

# DOWNLOAD PDF WEEK 2 : OPTIMIZE METABOLISM WITH NUTRITIONAL SUPPLEMENTS

## Chapter 1 : Nutrition 4 Weight Loss | 12 Week Weight Loss Program

*Start studying week 2 weight management. Combo with "Nutrition Metabolism" and 1 other. OTHER SETS BY THIS CREATOR. terms. Vitamins and Minerals Week 1.*

Published online Dec 1. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution license [http: Abstract](http://Abstract) Although the management of malnutrition is a priority in older people, this population shows a resistance to refeeding. Fresh bee pollen contains nutritional substances of interest for malnourished people. The aim was to evaluate the effect of fresh bee pollen supplementation on refeeding efficiency in old malnourished rats. Male month-old Wistar rats were undernourished by reducing food intake for 12 weeks. Mitochondrial activity was depressed with food restriction and was only improved by refeeding with the fresh bee pollen-containing diets. In conclusion, refeeding diets that contain fresh monofloral bee pollen improve muscle mass and metabolism in old, undernourished rats.

**Introduction** Bee pollen has been used for years as an exceptionally nutrient-rich health supplement [ 1 ]. It comes from the pollen that collects on the bodies of bees. Fresh bee pollens contain high levels of proteins, amino acids, lipids, minerals, carbohydrates, vitamins and other compounds, such as lactic acid bacteria, incorporated in bee saliva that is important for fermentation of the product [ 2 ]. Bee pollens are also rich in flavonoid and phenolic compounds. Their antioxidant effects are largely related to their free radical scavenging activity [ 2 , 3 ]. Bee pollen has been recommended for use in different physiopathological conditions and is widely used in Chinese medical clinical practice. The German Federal Board of Health has officially recognized bee pollen as a medicine [ 4 ]. Bee pollen is often claimed to cure certain health problems, and there is evidence that it can improve microcirculation and dyslipidemia and prevent and control coronary heart disease and myocardial infarction [ 5 , 6 ]. Bee pollen is cytotoxic against tumor cells [ 7 ] and regulates immune activity [ 8 ], and it is recommended to enhance athletic performance, reduce the side effects of chemotherapy and improve allergies and asthma [ 9 ]. Protein-energy malnutrition is common in elderly people, especially in aged hospitalized patients [ 10 ] in whom malnutrition is an important factor of morbidity and mortality. In elderly women, lean body mass, skeletal muscle function and immune status fail to adapt to low-protein intake [ 16 ]. In addition, aged rats accommodated less efficiently to a long-term dietary restriction than adult rats, particularly in terms of protein metabolism [ 14 ]. In old rats, malnutrition induced a dramatic loss of body weight and affected nitrogen balance and tissue protein content, especially at the splanchnic and muscle level [ 17 , 18 ]. It is therefore clear that on a molecular level, age-related malnutrition is accompanied by impaired protein metabolism. Moreover, aged populations show a slow decline in the ability to recover from a malnourished state, i. We previously reported that in rats, as in humans, the response to refeeding is affected by aging [ 14 , 17 , 21 ]. Accordingly, investigations need to be developed to study nutritional strategies to counteract malnutrition as soon as possible and, thus, avoid potential irreversible lesions in aged populations. For instance, in old malnourished rats, nutritional and immunologic variables can be improved by adding a very high amount of protein very early to the refeeding diet [ 14 ]. Elderly malnourished people may therefore require higher amounts of protein during refeeding, possibly due to increased protein utilization by splanchnic tissues. Furthermore, previous studies have revealed that realistic and safe therapeutic approaches based on nutrient supplementation, e. In this context, using bee pollen, which contains high concentrations, not just of amino acids, but also other key nutrients, could offer a valuable alternative approach. Prompted by the fact that nutritional supplements may be required to act as a starter of renutrition in older subjects, this study was designed to evaluate the efficiency of refeeding diets supplemented with specific fresh bee pollen formula in old malnourished rats. We investigated whether malnutrition-induced alterations in body weight and composition and muscle protein and energy metabolism were reversible in old rats receiving renutrition via two fresh pollen-enriched diets, i. **Material and Methods** 2. All rats were the same age 22 months old at the end of the experiment , came from the same batch and were bred under the same conditions throughout their

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lives. During acclimatization, all of the rats were fed a standard diet AIN93M ad libitum for 2 weeks. Experimental Procedures The compositions of the experimental diets are given in Table 1. During dietary restriction, the old rats were fed a standard diet for 12 weeks according to our established lab protocol [ 14 ]. This patented formula is constituted from 3 specific entomophile monofloral bee pollens in a particular proportion. The composition of this fresh bee pollen formula is given in Table 2. Food was given in conical porcelain cups to avoid spillage, and food intake did not differ between groups during the refeeding period [ 23 ]. All rats in every group ate their entire ration. Control rats were fed the standard diet ad libitum throughout the experiment.

