

# **ABSTRACT**

## **REVIEW ARTICLE COMPETITION**



# Psychological perspectives in obesity

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## Abstract

Obesity has become a leading public health concern. Over 1 billion people are now overweight or obese, and the prevalence of these conditions is rising rapidly. Psychological aspects of obesity are so important, psychological assessments and interventions have become an integral part of a multidisciplinary approach to treating obesity. Multiple environmental, genetic, neuro-endocrinological, and psychosocial factors contribute to the development of obesity. Though there are many different, and even controversial, frameworks for obesity, most researchers acknowledge that it can lead to serious medical and psychological morbidity.

**Keywords:** *Interventions; Obesity; Psychological; Treatments.*

# Leptin multiplies the possibility of cancer cell stimulation in obese human

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## Abstract

Leptin is a well-known adipokine that helps human body to fight obesity by controlling appetite and regulating metabolism of lipid. It is produced a lot in obese human. In present study, other effect of leptin that is associated with stimulation of cancer has been found. Leptin stimulates cancer cell progression or carcinogenesis in peripheral organs including breast, endometrium, colon, prostate, ovarium, and pancreas through leptin signalling pathway that include JAK/STAT, MAPK, PI-3K, and ERK1/2 pathway by leptin binding to its receptor called ObR. These mechanisms involve an inflammatory pathway with more expression of IL-6, IL-8, TNF- $\alpha$ , and INF- $\gamma$  which will increase possibility of carcinogenesis. It is proven that leptin is the link between obesity and cancer.

**Keywords:** *obesity, leptin, adipokine, carcinogenesis*



# Effects of obesity towards pulmonary immune response

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## Abstract

Over the past decades, obesity has become a significant problem in developing nations in Indonesia and other developing nations in Southeast Asia. Although diseases such as cardiovascular diseases and diabetes type II have already been well-known as conditions that are related to obesity, there is also a correlation that researches are just beginning to explore which is the relation with the immune system. A study in 2009 during the H1N1 pandemic that there is indeed a correlation between obesity and an impaired pulmonary defense. Obesity itself triggers a shift in macrophage polarization from M2 to M1 macrophage which increases proinflammatory cytokines and decreases type 1 IFN which decreases the the defense of the pulmonary system. A greater understanding of the effects of obesity towards pulmonary immune response is needed in order to care for this increasing patient population and could help in the breakout of the influenza virus.

**Keywords:** *Immunity, Influenza, Obesity, Pulmonary immunity*



# Gut microbiome as a biological marker for obesity

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## Abstract

Obesity was a rare up until the last few decades when a rapid expansion of the proportion of obese individuals worldwide has started to be seen. Nowadays, screening for obesity that mostly used are BMI counting which is not general and specific. Many studies have demonstrated that changes in gut microbiome are related to obesity in human. This review summarizes the recent work into the association between gut microbiome and host adiposity, also the mechanisms that mediate host metabolism in the context of obesity. Studies which show greater abundance of different bacteria taxa in the gut generally show alterations in the gastrointestinal microbiome, and changes related to obesity. Gut microbiome can be examined from feces or urine excretion. Gut microbiome can influence host adiposity from energy extraction in the diet, induce an important gut-derived regulator of host lipid metabolism, initiate the inflammation, cause an insulin resistance associated with obesity, and modulate gut hormones.

**Keywords :** *Obesity, Gut microbiome, Biological marker, BMI*



# Obesity and lifestyle intervention: The impact on type 2 diabetes

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## Abstract

Obesity, which is now becoming global epidemic condition, is one of the risk factors of type 2 diabetes. To reduce the prevalence of developing type 2 diabetes from obesity, lifestyle intervention is used as the treatment to achieve weight loss. From various journals about that, the author has reviewed those and made this review article. The result stated that giving lifestyle intervention has bigger rate to achieve weight loss compared to placebo and metformin. Lifestyle intervention includes dietary modification, physical activity or exercise, and behavior therapy. Combination of dietary changes and exercise helps insulin resistance improvement and increases insulin sensitivity. Behavior modification is needed to maintain the reduced body weight.

