Mini Review

A Healthy Curcumin Diet to Dissolve Over Fat and Weight Control

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Abstract

Overweight or obesity is the major health burden all over the world due to modern life style and food habits. Being obese is the way for energy imbalance in the body which results in the excess storage of fat. The energy imbalance can happen when our calorie intake is much higher than the recommended quantity. The energy imbalance also can happen with the hormonal disorders, genetic disorders and side effects of some medications. It has been noticed that the dietary intake of curcumin could alters the several cellular transduction pathways which helps to elucidate the molecular basis for obesity related problems. It may enable to develop a novel phytochemical therapy to treat against chronic obesity related health issues. Furthermore, the traditional knowledge, availability, may be advisable to include curcumin in our daily diet without any side effects.

Keywords: Obesity; Curcumin; Inflammation; White adipose tissue

Introduction

Overweight or obesity is considered to be major public health problem all over the world [1]. It may be the risk factor for type 2 diabetes, cancer, atherosclerosis and chronic inflammatory diseases [1,2]. It is very important to understand the necessity of the healthy food habits to overcome the obesity related problems [3]. The imbalance between the food intake and energy consumption leads to the excess deposition of adipose tissues in the body [3]. The state of food consumption directly depends on individual's energy consumption and their daily physical work [3]. The excessive weight gain is called as obesity, which results in the metabolic syndromes, atherosclerosis, hypertension, diabetes and cardiovascular problems [3]. It has been revealed that the potential polyphenolic phytochemical called curcumin isolated product of curcuma longa has the immense capability to act against the overweight and obesity problems [4]. Curcumin induced alterations could help to reverse insulin resistance, hyperlipidemia, hyperglycemia and other major symptoms of obesity [2,4]. Curcumin intake helps to reduce the over deposition of lipid molecules into the body [4]. It is also kown that the curcumin is involved in the activation signals from PPAR gamma gene, which helps to burn the fat molecules [5]. A serious action has been taken by the pharmacological companies to produce and market the high-quality curcumin for the better health benefits. This evidence shows us the value of curcumin intake in the diet and its probable actions to dissolve the excess fat.

Effect of curcumin diet on obesity

The diverse biochemical activities of curcumin can implement its positive effect upon obesity control; this not only helps to dissolve over fat but also can help to regulate the obesity mediated health issues [3]. White adipose tissue is the major site for fat accumulation; the angiogenesis in this tissue is linked with the excess fat deposition in the obese people [6-8]. Targeting this angiogenesis pathway of white adipose tissue could be more effective to dissolve the accumulated fat in the adipose tissue [7,8]. It has been reported that the medical efficacy of curcumin can blocks the angiogenesis pathway in the white adipose tissue and results in the decrease of fat accumulation [8-10]. Curcumin also plays a significant role to decrease the adipose tissue size, which leads to the lower fat deposition in over-weight patients [8-10].

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Browning of adipose tissue is the major biochemical reaction resulting in the production of heat by the combustion of glucose and lipids [11,12]. Triggering this process could be used as a therapy against obesity. It is noticed that browning can turn white adipose tissue into an energy liberating tissue instead of storage [11,12]. The specific promoters of curcumin could modulate the nor-epinephrine levels, which induces the browning of white adipose tissues [11].

**Anti-inflammatory effects of curcumin in regulation of obesity-induced inflammation**

The excessive activation of inflammatory signals in the white adipose tissue communicates with the immune cells to take part in the inflammatory process [13,14]. This biochemical reaction helps in the progression of inflammation in the white adipose tissues and increases the rate of weight gaining [14,15]. The proven anti-inflammatory activity of curcumin serves as an effective modality to overcome with the inflammation and regulates the overweight-induced diseases [10,16]. The effect of curcumin on core inflammatory gene signal, NF-κB promotes a domino effect in the body [17,18]. The positive action of domino effect is directly involved in the reduction of risk factor associated with cancer from overweight-induced inflammation. Curcumin is also very effective against adipokines, which in turn modulate the expression of cytokines secreted in the adipose tissues [17,19]. The elevated expression of these adipokines promotes the production of oxidative stress in obese people [15]. Curcumin down-regulates the adipokine activity and up-regulates the adiponectin to regulate the levels of glucose and fatty acids, which helps to reduce the oxidative stress induced by the inflammatory adipokines [15,20]. It is also reported that curcumin action is very specific on liver cells, it prevents the fat deposition mechanism in the liver cells and it also promotes the normal production of insulin from the pancreatic beta cells, which helps to avoid type-2 diabetes [1,2,21,22].

**Conclusion**

Curcumin has an immense effect on obesity control. The diverse range of medicinal values of curcumin helps to reduce overweight as well as prevention of fat deposition. Curcumin helps to regulate the obesity induced inflammatory diseases. It is also involved in the browning of white adipose tissue, which is very important for energy liberation from white adipose tissues. An overall, medicinal and nutritional benefit of curcumin helps to reduce the overweight and to maintain the good health.

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**Reference**


