

# The effects of takeaway (fast) food consumption on UK adolescent's diet quality

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Overconsumption of energy dense foods derived from fast and convenience food outlets is stated to be a risk factor for obesity and diabetes among young people<sup>(1)</sup>. Consumption of takeaway meals and purchase of food from outside the home rather than preparation of food at home is found to be negatively associated with diet quality<sup>(2)</sup>. The aim of this project is to evaluate the association between the frequency of consuming takeaway meals and meals out and diet quality of UK adolescents aged 11–18 year old. Previous research has assessed individual macro and/or micro nutrients, however the need for higher quality data to strengthen the evidence is required. Therefore, the diet quality index for adolescents (DQI-A) tool has been used to assess diet quality where adolescent's food intake was based on 4-day dairy records obtained from the NDNS rolling programme years 1–6. The DQI-A relies on three main components, particularly quality, diversity and equilibrium which reflect the degree of adherence of an adolescent diet with Food Based Dietary Guidelines (FBDG)<sup>(3,4)</sup>. The high consumption of takeaway meals at home and consuming meals out (1–2 times/week or more) were reported by 28.8 % (n = 589) and 24.3 % (n = 496) of both male and female adolescents aged 11–18 years respectively. In terms of the diet quality index score, UK adolescents have a poor diet quality score of 25.7 % out of 100 % with significant differences observed between high and low takeaway consumers. In addition, significant differences were observed between high and low takeaway consumers among all other DQI-A components and sub-components (p < 0.05), except for the diet adequacy sub-component (DAX). Nevertheless, high takeaway consumers were found to have a higher food energy intake by 51.3 kcal (CI = 3.79, 98.73, p = 0.03) before and after adjusting for age, gender and equivalised household income. The results for high consumption of meals-out were attenuated and not statistically significant for individual components.

Diet quality components, age & energy	Total sample		High takeaway consumers		Low takeaway consumers		Unadjusted analysis		Adjusted analysis	
	n = 2045		n = 589		n = 1456		(95 % CI)	P-value	(95 % CI)	P-value
	Mean	SD	Mean	SD	Mean	SD				
DQI-A %	25.7	14.4	23.0	14.5	26.8	14.2	-5.19, -2.45	<0.01	-5.03, -2.08	<0.01
DQc %	-9.7	27.7	-15.3	28.2	-7.4	27.2	-10.49, -5.22	<0.01	-9.92, -4.28	<0.01
DDc %	53.6	16.8	52.2	16.5	54.2	16.9	-3.66, -0.44	0.01	-3.65, -0.26	0.02
DEc %	33.3	10.2	32.1	10.0	33.7	10.3	-2.54, -0.58	<0.01	-2.50, -0.40	<0.01
DAX %	63.2	11.8	63.0	11.7	63.3	11.9	-1.43, 0.83	0.61	-1.22, 1.15	0.96
DEX %	18.5	9.4	19.4	9.6	18.1	9.3	0.42, 2.21	<0.01	0.49, 2.36	<0.01
Age (year)	14.6	2.2	14.6	2.2	14.5	2.2	-0.15, 0.27	0.57	-0.12, 0.33	0.38
Energy (Kcal)	1758	501	1809	521	1738	491	23.27, 119	<0.01	3.79, 98.73	0.03

DQI-A, Diet Quality Index for Adolescents; DQc, Diet quality component; DDc, Diet diversity component, DEc, Diet equilibrium component; DAX, Diet adequacy sub-component; DEX, Diet excess sub-component

Adolescents who consumed high takeaway meals and meals out had a lower overall DQI-A score by 3.8 and 1.9 percent (CI = -5.19, -2.45 and -3.37, -0.46, p < 0.01,) respectively. Similarly, after adjusting for age, gender and equivalised household income, DQI-A score was observed to be lower for both high takeaway and meal out consumers by 3.5 and 2.5 percent (CI = -5.03, -2.08 and -4.08, -0.90, p-values < 0.01,) respectively (data not shown in table for high meal out consumers). In conclusion, these results confirm that high consumption of takeaway meals and meals-out have a negative impact on diet quality of UK adolescents.

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