

## Dietary phosphatidylcholine assessed by self-administrated food-frequency questionnaire in relation to cardio-metabolic biomarkers in healthy populations in UK

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Phosphatidylcholine (PC) a major class of phospholipids plays a vital role in the body as it forms a major part of the cellular membrane and all lipoproteins that help in fat transportation inside the body<sup>(1)</sup>. Hyperlipidaemia is a term referring to abnormal levels of blood lipids; it is one of the most frequently stated risk factors for developing cardiovascular disease (CVD); the leading cause of death globally. In the literature, findings on the relative importance of PC effects on health have been inconsistent. Many studies have found that PC supplementation can help in lowering fasting total homocysteine; a risk factor for CVD, and can reduce atherogenic lipoproteins<sup>(2–3)</sup>. In contrast, a number of studies have suggested that dietary PC can increase the risk of developing CVDs by producing trimethylamine N-oxide<sup>(4)</sup>. Therefore, the aim of this study was to investigate dietary PC intake assessed by validated self-administrated food frequency questionnaire (FFQ) in relation to lipid and cardio-metabolic markers, including total cholesterol (TC), low density lipoprotein cholesterol (LDLC), high density lipoprotein cholesterol (HDLC), triacylglycerol (TAGs), lipoprotein (a) [Lp(a)] and PC.

This cross-sectional study recruited 101 healthy adults free from chronic disease (mean age 33 ± 10 years). Participants were asked to complete a FFQ to measure dietary intake of PC. In addition, a venous blood sample was taken to measure cardio-metabolic markers.

The main finding of this study was a significant negative correlation ( $P = 0.017$ ) between the intakes of dietary PC and levels of TAGs, along with a trend of positive correlation between dietary PC and HDLC levels (Table 1).

**Table 1.** Correlation of dietary phosphatidylcholine intake with cardio-metabolic biomarkers according to gender

Variables	All subjects <i>n</i> = 101		Male <i>n</i> = 32		Female <i>n</i> = 69	
		<i>P</i>		<i>P</i>		<i>P</i>
TC	-.059	0.561	-.172	0.346	.008	0.947
TAGs	-.238*	<b>0.017</b>	-.147	0.423	-.292*	<b>0.015</b>
LDLC	.049	0.672	.113	0.538	.000	0.999
HDLC	.106	0.298	.010	0.955	.215	0.076
Lp(a)	.068	0.502	.140	0.443	.019	0.879
PC	.082	0.424	-.101	0.584	.196	0.117

Sig values  $P < 0.05$

This study appears to be the first to examine the association between dietary PC intake and the cardio-metabolic related biomarkers among healthy individuals in the UK. The study results suggest that dietary PC has a positive effect on normalizing hepatic lipoprotein metabolism. A further study could assess the long-term effects of dietary PC on cardio-metabolic biomarkers among a bigger sample size. Greater efforts are needed to increase understanding of the absorption pathway of dietary PC.

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