Journal of Nutrition and Food Security
Shahid Sadoughi University of Medical Sciences
School of Public Health
Department of Nutrition
Nutrition & Food Security Research Center

eISSN: 2476-7425 pISSN: 2476-7417 JNFS 2018; 3(3): 130-138 Website: jnfs.ssu.ac.ir

Comparison of the Effects of Green Tea and Melissa Officinalis on Weight and Blood Pressure in Welders: A Single-blind, Crossover Clinical Trial

Fateme Jafari; MSc[1,2], Amin Salehi-Abargouei; PhD[1], Mohammad Javad Zare Sakhvidi; PhD[3], Ali Mohammad Ranjbar; PhD[4], Javad Zavar reza; PhD[5], Hossein Fallahzadeh; PhD[6] & Azadeh Nadjazadeh; PhD*[1]

[1] *Nutrition and Food Security Research Center, Department of Nutrition, School of Public health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*
[2] *Nutrition unit, Razi hospital, University of medical sciences, Birjand, Iran.*
[3] *Department of Occupational Health, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*
[4] *Department of Herbal Medicine, School of Pharmacy, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*
[5] *Department of Biochemistry, School of Medicine, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*
[6] *Department of Biostatistics and Epidemiology, School of Public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.*

ARTICLE INFO

ORIGINAL ARTICLE

Article history:
Received: 24 Jul 2017
Revised: 9 Sep 2017
Accepted: 5 Nov 2017

IRCT Code:
IRCT2015103110826N18

***Corresponding author:**
azadnajarzadeh@ssu.ac.ir
Department of Nutrition, School of public Health, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Postal code: 8915173160
Tel: +98 9122022817

ABSTRACT

Background: Considering the effectiveness of green tea and *Melissa officinalis* in reducing weight and blood pressure in past studies, this study aimed to compare the effects of green tea and *Melissa officinalis* on blood pressure and weight in welders. **Methods**: This is a single-blind crossover clinical trial. Twenty welders from a workshop entered the study. Green tea and *Melissa officinalis* infusions (4 g/d) were provided 2 times a day for 4 weeks in random order with a 3-week washout. Measurements were performed at the beginning and the end of each intervention. The environmental pollution of the workshop was measured by the professional health engineer at the beginning. **Results:** The diet and black tea intake were not different during the interventions ($P > 0.05$). Physical activity was not different throughout the study, although the intensity of physical activity was higher in the *Melissa officinalis* period (12.31 ± 12.89 versus 60.00 ± 33.95 min/ week; $P = 0.06$). Weight, body mass index and diastolic blood pressure decreased during the period of M*elissa officinalis* consumption and there was a slight increase during the green tea period ($P > 0.05$). **Conclusions**: It is likely that one month of consumption of *Melissa officinalis* is as effective as green tea in changing weight and blood pressure, and therefore they can be a good alternative to each other.

Keywords: *Blood pressure; Green tea; Melissa officinalis; Weight; Welder*

Introduction

Health risk factors are high in welding. Welding is one of the most intense sources of artificial optical radiation production (Tenkate, 1998). In the welding of electricity, all types of visible light spectrum, infrared and all UV light spectra (UVA, UVB, UVC) are generated (Peng *et*

This paper should be cited as: Jafari F, Salehi Abargouei A, Zare Sakhvidi MJ, Ranjbar AM, Zavar reza J, Fallahzadeh H, et al. ***Comparison of the Effects of Green Tea and Melissa Officinalis on Weight and Blood Pressure in Welders: A Single-blind, Crossover Clinical Trial.*** *Journal of Nutrition and Food Security (JNFS)*, 2018; 3 (3): 130-138.

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

al., 2007). The sound produced in the welding process can cause hearing loss (Le Prell *et al.*, 2007). A significant level of toxic gases (like carbon monoxide, ozone and nitrogen oxides) are also formed during the usual welding arc or protective gas elements (Fechter *et al.*, 2002). Severe heat and sparks caused by welding can damage the skin and eyes. In addition, long-term exposure to heat can cause heat stress on the person (Kumru and Kılıcogulları, 2007). If the welding surface is impregnated with oils, hydrocarbons or compounds containing phosphorus, various gases during welding will be produced including toxic phosgene gas (Kumru and Kılıcogulları, 2007). Another problem of this profession is the presence of dust particles and metal vapors in welding as well as the transfer of metal particles and inhalation of metals fumes (Qin *et al.*, 2008).