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## Chapter 2 : 2-Week Diet & Exercise Plan | Applied Nutrition | Health Tips

*Step 6: enhance energy Metabolism Week 2: optimize Metabolism with nutritional Supplements Week 3: relax Your Mind, Heal Your Body*

Item has been placed in basket. You are about to embark on a 2-week diet and exercise program that will kick-start a healthy lifestyle. This doctor-developed system is specially designed to help you lose weight, so you look and feel great. With a little hard work, determination and dedication, we are confident that the results will be worth the effort. Are you up to the challenge? Nutrient-dense, low calorie foods are the secret to losing weight and keeping it off. Your goal for the next 2 weeks is to choose foods that have the highest nutritional value. This means choosing foods that are rich in nutrients and low in calories. Try to aim for a balanced diet that includes whole grains, healthy fats and lean proteins at every meal. Whole foods are the best form of nutrition. For example, visualize a whole apple and compare this to a glass of apple juice. The juice on its own does not contain the skin, seeds or fleshy center. However, the whole apple offers all the goodness of the entire fruit and consequently offers greater health properties. Breakfast is the most important meal of the day. After fasting for 8 hours through the night, the body relies on sustenance in the morning for physical and mental energy and focus. Ideally you should eat breakfast within an hour of waking to stimulate metabolism. If you are not accustomed to eating food this early in the day, try at least for the next 2-weeks to eat a very light but nutritious breakfast to help you get going in the morning. Lunch should be the biggest meal of the day. This is when your digestive enzymes are maximized and your body is primed to break down and absorb food nutrients. Having your largest meal in the middle of the day provides your body with the calories that it needs to stay active. Dinner should always be light and early. Try to finish your evening meal before 7pm or at least two hours before going to bed. It is important to give your digestive system a rest during the night-time and to allow your body to repair, regenerate and detoxify. In order for your metabolism to function at its most efficient, it relies on this nightly restorative process to keep your body operating at optimum levels. Snacking is allowed during the 2-week bootcamp. Eating a small snack in between lunch and dinner can help to maintain balanced blood sugar levels and to restrict overeating. The following meal plan provides calories per day. This diet is scientifically designed for healthy weight loss over the course of 2-weeks. Below is an overview of the basic dietary guidelines, outlining the daily amount of food that is allowed from each food group. You can mix and match food items throughout the day being careful not to exceed your caloric goal or you can simply follow one of three pre-designed menus below.

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### Chapter 3 : 5 Ways I Ruined My Metabolism | fitness | Pinterest | Metabolism, Health and Nutrition

*energy metabolism, and dietary nitrate might influence efficiency. Based on the reviewed literature, it can be concluded that the acute effect of creatine seems trivial.*

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**Abstract** Nitric oxide NO is a primary vasodilatory factor released from endothelial cells of the peripheral vasculature. NO production is stimulated through enzymatic-dependent mechanisms via NO synthase and from dietary intake of nitrate-containing foods or supplements. Subjects also completed questionnaires on sleep quality and mood since these measures have been associated with endothelial function. Changes in sleep quality or total mood state did not differ between groups after the 2-week study. Thus, the nitrate-rich FVS supplement increased plasma NO and reduced diastolic blood pressure in young normotensive men, but increased plasma NO was not associated with improvements in FMD, mood, or sleep. This trial is registered with ClinicalTrials.