**Keywords:** *diabetes, dietary, exercise, insulin, lifestyle, obesity*

# Role of capsiate in obesity management

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## Abstract

By the current obesity epidemic all over the world, bioactive foods have made an appearance as a promising supplement to the traditional diet of weight loss. Studies have shown that the spicy component in chili peppers, capsaicin, promotes a negative energy balance. However, spicy foods are not readily accepted by everyone due to the oral burn and pain sensation associated with them. A possible alternative for these people would be capsaicin's counterpart, capsiate. Derived from CH-19 sweet peppers, capsiate is non-spicy and potentially has the same effects as capsaicin. Capsiate is found to increase energy expenditure and glucose metabolism. It also play an active role in fat oxidation. While capsiate exerts not significant effect on the appetite, in general, capsiate decreases energy intake during positive energy balance . The mechanism of action is not presently fully understood, although it is well accepted much of the effects are caused by stimulation of the TRPV1 receptor. The evidence is that they could play a valuable role, as part of a weight management program.



**Keywords:** *capsiate, obesity, energy-expenditure, fat-oxidation, appetite, glucose-metabolism*

# Obesity induced shortened telomere length and *C. fimbriata* extract as the promising therapy

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## Abstract

Obesity is a major world problem that causes several chronic diseases, such as metabolic and heart disease. Recent research has demonstrated the link between obesity and shortened telomere length even though the mechanism remains unclear. Telomeres integrate the effects of genetic and aging related diseases, hence, shorter telomere length associates with some aging related diseases. There are several popular medication to treat obesity, which are Orlistat that lowers intestinal fat absorbtion and Sibutramin which is an appetite supressant.<sup>1</sup> Both may cause side effects. For this reason, exploring natural agent is essential to provide society a new safe and effective therapy. One of the promising product is the extract of *Caralluma fimbriata* which not only supresses appetite but also acts in preventing pre- adipocyte cell division, thus, prevents telomere length shortening even further.

**Keywords:** *adiposity, adipokines, telomere length, Cyclin D1*



# **The role of hen yolk egg as an alternative anti-obesity treatment on high Fat diet-induced obesity**

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## **Abstract**

As we know that obesity is a big problem in the world and has a major relationship with metabolic disease such as diabetes. The medication and prevention is not enough to reduce prevalence of obesity. On the other hand, a new research has developed and found that immunoglobulin yolk (IgY) is an effective treatment for obesity. The finding by an explorative studies shows that anti-lipase IgY inhibits pancreatic lipase which has a major role in dietary fat absorber. Anti-lipase IgY can decrease LDL-cholesterol and triglyceride. Anti-lipase IgY also increase HDL-cholesterol. This finding is a direct evidence that inhibition of pancreatic lipase using anti-lipase IgY is an effective anti-obesity treatment.

**Keywords:** *Obesity, IgY, Pacreatic Lipase, Anti-Obesity*



# Midlife obesity as an independent risk factor of late life cognitive decline

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## Abstract

*Background.* Obesity has been related with cognitive decline however whether it plays a major role or merely exacerbates other risk factors related to poor brain function is still unclear. *Objective.* We summarize the existing literature focusing on midlife obesity and cognitive decline then analyze the association among them, independent of other risk factors. *Methods.* Medline was used to collect relevant articles from 2000 onwards. Initial search terms were obesity, cognitive impairment, aging, elderly, memory, and BMI. *Results.* Obesity in midlife is associated with cognitive decline in late life through its adiposity pathways. Adipose tissue secretes hormones, growth factors, and cytokines that have further effect in cognitive domain. *Conclusion.* Obesity in midlife is an independent risk factor for cognitive decline in late life.

**Keywords:** *Adiposity, cognitive declines, elderly, obesity*



# Ursolic acid: An apple peel's primary substance against obesity and its related complications

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## Abstract

Obesity is a major threat in both developed and developing countries. Current obese medication and intervention is not optimal nowadays. Thus, an effective intervention is urgently needed. Use of natural compounds derived from plants or fruits on curing obesity have attracted many scientists nowadays. One of the potential candidate is ursolic acid, which is a major component of apple peel. This review revealed the potency of ursolic acid as an adjuvant therapy on obesity treatment. The mechanisms on how ursolic acid could treat obese individuals are various. It has been found that ursolic acid may decrease fat accumulation, increase energy expenditure, inhibit lipase activity, or even prevent fat differentiation and adipogenesis via LKB1/AMPK pathway. Some studies suggest that ursolic acid could prevent obesity-related complications. Further study on oral bioavailability and contents of ursolic acid in various apple variants is recommended.