For centuries, medicinal herbs have been used worldwide to strengthen the immune system. Some herbs and their extracts can enhance the function of the immune system. Most research studies on medicinal plants focus on a comprehensive assessment of their effects on the immune system (Zentek and Mader, 2006). *Melissa officinalis* is one of the oldest medicinal plants from the *Lamiaceae* family (Miroliaei *et al.*, 2011) and has a 2000-year history (Guginski *et al.*, 2009). *Melissa officinalis* is a local herb of East Mediterranean and West Asia. Herbal *Melissa officinalis* is an aromatic herb and is one of the most popular plants in the East and West of the world. The plant is cultivated from two thousand years ago. Due to its high consumption in France, it has also become famous for French tea. Human studies showed the benefits of green tea therapy, such as reducing the risk of cardiovascular disease and some cancers, hypertension, obesity, diabetes, and has antiviral and antibacterial activity (Mann Jim and Stewart, 2017). Research studies have shown that green tea causes reducing in sugar, lipids, blood pressure, cardiovascular disease, heart rate, and dilation of the veins (Khan and Mukhtar, 2007). In previous studies, the use of green tea in some studies showed weight loss (Haghighi *et al.*, 2015), and in others showed no weight change (Moradi *et al.*, 2014). Green tea also reduced systolic blood pressure in one of the studies (Paknahad *et al.*, 2012) while in other studies no significant change was observed (Zolfaghary *et al.*, 2013). The use of *Melissa officinalis* in healthy subjects has not been able to alter the systolic or diastolic blood pressure (Cerny and Schmid, 1999b). Furthermore, *Melissa officinalis* consumption in hyperlipidemic patients had no effect on the body mass index (Jandaghi *et al.*, 2016).

Limited studies have been carried out on the effects of *Melissa officinalis* and green tea on weight and blood pressure and often did not make meaningful changes (Cerny and Schmid, 1999a, Jandaghi *et al.*, 2016). Given the contradiction between the results seen in relation to the effect of green tea consumption on blood pressure and weight and lack of sufficient information on the effect of *Melissa officinalis* in this area, the aim of this study is to compare the effect of green tea and *Melissa officinalis* on weight and blood pressure.

Materials and Methods

Characteristics of Participants: This study is a crossover clinical trial with the aim of comparing the effects of green tea and *Melissa officinalis* on the weight and blood pressure of the welders exposed to light, sound and fume of metals. To this end, industrial workshops in Yazd were investigated after discussing with the workshops officials and examining their status. Finally, Omid Industrial Workshop was selected. Twenty welders from the workshop who were more interested in cooperating were included. Inclusion criteria were; male gender, age 20 to 50 years, residing in Yazd, and welding as the main occupation in the past year. Exclusion criteria included: having chronic diseases such as hypertension, cancer, thyroid diseases, heart failure, asthma, diabetes, and anemia diagnosed by the physician based on self-reported drug use, regular use of plant infusion, and if they consume less than 80% of tea packages or migrating from the city, they were excluded from analysis.

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

Study Design: This clinical trial was designed to compare the effects of *Melissa officinalis* and green tea on weight and blood pressure. According to previous studies, a sample size of 16 participants was needed and 20 participants were included in the study due to probable loss to follow-up (Rashidi *et al.*, 2014). The duration of the study was 12 weeks, one week as a run-in period, four weeks for the first phase of the intervention, three weeks as a washout and four weeks as the second phase of the intervention after displacement intervention type. Individuals were randomly assigned to one of two periods of *Melissa officinalis* or green tea infusion intake, which the type of tea was changed after the end of the four weeks period. At the beginning and the end of each intervention, personal information questionnaires, the 24-hour dietary recall and the international physical activity questionnaire were completed and weight, height and blood pressure were measured.

The following methods have been used to ensure daily tea intake: The possibility of free visit by a dietitian, daily reminding via phone call and text messages, monitoring tea consumption by the occupational health responsible, gifting to welders at the beginning of the new year, and allocating a number of tea packages to the participants' family.

