

Table 2. Some examples of metabolic effects attributed to nutritional factors acting through epigenetic processes.

Nutritional factors	Metabolic effects	Epigenetic mechanisms	References
Methyl donors			
Vitamin B12	Insulin resistance, Obesity	DNA methylation	Sinclair et al. (2007); Yajnik et al. (2008)
Folate	Adiposity, Insulin resistance	DNA methylation	Sinclair et al. (2007); Gargari et al. (2010)
Choline	Liver steatosis	Histone and DNA methylation	Guerrerio et al. (2012)
Betaine	Liver steatosis, Insulin resistance	Histone and DNA methylation	Wang Z et al. (2010)
Methionine	Insulin resistance, Obesity	Histone and DNA methylation	Sinclair et al. (2007); Maloney et al. (2011)
Serine, Glycine and Histidine	Amino acid metabolism	Histone and DNA methylation	Wang et al. (2012)
Fatty acids			
Eicosapentaenoic acid	n-3 Polyunsaturated fatty acid metabolism	DNA methylation	Ceccarelli et al. (2011)
Docosahexaenoic acid	n-3 Polyunsaturated fatty acid metabolism	DNA methylation	Kulkarni et al. (2011)
Arachidonic acid	n-6 Polyunsaturated fatty acid metabolism	DNA methylation	Kiec-Wilk et al. (2011)
Butyrate	Short chain fatty acid metabolism, Inflammation	Histone acetylation and propionylation	Dashwood and Ho (2007); Soliman and Rosenberger (2011); Liu et al. (2009)
Acetate			
Propionate			
Vitamins			
Retinol	Antioxidant processes	Histone acetylation	Moreira et al. (2010)
Tocopherols	Antioxidant processes	Histone acetylation	Dashwood and Ho (2007)
Ascorbate	Antioxidant processes	DNA methylation	Chung et al. (2010)
Polyphenols and others			
Epigallocatechin 3-gallate	Weight reduction, Insulin sensitivity, Liver steatosis	Histone acetylation and DNA methylation	Fang et al. (2003); Choi et al. (2009)
Genistein	Body weight	DNA methylation	Dolinoy et al. (2006)
Soy isoflavones	Body weight, Insulin sensitivity	DNA methylation	Howard et al. (2011)
Curcumin	Inflammation response, Body weight	Histone acetylation, DNA methylation and miRNA	Yun et al. (2011); Shao et al. (2012)
Resveratrol	Body weight, Liver steatosis	Histone acetylation	Bujanda et al. (2008); Bayle et al. (2011)
Sulforaphane	Adipocyte differentiation	Histone acetylation	Nian et al. (2009)