

# Complementary alternative therapy for obesity

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Alireza Esteghamati ,M.D

Professor of Endocrinology and Metabolism

Tehran University of Medical Sciences

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# Introduction

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Complementary and alternative medicine is defined as :

“the use and practice of therapies or diagnostic techniques that may not be part of any current Western health care system, culture, or society.”

Examples of CAM include :

Acupuncture, chiropractic, herbal medicine, homeopathy, and naturopathy

# Introduction

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- 34% of the US population was using at least 1 form of CAM in 1990
- By 1997 that number had grown to 42%.
- This amounts to 629 million office visits to alternative practitioners in 1997
- Compared with 386 million office visits to primary care providers

# Introduction

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- With the increasing prevalence of obesity, there are a large number of alternative treatments touted for weight loss.
- Dietary supplements are the most commonly used complementary therapy for weight loss.
- A recent study showed that 34% of a representative sample used a dietary supplement for weight loss sometime in their lives, and nearly 1 in 10 have done so in the past year

# DIETARY SUPPLEMENTS

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## Caffeine/Ephedrine/Ephedrine Alkaloids

- About 80% of supplements used contain naturally occurring stimulants, such as caffeine and ephedrine.
- The combination of caffeine and ephedrine has **thermogenic properties** that increase energy expenditure and promote weight loss.

# DIETARY SUPPLEMENTS

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## Caffeine/Ephedrine/Ephedrine Alkaloids

Numerous studies have evaluated the effects of caffeine and ephedrine on weight loss in overweight and obese subjects with the typical dose being 200mg caffeine/20mg ephedrine 3 times daily.

Ephedrine is the primary active ingredient of herbal ephedra, also known as ma huang.

In herbal products, caffeine is often derived from guarana or kola nut.



# Ma huang

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# Guarana or kola nut

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(c) Azarius



(c) Azarius

# Kola nut

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- Kola nut was the main ingredient in Coca-Cola after cocaine became illegal.
- Whether or not it is still an ingredient in Coca-Cola is a secret, but it can be found in Pepsi cola.
- In Jamaica and Colombia Kola nut is consumed as a sexual stimulant similar to cocaine

# Caffeine/Ephedrine RCT

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8-week double-blind, RCT of 67 overweight subjects

Combination of ma huang and guarana, 72 mg/240 mg/d, effectively decreased weight, with an average loss of 4 kg compared with 0.8 kg in the placebo group.

Percentage of body fat, W/H circumferences, and TG decreased significantly more in the active treatment group.

There were no differences in BP or blood chemistries

HR increased in the active treatment group, 7 bpm.

There were 8 dropouts

# Caffeine/Ephedrine RCT

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A prospective, double-blind, RCT by Boozer

Long-term safety and efficacy of a **ma huang/kola nut** supplement for weight loss.

About 167 healthy, adult volunteers were randomized to receive **30 mg ephedrine alkaloids/64 mg caffeine** or placebo 3 times daily

# Caffeine/Ephedrine RCT

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At 6 months, subjects in the herbal treatment group lost significantly more weight and body fat than that of placebo, 5.3 kg versus 2.6 kg ( $P<.001$ ) and 4.3 kg versus 2.7 kg ( $P<.020$ ), respectively.

Other significant differences in favor of the herbal group included decreased waist and hip circumferences.



# Caffeine/Ephedrine RCT

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BP was not significantly different between the 2 groups, but HR increased significantly in the herbal group and decreased in the placebo group, (+ 4 bpm vs 3 bpm)

Dry mouth, heartburn, and insomnia were reported significantly more in the active treatment group



# Meta-analysis of the efficacy and safety of ephedrine for weight loss / athletic performance

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- The estimate of the rate of weight loss was 1 kg/mo more than weight loss with placebo.
- Subjects receiving ephedrine had a 2.2 to 3.6 increased odds of psychiatric symptoms, autonomic hyperactivity, UGI symptoms, and palpitations.
- There is sufficient evidence to support the effectiveness of up to 6 months of ephedrine/ caffeine for weight loss.
- Side effects may preclude its use in patients with chronic cardiovascular or psychiatric illnesses