Preparation of tea packs: Dried tea leaves were obtained from one of medicinal plants distribution stores then confirmed by two botanical experts and pharmacognosist. After grinding tea leaves, 2 grams of tea was packed. Participants consumed infusions at two turns in the morning and evening and each time put one tea bag in a glass containing 200 ml boiling water.

Measurements: Body weight was measured to the nearest 0.1 kg with a calibrated digital scale (Omron, Japan) in light clothing. Heights were recorded at the first visit with a wall-mounted stadiometer to the nearest 0.5 Cm. Participants' Blood pressure was measured in sitting position after 5 minutes of rest, while the right hand sleeves have risen.

In order to assess the sound in this workshop, the stationing method was used and for the local noise, the dosimetry method was utilized. According to the plan of departments and position of the devices, the number and location of measuring stations were determined. Measurements were performed on A (according to human ear) and B networks (actual sound level) and frequency analysis in C network. The model LX-9626 photometer measured the intensity of lighting.

After dividing the workshop surface into 90 cm squares, the brightness was determined in the middle of each square by a photometer. Measuring instruments were placed at a height of 75 cm from the floor. The thermal stress by the Quest measurement device and the chemical contamination were measured by the personal SKC pump sampling at 670 mmHg air pressure.

The type and amount of all foods received in one day were asked at the beginning and at the end of each intervention using 24-h recalls. Then all values were converted to grams and finally all the data were analyzed using Nutritionist software ver.4 (First Databank, San Bruno, CA, USA) modified for Iranian foods for estimating energy, macronutrients and antioxidants. To ensure that the diet was not changed, this questionnaire was completed at the beginning and the end of each section of the intervention.

The international physical activity questionnaire (IPAQ) was completed for each participants at the beginning and the end of each intervention to measure the level of individuals' physical activity (Moghaddam *et al.*, 2012).

Data analysis: Considering the 0.05 significance level and 95% power, the analyzes were done. To achieve a significant difference in the two periods, 16 welders in each period were needed. According to the formula for calculating the sample size for crossover studies and the experience of both interventions by each individual, 16 welders were enough in each period that 20 welders were enrolled after taking into account about 10% loss of participants in the follow-up period (Chow *et al.*, 2007).

The normal distribution of quantitative variables were checked using Kolmogrov-Smirnov test. Repeated measures analysis of covariance (ANCOVA) was used to compare the effect of

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

green tea and *Melissa officinalis* period on different variables.

Ethical considerations: This study was approved by Shahid Sadoughi University of Medical Sciences ethics committee and was registered in Iranian Registry of Clinical Trials (www.irct.ir). The registry number is IRCT2015103110826N18 and all participants gave their written informed consent.

Results

According to the criteria, 20 workers of the workshop sites were investigated. As **Figure 1** reveals, Out of 20 participants, 18 completed the study (1 person was excluded because 80% of tea packages were not consumed and 1 was excluded due to migration from the city and leaving the work). The mean of age was 30.00 ± 5.22 years; mean of working experience was 8.63 ± 4.88 years with 9.45 ± 1.23 mean work hours in a day.

After analyzing, there was no significant difference between the two periods in the number of tea cup, diet, and physical activity, except the average total physical activity which was 5375.5 ± 653.7min per week in the *Melissa officinalis* period and 6317.33 ± 682.39 min per week in the green tea period. The results are shown in **Tables 2**. Furthermore, the results of the analysis showed no significant changes in weight, body mass index or blood pressure (**Table 2**). Albeit with regard to P value, significant changes were observed from the beginning to the end of the study on weight, body mass index, and diastolic blood pressure, which was not related to any of the two periods of *Melissa officinalis* and green tea.

The consumption of *Melissa officinalis* and green tea did not show any special side effects in consumers. In one person, one-month *Melissa officinalis* consumption led to treat chronic perennial skin sensitivity and in one of the other workers, taking green tea caused stomach pain.