**Keywords:** *apple peel, obesity, ursolic acid, anti-obesity agents*



# **Necdin gene based therapy: A preadipocyte proliferation and differentiation supressor using adenovirus as a new approach for prevention and therapy against obesity**

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## **Abstract**

Obesity is characterized by an expansion of adipose tissue mass due to hypertrophy and hyperplasia. Recent studies have suggested that adipocytes number is a key determinant for fat mass that is contributed to cause obesity. Adipocyte renewal from preadipocytes occurs throughout the lifetime and contributes to obesity. To date, little is known about the mechanisms that control preadipocyte proliferation and differentiation. Necdin has a role as preadipocyte development supressor so this article aims to find necdin's potential as preadipocyte protein regulator and analyzed the function of necdin gene therapy. Method that used is literatur review study. From the research, necdin-null mutant mice exhibit a greater expansion of adipose tissues due to adipocyte hyperplasia than wild-type mice when fed the high-fat diet. Thus, we give new inovation about the benefit of necdin gene transfer using recombinant adenovirus into adipose tissues to supress preadipocyte proliferation and differentiation.

**Keywords :** *gene therapy, necdin, obesity, recombinant adenovirus*



# Capsinoid the inducer of brown adipose tissue activity: A solution for adolescence obesity

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## Abstract

Obesity has become a global issue in the last decade. Studies and efforts have been made to decrease its high prevalence, thoroughly focused on healthy diets or special medications to reduce the amount of body's fat. It is negligible, that our body also possess Brown Fat Adipose Tissue (BAT)—a specialized thermogenic adipose tissue that is able to burn white fat—the fat that accumulates extravagantly in overweight patients. The BAT's amount reduces over years but can be reactivated during adolescent period and aggressively induced by substrates like capsinoid—a common substance in chilli peppers. We had analyzed and synthesized reviews from several studies describing how capsinoid activate BAT to increase lipolysis—white fat breakdown. Inducing BAT to reduce white fat in overweight individuals using common ingredients among people, seems to be an appealing and effective solution to combat obesity.

**Keywords:** *brown adipose tissue, capsinoid, obesity*



# Pancreatic lipase inhibitor immunoglobulin yolk from hen egg to prevent obesity

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## Abstract

Obesity is one of the worldwide major health problem that leads to various diseases that reduce life expectancy. The latest obesity prevention agent used in clinic, Orlistat, decrease intestinal absorption of lypolysis product by inhibit pancreatic lipase. However, orlistat have gastrointestinal adverse effect. Alternative pancreatic lipase inhibitor is IgY from hen egg yolk. Hen immunized by lipase antigen to each of the breast muscle, the lipase antigen transferred to IgY attached by IgG. The yolk purified in powder form, then examined in a model. Pancreatic lipase inhibitor significantly decreases the weights of adipose tissues (WAT), and the amounts of hepatic total lipid, triglyceride, cholesterol and fecal lipid excretion. Although the treatment with anti-lipase IgY didn't affect body weight significantly, but the anti-lipase IgY inhibited visceral WAT accumulation. The study shows the evidence of the effectiveness of the anti-lipase IgY from processed hen egg yolk as anti-obesity agent.

**Keywords:** *Anti-lipase immunoglobulin yolk, Obesity*



# Basil leaf extract as potential PTP1B inhibitor for leptin-resistant obese patients

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## Abstract

Obesity is major predisposition factors that contributed to the development of many diseases and leads to mortality in many countries, including Indonesia. Some of these obese patient show an increase amount of leptin concentration in serum and suspected to be leptin-resistant, which is lack of study and untreatable. Basil (*Ocimum basilicum* L.) known as “Kemangi”, is one of the oldest herbs within the ocimum genus in Lamiaceae family and well known for its medicinal value. One compound in Basil leaf is flavonoid. Several research suggest that flavonoid is potential to be novel treatment for Leptin resistant obesity which act as PTP1B inhibitor. Flavonoid extract of basil leaf encapsulated with chitosan nanoparticle will cross the blood-brain barrier, reach the target cell in hypothalamus, inhibit the PTP1B activity and increasing the chance of signal-inducing between leptin and LepRb receptor. Therefore, basil leaf extract can be an alternative therapy for leptin-resistant obese patient.

**Keywords:** *Anti-Obesity Drugs, Flavonoids, Obesity, Ocimum basilicum, Protein Tyrosine Phosphatase, Non-Receptor Type 1.*



# The use of hypnotherapy in treating obesity

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## Abstract

Obesity causes global burden and increases overall risk of mortality associated with cardiovascular disease, non-alcoholic fatty liver disease (NAFLD), and diabetes. Several treatments have been applied to treat obesity, however they fail to achieve desired outcome. Holistic approach is needed to handle this issue. Although obesity manifests as a physical problem, one of its causative factor is psychological. By focusing psychological aspect as therapeutic target, a better outcome is expected. Hypnotherapy is a type of psychotherapy that aims to resolve psychological problem, thus it has a potential to be a modality in treating obesity. Studies that explore about hypnotherapy and its relation with weight reduction are observed. Several researches and meta-analyses show long-term effect of weight loss by inducing behavioral changes through implanting constructive ideas that modifies perception and way of thinking by means of neuroplasticity. Adding hypnotherapy to diet and exercise monitoring constructs an appropriate treatment approach for obesity.

