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Effective fuling (Poria Cocos) for the treatment of obesity?

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Introduction

Obesity is a chronic disease that currently constitutes one of the major health problems of modern societies. In recent decades there has been an increase in the average weight of the population, as well as the prevalence of the number of obese individuals.[1–6] Obesity is associated with an increased prevalence of diabetes, hypertension, dyslipidaemia, hyperuricaemia, and gallbladder lithiasis. Waist circumference is now considered one of the main factors for the diagnosis of metabolic syndrome. According to the latest classification proposed by the International Diabetes Federation [7] are diagnostic criteria circumference of the upper waist 94cm for European and 80cm men for European women, triglycerides greater than 150mg/dl, HDL<40mg/dl for men and 50mg/dl for women, systolic blood pressure>130mmHg or diastolic blood pressure>85mmHg and fasting plasma glucose>100mg/dl.

Obese patients are often a dyslipidemia characterized by hypertriglyceridemia, lowering cholesterol and increased HDL LDL. This metabolic profile is present the most often in obese patients with accumulation of intra-abdominal fat, which has been associated with increased risk of ischemic heart disease (IHD).[8] It is estimated that, in Europe, the prevalence of obesity is 10-25% in most countries,[8] in the US of 30.5%[9] and in Portugal have 38.6% of adults overweight and 13.8% are obese.[10] In addition, also the alarming increase of overweight and obesity in the young in our country,[11] seem to justify launching projects aimed at better understanding of these diseases and the promotion of measures aimed at combating it. The XENDOS[12] is the largest study to date with a drug for weight loss. Among the various studies which demonstrate a reduction in weight, the more effective is the Orlistat at a rate of 30% in the prevention of absorption of fat ingested at a dose of 120mg three times a day.[13,14] Thus, this study will seek to verify whether it is really effective use of Poria Cocos in obesity compared with Orlistat.

Chapter 1 - Obesity, what is it?

Obesity is a multifactorial chronic disease,[15] where in the natural fat reserves increases to the point at which it becomes associated with other health conditions or increased mortality. It is the result of positive energy balance, i.e, food intake exceeds energy expenditure. Although it is an individual clinical condition, increasingly becomes a public health problem. It is characterized also as a matter of aesthetic and psychological nature, besides being a great risk to health. All human beings have caloric needs are to be eliminated properly, in order to provide its vital function. People with a history of malnutrition are susceptible to deficiencies in fat oxidation, hindering lipolysis, accumulating them. In the past these diseases were found in adults. However now, it is also identified in children, especially the introduction of the diets of fast-food food. Obesity is a current topic, and may become the most common health problem of the 21st century.[16] Evidence suggests that the problem is getting worse quickly, and the fact that obesity is closely associated with different chronic conditions means that we are facing a huge challenge to the system of health care. In Europe, the prevalence of obesity has tripled in the last two decades.

Chapter 2 - Current solutions

In Pharmacology: The primary treatment for obesity is to reduce body fat by means of an adequate diet and increased exercise. Diet and exercise programs produce an average loss of approximately 8% of the total weight. Not all are pleased with these results, but even the loss of 5% can significantly contribute to health. More difficult than losing weight is to maintain the reduced weight. Between 85% and 95% of those who lose 10% or more by weight recover all the weight lost within two to five years.[17] The body has systems that maintain their hemostasis in certain fixed points. When people come with obesity are encouraged to start a calorie reduction diet program, exercise and behavioral interventions that have a realistic goal weight loss. If there is no success in these changes, the pharmaceutical therapy is recommended to include: sibutramine, phentermine, diethylpropion, fluoxetine, bupropion or the most common, Orlistat. When people come morbid obesity are encouraged to perform bariatric surgery.

In Chinese medicine: Looking rebalance the physical elements using ancient techniques, seeking to combat obesity in conjunction with the adoption of a balanced diet. For in Traditional Chinese Medicine (TCM), obesity corresponds to Qi stagnation, a result of an irregular diet and emotional state that occurs while the individual feeds.[18]

For MTC 5 elements influence the earning capacity and weight loss, as it governs the energy imbalance. It is known that both a deficiency of Qi and Yang of the Spleen/Pancreas or Qi deficiency and Kidney Yang result in obesity.