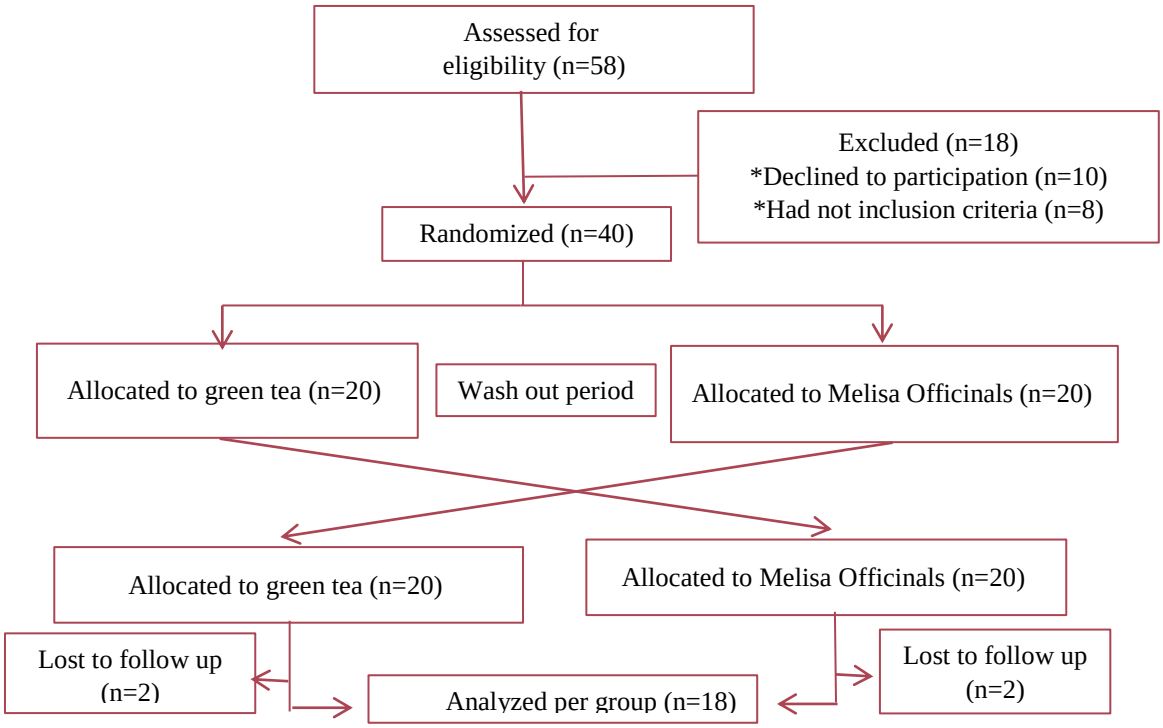


Figure 1. Diagram of study follow up.

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

Table 1. Baseline characteristics of the study participants

Variables	Mean ±SD
Age (year)	30.00 ± 5.22
Job history (year)	8.63 ± 4.88
Working hours (hour)	9.45 ± 1.23
Environmental pollution exposure	
Sound intensity (dB)	89.08 ± 14.50
Illuminance (Lux)	446.53 ± 496.25
Heat stress (°C)	12.09 ± 0.40
Fume Concentration (mg/m^3)	7.72 ± 1.66
Education (%)	
Primary	15
Guidance	40
High school / University	45

Table 2. Changes in dietary intakes, physical activity, weight and blood pressure during the study intervention periods

Variables	Melissa group (n = 18)	Green tea group (n = 18)	P-value[a] period	P-value time	P-value interaction
Black tea consumption (Cup/Day)	4.78 ± 0.98	4.92 ± 0.84	0.69	0.60	0.95
Energy (Kcal)	2147.79 ± 137.07	2123.70 ± 118.93	0.89	0.81	0.33
Protein (g)	87.19 ± 5.82	84.42 ± 4.26	0.73	0.56	0.08
Carbohydrate (g)	297.05 ± 23.52	303.97 ± 24.73	0.82	0.80	0.68
Fat (g)	74.30 ± 5.85	69.44 ± 4.40	0.52	0.97	0.40
Zinc (mg)	11.44 ± 0.90	11.00 ± 0.81	0.74	0.68	0.08
Selenium (mg)	0.14 ± 0.01	0.14 ± 0.01	0.64	0.80	0.12
Vitamin A (RE)	770.83 ± 150.67	556.10 ± 71.68	0.18	0.20	0.19
Beta carotene (µg)	616.49 ± 105.13	673.22 ± 158.97	0.77	0.75	0.85
Vitamin E (mg)	3.12 ± 0.43	2.71 ± 0.31	0.07	0.48	0.29
Vitamin C (mg)	156.34 ± 22.42	221.10 ± 106.65	0.57	0.28	0.27
Physical activity (Met-min /week)	5375.5 ± 653.68	6317.33 ± 682.39	0.19	0.05	0.01
Weight (kg)	75.54 ± 2.77	75.67 ± 2.78	0.59	0.00	0.41
Body mass index (kg/m^2)	24.25 ± 0.64	24.29 ±0.64	0.59	0.00	0.36
Systolic blood pressure (cm Hg)	10.89 ± 0.19	10.69 ± 0.21	0.34	0.28	0.19
Diastolic blood pressure (cm Hg)	6.19 ± 3.20	6.22 ± 0.19	0.86	0.01	0.33