# Chromium

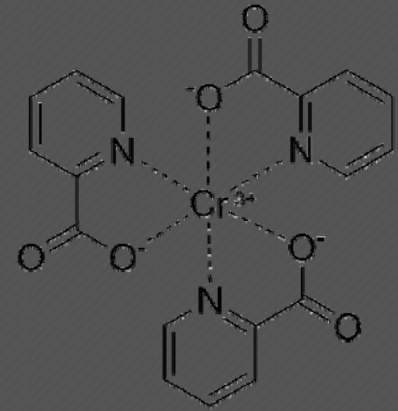
16

Chromium picolinate is advocated in both medical and lay literature for reducing body weight.

Chromium is an essential trace mineral that **enhances insulin activity** and has shown some benefit for the control of diabetes.

Picolinic acid is a naturally occurring **derivative of tryptophan**.

Effects of chromium picolinate include an **increase in lean body mass, decrease in percentage of body fat, and increase in metabolic rate**



# Chromium meta-analysis on RCT

17

Ten trials (489 participants) were included in the analysis, which showed a statistically significant reduction in body weight in chromium-treated patients compared with placebo (mean difference, 1.1 kg).

The data also suggested a significant effect for percentage of body fat (mean difference, 1.2%) but not lean mass.

Only 3 of the trials reported on adverse events, all of which demonstrated a lack of adverse events in participants receiving chromium picolinate.



# Chromium

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The clinical relevance is **debatable due to the small size of the effect.**

Additionally, the **methodology of the included studies was variable, thus decreasing the robustness of the meta-analysis**

There have been case reports of adverse effects due to chromium picolinate, including **rhabdomyolysis and severe renal impairment**

# Supplements

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**Fish Oil** : cannot be recommended for weight loss

**Calcium Supplements**: There is no conclusive evidence that calcium supplementation results in weight loss

**Diacylglycerol** : DG is a minor component of dietary oils and fats , The FDA is reviewing it

**Conjugated Linoleic Acid** : it appears that supplementation with CLA cannot be recommended at this time for weight loss in obese patients.

# Supplements

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Pyruvate: Pyruvic acid is a by-product of glucose metabolism. It is an alpha-keto acid, which is converted to lactic acid

More evidence is needed before pyruvate can be recommended for weight loss.

Garcinia : Hydroxycitric acid comes from the fruit and rind of garcinia and interferes with lipogenesis.

There is insufficient evidence to support the effectiveness of garcinia extract for weight loss



# Garcinia Cambogia Is The Strongest Fat Buster

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# Suppress your appetite, start burning

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**100% ALL NATURAL INGREDIENTS**

**100% NATURAL**

**MADE IN U.S.A. PRODUCT**

**GARCINIA CAMBOGIA EXTRACT**

**CONTAINS 60% HYDROXYCITRIC ACID (HCA)**

**CONTAINS POTASSIUM AND CALCIUM**

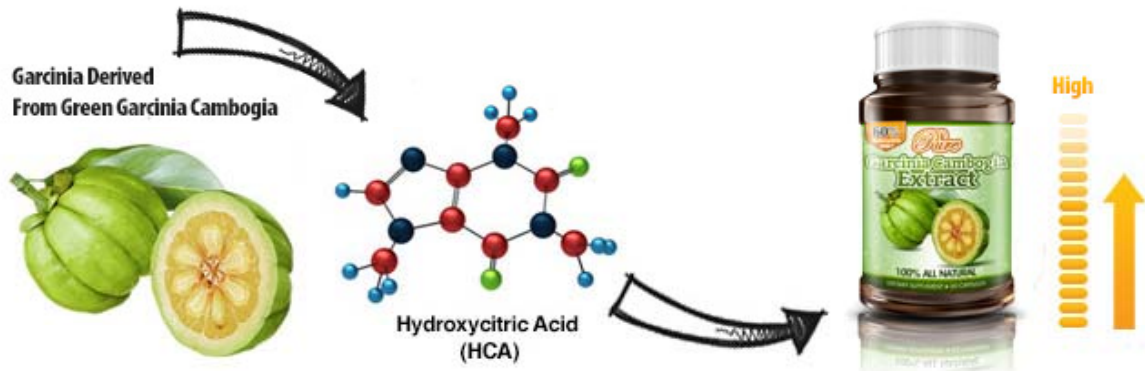
**THE RECOMMENDED DOSAGE IS 500-1000 MG BEFORE EACH MEAL**

