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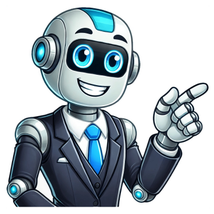

0 ratings0% found this document useful (0 votes)213 viewsAlkaline water is water with a higher pH level than normal tap water, achieved through ionization processes. Proponents claim alkaline water can neutralize acids in the body and provide healAI-enhanced title and descriptionSaveSave Benefits Of Alkaline Water For Later0%0% found this document useful, undefined0 ratings0% found this document useful (0 votes)117 viewsThis document discusses the health benefits of alkaline ionized water. It claims that drinking alkaline water can help balance the body's pH levels, aid in weight loss by reducing acid levelAI-enhanced title and descriptionSaveSave Benefits-of-Alkaline-Water-ebook For Later0%0% found this document useful, undefined As a library, NLM provides access to scientific literature. Inclusion in an NLM database does not imply endorsement of, or agreement with, the contents by NLM or the National Institutes of Health. Learn more: PMC Disclaimer | PMC Copyright Notice . 2022 Oct 31;17(10):e0275640. doi: 10.1371/journal.pone.0275640Much has been claimed on the health benefits of alkaline water including metabolic syndrome (MetS) and its features with scarcity of scientific evidence. Methods: This cross-sectional comparative study was conducted to determine whether regular consumption of alkaline water confers health advantage on blood metabolites, anthropometric measures, sleep quality and muscle strength among postmenopausal women. A total of 304 community-dwelling postmenopausal women were recruited with comparable proportion of regular drinkers of alkaline water and non-drinkers. Participants were ascertained on dietary intake, lifestyle factors, anthropometric and biochemical measurements. Diagnosis of MetS was made according to Joint Interim Statement definition. A total of 47.7% of the participants met MS criteria, with a significant lower proportion of MetS among the alkaline water drinkers. The observed lower fasting plasma glucose ($F(1,294) = 24.20$, $p = 0.025$, partial $2 = 0.435$), triglyceride/high-density lipoprotein concentration ratio ($F(1,294) = 21.06$, $p = 0.023$, partial $2 = 0.360$), diastolic blood pressure ($F(1,294) = 7.85$, $p = 0.046$, partial $2 = 0.258$) and waist circumference ($F(1,294) = 9.261$, $p = 0.038$, partial $2 = 0.263$) in the alkaline water drinkers could be considered as favourable outcomes of regular consumption of alkaline water. In addition, water alkalization improved duration of sleep ($F(1,294) = 32.05$, $p = 0.007$, partial $2 = 0.451$) and handgrip strength $F(1,294) = 27.51$, $p = 0.011$, partial $2 = 0.448$). Low density lipoprotein cholesterol concentration ($F(1,294) = 1.772$, $p = 0.287$, partial $2 = 0.014$), body weight ($F(1,294) = 1.985$, $p = 0.145$, partial $2 = 0.013$) and systolic blood pressure ($F(1,294) = 1.656$, $p = 0.301$, partial $2 = 0.010$) were comparable between the two different water drinking behaviours. In conclusion, drinking adequate of water is paramount for public health with access to good quality drinking water remains a critical issue. While consumption of alkaline water may be considered as a source of easy-to implement lifestyle to modulate metabolic features, sleep duration and muscle strength, further studies are warranted for unravelling the precise mechanism of alkaline water consumption on the improvement and prevention of MetS and its individual features, muscle strength and sleep duration as well as identification of full spectrum of individuals that could benefit from its consumption.Alkaline water has higher pH than normal drinking water, contains alkaline minerals and negative oxidation reduction potential. Several methods can be used to activate water such as electrolysis, light irradiation, ultra-sonication, treatment with a magnetic field, bubbling with gases, collision, strong water flow, and treatment with specific mineral or rocks [1]. Despite human body pH is tightly regulated, the habitual consumption of mineral water or beverages with added bicarbonate has been shown to have beneficial effects in terms of increasing of urinary pH [24].The effectiveness of alkaline water has gained increased recognition in health and nutrition. The application of alkaline water in the field of agriculture and medical care field was first initiated in the 1954 and 1960, and recognized for its beneficial effect on chronic diarrhea, indigestion, abnormal gastrointestinal fermentation, antacid and hyperacidity [1]. Several studies were conducted to assess the effectiveness of alkaline water in reducing the risk of metabolic syndrome (MS) or its traits [514] or other health outcomes [1011, 15], with conflicting results reported.Earlier studies found inverse association between cardiovascular diseases with increased consumption of water containing the mineral salts of calcium and magnesium [1618], especially among the women [19]. Case-control study also demonstrated that consumption of water greater than 8mg/L of mineral salt, magnesium was associated with reduced risk of mortality from the myocardial infarction [20]. Besides, epidemiological studies in Sweden also demonstrated that consumption of water with magnesium and bicarbonate with concentration of 110mg/L were at lower risk of myocardial infarction [21], which was attributed to the decreased of urinary excretion of minerals, regulated