[a]: P-values are for repeated measures of ANOVA with cross-over experiment

Discussion

According to the data, this study is the first comparison between the effect of *Melissa officinalis* and green tea on blood pressure and weight. There was no significant difference between receiving one month of green tea or *Melissa officinalis* infusion on weight and blood pressure changes. Therefore, due to the lack of any significant effect, adjustments were not made based on confounders.

In this study, there were no significant changes in weight, body mass index, systolic blood pressure, and diastolic blood pressure after taking green tea and *Melissa officinalis*.

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

However, P value of time indicates changes in weight, body mass index, and diastolic blood pressure during the study period. Weight, body mass index and diastolic blood pressure decreased during the consumption period of *Melissa officinalis* and in the consumption period of green tea has increased slightly; however, this change was not meaningful between the two periods.

However, in Haghighi et al. study, taking 750 mg of green tea in overweight and obese women along with eight weeks of aerobic training caused a significant reduction in weight from 71.74 ± 9.26 to 74.34 ± 8.54 to kg(Haghighi *et al.*, 2015). Allahdadiyan also observed significant decrease in weight and BMI in 12 weeks intervention in women with a polycystic ovary with taking green tea (Allahdadian *et al.*, 2015). However, Moradi et al. in line with the results of the current study, did not show any significant changes in the weight of overweight men who consumed green tea for 8 weeks (Moradi *et al.*, 2014). Zolfaghari et al. in an intervention on obese women did not observe any significant change in systolic or diastolic blood pressure, weight and BMI after daily intake of green tea extract in 3 capsules with 500 mg extract for 12 weeks (Zolfaghary *et al.*, 2013). Hadi et al. studied the effect of taking green tea on weight, blood pressure, and BMI of athlete men and received Similar results (Hadi *et al.*, 2017). In Paknahad study, taking 3 to 5 cups of green tea for 45 days in overweight women was associated with a reduction in systolic blood pressure from 120.54 ± 20.0 to 130.14 ± 20 mmHg (Paknahad *et al.*, 2012). Daily intake of 4 cups containing 3 grams of green tea for 8 weeks in the operating room staffs showed a significant decrease in systolic blood pressure and pulse rate (Amini-Rarani S *et al.*, 2017). In addition, the effect of green tea evaluated on blood pressure and the other metabolic parameters in some patients (Mozaffari-Khosravi *et al.*, 2013, Mozaffari-Khosravi *et al.*, 2014). Another study conducted in people with dyslipidemia demonstrated no significant change in BMI after using 1 gram of *Melissa officinalis* powdered capsules three times a day for 2 months (Jandaghi *et al.*, 2016). Cerny et al. prescribed 360 milligrams of licorice extract and 240 milligrams of *Melissa officinalis* extract for 30 days in healthy people; however, they did not achieve any significant changes in blood pressure (Cerny and Schmid, 1999a). One of the reasons for not observing the meaningful result in this study could be related to the study population. Among the participants of this study, there was no chronic disease such as hypertension and also sampling did not perform based on high body mass index or blood pressure.