MTC contextualizes stating that food is the energy needed to nourish the body, and this keeps the blood circulating. As the transport of Qi, the blood carries nutrients that will nourish the body. When this nutritious energy is in disharmony, there is binge eating, as a compensatory form of perverse energy, which leads to anger, fear, anxiety, nervousness, or anxiety.[19]

Chapter 3 - Etiology, pathophysiology and syndromes

In ERM obesity can be divided into 4 major syndromes.

1º- Excess Stomach and Spleen

2º- Heat in the Stomach with disabilities Spleen/Pancreas

3º- deficiency of Qi and Spleen/Pancreas and Kidney

4º- Obesity Congenital

1°- Excess stomach and spleen

Etiology and pathophysiology: In this type people are obese, but otherwise healthy, disease, and a hearty appetite, but due to the eating habits and diet of people in Western countries, there is an excess of nutrition, either in quantity or in quality, and a kind of constitution that predisposes to this kind of imbalance. The Western diet is rich in substances such as cheese, bread and meat. They eat large quantities of food and become, in most cases, an irregular diet. The West as the last meal too late and extends to long. Moreover, there is no ingrained habit of exercise and particularly at this late time, Western lies down following the meal, which facilitates the transformation of fat diet. It is also verifies the absence of the practice of a proper exercise that best helps you metabolize lipids. It can also be called obesity acquired by its association with lifestyle and type of social life. This kind of people always lives on the border between the healthy condition and obesity, so when they cease to be careful, very easily cease to be healthy.

Associated symptoms

i. Excess body fat, but well distributed proportionally.

ii. Muscle tone with a regular, without sagging, with good tightness on the skin and muscle when pressed.

iii. Easily present excessive habits of alcohol, especially beer.

iv. Reddened face and easy sweating with constipation and aversion to heat.

v. Normal language or slightly reddish, with fine or yellowish cover and sliding Pulse and strong

2°- Heat in the Stomach with disabilities Spleen/ Pancreas

Etiology and pathophysiology: In this type people have mental problems, emotional disorders, depression, stress, etc ... In a follow-up of the previous type, to not being treated properly; the situation causes damage to the spleen and makes poor digestion. Continued stress causes stagnation of Liver Qi and direct aggression to the spleen/pancreas, causing appetite but increases digestion capacity (processing and transport of the essence of food) decrease. In the West people when with emotional problems tend to show a good appetite or an overactive appetite, eating to relax and the more eat more relaxed. Derived from the stagnation of the Liver Qi, which turns into heat or fire, which in turn transmits to the stomach causing fire of the stomach, the person feels relieved, albeit briefly, when consuming food. Another problem is insomnia. After an excess of concern people tend to get up in the night, and look for foods that satiate excessive appetite, which makes get fat more easily. In this type, Spleen deficiency is the main factor because it causes poor processing and transport of moisture-phlegm and body fluids, piling up. These people have moisture and void of Qi, despite eating well, they feel tired, because what they eat does not become food for energy functions of the body, accumulating in moisture-mucus leaving the entire system increasingly slow and stopped.

Associated symptoms

i. Excessive appetite with abdominal distention and epigastric

ii. Weariness, fatigue and lack of energy

iii. Irregular bowel movement, loose stools or constipation

iv. Red tongue, greasy yellow coat and thick, rope Pulse, thin and sliding

3°- Deficient Qi of spleen and kidney

Etiology and pathophysiology: In this type presents many consequences of years of physical stress, mental, or associated with problems such as hypothyroidism or diabetes mellitus, or after depression caused by endocrine deficiencies, all because the vitality of the kidney decreased at a faster pace than normal. In this case, the decline in internal energy of the organs (spleen and kidney) and endocrine deficiency are those that cause major symptoms, as are those that manage the energy acquired, inherited and contribute to the maintenance of the Yuan Qi. These are people who have normal appetite, but as the weakness is in the metabolism of liquids, processing and transport of moisture and body fluids, more, kidney managing not make the selection of expulsion of liquid ... these just accumulated between the skin and muscles. Contrary to what happens in the first type, this connective tissue and muscle is soft felt like a sponge and without force and without tone.