The advertisement features a wooden background with a collage of green Garcinia Cambogia fruits, a sliced fruit, and a chemical structure diagram of Hydroxycitric Acid (HCA). A large orange arrow points from the fruit collage towards the list of benefits on the right. The text is presented in a bold, sans-serif font, with key claims highlighted in white boxes with green checkmarks.

# Garcinia Cambogia

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The **REAL POWER** Behind **Garcinia Cambogia** is its key ingredient, **Hydroxycitric Acid (HCA)**



HCA inhibits citrate lyase enzyme in your body which is known to be an important catalyst in the metabolic process of converting excess carbohydrates into fat.

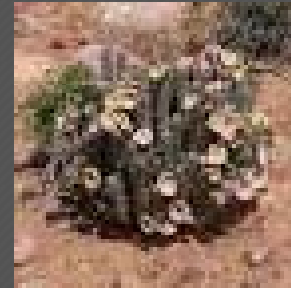
# Supplements

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**Hoodia** : is a succulent herb that grows in the Kalahari Desert

Reports that native Africans use hoodia to reduce hunger during long hunts.

There are **no RCT** evaluating the effectiveness of hoodia supplements on weight loss





# Chitosan

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Chitosan is derived from crustaceans.

It is promoted as a remedy to reduce fat absorption

The meta-analysis concluded that the effectiveness of chitosan for body weight reduction is not established beyond reasonable doubt



## Botanicals in the Treatment of Obesity

### *Tea (Green, Black)*

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Green tea is created when tea leaves are processed soon after collection, and black tea leaves are crushed before fermentation.

Tea is believed to induce thermogenesis through actions of polyphenol constituents called catechins, which inhibit the breakdown of norepinephrine.

This results in a rise in mitochondrial oxidation and lowered coupling with ATP synthesis, producing heat.

Alternatively, catechins may impair angiogenesis and retard the development of adipose tissue.



# Green tea

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Green tea catechins, and epigallocatechin gallate (EGCG) have been demonstrated in cell culture and animal models of obesity to reduce :

Adipocyte differentiation and proliferation, lipogenesis, fat mass, body weight, fat absorption, triglycerides, free fatty acids, cholesterol, glucose, insulin and leptin, as well as to increase beta-oxidation and thermogenesis.

Since EGCG is regarded as the most active component of green tea, its specific effects on obesity should also be investigated in human trials.

# Green tea

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# The Probable Reasons for Obese Person to Prefer Herbal Products for Weight Management

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- 1) Health benefits of weight loss without any side effects.
- 2) Less demanding than accepted lifestyle changes, such as exercise and diet.
- 3) Easily available without a prescription.
- 4) More easily accepted than a professional consultation with a physician or a nutritionist.
- 5) 100% natural origin and perception that natural means safe.

## Herbal Approach for Obesity Management

An ideal herbal anti obesity product should reduce the weight by 10% over placebo of treatment

Showing an evidence of improvement of bio markers like BP , lipids and glycemia without any side effects.

# Ayurveda

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In Ayurveda, the five elements of **space, air, earth, fire and water** make up everything in the universe including the human body.

These elements come together to create three different constitutional types, or doshas,

known as Vata (airy), Pitta (fiery), and Kapha (earthy).

Table 1. List of herbs marketed for dietary supplements in India.

