

CLINICAL STUDY

Effects of basic traditional Chinese diet on body mass index, lean body mass, and eating and hunger behaviours in overweight or obese individuals

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0.28 kg/m² and 0.41 kg in the WSD group. Findings of eating self-assessment, hunger measurement and psychophysical indices of health were also in favour of the BCTD.

CONCLUSION: Outcomes show that the BCTD has a better effect on BMI and LBM, as well as over the medium/long term, and provides stronger psychophysical support to obese patients.

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Key words: Obesity; Overweight; Cardiovascular diseases; Diabetes mellitus; Dietetics; Diet; Body mass index

Abstract

OBJECTIVE: To compare the effects of a basic traditional Chinese diet with a Western standard diet on body mass index (BMI), lean body mass (LBM), and eating and hunger behaviours.

METHODS: A sample of 284 patients were randomized into 2 groups: group A ($n = 142$) followed a basic traditional Chinese diet (BCTD) and group B ($n = 142$) followed a Western standard diet (WSD). Both diets were set at approximately 1200 calories. The patients enrolled were compared before treatment and 6 weeks after treatment, and then follow-ups were made at 1 year and 5 years.

RESULTS: In the BCTD group, BMI decreased by 0.46 kg/m² and LBM by 0.25 kg, versus respectively

INTRODUCTION

Preliminary studies on using nutrients of traditional Chinese dietetics in diets for the treatment of weight excess, developed in universities¹⁻⁵ as well as in competent institutes⁶⁻⁹ and presented in congresses, show interesting effects on weight loss, modifications of adipokines and improved compliance of patients to this new dietary approach. Preliminary work conducted in a sample of 694 subjects, and published in 2013,¹⁰ confirmed that the basic Chinese traditional diet (BCTD) compared with a Western standard diet (WSD), both at approximately 1200 calories, produced better results in terms of weight loss and patient compliance. Furthermore, it better preserved lean body mass (LBM). In more than one meeting, an objection made to this work was that, despite the fact that both were 1200-calorie diets, the BCTD provided a marked caloric intake at breakfast (727 calories vs 251 of the WSD). Additionally, studies have demonstrated that the BCTD markedly improves symptoms of "anxious de-

pression", "endogenous depression" and "anxiety", according to data measured with the Minnesota Multiphasic Personality Inventory (MMPI) test. It is worth considering that the MMPI highlights psychometric aspects of great interest, yet it might not be the most suitable test to disclose the psychophysical support that the BCTD is likely to provide. This kind of support could be a substantial innovative contribution that this diet can give to dietetics for the treatment of obesity. Thus, the aim of the present study was to evaluate the effects of the BCTD on overweight individuals compared with the WSD.

MATERIALS AND METHODS

Subjects and diet specifications

A total of 284 overweight or obese individuals (112 males and 172 females, mean age 47 ± 8.7 years) were recruited between January 1, 2008, and May 20, 2008, at the Paracelsus Clinic of Rome. The study was approved by the Ethics Committee of the "Inter-university Commission for Research in Acupuncture", a university-level organization established in 1991. All individuals agreed to participate in the study by signing an informed consent form, created by the Ethics Committee.

Inclusion criteria

Age between 25 and 70, BMI > 25, absence of pathologies that require concomitant therapies.

Exclusion criteria

Participants were excluded if they suffered from endocrinopathies, cardiovascular and/or metabolic disorders, such as frank diabetes, hypercholesterolemia, hypertension, or when normal values of blood sugar, blood pressure or cholesterol depended on medical control. Participants were randomly selected into two groups (142 in each): group A (BCTD) and group B (WSD). Randomization of groups A and B was simply obtained through the use of random numbers generated by the "random (min; max)" function of the spreadsheet Microsoft Excel. The random selection was performed taking into account the BMI, so as to create homogenous groups with respect to the BMI value; homogeneity was also maintained in the number of subjects of single subgroups after drop out: subgroup A1 (36 subjects) and B1 (34 subjects) with BMI ≤ 29.9 ; A2 (36 subjects) and B2 (36 subjects) with BMI $29.9 < \text{BMI} < 40$; A3 (36 subjects) and B3 (35 subjects) with BMI ≥ 40 .

The BCTD was defined in terms of types of food and the calories contained in the three meals (breakfast, lunch and dinner (Table 1), and adopted typical foods of traditional Chinese dietetics. The Western standard diet (WSD) was defined as well in terms of foods and calories taken in the three main meals (breakfast, lunch and dinner), but adopted typical foods of the Western diet (Table 2).

Outcome measures

BMI and LBM: BMI and LBM were measured before treatment (T_0) and 6 weeks after treatment (T_1) using bioelectrical impedance analysis (bioelectrical impedance scale, model BC-418 MA III Tanita Corporation, Tokyo, Japan).

Eating behaviours: the questionnaire for self-assessment of eating behaviours (Table 3) was used before and after six weeks of dietary intervention. Each of the 22 questions, grouped into a total of eight items (I to VIII), could receive a score of 1 to 5 points. The minimum possible score was, therefore, 22 points; the maximum was 110 points. The assessment was made by calculating the average variations of single scores, obtained by deducting scores before treatment from scores after treatment. The larger this value is, the greater the improvement in eating behaviours.

Hunger behaviour: a questionnaire for the measurement of hunger (Table 4) was used before and after the 6-week diets. Scores range between 1 and 5. The assessment was made by calculating the average score variations, obtained by deducting the scores before treatment from the scores after treatment. The higher this value is, the more improved the sensation of hunger.

The physical health index (PHI) and the mental health index (MHI) of all patients were measured by SF-36 questionnaire before and after 6 weeks of dietary treatment. The SF-36 questionnaire is a well-known tool that allows for the assessment of the state of general health using 36 questions. The results obtained from the patient's responses before and after the dietary intervention are represented by 8 scores/scales, each addressed to quantify a specific aspect of health status. The two indices PHI and MHI that are derived from the 8 scales allow for summarizing the results of these scales into two numbers. Physical functioning, physical role functioning, bodily pain, and general health perceptions (first 4 scales) reflect the overall physical health. Vitality, social functioning, emotional role functioning, and mental health (second 4 scales) assess aspects of psychological/emotional health. The values of the two indices, PHI and MHI, allow a more accurate assessment of the psychophysical condition than the MMPI. Also, in this case, higher scores indicate a better level of perceived health. Level 50 represents the average value of perceived health in the Italian population. Values above 50 indicate that perceived health is better than average and vice versa. In this study, we used a demonstration version of the SF-36 available online, which takes into account sex and age.

Statistical analysis

SPSS (PASW statistic 18, Version 18.0.0 SPSS Italia SRL, authorized by SPSS Inc.) and Excel were used to analyse paired and unpaired data. Student's *t* was used to test the differences between the two groups. *P* < 0.05 is statistically significant.

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