Associated symptoms

i. Normal appetite, pale face, dry skin, and aversion to cold

ii. Willingness to sleep with lack of will power to all

iii. Soft stools or constipation with frequent urination

iv. Pale and swollen tongue, thin white mantle, and thin pulse, slow and weak.

4°- Obesity congenital

Etiology and pathophysiology: In this type there is obesity since childhood, considered by MTC, obesity type earth, people, since children have a constitutional excess body fat, well distributed, having one or both parents also with excess weight.

Associated symptoms

i. Very good appetite, hyperactivity

ii. Normal language and sliding Pulse and strong

Chapter 4 - medicines

Fu Ling

The Fu Ling was chosen to be a material used commonly by several professionals in weight loss, although no study or book that proves its effectiveness for various parts of the world this matter is used and associated with other in combating obesity.

Synthesizing: This plant is the fungus sclerotia "Poria Cocos (Schw) Wolf."

Family Polyporaceae

Properties: It insipid and mildly sweet flavor, neutral in nature, and acts on the heart channels, lungs, spleen, bladder and kidneys. The absence of taste is to induce diuresis and relieve edema, as the sweet serves to tone the heart and spleen. It is neutral nature to induce diuresis without harming the vital Qi, and to tone without drastic changes, is used for both tone and to disperse.

It is an important matter for edema, catarrh moisture retention. It

also has the effect of strengthening the spleen and reassuring.

Chemical composition: 90% polysaccharides based on glucose.

i. Polysaccharides: paciman, lanostanos.

ii. Acids tetracyclic triterpenes: tumulósico acid, eburicólico acid and pachímico acid.

iii. ergosterol, colinaglucosa, lipase, protease.

Effects TCM

a) Induce diuresis and inhibits the re absorption of electrolytes Na, K and Cl from renal tubules.

b) Eliminates heat and humidity

c) Harmonize the Jiao Medio.

d) Eliminates moisture and regulates the metabolism of water.

e) Strengthens the spleen and reduces inflammation to disperse the stasis of heat-moisture.

f) Eliminates phlegm.

g) Reassures the heart and calms the Shen.

Effects in pharmacology:

i. **Diuretic effect:** inhibits reabsorption of electrolytes in the renal tubules and increases the volume of urine reaches the bladder and empties it.

ii. **Anti-inflammatory effect:** on diuresis, eliminates the retained liquid, removing edema, and removing moisture reducing inflammation by fluid retention.

iii. **Toning effect:** improves digestion and digestive functioning.

iv. **Tranquilizing effect:** as often excess electrolyte reserves is responsible for psychiatric disorders by stimulating diuresis and inhibit these electrolytes, and draining them, reduces pathogens, reassured the body.

v. **Effect of lipid Hypo:** a liquid eliminate reduce inflammation reduce accumulation of lipids in the blood stream, reducing the existing cholesterol level.

vi. **Hypoglycemic effect:** it favors the elimination of liquid and glucose, which substantially reduces glucose levels in the blood.

vii. **Hypertensive effect:** by facilitating diuresis and the elimination of electrolytes, relaxes the heart and lowers blood pressure.

viii. **precautions:** Contraindicated in polyuria in spermatorrhea, and prolapses of genitals.

General information: Retention of body fluids, phlegm retention (TAN), oliguria, edema, insomnia, palpitations, diarrhea and bloating, difficulty urinating, joint inflammation, BI syndrome, agitation, nervousness and restlessness.

Modern research: Poria has a diuresis effect and may increase the excretion of sodium, chloride, potassium and other electrolytes, pachyman socclaride pohy. It would have the effect of enhancing humoral immunity, tranquilizer, reducing the sugar level in the blood and intraocular pressure. In modern times, Poria is widely used in clinical practice for the combined treatment of cancer.