Botanical name	Sanskrit/official name	Part(s) used
<i>Acacia arabica</i>	Babul	Gum, bark, leaf, fruit-pods
<i>Acacia catechu</i>	Khadira	Bark, heartwood, flower
<i>Achyranthus aspera</i>	Apamarga	Root, seed, leaf, whole plant
<i>Aconitum heterophyllum</i>	Ativisha	Root, rhizome
<i>Acorus calamus</i>	Vacha	Rhizome
<i>Adathoda vasica</i>	Vasa	Leaf, root, flower
<i>Aloe vera</i>	Kumari	Leaf, root
<i>Alstonia scholaris</i>	Saptaparna	Bark, latex, flower
<i>Ananas comosus</i>	Ananas	Fruit
<i>Anthocephalus chinensis</i>	Kadamba	Bark, leaf, fruit, root
<i>Asadistachya indica</i>	Nimba	All parts
<i>Berberis aristata</i>	Daruharidra	Root, stem, fruit
<i>Betula utilis</i>	Burja	Bark, nodes
<i>Calatropsis gigantea</i>	Arka	Root, bark, flower, leaf, latex, seed
<i>Callicarpa macrophylla</i>	Priyangu	Flower, leaf
<i>Capitum annuum</i>	Kutavira	Fruit
<i>Cassia tora</i>	Chakramardha	Seed, leaf, root
<i>Cedrus deodara</i>	Devadaru	Heartwood oil
<i>Cinnamomum zeylanicum</i>	Twak	Bark, leaf, oil
<i>Cissampelos pareira</i>	Patha	Root, stem
<i>Clerodendrum phlomidis</i>	Agnimanthas	Root, bark, leaf
<i>Cocus nucifera</i>	Narikela	Fruit, flower, oil, root
<i>Commiphora Mukul</i>	Guggulu	Gum-resin
<i>Coriandrum sativum</i>	Dhanyaka	Whole plant, leaf, fruit
<i>Costus speciosus</i>	Kebuka	Rhizome
<i>Cuminum cyminum</i>	Joeraka	Seed
<i>Curcuma longa</i>	Haridra	Rhizome
<i>Desmostachya bipinnata</i>	Kusa	Root
<i>Dolichos biflorus</i>	Kulatta	Seed
<i>Embelia ribes</i>	Vidanga	Fruit
<i>Emblica officinalis</i>	Amalaki	Fruit
<i>Euphorbia nerifolia</i>	Sanhi	Latex, stem, leaf, root
<i>Ferula nortex</i>	Hingn	Oléo-gum resin

<i>Ficus lacor</i>	Plaksha	Bark
<i>Ficus religiosa</i>	Ashwatha	Bark, fruit, leaf
<i>Ficus rumphii</i>	Asmanthaka	Stem, bark, latex, fruit
<i>Garcinia indica</i>	Vrikshamla	Fruit, root, bark, oil
<i>Gymnema sylvestre</i>	Meishashringi	Leaf, root, seed
<i>Holarrhena antidysenterica</i>	Kutaja	Seed, bark
<i>Inula racemosa</i>	Pushkaramula	Root
<i>Marsdenia tenacissima</i>	Murva	Root
<i>Momordica charantia</i>	Karavellaka	Fruit, whole plant, leaf, root
<i>Moringa oleifera</i>	Sigru	Root, bark, seed
<i>Ougenia dalbergioides</i>	Timisa	Heart wood
<i>Picrorhiza kurroa</i>	Kahuka	Root
<i>Piper chaba</i>	Chavva	Root, fruit
<i>Piper longum</i>	Pippali	Fruit, root
<i>Piper nigrum</i>	Maricha	Fruit
<i>Plumbago zeylanica</i>	Chitraka	Root, bark
<i>Pongamia pinnata</i>	Karanja	Fruit, seed, oil, root
<i>Pterocarpus marsupium</i>	Bijaka	Heart wood
<i>Randia dumetorum</i>	Madanaphala	Fruit
<i>Santalum album</i>	Candana	Heartwood
<i>Saussurea lappa</i>	Kushtha	Root
<i>Sphaeranthus indicus</i>	Mundiraka	Whole plant
<i>Stereospermum sauvagense</i>	Patala	Root, bark, flower, seed, leaf
<i>Symplocos racemosa</i>	Lodhra	Bark
<i>Terminalia arjuna</i>	Arjuna	Bark, root, leaf
<i>Terminalia bellerica</i>	Bibhitaka	fruit
<i>Terminalia chebula</i>	Haritaki	fruit
<i>Terminalia tomentosa</i>	Asana	Bark, heartwood
<i>Thea sinensis</i>	Oolong tea	Leaf
<i>Tinospora cordifolia</i>	Guduchi	Stem, root
<i>Trachyspermum ammi</i>	Yavani	Fruit
<i>Tragia involucrata</i>	Yavasa	Whole plant
<i>Tribulus terrestris</i>	Gokshura	Fruit, root, whole plant
<i>Trigonella foenum graecum</i>	Methika	Seed, leaf, whole plant
<i>Valeriana jatamansi</i>	Tagara	Root
<i>Zingiber officinale</i>	Shunti	Rhizome