**Introduction** In , Webb et al. These investigators selected beetroot juice, a particularly nitrate-rich food, to test their hypothesis and demonstrated significant reductions in both systolic and diastolic blood pressures several hours after ingestion of beetroot juice ml [ 1 ]. In the past decade, over 30 clinical trials have examined the influence of beetroot juice, specifically, on cardiovascular risk factors. Moreover, a meta-analysis of 16 eligible randomized crossover trials evaluated the relationship between inorganic nitrate or beetroot juice supplementation and blood pressure verified the strong association of dietary nitrate consumption and blood pressure reduction mean average reductions: Although receiving less attention than beetroot juice, nitrate-rich green leafy vegetables have shown promising blood pressure-lowering effects and improved endothelial function in healthy adults [ 3 , 4 ]. Vegetables particularly rich in nitrates include green leafy vegetables such as spinach and lettuce as well as fennel, rocket, radishes, Chinese cabbage, and parsley [ 3 , 5 , 6 ]. In addition to nitrates, green leafy vegetables contain several other nutrients and phytochemicals including vitamins C, E and K, carotenoids lutein and beta-carotene , flavonols quercetin and kaempferol , folate, iron, zinc, calcium, and magnesium [ 3 ]. According to a recent review, six studies to date have reported inverse associations between consumption of leafy greens predominantly spinach and lettuce and cardiovascular disease [ 3 ]. It should be noted that seven other studies of green leafy vegetables found no association with cardiovascular disease [ 3 ]. Dietary nitrates contribute to nitric oxide NO generation in humans e. NO promotes endothelium-dependent vasodilation to maintain healthy blood pressure [ 9 ]. Dietary nitrates are absorbed in the upper gastrointestinal tract resulting in elevated circulating nitrate concentrations. When swallowed, some of the nitrite formed in the mouth is protonated in the stomach to form HNO<sub>2</sub>, which decomposes to NO [ 10 , 11 ]. The remaining nitrate and nitrite are absorbed into the circulation from the upper gastrointestinal tract where they mix with nitrates and nitrites formed endogenously. In the circulation, there are several pathways by which nitrites can also be reduced to NO including conversion by deoxyhaemoglobin and cytochrome P [ 10 , 12 ]. Flow-mediated dilation FMD is a noninvasive assessment of vascular endothelial function in humans [ 13 ]. There are several reports in the literature examining the impact of beetroot juice ingestion on FMD. Similarly, a trial in hypertensive men and women that examined the long-term daily consumption of beetroot juice ingestion observed a significant increase in FMD [ 15 ]. Moreover, supplements and juice extracts containing beetroot are popular alternatives to fresh beetroot and are a popular ergogenic aid among competitive athletes [ 18 ]. For these reasons, it is important to examine whether these ergogenic aids can improve cardiovascular health. In contrast to other beet juice preparations or beet supplements, FVS sources its nitrates from additional nitrate-rich vegetable extracts beyond beets. Secondarily, because previous studies have demonstrated increased risk for cardiovascular disease, and hence impaired FMD, in individuals with depressed mood, fatigue, or reduced sleep durations [ 19 – 21 ], we also measured mood and sleep quality. Finally, we explored whether self-reported athletic status modified the

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physiologic responses to the supplement since some research has demonstrated that athletes have improved FMD [ 22 ] or alterations in FMD caused by vascular remodeling [ 23 ].

