

## Use of Nutraceutical and Natural Compounds Containing Anti-Obese Properties for the Prevention and Treatment of Obesity

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### Abstract

The purpose of this study is to highlight the effects of obesity and to illustrate how nutraceutical and natural compounds that contain anti-obese properties can be used in the prevention and treatment of this condition. WHO [1] found that worldwide prevalence of obesity has almost doubled between 1980 and 2008. WHO [1] data states that overweight affects 30 - 70% and obesity affects 10 - 30% of adults in the EU region. This study found that by combining physical activity, ceasing smoking, eating a balanced healthy diet, limiting alcohol consumption and introducing nutraceutical and natural compounds containing anti-obese properties, the human race can treat and prevent obesity and in doing so reduce the number of deaths from conditions directly linked to this chronic disease.

**Keywords:** *Nutraceutical; Natural Compounds; Anti-Obese*

### Introduction

Obesity levels continue to rise globally and affects almost 315 million people [2] and Ireland is on course to become the most obese country in Europe (WHO, 2015). WHO (2015) predictions show a significant rise in obesity levels for Irish women from 23% to 57% and Irish men from 26% to 48% by 2030. WHO (2015) estimate that the figure for Irish men either overweight or obese is to rise to 89% and for Irish women it is to rise to 85% by 2030.

WHO [1] state that worldwide the prevalence of obesity has almost doubled between 1980 and 2008. WHO [1] data states that overweight affects 30 - 70% and obesity affects 10 - 30% of adults in the EU region. Over 60% of children who are overweight before puberty will be overweight in early adulthood [1]. This statistic threatens to put significant pressure on national healthcare services with childhood obesity being strongly linked to cardiovascular disease, type II diabetes and mental disorders [1]. BMI (body mass index) is the scale used to measure body weight (Table 1).

Classification	BMI*
Under weight	< 18.5
Normal weight	18.5 - 24.9
Over weight	25 - 29.9
Class I obesity	30 - 34.9
Class II obesity	35 - 39.9
Class III obesity	40 >

**Table 1:** BMI values.

*\*BMI of > 40 - 44.9 or 49.9 is morbid obesity. BMI of > 45 or 50 is super obese*

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The International Journal of Preventive Medicine [2] states that obesity is a risk factor for multiple health disorders including congestive heart failure, osteoarthritis, hypertension, several forms of cancer, respiratory disorders, reduced fertility etc.

Physical inactivity, smoking, diet with over consumption of high fat energy dense foods and alcohol consumption are significant factors that contribute to a person becoming overweight or obese. Irish Times [3] displayed the findings from a recent survey which found that 41% of Irish men over the age of 50 years do not take any physical exercise. Exercise and nutrition play an important role in the prevention and treatment of obesity. Nutraceutical compounds such as capsaicin conjugated linoleic acid, Momordica charantia and Psyllium fiber contain potential anti-obese properties and therefore nutraceutical compounds can be used to prevent and treat obesity [2].

**Discussion**

The International Journal of Preventive Medicine [2] state that excessive consumption of energy-rich foods such as snacks, processed foods and drinks causes weight gain. Caloric restriction and increased physical activity has been shown to be only moderately successful in managing obesity. Therefore nutraceuticals and natural foods that can increase energy expenditure and decrease the intake of calories could potentially play a vital role in the prevention and treatment of obesity when combined with caloric restriction and daily exercise.

Green tea is produced from the leaves of the Camellia Sinensis and possesses anti-obese properties, this product contains polysaccharides, flavonoids, B vitamins, catechin compounds and fluorides [4]. Mohamed., *et al.* [5] discuss the pharmacological targeting of lipolysis being achieved by stimulating triglyceride hydrolysis in order to diminish fat stores, this is an alternative method of combating obesity. Examples of natural products which promote lipid metabolism can be seen in table 2 below.

Source	Used part and/or active constituents
Morus albam, Melissa officinalis, Artemisia capillaries (leaf)	Crude aqueous extract <sup>161</sup>
Curcuma longa L.	Curcumin and curcuminoids <sup>162</sup>
Glycyrrhiza glabra L. (root)	Licorice flavonoid <sup>163</sup>
Panax ginseng	Crude aqueous extract <sup>164</sup>
Zea mays L.	Purple corn color (anthocyanins) <sup>165</sup>
Soybean	Genistein and L-carnitine (soy isoflavone) <sup>166</sup>
Coffea canephora	Caffeine, chlorogenic, neochlorogenic and feruloquinic acids <sup>108</sup>

**Table 2:** Natural lipid metabolism regulators.

Mohamed., *et al.* [5] state that dietary phytochemicals could potentially be used as anti-obese agents because they could potentially suppress the growth of adipose tissue, inhibit differentiation of preadipocytes, stimulate lipolysis, and induce apoptosis of existing adipocytes, which would reduce adipose tissue mass.

Han., *et al.* [6] state that natural products for treating obesity may be a future strategy for developing effective, safe anti-obesity drugs. Many natural products including crude extracts and isolated pure natural compounds can be used to induce body weight reduction and prevent diet induced obesity [6-14].

**Conclusion**

The main cause of obesity is the imbalance between calorie intake and expenditure of energy. Many nutraceuticals contain vitamins, minerals, fibres, polyphenols, sterols and alkaloids which act as a cleanser within the body regulating the metabolism, dissolving fat in the body, help to eliminate the craving of food, stimulate glandular secretions, reduce water retention and boost energy levels [5]. Therefore

the many nutraceutical and natural compounds that possess anti-obese properties can be used for the prevention and treatment of obesity but they should be used in conjunction with regular exercise and a healthy diet.

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