# Plants in ayurveda

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There are several plants described in ayurveda for weight management.

But so far, no **systematic and well designed screening** is attempted to come up with an effective herbal weight loss product.

**A better understanding in the existing evidence** based science on herbs will further guide a qualitative research in obesity management that will attract the end users by the effective benefits.

## Plants in ayurveda

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True randomized, double blinded, placebo-controlled clinical trials using herbal products will demonstrate their potential benefits.

Significant weight loss after placebo sub-traction along with known mechanism of action are required in order to generate conviction amongst users as effective agent for weight management.

# Homeopathy

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Homeopathy is “a system of therapy based on the concept that disease can be treated with drugs (In minute doses) thought capable of producing the same symptoms in healthy people as the disease itself

doctrine of *like cures like*



Samuel Hahnemann, the founder of homeopathy

# Homeopathy

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Two studies on homeopathy for the treatment of obesity have been identified.

In the first trial, *Helianthus tuberosus* D1 was used in patients with an average BMI of 28 kg/m<sup>2</sup>.

After 12 weeks, it was found that the treatment group had lost significantly more weight than that of the control group.

In the second study, it was found that *Thyroidinum* 30cH was no more effective than placebo when used as an appetite suppressant.

Based on this conflicting evidence, the use of homeopathic remedies for the treatment of obesity cannot be recommended.

# Hypnosis

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Hypnotherapy is “the **induction of trance states** and the use of therapeutic Suggestion

Your hypnotherapist ,guide you into **a state of deep relaxation**

Over time you will **learn how to replace** your negative habits and eating patterns with positive ones suggested by your hypnotherapist



# Hypnosis

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Hypnosis, also referred to as hypnotic suggestion, is a trance-like state in which you have heightened focus and concentration.

Hypnosis is usually done with the help of a therapist using verbal repetition and mental images.

When you're under hypnosis, you usually feel calm and relaxed, and are more open to suggestions.

It's important to know that although you're more open to suggestion during hypnosis, you don't lose control over your behavior.

# Hypnosis

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There have been 2 meta-analyses conducted that look at the effect of hypnosis on weight loss.

In a meta-analysis Kirsch and colleagues compared 6 RCT, which compared cognitive-behavioral therapy alone versus cognitive behavioral therapy with hypnosis.

They concluded that adding hypnosis as an adjuvant increased the amount of weight loss.

As described by Allison, a second group of authors found several transcription and computing errors in the Kirsch meta analysis.

Upon correcting these, it was concluded that hypnosis resulted in, at best, a small improvement in the treatment effect

# Yoga and Weight Control

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Yoga is a **mind-body practice** that people use to improve relaxation, fitness and health

In 15,500 healthy, middle-aged adult  
in a retrospective study

overweight people who practiced yoga for **four or more years** lost **5 pounds**,

while overweight people who **did not practice yoga**  
during the same period of **time** gained **14 pounds**.