**Keywords:** *behavior, hypnotherapy, neuronal plasticity, obesity, perception, weight loss*



# Micro-Lag: Microencapsulation of *Lactobacillus gasseri* BNR17 as new biotherapeutic intervention for antiobesity

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## Abstract

**Introduction:** Obesity is caused by multiple factors. A variety of programs and treatments that have been developed are often accompanied by serious side effects or found ineffective. Therefore, development of a safe, yet effective dietary supplement to properly manage body weight is needed.

**Methods:** All information and data are obtained from scientific literatures and reviews which are related to the subject.

**Result:** *Lactobacillus gasseri* BNR17 showed reduction in subcutaneous and abdominal fat mass in rats fed a high sucrose-diet, reduction in waist circumference in overweight and obese adult, and significantly increased mRNA expression of ACO, CPT1, ANGPTL4, PPAR $\alpha$  and PPAR $\delta$  in the liver. Microencapsulation technique is used to maintain viability of Lb.g BNR17.

**Conclusion:** Microencapsulation of *Lb.g* BNR17 as current biotherapy is potentially beneficial for obese people because it is safer and more effective than conventional pharmacotherapy and surgical with all their adverse side-effects.

**Keywords:** *Lactobacillus*, *microencapsulation*, *obesity*, *probiotics*.



# Controlling leptin, ghrelin, and PYY hormones by consuming high protein during breakfast to prevent the risk of obesity

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## Abstract

Obese can occur in everyone, both vegetarian and non-vegetarian people. Obesity people are more susceptible to metabolic syndrome as well as cardiovascular disease, diabetes mellitus, hypertension, osteoarthritis, cancer, and other co-morbidities. This obesity risk can be prevented by doing healthy diets, such as controlling total carbohydrate, protein, fat, and vitamins. All of the nutrients have an important role to avoid obesity, especially protein, but until now many people have no awareness about that. The purpose of this study is to give a way to prevent the risk of obesity by consuming high protein during breakfast. This study was analyzed using literature review to collect the data from journals on internet. Some studies shown that there is a relationship between obesity with the lower protein intake during breakfast. In conclusion, consuming breakfast with higher level of protein is recommended to prevent obesity.

**Keywords:** *Obesity, risk factor, eating, protein*



# The importance of full PPAR $\gamma$ agonist in obesity treatment

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## Abstract

Obesity is excessive fat storage in the body, influenced by multifactorial factors but mainly caused by overindulgence food intake without adequate physical activity. Obesity becomes emerging issue for its elevated prevalence in Indonesia recently. Due to this fact, various treatments are applied to fight obesity. Behavior-based treatments require hardly attained high discipline. In addition, current medications approved to fight obesity are ineffective as they only reduce the hunger, thus barely solve metabolic complications of obesity. While the newest drugs are still in research, the modification of the existing drugs have the potential to cure obesity. Full PPAR $\gamma$  agonist is believed to have this potential through its stimulation of beige adipocytes development from white adipocytes which is conducted through the expression and stabilization of PRDM16. Finally, it will increase metabolism through thermogenic activity, sequentially reducing the risk of obesity's metabolic complications.

**Keywords:** *beige adipocyte, PPAR gamma, obesity, PRDM16.*



# Microencapsulated curcumin coated by chitosan as insulin resistance and atherosclerosis prevention in obesity

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## Abstract

Obesity is currently referred to as the New World Syndrome, the numbers of obese people continues to rise. Obesity prevalence has increased over time. Overweight and obesity are the risk factors for type 2 diabetes mellitus (T2DM) and atherosclerosis. Obesity increasing the risk of T2DM by induce insulin resistance. The recent studies suggest curcumin would able to decrease the risk of insulin resistance, T2DM, and atherosclerosis. However, the bioavailability of orally administered curcumin is low. Recent studies examining the distribution rate of microencapsulated curcumin has succeeded increase the potential of curcumin. The methods we used in this paper by summarizes general facts through librarys research then analyze and suggest a conclusions to solve the problem. The data obtained are compiled and analyzed in accordance with methods of descriptive analitic argumentative. Curcumin prevent insulin resistance by inhibiton TNF-  $\alpha$  level and NF-  $\kappa$ B activation. It also induce activation of PPAR- $\gamma$  which increase insulin sensitivity. Curcumin has shown us anti-atherosclerotic action through protection against inflammation and oxidation, modulation of cholesterol homeostasis and inhibition of platelet aggregation. Curcumin microencapsulation coated by chitosan will protect the form of the active substances and control the release of active substances. Microencapsulation process of curcuma longa can be use with a spray dryer method.

