51.23 (2.96)	49.25 (2.53)	52.06 (2.97)	<0.001	0.84
1.4 (0.08)	1.53 (0.09)	1.49 (0.07)	1.39 (0.09)	1.37 (0.09)	1.15 (0.08)	0.004	0.46
0.39 (0.02)	0.44 (0.03)	0.42 (0.02)	0.39 (0.03)	0.38 (0.03)	0.31 (0.02)	0.006	0.39
75.05 (4.01)	79.97 (4.91)	82.16 (4.37)	86.58 (5.94)	78.93 (4.85)	70.63 (5.26)	0.004	0.13
1.46 (0.07)	1.58 (0.09)	1.71 (0.09)	1.53 (0.08)	1.55 (0.08)	1.62 (0.08)	0.01	0.61
0.41 (0.02)	0.45 (0.03)	0.51 (0.03)	0.44 (0.03)	0.44 (0.03)	0.47 (0.03)	0.003	0.37
85.07 (4.04)	88.77 (4.4)	82.76 (3.15)	86.55 (3.56)	86.67 (4.14)	78.27 (3.55)	0.18	0.71

SI Table 6. Decomposition of meat consumption behaviours in the National Diet and Nutrition Survey F

		Absolute change (grams)				Percent contribution to ab	
		Days	Occasions	Portion Size	Total Change	% Days	% Occasions
Main Analysis							
	Total meat	-7.40	-1.15	-11.43	-19.98	37.0%	5.8%
	Processed meat	-3.13	0.56	-5.47	-8.04	38.9%	-7.0%
	Red meat	-7.35	-1.04	-7.75	-16.15	45.5%	6.4%
	White meat	3.48	0.39	-2.10	1.77	196.6%	22.0%
Men							
	Total meat	-7.29	1.65	-19.08	-24.72	29.5%	-6.7%
	Processed meat	-3.01	2.02	-9.26	-10.25	29.4%	-19.7%
	Red meat	-8.33	-1.52	-11.61	-21.45	38.8%	7.1%
	White meat	6.69	0.07	-2.98	3.78	177.0%	1.9%
Women							
	Total meat	-7.24	-3.34	-4.92	-15.50	46.7%	21.5%
	Processed meat	-3.03	-0.50	-2.58	-6.11	49.6%	8.2%
	Red meat	-6.47	-0.67	-4.49	-11.63	55.6%	5.8%
	White meat	1.09	0.51	-1.34	0.26	419.2%	196.2%
Adults							
	Total meat	-9.38	-1.61	-12.90	-23.89	39.3%	6.7%
	Processed meat	-3.47	0.91	-5.81	-8.36	41.5%	-10.9%
	Red meat	-9.85	-1.36	-9.14	-20.36	48.4%	6.7%
	White meat	3.37	0.10	-2.04	1.43	235.7%	7.0%
Children							
	Total meat	-1.48	0.02	-4.16	-5.62	26.3%	-0.4%
	Processed meat	-1.96	-0.62	-3.71	-6.29	31.2%	9.9%
	Red meat	-0.45	-0.03	-1.43	-1.91	23.6%	1.6%
	White meat	3.52	1.12	-2.07	2.57	137.0%	43.6%
Income tertile 1 (lowest)							
	Total meat	-4.03	-6.24	-14.27	-24.54	16.4%	25.4%
	Processed meat	-4.23	0.14	-7.33	-11.42	37.0%	-1.2%
	Red meat	-6.20	-1.12	-3.34	-10.66	58.2%	10.5%
	White meat	-0.24	0.98	-2.47	-1.72	14.0%	-57.0%
Income tertile 2							
	Total meat	-7.09	5.64	-10.33	-11.78	60.2%	-47.9%
	Processed meat	-0.85	2.03	-5.57	-4.38	19.4%	-46.3%
	Red meat	-5.52	0.78	-8.42	-13.17	41.9%	-5.9%
	White meat	7.03	-1.05	0.50	6.48	108.5%	-16.2%
Income tertile 3 (highest)							
	Total meat	-9.39	-2.58	-8.78	-20.74	45.3%	12.4%
	Processed meat	-2.86	-0.10	-3.75	-6.70	42.7%	1.5%
	Red meat	-9.77	-1.43	-8.59	-19.79	49.4%	7.2%
	White meat	3.66	1.39	-5.20	-0.15	-2440.0%	-926.7%

Data are from the National Diet and Nutrition Survey, among meat consumers (n = 14,703). Each meat subtype is separate population (i.e., total meat consumers, processed meat consumers, red meat consumers, white meat consumers).

values for absolute change are reported as survey-weighted average grams/day over the 4-day food diary period.

Rolling Programme, 2008/09 to 2018/19.

solute change
% Portion size

57.2%
68.0%
48.0%
-118.6%

77.2%
90.3%
54.1%
-78.8%

31.7%
42.2%
38.6%
-515.4%

54.0%
69.5%
44.9%
-142.7%

74.0%
59.0%
74.9%
-80.5%

58.1%
64.2%
31.3%
143.6%

87.7%
127.2%
63.9%
7.7%

42.3%
56.0%
43.4%
3466.7%

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