# Yoga and Weight Control

41

People who **eat mindfully** are more **aware** of the reasons they eat and their feelings of hunger or fullness

**Further research is needed** on the impact of yoga on mindful eating, as well as other factors that alter energy balance



Statue of Shiva in Bangalore, India, performing yogic meditation in the Padmasana posture

# Acupuncture

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Acupuncture is defined as, “the insertion of very fine needles (sometimes in conjunction with electrical stimulus), on the body’s surface, in order to influence physiological functioning of the body.”



Old Chinese medical chart on acupuncture meridians



# Acupuncture In a rat model

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Affected the **ventromedial nucleus of the hypothalamus**.

In this area of the brain, rats that were stimulated with acupuncture needles demonstrated:

**Decreased tyrosine and dopamine**

**Increased 5-hydroxytryptamine and 5-hydroxyindoline.**



Thus, acupuncture appears to work **on neurotransmitters** within the brain to **suppress appetite** levels and thus help with weight loss.

# Mechanisms of acupuncture on weight loss

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TCM holds that obesity belongs to the mixture of **root-deficiency** (mainly qi deficiency) and **symptoms excess** (excess of phlegm-dampness).

Acupuncture acts to strengthen the function of spleen, stomach, liver and kidney, supplement antipathogenic qi and **remove pathogenic qi**

By **stimulating points and regulating meridians**



# Auricular acupuncture

45

Shiraishi et al. (1995) reported that auricular acupuncture applied to rats produced :

1- Reduction of the neural activity of lateral hypothalamus (LH, considered as the “feeding center”)

2-increase of the neural activity of ventral medial hypothalamus (VMH considered as the “satiety center”).

Because of this, it could help to control the sense of hunger.

3- suppresses the appetite by stimulation of the auricular branch of nervous vagus, which has been shown to increase tone in the smooth muscle of the stomach, thus suppressing appetite (Richards& Marley, 1998).

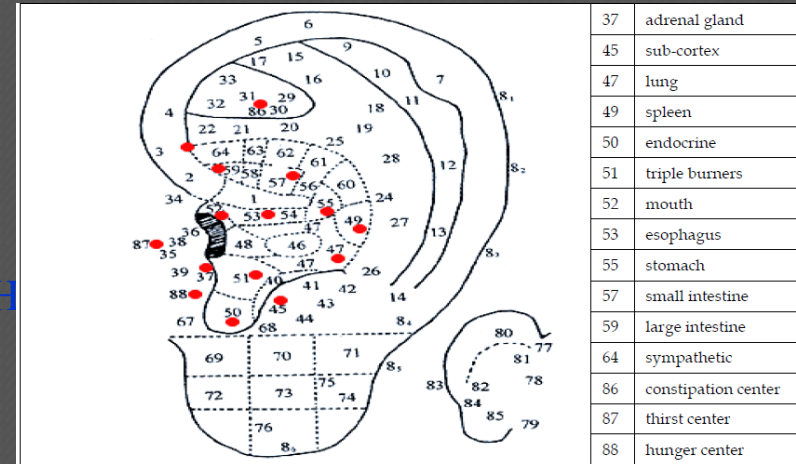


Fig. 4. Selected aural acupoints in weight loss (ICMHL, Shen-Nong Info. e)

In sum, the weight loss function of acupuncture might work through the following three means

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### 1-Regulating nerve system

It is believed that when needling certain acupoints peripheral nerves were stimulated to regulate the autonomic nerve of the internal organs and make coordination between sympathetic and parasympathetic nerve

Which can inhibit gastric emptying and correct abnormal appetite on one side

and promote intestinal peristalsis and reduce the food absorption on the other side

In sum, the weight loss function of acupuncture might work through the following three means

47

### 1- Regulating nerve system

Acupuncture causes changes in  $K^+$ ,  $Na^+$ , and  $Ca^{++}$  in the neurons (Deng, 1995), and the amount of neuropeptides like beta endorphin, leucine, enkephalin, and neurotransmitters like aspartate in CNS (Fu, 2000).