**Keywords:** *Atherosclerosis, Curcumin, Insulin Resistance, Microencapsulation, Obesity.*



# Intravenous Trojan horse liposome-mediated central leptin gene therapy: An approach to counter central leptin insufficiency

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## Abstract

Leptin is one of important hormones to keep stabile body weight through modulating the balance between orexigenic and anorexigenic signal. Major non-genetically obese people are though as a result from leptin insufficiency in central nervous system (CNS), cause less stimulation in its receptors. Exogenous leptin administration delivered directly to the brain with stereotactic injection has been shown improve leptin stimulation and decrease body weight significantly. Because of the adverse effect related with its procedure, Trojan horse liposome (THL)-mediated central gene therapy is generated, delivering therapeutic gene intravenously with no requirement for surgical approach and effectively across BBB. The long-term beneficial effects of intravenous THL-mediated central leptin gene therapy may herald the development of newer therapeutic strategies to control the epidemic of obesity and related metabolic disorders. In this review, we summarize the potency of combination central leptin therapy and Trojan horse liposome to compensate central leptin insufficiency

**Keywords:** *Leptin gene therapy, leptin insufficiency, obesity, trojan horse liposome*



# Fructose: a novel paradigm in childhood obesity cause and management

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## Abstract

### Introduction

Not treated, childhood obesity will create a huge medical and economical burdens on Indonesia's healthcare system. The current approach by decreasing calories consumed and increased calories expenditure however is flawed at best. New approach is needed to solve this problem.

### Methods

We did literature review on PubMed and Cochrane Central Registration of Controlled Trial.

### Result

Epidemiological and biochemical evidence showed that fructose plays an important role in childhood obesity. A longitudinal epidemiological study showed that fructose plays the most important role in predicting obesity in children. Biochemical evidence showed that fructose has effect on leptin.

### Discussion

Reduction in fructose consumption by public health policy may bring enormous health benefits in reducing childhood obesity

### Conclusion

Epidemiological and biochemical researches showed the importance of fructose in obesity. Public health intervention in reducing fructose consumption may have significant effect on reducing childhood obesity.

**Keywords:** *childhood obesity, fructose, leptin, public health*



# The metabolic and reproductive effect of exercise and diet in obese PCOS women : Let the evidence guide us

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## Abstract

### Purpose

The first line treatment of PCOS is lifestyle modification including diet and exercise. This review focus on identifying the metabolic and reproductive effect of diet and exercise in obese PCOS women

### Method

We searched for articles published from 1 January 2004 to 20 January 2014 and used electronic databases. Article were selected and reviewed based on inclusion and exclusion criteria.

### Result

Lifestyle modification programs with an emphasis dietary and exercise interventions have been successful in reducing the risk comorbidities in the general population and improving reproductive and metabolic features in PCOS.

### Conclusion

Lifestyle modification should be incorporated in treating obese PCOS patients to reduce their long-term risks for diabetes, hypertension, dyslipidemia, and cardiovascular disease and to increase the probability of spontaneous pregnancy. However, the specific guideline for lifestyle modification emphasising in diet and exercise for PCOS patient requires futher research and investigation.

**Keywords:** *PCOS, Diet, Exercise, Obesity, Metabolic, Reproductive, Effect*



# Chewing whey candy before dinner as an obesity prevention in lean college students

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## Abstract

**Introduction:** College student is more attracted in soft drink consumption. Although this habit cause obesity. Some effort had been tried which is associated with weight management. This review article is focused in nutrient contain pre-meal which cause reduced energy intake, that is protein.

**Method:** This review article use literatures on the internet which is linked with obesity prevention and CCK release comparison between macronutrients.

**Result:** Signal satiety, CCK is increased greater following to high protein ingestion compared to any higher macronutrients. More chewing activity in eating also contribute to increase this hormone.

**Discussion:** High protein and chewing activity pre-meal can increase CCK in duration, so that will reduce energy intake. And whey candy is simple taken in evening time before dinner.

**Conclusion:** Whey candy is the problem solving to reduce energy intake due to its contain of protein and fiber. This fiber content needs to be more chewed up.