Polyphenols especially catechins of green tea are the major water-soluble components. Catechin, epicatechin, epigalocatechin, epicatin-galate, epigalocatechin galate and galoccanine galate are six catechins in green tea (Hara, 2001). The prevailing assumption is that these catechins with an effect on the activity of the sympathetic nervous system, can increase energy consumption and fat oxidation (Haghighi *et al.*, 2015). Furthermore, catechins in green tea decrease blood levels of leptin (Shimotoyodome *et al.*, 2005). Researchers stated that direct binding of catechins to the activated proliferation receptors of proacysomal PPARγ was the main regulator of the differentiation of adipocytes. Catechins increase the translation and expression of adiponectin (Shin *et al.*, 2009) and in this way may be effective in reducing appetite and weight loss.

Reducing blood pressure can be due to the effect of epigallocatechin gallate on the release of nitric oxide and prostaglandin, and as a result of vasodilatation (Persson *et al.*, 2010). On the other hand, rennin is an enzyme that has short-term and long-term effects on blood pressure. Renin is a hormonal enzyme associated with blood pressure. The low level of renin in the serum is an interesting clinical indication for the presence of excess sodium in the blood stream. An increase in potassium intake and a decrease in sodium after taking green tea increases serum renin and decreases blood pressure (Zolfaghary *et al.*, 2013). Furthermore, the use of green tea catechins can increase the synthesis of nitric oxide and thereby increase blood flow and VO2 max (Sutherland *et al.*, 2006). *Melissa officinalis* is also effective in reducing stress and

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

blood pressure and one of the possible mechanisms is its sedative effects due to the inhibition of GABA in the central nervous system as the aqueous extract of *Melissa Officinalis* which has a strong inhibitory effect on GABA transaminase (Awad *et al.*, 2007). In this regard, it seems that some flavonoids affect some of the inhibitory neurons of GABA and reinforce this inhibitory system. In addition, the extracts of *Melissa Officinalis* have geranium with hypnotic and anticonvulsant effects, caffeic acid with anticonvulsant effects (Pierce, 2002) and aromatic compounds which are effective in reducing anxiety and mental stress and have a relaxing effect on the nervous system (Buchbauer *et al.*, 1993). Moreover, the extract of this plant contains components which tend to bind to nicotine receptors (Perry *et al.*, 1996, Wake *et al.*, 2000). Acetylcholine nicotine receptors are associated with many brain functions, particularly complex perceptual activities, such as body temperature regulation (Clementi *et al.*, 2000, Paterson and Nordberg, 2000). One of the strengths of this cross-over design study was the proper target period, strict monitoring of tea packets, environmental pollution measurement, and considering changes in diet and physical activity. Finally, it should be noted that this article obtained from a student thesis.

Conclusion

According to the study, there was no difference between the one-month consumption of green tea and *Melissa officinalis* in reducing blood pressure and weight in healthy welders. Therefore, the ability of both kinds of tea is likely to have the same effect on weight, body mass index, and blood pressure and those who are looking for their health effects can use either of these two plants. Indeed, doing research with longer period and large sample sizes on hypertensive patients or people with high body mass index are encouraged.

Acknowledgments

The authors wish to thank the professional health center of Yazd city health center and all workers and personnel of the technical workshop.

Authors' contributions

Salehi Abargouei A and Nadjazadeh A designed the research; Jafari F and Nadjazadeh A conducted research; Salehi Abargouei A and Fallahzadeh H analyzed the data; Jafari F and Nadjazadeh A wrote the paper; Jafari F and Zare Sakhvidi MJ were taken samples from welders; Jafari F, Ranjbar AM and Zavar reza J carried out the tests. Nadjazadeh A had primary responsibility for final content. All authors read and approved the final manuscript.

Conflict of interest

There was no conflict of interest for the authors of this article.

References

Allahdadian M, et al. 2015. Exploring The Effect of Green Tea on Weight Loss and Serum Hormone Levels in Overweight and Obese Patients with Polycystic Ovary Syndrome. *Scientific journal of hamadan university of medical sciences.* **22 (1)**: 16-22.

Amini-Rarani S, Ghadami A, Yousefi H & Mani K 2017. The Effect of Green Tea Consumption on the Body Mass Index, Blood Pressure, and Heart Rate of Operating Room Personnel. *Journal of health system research.* **13 (1)**: 1-5.

Awad R, et al. 2007. Effects of Traditionally Used Anxiolytic Botanicals on Enzymes of The γ-Aminobutyric Acid (GABA) System *Canadian journal of physiology and pharmacology.* **85 (9)**: 933-942.