by acid conditions in the body. Clinical study intervening mild hypertensive patients with drinking water containing 403mg/L hydrogen carbonate abled to reduce the blood pressure [22].With its geographical location at the tropical region, water is abundantly available in Malaysia throughout the year, with both surface and ground water are used as drinking water after necessary treatment. In the Klang Valley Malaysia (Selangor, Kuala Lumpur and Putrajaya), most of the tap water supply comes from surface water sources that include rivers, lakes and reservoirs. Nevertheless, the pollution in rivers and lakes has become worsen in the recent years. The decrease in the quality of tap water because of pollution of the global environment over time has become a major social problem, whereby concern over tap water quality has led to the expansion of water filtration plants and had encouraged the marketing of filtered water, including filtered alkaline water. Earlier studies reported that 5085% households had water filter fitted to their kitchen supply [23, 24], depends on the geographical area. These figures are believed to be higher nowadays with the reduced confidence among consumers on tap water quality as well as the increased awareness on drinking water quality among consumers [24]. Alkaline water generation has progressed and advanced in development. Besides electrolysis, alkaline minerals, nanoparticles [25] and nanofiltration membranes [26] are new technologies applied in the production of alkaline water in the water industries. To the best of knowledge, most of the previous work on alkaline water was generated using electrolysis, with little is known on the effectiveness of alkaline water generated by other technologies.The increasing prevalence of MS is especially evident in Asia including Malaysia. Several studies in Europe and Asia have demonstrated an association between onset of menopause and higher risk of MetS, independent of aging [2731] in postmenopausal women. Menopausal women, with declining estrogen levels, is considered particularly vulnerable with regard to impaired sleep quality [3235] and muscle strength [3638].On the other hand, despite the increase usage of alkaline water in Malaysian households, with health claims on metabolic syndrome and its metabolites, studies to date provide limited information on its evidence. This was the impetus that prompted the current investigation to compare the metabolic risks, sleep quality and muscle strength between alkaline water drinkers and non-drinkers among postmenopausal women.This was an analytical cross-sectional study conducted on community-dwelling postmenopausal women in Kuala Lumpur and Selangor, Malaysia. A total of 304 participants comprised of 148 alkaline water drinkers and 156 non-alkaline water drinkers were recruited. While non-alkaline water drinkers were recruited from various community settings including senior citizen clubs and word of mouth, alkaline water drinkers were identified and screened from the contact list provided by the alkaline water company [CUCKOO International (MAL) Pte Ltd]. The alkaline water was produced using alkaline balls and nanofiltration concept which function to retain certain mineral such as calcium and magnesium selectively from water source. Inclusion criteria included women with at least five years postmenopausal, not on hormonal replacement therapy and absence from severe diseases. While non-alkaline water drinkers were defined as participants who have not been consuming alkaline water for at least past two months, alkaline water drinkers were eligible if they consumed alkaline water on regular basis (at least 1L/day for the past two months prior to data collection). The institutional ethics board of Universiti Putra Malaysia approved this study and written informed consent were obtained from all participants prior to study commencement with anonymity and data confidentiality guaranteed.Measurements, including anthropometric parameters, systolic and diastolic blood pressure, fasting blood glucose and fasting lipid profile were taken. Weight and height were measured using a calibrated digital weighing scale and stadiometer, respectively. Waist circumference was measured with a circumference measurement tape. Waist was defined as the narrowest circumference between the iliac crest and the costal margin (lower rib), and hip was the widest circumference between the waist and thigh. Trained researchers conducted all measurements with routine monitoring and quality checks. Blood pressure was measured following five minutes seated rest using automatic blood pressure monitor (Omron Matsusaka Co. Ltd, Matsusaka, Japan). Blood samples for biochemical analyses were collected from participants by venipuncture following 8 hours of fasting for fasting blood sugar (FBS), triglycerides (TG), total cholesterol (TC), high density lipoprotein cholesterol (HDL-C), and low-density lipoprotein cholesterol concentration (LDL-C), using enzymatic assay kits. Presence of metabolic syndrome was ascertained as per the Joint Interim Statement (JIS) definition [39] which requires three out of five of the following risk factors: Central obesity (waist circumference of more than 80 cm), hypertension (130 mm Hg for systolic BP or 85 mm Hg for diastolic BP) or on hypertensive medication, raised FBS (5.6 mmol/L) or on diabetic medication, raised fasting TG (1.7 mmol/L) and Low HDL-C (