**Keywords:** *Obesity, Whey, College, CCK, Chewing*



# Effect of vitamin D in obese patient via Uncoupling Protein-2 (UCP2)

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## Abstract

The prevalence of obesity increased throughout the world. WHO estimates that there are more than 35% of adults in the world aged 20 years or older are overweight and 11 % of them are obese. Obesity is also often associated with problems of cellular insulin resistance and take up glucose from the liver to the adipose tissue fat and muscle. This condition has become one of the risk factor for cardiovascular disease and type 2 diabetes mellitus (T2DM). In the fact, the prevalence of diabetes increased with increasing incidence of obesity. Previous study find the association of the UCP2 promoter with obesity. Ability of UCP2 to reduce ATP production and inhibit insulin secretion by pancreatic  $\beta$ -cells has placed this mitochondrial protein as a candidate target for therapeutics in diabetes mellitus with obesity. Vitamin D has ability to reduce UCP2 expression. Methods used in this paper by library research methods. The data obtained are compiled and analyzed in accordance with methods of descriptive analysis argumentative. UCP2 plays role in insulin regulation. It also has important role in the pathogenesis in T2DM and cardiovascular disease in obesity. UCP2 as candidate genes for obesity and T2DM can be reduced by Vitamin D. Use of vitamin D in patient with obesity will lower metabolic disturbance and body weight.

**Keywords:** *Insulin, Obesity, UCP2, Vitamin D*



# Physical exercises and nutritional guidance versus simvastatin on children With obesity-related dyslipidemia

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## Abstract

The rise in childhood obesity has lead to an increased number of children with lipid abnormalities. Therefore, there is increasing evidence to suggest that the atherosclerotic process begins during early childhood. Today we recognize 2 treatments of dyslipidemia, pharmacologic and nonpharmacologic. The aim of this article is to compare nonpharmacologic management (physical exercises and nutritional guidance) with pharmacologic treatment (Simvastatin). We found that nonpharmacologic management can decrease level of body mass index (BMI) about 4.1%, total cholesterol (TC) about 11.7%, and low-density lipoprotein cholesterol (LDL-C) about 13.9%, where simvastatin had significant effect in reduction of total-C (-31%) and LDL-C (-41%), but almost had no significant effect to BMI. We then conclude that the best first line management of children with obesity-related dyslipidemia is physical exercises and nutritional guidance, where pharmacologic treatment can be used for whom those interventions are not sufficiently effective.

**Keywords:** *Physical exercises, nutritional guidance, simvastatin, BMI, cholesterol, LDL*



# ***Ursodeoxycholic acid* in prevention of gallstone formation after rapid weight loss from a very-low-calorie diet or low-calorie diet: An evidence-based review**

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## **Abstract**

Obesity is associated with increased bile stasis and cholesterol saturation, which will lead to gallstone development. Although it would appear to be advantageous to promote weight loss in obesity, the weight loss itself also becomes the risk factor that cannot be ignored. Recently, the kinds of diet with calorie restriction, very low calorie diet (VLCD) and low calorie diet (LCD) are begun to attract many people. Despite the potential health benefits of weight reduction, currently there are no consensus with regard to gallstone prevention in obese patients who undergone weight reduction by VLCD or LCD. Nonsurgical preventions for primary gallstones need greater consideration. *Ursodeoxycholic acid* (UDCA) is a bile salt that reduces the secretion of cholesterol into bile and increases cholesterol solubility. Review from several trials suggests that UDCA may be the prophylaxis agent for preventing gallstone development.

**Keywords:** *BMI, Cholelithiasis, Cholesterol, LCD, Obesity, RCT, UDCA, VLCD, body mass index, low calorie diet, randomized controlled trial, Ursodeoxycholic acid, very low calorie diet*



# Water conditioner (WACOND) as therapeutic innovation obesity in children

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## Abstract

Childhood obesity has negative impacts during children development. Obese children have high risks of morbidities and mortalities. Controlling weight involves several strategies such as dietary therapy, physical activity, pharmacotherapy, and surgery. Else, an additional therapy can be used in controlling weight and preventing obesity. This article review aims to assess Water Conditioner (WACOND), a cool bath therapy innovation for children in controlling weight obesity during childhood. Several steps were used to make this article review. Those are determining problems, collecting references, analyzing problems, creating conclusion and recommendations. WACOND is a bathroom specifically designed for childhood obesity therapy using acute exposure of cool water between 18-22 ° C temperature which resulting in burning body fat by Brown Adipose Tissue (BAT). This mechanism then generates heat, contributing to body fat's reduction. In advance, a cool bath therapy using WACOND works effectively as an adjunctive therapy in controlling weight for early obese children.