Buchbauer G, Jirovetz L, Jáger W, Plank C & Dietrich H 1993. Fragrance Compounds and Essential Oils with Sedative Effects upon Inhalation. *Journal of pharmaceutical sciences.* **82 (6)**: 660-664.

Cerny A & Schmid K 1999a. Tolerability and efficacy of valerian/lemon balm in healthy volunteers (a double-blind, placebo-controlled, multicentre study). *Fitoterapia.* **70 (3)**: 221-228.

Cerny A & Schmid K 1999b. Tolerability and Efficacy of Valerian/lemon Balm in Healthy

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

Volunteers: A Double-blind, Placebo-controlled, Multicentre Study. *Fitoterapia.* **70 (3)**: 221-228.

Chow S-C, Wang H & Shao J 2007. Sample Size Calculations in Clinical Research. CRC press.

Clementi F, Fornasari D & Gotti C 2000. Neuronal Nicotinic Receptors, Important New Players in Brain Function. *European journal of pharmacology.* **393 (1)**: 3-10.

Fechter LD, Gd C & Rao D 2002. Chemical Asphyxiants and Noise. *Noise and health.* **4 (14)**: 49.

Guginski G, et al. 2009. Mechanisms Involved in The Antinociception Caused by Ethanolic Extract Obtained From The Leaves of Melissa Officinalis (Lemon Balm) in Mice. *Pharmacology biochemistry and behavior.* **93 (1)**: 10-16.

Hadi A, et al. 2017. The Effect of Green Tea and Sour Tea (Hibiscus sabdariffa L.) Supplementation on Oxidative Stress and Muscle Damage in Athletes. *Journal of dietary supplements.* **14 (3)**: 346-357.

Haghighi Ah, Eslaminik E & Hamedinia M 2015. The Effect of Eight Weeks Aerobic Training and Moderate and High Doses Green Tea Consumption on Body Composition and Lipid Profile in Overweight and Obese Women. *Medical journal of mashhad university of medical sciences.* **58 (7)**: 359-369.

Hara Y 2001. Green tea: Health Bbenefits and Applications. CRC press.

Jandaghi P, Noroozi M, Ardalani H & Alipour M 2016. Lemon Balm: A Promising Herbal Therapy for Patients with Borderline Hyperlipidemia: A Randomized Double-blind Placebo-controlled Clinical Trial. *Complementary therapies in medicine.* **26**: 136-140.

Khan N & Mukhtar H 2007. Tea Polyphenols for Health Promotion. *Life sciences.* **81 (7)**: 519-533.

Kumru M & Kılıcogulları P 2007. Process Improvement through Ergonomic Design in Welding Shop of an Automotive Factory. In *10th QMOD Conference. Quality Management and Organiqatinal Development. Our Dreams of Excellence*. Linköping University Electronic Press: Helsingborg, Sweden

Le Prell CG, Yamashita D, Minami SB, Yamasoba T & Miller JM 2007. Mechanisms of Noise-induced Hearing Loss Indicate Multiple Methods of Prevention. *Hearing research.* **226 (1)**: 22-43.

Mann Jim A & Stewart T 2017. Essentials of Human Nutrition. Oxford University Press.(Pbk).

Miroliaei M, Khazaei S, Moshkelgosha S & Shirvani M 2011. Inhibitory Effects of Lemon Balm (Melissa officinalis, L.) Extract on The Formation of Advanced Glycation End Products. *Food chemistry.* **129 (2)**: 267-271.

Moghaddam M, et al. 2012. The Iranian Version of International Physical Activity Questionnaire (IPAQ) in Iran: content and construct validity, factor structure, internal consistency and stability. . *World applied sciences journal.* **18 (8)**: 1073-1080.

Moradi H, et al. 2014. The Effects of Eight Weeks Resistance Training and Green Tea Supplementation on Cardiovascular Risk Factors in Overweight Men. *Journal of shahrekord university of medical sciences.* **16 (4)**: 77-87.

Mozaffari-Khosravi H, Ahadi Z & Barzegar K 2013. The Effect of Green Tea and Sour Tea on Blood Pressure of Patients with Type 2 Diabetes: A Randomized Clinical Trial. *Journal of dietary supplements.* **10 (2)**: 105-115.