**Materials and Methods 2.** Women were excluded because: Additional exclusion criteria were cigarette use within the past year, any food allergies, use of specific medications with vasoactive effects nitroglycerin, beta-blockers, calcium channel blockers , or unwillingness to consume juice concentrates daily or follow study restrictions. The study was reviewed and approved by the Institutional Review Board at Arizona State University and all participants provided written consent to participate in a study examining the effects of juice supplementation on blood pressure and blood vessel function. The FVS contained mg of a proprietary blend of nitrate-rich extracts from beetroot *Beta vulgaris* , celery stem and leaf *Apium graveolens* , and red spinach leaf *Amaranthus dubius*. Additional ingredients included stevia leaf extract *Stevia rebaudiana* and a blend of fruit and vegetable extracts green tea leaf, red grape, white grape, bilberry, carrot, grapefruit, papaya, pineapple, strawberry, apple, apricot, cherry, orange, broccoli, green cabbage leaf, onion, garlic, black current, asparagus, tomato, olive, and cucumber. Prune juice was selected as it has been used as a placebo in prior studies of beetroot juice because it has a similar consistency, caloric, fiber and sugar content, high antioxidant, and phenolic profile, but a low nitrate content [ 29 , 30 ] Table 1. All nitrate and total polyphenol analyses were performed by Eurofins Scientific Inc. Nutrition facts for the study supplements<sup>1</sup>. The subjects were asked to consume one bottle at approximately the same time each morning for 14 consecutive days and to record compliance on a two-week calendar provided on the first study visit. Study compliance was determined as the percent of study days that the supplement was consumed. Participants were additionally asked to report any discomfort or adverse responses to their assigned supplement. Participants met with investigators on four occasions: Since some antimicrobial mouthwashes disrupt the reduction of dietary inorganic nitrates to nitrites by commensal bacteria in the mouth [ 31 ], participants were also asked to refrain from using antiseptic mouthwashes for 21 consecutive days starting one week prior to initiation of the 2-week intervention. Prior to each testing visit baseline, week 1 and 2 , participants were instructed to fast overnight no food or drink with the exception of water for at least 10 h. In addition, participants were asked to abstain from caffeine for 24 hours and exercise for 48 hours prior to testing. Participants were asked to arrive at the laboratory between Blood pressure was recorded for three consecutive measurements with the 2nd and 3rd measurements averaged for the final value. Next, flow-mediated vasodilation in the brachial artery was measured by a trained sonographer as described below. Waist circumference was measured in cm at the midpoint between the lowest palpable rib and the iliac crest using a flexible tension tape according to guidelines from the World Health Organization [ 32 ]. Height was measured using a wall-mounted stadiometer. All measurements were performed by the same study investigator. Physical activity was assessed using a validated questionnaire that quantifies physical activity in terms of metabolic equivalents METS [ 24 ]. After measuring baseline blood pressure, the sonographer measured the baseline preocclusion diameter of the left brachial artery for 60 seconds using a high-resolution ultrasound machine t; Terason Ultrasound, Burlington, MA with a 10 MHz multifrequency linear array probe. Images were recorded during the final 60 seconds of the occlusion to measure the minimum occlusion diameter after which the cuff was rapidly deflated to elicit a reactive hyperemic stimulus that is considered predominantly endothelium-mediated and NO dependent [ 13 ]. The position of the probe was recorded for each participant to ensure that it was placed at the same location for each testing. Intraclass correlation coefficients for this technique in our laboratory for baseline and peak diameter are 0. As the half-life of nitrite is only s, and levels are often below detectable levels using conventional analyses, studies often report the total nitrate and nitrite concentrations in plasma as an estimate of NO bioavailability [ 37 ]. Plasma total nitrates and nitrites were measured using a commercially available colorimetric assay kit Cat. Plasma was prefiltered through 30 kDa molecular weight cutoff ultrafilters Millipore, Billerica, MA according to the assay protocol as large plasma proteins may interfere with analyte determination. The assay uses nitrate reductase to convert sample nitrates to nitrites, which are then complexed to Griess reagent forming a purple azo compound detected spectrophotometrically. Participants were told to report their feelings during the past