Researchers strongly support the opinions that the effect of acupuncture is arranged by the brain (Futaesaku et al., 1995) and that EA application causes a great change in the action potential of nerve cells



## 2-Regulating endocrine system

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Acupuncture can restore normal endocrine by regulating the two systems of “hypothalamus-pituitary-adrenal cortex” and “sympathetic adrenal cortex” (Shi & Zhang, 2005).

It has been determined that **endomorphin-1, beta endorphin, enkephalin, and serotonin levels increase** in plasma and CNS through acupuncture application.

Enkephalins as well as serotonin has an effect on feeling well, producing happiness, being pleased, producing a normal level of appetite, and achieving psychomotor balance.

These effects play a role in the arrangement of psychological behaviors, including dietary behavior

### 3- Regulating lipid metabolism

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Increases of endomorphin-1, beta endorphin, enkephalin, serotonin, and dopamine cause **lipolytic effects** on metabolism.

Needling certain points can **reduce the content of lipid peroxide** in the blood and accelerate the fat decomposition.

In addition, acupuncture can regulate water and salt metabolism and thus **correct the condition of water-salt retention**

# A systematic review on use of Chinese medicine and acupuncture for treatment of obesity

obesity reviews (2012) 13, 409–430

# A systematic review on use of Chinese medicine and acupuncture for treatment of obesity

51

- Obesity is a major health hazard and despite lifestyle modification, many patients frequently regain any lost body weight.
- The use of western anti-obesity drugs has been limited by side effects including :
- Mood changes, suicidal thoughts, and GI or cardiovascular complications

## **A systematic review on use of Chinese medicine and acupuncture for treatment of obesity**

52

The effectiveness and safety of traditional Chinese medicine including Chinese herbal medicine (CHM) and acupuncture provide an alternative established therapy for this medical challenge.

obesity reviews (2012) 13, 409–430



# **A systematic review on use of Chinese medicine and acupuncture for treatment of obesity**

53

In this systematic review, we used standard methodologies to search, review, analyze and synthesize published data on the efficacy, safety and relapse of weight regain associated with use of CHM and acupuncture

obesity reviews (2012) 13, 409–430

## **A systematic review on use of Chinese medicine and acupuncture for treatment of obesity**

54

The Jadad scale to assess methodological qualities, the random effect model in the pooled analysis of therapeutic efficacy to adjust for heterogeneity and funnel plots to explore publication bias was used.

# Results

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After screening 2545 potential articles from the electronic databases,  
96 RCTs identified

49 trials on CHM treatment

44 trials on acupuncture treatment

3 trials on combined therapy for appraisal.

There were 4861 subjects in the treatment groups and 3821 in the control groups

treatment duration ranging from 2 weeks to 4 months.

# Results

56

Efficacy was defined as body weight reduction 2 kg or BMI reduction 0.5 kg/m<sup>2</sup>.

Compared with placebo or lifestyle modification, CHM and acupuncture exhibited respective 'risk ratio' (RR) of 1.84 and 2.14 in favor of body weight reduction, with a

Mean difference in body weight reduction of 4.03 kg and 2.76 kg

Mean difference in BMI reduction of 1.32 kg/m<sup>2</sup> and 2.02 kg/m<sup>2</sup>, respectively.

Compared with the pharmacological treatments of sibutramine, fenfluramine or orlistat

CHM and acupuncture exhibited an RR of 1.11 and 1.14 in body weight reduction  
mean difference in body weight reduction of 0.08 kg and 0.65 kg

mean difference in BMI reduction of 0.18 kg/m<sup>2</sup> and 0.83 kg/m<sup>2</sup>, respectively



# Results

58

There were fewer reports of adverse effects and relapses of weight regain in CHM intervention studies conducted in China than studies conducted outside China.

CHM and acupuncture were more effective than placebo or lifestyle modification in reducing body weight.

They had a similar efficacy as the Western anti-obesity drugs but with fewer reported adverse effects.