Mozaffari-Khosravi H, Ahadi Z & Tafti M 2014. The Effect of Green Tea Versus Sour Tea on Insulin Resistance, Lipids Profiles and Oxidative Stress in Patients with Type 2 Diabetes Mellitus: A Randomized Clinical Trial. *Iranian journal of medical sciences.* **39 (5)**: 424-432.

Paknahad Z, Bashiri R, Tavakoli H, Hajshafiei M & Marasy MR 2012. The Effect of Green Tea on Body Fat, Anthropometric Indices and Blood Pressure among Overweight and Obese Women. *Health system research.* **8 (2)**: 1002-1008.

Paterson D & Nordberg A 2000. Neuronal Nicotinic Receptors in The Human Brain. *Progress in neurobiology.* **61 (1)**: 75-111.

Peng C-y, Liu H-h, Chang C-p, Shieh J-y & Lan C-h 2007. Evaluation and Monitoring of UVR in

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]

Shield Metal Arc Welding Processing. *Health physics.* **93 (2)**: 101-108.

Perry N, COURT G, BIDET N, COURT J & PERRY E 1996. European Herbs with Cholinergic Activities: Potential in Dementia Therapy. *International journal of geriatric psychiatry.* **11 (12)**: 1063-1069.

Persson IA, Persson K, Hägg S & Andersson RG 2010. Effects of Green Tea, Black Tea and Rooibos Tea on Angiotensin-Converting Enzyme and Nitric Oxide in Healthy Volunteers. *Public health nutrition.* **13 (05)**: 730-737.

Pierce J 2002. A Disease Once Sacred. A History of The Medical Understanding of Epilepsy. *Brain.* **125 (2)**: 441-442.

Qin X-J, Li Y-N, Liang X, Wang P & Hai C-X 2008. The Dysfunction of ATPases Due to Impaired Mitochondrial Respiration in Phosgene-induced Pulmonary Edema. *Biochemical and biophysical research communications.* **367 (1)**: 150-155.

Rashidi M, et al. 2014. The Effect of Tea-cinnamon and Melissa Officinalis L. Aqueous Extraction, on Neuropsychology Distress, Biochemical and Oxidative Stress Biomarkers in Glass Production Workers. *Health.* **6 (19)**: 2592-2601.

Shimotoyodome A, Haramizu S, Inaba M, Murase T & Tokimitsu I 2005. Exercise and Green Tea Extract Stimulate Fat Oxidation and Prevent Obesity in Mice. *Medicine and science in sports and exercise*. **37 (11)**: 1884-1892.

Shin DW, et al. 2009. Catechin Promotes Adipocyte Differentiation in Human Bone Marrow Mesenchymal Stem Cells through PPARγ Transactivation. *Biochemical pharmacology*. **77 (1)**: 125-133.

Sutherland BA, Rahman RM & Appleton I 2006. Mechanisms of Action of Green Tea Catechins, with A Focus on Ischemia-induced Neurodegeneration. *Journal of nutritional biochemistry*. **17 (5)**: 291-306.

Tenkate TD 1998. Optical Radiation Hazards of Welding Arcs. *Reviews on environmental health.* **13 (3)**: 131-146.

Wake G, et al. 2000. CNS Acetylcholine Receptor Activity in European Medicinal Plants Traditionally Used to Improve Failing Memory. *Journal of ethnopharmacology*. **69 (2)**: 105-114.

Yadav RJ SP 1999. Nutritional status and dietary intake in tribal children in Bihar. *Indian pediatrics*. **36**: 37-42.

Zentek J & Mader A 2006. The Impact of Plant Extracts on The Immune System. In *World nutrition forum. Vienna: Austria*, pp. 75-83.

Zolfaghary M, Taghian F & Hedayati M 2013. Comparing The Effect of Green Tea Extract Consumption, Aerobic Exercise and Combination of These Two Methods on CRP Level in Obese Women. *Razi journal of medical sciences*. **20 (110)**: 8-21.

[Downloaded from jnfs.ssu.ac.ir on 2026-11-21]

[DOR: 20.1001.1.24767417.2018.3.3.4.9]