Orlistat

If Fu Ling has no study in this area, will the Orlistat is one of the leaders in this respect. XENDOS is the largest and longest study to date with a drug for weight loss. This study showed that weight loss with Orlistat reduces by 37%. Compared with the observed only with a change of lifestyle, treatment with Orlistat gave a weight loss significantly longer and improving the cardiovascular risk factors (including blood pressure and lipids). The study also confirmed the safety in the long run. Wirth also published in 2005 a study on the reduction of excess weight with orlistat, held in health centers, in order to compare the results obtained in hospitals. In this study, the results proved to be similar to other accomplished. A total of 87% of patients had a reduction of at least 5% by weight and 51% a reduction of at least 10%, with no significant differences between men and women.

Briefly: Orlistat is produced by Streptomyces toxytricini, having the property of preventing the action of lipases of all intestinal and thus decrease the absorption of fat.

Quimica Formula: C29H53NO5

Molar mass: 495.71 g mol -1

IUPAC name: (S) - ((S) -1 - ((2S, 3S) -3hexyl-4-oxooxetan-2-yl) tridecan-2-yl) -2-formamido-4-methylpentanoate

Action and statement: It is used to treat obesity. It acts in the digestive system, preventing about one third of the fat from the food you eat from being digested. Orlistat binds to enzymes of the digestive system (lipases) and prevents them from breaking down of the fat in the meal ingested. The undigested fat cannot be absorbed and eliminated by the body. Orlistat is indicated for the treatment of obesity, in conjunction with a diet low in calorie intake and for the preparation in surgery in cases of morbid obesity.

Positive effects

a. Reduces the amount of fat absorbed in the intestine.

b. Weight loss up to 10% at 6 months and reducing LDL

Negative effects

a) Gastrointestinal problems, kidney

b) diarrhea or fecal incontinence, abdominal pain, flatulence

c) Reduced levels of fat-soluble vitamins with Headache

Chapter 5 - study

Purpose

a) Evaluate the effectiveness of Poria Cocos to treat obesity.

b) Compare the effects of Orlistat with Poria Cocos in the obesity diagnostic criteria

Variables to be measured

If you will measure the following variables

Efficacy variables

A. The drug efficacy rate after the end of the study: effective, recommended, recommended some without effect.

i. Effective: it means that all diagnostic criteria improved

ii. Recommended: means some diagnostic criteria and improved others remain.

iii. Little recommended: it means that some diagnostic criteria and improved others worsened.

iv. No effect: it means that some diagnostic criteria remained and others got worse or worse all.

B. The time it took to diagnostic criteria evolve effectively.

C. The speed of the actual changes in diagnostic criteria.

Safety variables

Adverse effects: To register any adverse effect, such as malaise, nausea, fever, arthralgia, rash, headache and more widespread and severe as a result of treatment, which can result in death, be signs of life-threatening cause a toxic response, anaphylaxis, or discontinuation of treatment

Temporality and duration of the study

From 1 October 2014 to 31 March 2015. A total of six months. In the first week, the medical specialist will evaluate the patient and sign the consent informing about the study and the use of their data collecting variables in CDR.

Each patient will have a table where you put the data collected after making a blood test and taken measures. Taking drugs is daily, and every Monday of the week, will be measured the diagnostic criteria in consultation by the specialist physician. If there are no adverse reactions and there is no exclusion criterion or this withdrawal, it will deliver the drugs to take during the following week.

Selection criteria

If include people of all ages diagnosed with obesity with the following diagnostic criteria:

i. Circumference of the upper waist 94cm to 80cm and European men to European women,

ii. triglycerides above 150mg/dl,

iii. HDL <40mg/dl for men and 50mg/dl for women,

iv. Systolic blood pressure>130mmHg or diastolic blood pressure>85mmHg,

v. Fasting plasma glucose>100mg/dl.

Withdrawal criteria: the patient may leave treatment or deny the use of your data at any time of it. Exclusion criteria excluded people with other health problems than those associated with obesity, described above, and/or use any drugs than indicated in your group.