However, these conclusions were limited by small sample size and low quality of methodologies

# Acupuncture being applied to the abdomen

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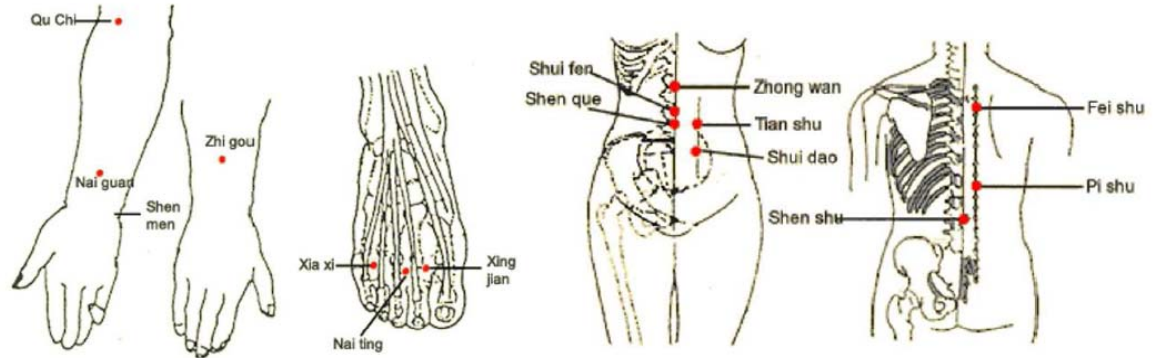


Fig. 3. Some examples of acupoints used for promoting weight loss (ICMHL, Shen-Nong Info. c)

# Electroacupuncture

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Fig. 5. An electric apparatus for electroacupuncture stimulation

# Warming needle

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Fig. 6. A pattern of warming needle moxibustion

# Noninvasive Body Contouring with Radiofrequency, Ultrasound, Cryolipolysis, and Low-Level Laser Therapy

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In 2009, the global market for all body-shaping platforms was expected to reach \$361.9 billion with more than 9 million procedures performed.

The annual growth in noninvasive body-contouring procedures is estimated to expand by 21% per year



# Body Contouring

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Historically and currently, the gold standard for body contouring still remains the various [techniques of liposuction](#)

- Suction: Massage Devices
- Suction-Massage: Thermal Devices
- Radiofrequency Energy Devices
- High-Frequency Focused Ultrasound Energy Devices
- Cryolipolysis Energy Devices
- Low-Level Light Laser Therapy Devices

# Indications and contraindications of noninvasive Body Contouring

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**Indications** include realistic expectations of a modest reduction of localized fat, modest cellulite improvement, compliance with multiple visits, reasonable BMI and lifestyle, and are opposed to a surgical procedure, which would get a better result.

**Contraindications** include if the patient is pregnant, has a pacemaker, is medically unwell, has unrealistic expectations, or has a large BMI.

# Indications and contraindications of noninvasive Body Contouring

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The best candidates and indications for noninvasive body contouring are those patients who are **very accepting of a mild to moderate result**; in fact, the best candidates are those who state they will be happy with any measurable reduction in fat.



Fig. 1. TriActive device. (From Cynosure; with permission.)



Fig. 2. VelaShape V9I device. (From Syneron and Candela Science; with permission.)



Fig. 4. Zerona device. (From Zerona Science and Media Images; with permission.)

# Conclusion

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For most complementary therapies there is little convincing evidence.

For hypnotherapy, and chromium picolinate small effects compared with placebo were identified.

For chromium picolinate, the debatable clinical relevance of the effect and the lack of robustness mean that the findings have to be interpreted with caution.

For dephedrine-containing supplements an increased risk of AEs



# Conclusion

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Researchers concluded that since acupuncture is a generally safe treatment, obese patients who want to try it should not be discouraged, **if they can afford to pay for it out of pocket.**

Given the current state of the science, insurers are unlikely to reimburse for it as a weight loss treatment.

**Long-term, well-designed clinical trials**, with details of acupuncture procedures, are needed to determine if acupuncture can be recommended as a primary strategy for weight loss.