**Keywords:** *Childhood Obesity, Obesity Treatment, Water Conditioner, Brown Adipose Tissue.*



# Intrauterine caloric restriction: Hidden mechanism potentially initiate transgenerational amplification of obesity

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## Abstract

The obesity epidemic is a global public health issue and consequences for all areas of medicine. Globally, prevalence of obesity has doubled in the last two decades. Within obstetrics, obesity during pregnancy increase higher risk of gestational diabetes, misscarriage, pre-eclampsia, hypertension, and maternal death. Past studies found, calorie restriction during pregnancy of obese maternal initiate serious effect toward intrauterine transgenerational cycle, primarily on improving glucose tolerance. Further impact could be seen spreadly from offspring until adult age. This review, analyzed several studies retrieved and arranged into a systematic explanation. Studies compared indicate mostly same result. They confirmed that moderate caloric restriction during pregnancy trigger to imbalanced orexigenc and anorexigenic hypothalamic peptides that induce hyperphagia in postnatal offspring. Disruption on hormonal system leads to an earlier onset of insulin resistance and hyperleptinemia. This review performed an analysis concerned on caloric restriction as one of major determinant factor to obesity.

**Keywords:** *childhood obesity; caloric restriction; programming hypothalamic.*



# Anti-obesity effect of *Abelmoschus manihot* extract

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## Abstract

Obesity is one of the biggest public health problems nowadays. It is estimated that one of every three people worldwide was now overweight. *Abelmoschus manihot*, also known to the locals as “gedi” is known as a medicinal plant uses by locals to cure various kind of illnesses. A number of flavonols and fitosterols have been isolated from the plant extract. An animal study conducted on rats shows that *A. manihot* extract has anti-obesity effect. This review is written use a descriptive method based on previous studies that valid and relevant. Data in this literature are secondary and come from various literatures, relevant to the main discussion topic. Result shows that quercetin, myricetin, and fitosterol contain in *A. manihot* extract have anti-obesity effect.

**Keywords:** *Abelmoschus manihot*, obesity



# Water consumption control increase weight loss in obesity

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## Abstract

Obesity is defined as excessive fat accumulation that assessed in clinical practice by Body Mass Index (BMI) greater than 30. Obesity is the fifth leading risk for deaths. Effective management and compliance to reduce body weight are needed. This literature review discusses about several studies that showed water consumption control can reduce body weight in obese adults, including setting schedule of water intake and its influence to weight loss. We analysed and synthesised several journals, textbooks, and international electronic publications at least last 10 years. It is observed that premeal water consumption among obese older adults, which is consistent with consuming approximately 2 cups of water before a meal over 12 weeks reduced meal energy intake by approximately 74 kcal. Delayed gastric emptying and thermogenesis may contribute by reducing hunger, promoting fullness, and increasing rest energy expenditure.

**Keywords:** *obesity, water, weight loss, management*



# Pomegranate : Potential prevention and treatment in obesity using the anti-obesity and anti-inflammatory agents in PPARs pathways

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## Abstract

Obesity is a major problem that threatening the world. In this century, the prevalence of obesity is high in low-and middle-income countries. Although the current therapeutic tools used for weight management are lifestyle interventions, pharmacotherapy, and surgery, dietary intervention like pomegranate fruit maybe the safest and most cost-effective option for those who are moderately obese. The Methods in this study is conducted by the method of literatur review based on issues, through the internet such as scientific articles, WHO statistical data of obesity, and thesis of medical student. The result and conclusion in this review are the compounds of pomegranate such as ellagitannin and fatty acid that potentially increased the weight-loss in PPARs pathway as an anti-obesity, anti-inflammatory agents and lipid-lowering. The commensal bacterias also have beneficial effects in the mechanism of action in lamina propria.

**Keywords:** *obesity, pomegranate, PPARs, anti-obesity*



# Enhanced external counterpulsation for glycemic control and anti-obesity effect

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## Abstract

Obesity threatens public health and quality of life globally. The mortality rate is associated with cardiovascular disease and type 2 diabetes mellitus. Recently, we found an noninvasive cardiovascular disease, enhanced external counterpulsation (EECP), that reduce 2 hour-plasma glucose level similar by physical exercise. We hypothesize that EECP may have glycemic control and anti-obesity effect. EECP is affect glucose uptake in skeletal muscle and improve vascular function by increasing bioavailability of nitric oxide and vascular endothelial growth factor. EECP also reduce inflammatory cytokines, especially tumor necrosis factor- $\alpha$  which is release by adipose tissue. Nevertheless, we haven't found studies that observe BMI nor fat mass by EECP. The current regiment also adjusted to treat cardiovascular disease and never intended to control glucose level or obesity. In conclusion, EECP has proven its benificiality as a exercise mimetic therapy, thus may have a role in glycemic control and anti-obesity effect.