Intervention description

In this study the drugs used have the following description

Name: Poria Cocos (Schw.) Wolf. Or Pachyma Hoelen Rumph

Name in Pinyin: Fu Ling

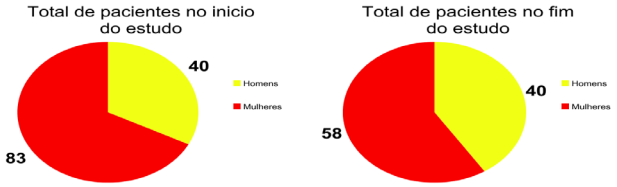
Scientific name: Poria, Hoelen

Features: Dry mushroom, Concentration 5:1, Green Nature Co., Ltd. Lot number 32147

Dosage and quantitative description: Package 100gr, daily dose recommended by the brand 18gr per day (6gr - 3 x day), 99% of Poria Cocos and 1% maltodextrin

Qualitative test: GMP Certificate

Group control: ratiopharm Orlistat 120mg - 1 dose 3times per day.



Clinical trial

There were records of the measures at baseline. Serum concentrations of HDL-cholesterol and triglycerides were analyzed. Glucose and measured blood pressure was recorded. It was prepared and recorded the record at the beginning and checked and updated every week. Adverse events were recorded that occurred during the study as well as their severity and potential relationship to treatment.

Results: We selected 126 patients, and 123 completed the study criteria. We randomly selected 63 patients for orlistat group and 60 to the Fu Ling group. The people who completed the study included 98 patients (96 Caucasian and Negroid 2) (58 women and 40 men).

25 recorded dropouts (17 adverse events and 8 refusal of treatment) occurred in the first 4weeks of treatment, all were women. The average age of patients was 47.6years. At the time the study began, the patients' weight ranged between 66kg and 176kg, with an average of 99,4kg. The lipid profile showed a mean HDL 39.4mg/dl and triglyceride levels of 206.5mg/dl. We can see all mean baselines with minimum and maximum in the tables below.

References: Age (years)-Weight (kg)-Waist (cm)-Glucose (mg/dl)-HDL cholesterol (mg/dl) - Triglycerides (mg/dl)-Systolic pressure (mmHg)-Voltage Diastolic (mmHg).

Médias iniciais

Sexo (M/F)	Idade	Peso	Cintura	Glicose	HDL-C	Triglicéridos	Sistólica	Diastólica
F	47,3	91,8	102,6	177,0	41,2	205,2	153,1	95,5
M	48,4	115,3	124,9	165,6	35,9	209,2	154,0	96,3
Total	47,6	99,4	109,9	173,3	39,4	206,5	153,4	95,7

Máximos iniciais

Sexo (M/F)	Idade	Peso	Cintura	Glicose	HDL-C	Triglicéridos	Sistólica	Diastólica
F	82	171	155	312	49	292	196	128
M	75	176	184	278	39	312	185	124

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Mínimos iniciais								
Sexo(M/F)	**Idade**	**Peso**	**Cintura**	**Glicose**	**HDL-C**	**Triglicéridos**	**Sistólica**	**Diastólica**
F	18	66	81	101	34	151	132	87
M	23	78	96	107	29	153	131	86

Médias iniciais por grupo								
Grupo	**População**	**Peso**	**Cintura**	**Glicose**	**HDL-C**	**Triglicéridos**	**Sistólica**	**Diastólica**
Fu Ling	60	98,9	110,2	173,4	39,8	205,9	154,9	96,7
Orlistato	63	99,9	109,6	173,2	39,2	207,1	151,9	94,8

Between the initial visit and the fourth week, there was a significant difference in reducing the weight and waist, as in the tables below.

Diferença na perca de peso	**Fu Ling–n=55**	**Ortistato–n=43**
Inicio – 4ª semana	Média=94.5(-4.4)	Média=98.1(-1.8)
Inicio –6 meses	Média=84.2(-14.7)	Média=93.8(-6.1)
Diferença na cintura	**Fu Ling – n=55**	**Ortistato – n=43**
Inicio –4ª semana	Média=103.5(-6.7)	Média=101.8(-7.8)
Inicio – 6 meses	Média=85.6(-24.6)	Média=98.4(-11.2)

We evaluated the average weight reduction in patients in consecutive visits. Weight reductions were different. With a weight reduction of 4.4kg and 1.8kg for Fu Ling and Orlistat group, and waist of 6.7cm and 7.8cm, respectively.

