

Disease type/risk	First Author	Study Title Complete Citation	Date	Abstract	Human	Human cell	Animal	Animal cell
	Morimoto, C.	Morimoto, C.; Satoh, Y.; Hara, M.; Inoue, S.; Tsujita, T.; Okuda, H., Anti-obese action of raspberry ketone. <i>Life Sci</i> 2005 , <i>77</i> , (2), 194-204.	2005	Raspberry ketone (4-(4-hydroxyphenyl) butan-2-one; RK) is a major aromatic compound of red raspberry (<i>Rubus idaeus</i>). The structure of RK is similar to the structures of capsaicin and synephrine, compounds known to exert anti-obese actions and alter the lipid metabolism. The present study was performed to clarify whether RK helps prevent obesity and activate lipid metabolism in rodents. To test the effect on obesity, our group designed the following in vivo experiments: 1) mice were fed a high-fat diet including 0.5, 1, or 2% of RK for 10 weeks; 2) mice were given a high-fat diet for 6 weeks and subsequently fed the same high-fat diet containing 1% RK for the next 5 weeks. RK prevented the high-fat-diet-induced elevations in body weight and the weights of the liver and visceral adipose tissues (epididymal, retroperitoneal, and mesenteric). RK also decreased these weights and hepatic triacylglycerol content after they had been increased by a high-fat diet. RK significantly increased norepinephrine-induced lipolysis associated with the translocation of hormone-sensitive lipase from the cytosol to lipid droplets in rat epididymal fat cells. In conclusion, RK prevents and improves obesity and fatty liver. These effects appear to stem from the action of RK in altering the lipid metabolism, or more specifically, in increasing norepinephrine-induced lipolysis in white adipocytes.			X	
	McDougall, G. J.	McDougall, G. J.; Stewart, D., The inhibitory effects of berry polyphenols on digestive enzymes. <i>Biofactors</i> 2005 , <i>23</i> , (4), 189-95.	2005	The evidence for the effect of polyphenol components of berries on digestive enzymes is reviewed. Anthocyanins inhibit alpha-glucosidase activity and can reduce blood glucose levels after starch-rich meals, a proven clinical therapy for controlling type II diabetes. Ellagitannins inhibit alpha-amylase activity and there is potential for synergistic effects on starch degradation after ingestion of berries such as raspberries and strawberries, which contain substantial amounts of ellagitannins and anthocyanins. A range of berry polyphenols (e.g. flavonols, anthocyanidins, ellagitannins and proanthocyanidins) can inhibit protease activities at levels which could affect protein digestion in the gastrointestinal tract. In contrast, potential for the inhibition of gastrointestinal lipase activity, a proven therapeutic target for the control of obesity through reduced fat digestion, may be limited to proanthocyanidins. Taking into account the manifold possible synergies for inhibition of starch, protein and/or lipid digestion by the spectrum of polyphenol components present within berry species, the inhibition of digestive enzymes by dietary polyphenols may represent an under-reported mechanism for delivering some of the health benefits attributed to a diet rich in fruit and vegetables.				