**Keywords:** *EECP, Obesity, glycemic control, anti-obesity*



# High protein breakfast as treatment for obesity

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## Abstract

Obesity is one of the diseases that can cause variety of complication which is life threatening such as diabetes, heart attack, and many more. There are so many factors that can trigger the onset of obesity. One of them is habit to skip breakfast that suspected to increase hunger and urge to snacking. The objective of this review article is to find the relation between high proteins diets to several mechanisms that including hormonal and brain activity that can reduce hunger and food motivation and increase satiety that can result in weight loss. We also show that breakfast has association with high protein intake. We look for some articles related to our review article from 2004-2014 using the search engine of google scholar, Pub Med, and many more. The result show us that high protein breakfast can reduce food intake so that it can be one of treatment of obesity

**Keywords:** *High protein diet; breakfast; obesity; satiety; reward*



# Effect of prebiotic on metabolic endotoxemia associated with gut microbiota in obesity

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## Abstract

Obesity is one of non-communicable disease that has many complications. The prevalence is increasing overtime, not only in Indonesia but worldwide. It is believed that obesity is caused mainly by dietary habit directly, but there is actually intermediate factors unknown by common people between them. The intermediate factor is intestinal microbiota, especially *Bifidobacteria*. *Bifidobacteria* is a probiotic that would be increased in the presence of prebiotic. Therefore, we think that there is a correlation between prebiotic intake and the mechanism of obesity. To support our scientific paper, we use free and latest journal. The findings show correlation, but there are still much controversion.

**Keywords:** *Gut Microbiota, Metabolic Endotoxemia, Obesity, Prebiotic*



# Potential of bariatric surgery as primary treatment for obese patients

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## Abstract

**Background:** obesity is a growing problem in both developing and developed country as it is source of many non-communicable diseases. Struggles to find better treatment and prevention of obesity also keep on advancing, however, non-surgical treatments such as weight loss programs and pharmacotherapy so far is only effective to reduce up to 10% of body weight. On the other side, surgical treatment, bariatric surgery, despite having better mortality rate and being more beneficial and cost-effective, is only used as the last measure when other treatment fail. That is why, a study is needed to expose the potential of bariatric surgery as the main choice for obesity treatment.

**Obejective:** to discuss the potential of bariatric surgery as the primary treatment xfor obese patients

**Methods:** Method used in to create this article review is conducting search on internet, especially in journal databases which are Pudmed, Science Direct, Springerlink and NEJM. The articles and journals are then assessed and analyzed for choosing the information appropriate for this literature review.

**Results and Conclusion:** Bariatric surgery so far is only used as the last resort for treating obese patients. It is because of the fear that Bariatric surgery may has unnecessary risks to the patient's life. Despite the risk of complication and failure after the surgery, studies have shown that the mortality rate of obese patient that receive non-surgical treatment is worse than their counterparts, not to mention that the benefit and cost-benefit of bariatric surgery are already proven. That is why bariatric surgery should be considered as one of the primary choices for treating obese patients.

**Keywords:** *Obesity, Surgery, Bariatric Surgery, Obesity Treatment.*



# The role of thymoquinone from *Nigella sativa* as insulin receptor sensitizer in diabetes type 2 treatment on obese patient

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## Abstract

Obesity is a principal causative factor in the development of metabolic syndrome. Obesity are the fifth leading risk for global deaths. At least 2.8 million adults die each year as a result of being overweight or obese. Obese condition inscreases risk of diabetes, heart disease, stroke, and some cancers. Due to accumulated fat in obese person, production of Reactive Oxygen Species (ROS) is increased selectively. Oxidative stress is the basic pathomechanism of insulin resistance. ROS which is circulated in the blood may cause negative effect on pancreatic sel  $\beta$ . Thymoquinone *Nigella sativa* showed evidence that it can reduce ROS. When oxidation inhibited the activity of glucose transport and insulin signaling will function normally thus insulin receptor sensitized and insulin production normalized. Therefore, Thymoquinone from *Nigella sativa* can be used for type 2 diabetes melitus treatment in obese person by sensitisizing insulin receptor.

**Keywords:** Obesity, T2DM, Thymoquinone, *Nigella sativa*, insulin resistance