week, and a total mood score was calculated the sum of the tension, depression, anger, fatigue, and confusion scores minus the fatigue score. Based on an age, gender, and race-stratified sample of healthy adults representative of the U. Higher POMS scores indicate greater affect. To assess sleep quality, participants completed the Pittsburgh Sleep Quality Inventory PSQI , a validated measure composed of seven component scores sleep quality, sleep latency, sleep duration, habitual sleep efficiency, sleep disturbances, use of sleeping medications, and daytime dysfunction that are summed to produce a global PSQI score [ 40 ]. Differences in baseline characteristics were examined by independent T-test, and the two-week change in outcome variables by group were examined using univariate analyses controlling for baseline values. Data were checked for normality and transformed when necessary. Age and physical activity level were not related to outcome variables; however, since markers of adiposity were related to the outcome variables, body mass was entered as a covariate in all analyses. Alpha was set at 0. Results Of the volunteers who were prescreened for eligibility, 57 participants met the inclusion criteria and were enrolled in the study; however, three participants were withdrawn prior to the start of the study based on exclusion criteria and an additional six participants did not initiate the study Figure 1. While 48 participants initiated the study, three participants did not complete the two-week intervention due to personal conflicts two in the PRU group and one in the FVS group; Figure 1. Data are reported for the 45 participants who completed the trial Figure 1. Study compliance percent of study days that juice was consumed was excellent for both groups: Baseline characteristics did not differ by group Table 2 ; furthermore, athletic status did not relate to any of the outcome measures at baseline and was not associated with changes in any of the outcome variables after the 2-week intervention. Baseline characteristics of study Participants1. By week one, plasma nitrates and nitrites rose markedly in the FVS group in comparison to the PRU group and levels remained elevated at week 2 Changes in diastolic blood pressure and plasma nitrates and nitrites for individual participants are shown in Figure 2. Total mood state and sleep quality did not vary between treatment groups over the course of the study Table 3. Outcome measures at baseline and study weeks 1 and 2 in participants consuming two ounces FVS or PRU daily for two weeks1. It is possible that a direct comparison between effects of beet juice per se and the FVS evaluated in the current study may not be equivalent since the nitrate-rich sources in FVS include not only beet but also celery and red spinach extracts. In this context, Bondonno et al. Although not entirely consistent with previous reports, the hypotensive effect of the FVS provides additional support for the inclusion of nitrate-rich foods or supplements as potentially safe and effective nutritional strategies for regulating normal blood pressure. Blood pressure levels are a strong predictor of both vascular and nonvascular diseases, and their predictive power for vascular disease is stronger than that for blood cholesterol concentration or cigarette use [ 42 ]. Hence, the value of identifying strategies to lower blood pressure is clear. Although chlorogenic acid, a component of prune juice, has been shown to reduce blood pressure according to a recent meta-analysis [ 46 ], no such blood pressure-lowering effects were observed in subjects consuming PRU in the present study. The daily consumption of a dietary supplement, e. Interestingly, the observed hypotensive effect of the FVS did not correspond with an effect on FMD, a commonly used, noninvasive assessment of vascular endothelial function. This discordance has previously been noted in other human intervention trials with beet juice. For example, while some investigations noted a lack of influence of dietary nitrates on FMD [ 28 , 49 ], others found a greater FMD in response to dietary nitrate consumption [ 1 , 50 ]. Of particular relevance, however, is that enhanced FMD by beet juice is typically noted within 3 hrs of nitrate consumption [ 1 ]. Moreover, the assessments evaluated FMD in healthy subjects without additional dietary treatments. Therefore, it is possible that any beneficial effect of the supplement may have required experimentally-induced endothelial dysfunction to demonstrate an effect such as that observed postprandially after a high-fat meal [ 14 ]. The average baseline FMD values for participants were below those reported in recent reviews [ 22 , 23 ]; hence, a ceiling effect was not likely in this study. For example, Lara et al. This was most likely explained the by lower concentration of dietary nitrates provided by FVS compared with dosages chosen in previous studies. Furthermore, participants were instructed to restrict dietary nitrate consumption to only that provided in the

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FVS. For example, a study comparing blended apples enriched with additional apple skins rich in flavonoids and spinach rich in nitrates found both increased plasma NO and FMD resulting in lower systolic blood pressure compared to a control [ 41 ]. In fact, increases in FMD were greater with the consumption of apples as compared to spinach, even though plasma NO was increased more in response to spinach supplementation [ 41 ]. Surprisingly, when apples and spinach were consumed together, there were no additive effects on blood pressure.

### Chapter 4 : Losing Weight | Healthy Weight | CDC

*The nutrition recommendation in Week 1-how, when, and what to eat- and the supplements outlined in Week 2 are designed to work together to heal diabesity. My six week program also provides additional quizzes to help determine if other nutritional supplements are needed as well as tips and suggested methods to guide you throughout the program.*

### Chapter 5 : Make Your 8 Week Run & Thrive | Mark Macdonald

*The metabolism of certain drugs like carbon tetrachloride results in breakdown products that include free radicals. 1. Lipid peroxidation is a response to free radicals whereby unsaturated fatty acid molecules are destroyed.*

### Chapter 6 : A Conversation with Dr. Mark Hyman

*This technique will increase your metabolism and store it for whole day. Below we will give you a complete list on what you can eat healthy to have a good start. Eggs: eggs are loaded with lots of nutrition.*

### Chapter 7 : HLTH SC - Exercise, Nutrition & Metabolism | Course Outlines

*Nutrition 4 Weight Loss Program. We believe in real food, the kind your grandparents ate, with ingredients you can pronounce or better yet, no ingredient list at all. We don't believe in counting calories, points, gimmicks, contracts, packaged foods or starvation diets.*

### Chapter 8 : Jim Stoppani's Six-Week Shortcut To Shred | theinnatdunvilla.com

*Starving yourself, cutting out food groups, and counting every calorie and carb actually slows down your metabolism, making it harder and harder to lose weight. The best way to rev up your sluggish metabolism is to eat, and eat a lot.*

### Chapter 9 : 7 Ways to Fix a Slow Metabolism

*Uj Endocrinology, Diabetes, Clinical Nutrition and Metabolism MD COURSE SPECIFICATION Faculty of Medicine- Mansoura University (A) Administrative information.*