After the treatment period (6months), we found there is a significant mean reduction in weight of the Orlistat group 6.1kg and 14.7kg of the Fu Ling group, while the waist orlistat group only reduced in 5months and 3.4cm Fu Ling 17,9cm an impressive group on average in the same period of time.

We can check all the average final values, with minimum and maximum in the tables below.

Médias finais por grupo								
Grupo	**População**	**Peso**	**Cintura**	**Glicose**	**HDL-C**	**Triglicéridos**	**Sistólica**	**Diastólica**
Fu Ling	55	84,2	86,4	125,4	45,7	167,4	138,9	84,3
Orlistato	43	93,8	101,6	168,1	45,5	208,3	131,4	80,2
Máximos finais por grupo								
Grupo	**População**	**Peso**	**Cintura**	**Glicose**	**HDL-C**	**Triglicéridos**	**Sistólica**	**Diastólica**
Fu Ling	55	133	131	178	64	194	168	104
Orlistato	43	161	173	269	61	338	147	111
Mínimos finais por grupo								
Grupo	**População**	**Peso**	**Cintura**	**Glicose**	**HDL-C**	**Triglicéridos**	**Sistólica**	**Diastólica**
Fu Ling	55	51	71	75	41	97	96	69
Orlistato	43	59	76	91	40	138	91	64

Of changes in HDL levels were similar between groups, with an increase of about 15%. But no significant differences in glucose values and triglyceride levels among groups.

The population administered by Fu Ling showed glycemia values with 72.3% of the initial value, while the remaining population had 97% of its initial value.

If the reduction in blood glucose was minimal with the Orlistat group, since the Triglyceride showed values of 0.6% over the initial, resulting in a very negative aspect to take into account in the final assessment, given the decrease to 81% of the initial value in the group Fu Ling.

In the blood pressure difference was reduced in both, although slightly more pronounced in the group Orlistat.

Side Effects: The overall incidence of adverse events was higher in orlistat group compared to the group Fu Ling.

Efeitos secundários (ES)	**Fu ling**	**Orlistato**
Paciente com ES	3	15
Paciente sem ES	55	43

The number of patients with gastrointestinal disorders only existed in the orlistat group.

There were 17 dropouts for side effects: abdominal pain, profuse watery stools and diarrhea, and dizziness.

In Fu Ling group, 3 people left the study dizzy.

Comparison of results

This study, conducted in the Portuguese population, with 6-month controlled Orlistat revealed that Fu Ling, was effective in obesity in both weight loss and improving the values of the lipid profile, blood pressure and glucose. The study was able to demonstrate the existence of a significant difference in reducing obesity among the Fu Ling and Orlistat.

At the end of the treatment period there was an average decrease in initial weight of 6.1kg in the orlistat group and 14,7kg in Fu Ling group, with the greatest reduction occurred during the first few weeks.

The Orlistat group showed a negative increase in triglycerides values and an increase in HDL. In the Fu Ling group showed a positive reduction in triglycerides and an increase in HDL, which benefited the lipid profile.

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Conclusion and recommendation

Conclusion

In conclusion, the weight reduction and the improvement in the lipid profile observed in patients treated with Fu Ling suggest that this matter is beneficial in the early treatment of obesity.

Although several studies have shown that treatment with orlistat results in combat will significantly obesity, this study proved that with Fu Ling this fight is even greater, and it is expected that associated with a proper diet each case, this value may be higher.

Recommendation

After the study was sure that the use of Fu Ling is critical in combating obesity will, however, be presented values that still show more suggestions that require their study. The reduction of blood sugar and triglycerides is something important in the tables of today in clinic. The difference between men and women was notorious with men to lose more weight long term and women to cast down over earlier. As weight loss was most pronounced in active people, and reducing the waist in unemployed and retired people. It is suggested their study after the results presented in this study.

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Conflict of interest

Author declares that there is no conflict of interest.

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