The Global Fruit & Veg Newsletter

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October 2016

F&V consumption and weight change

The World F&V Day : October 14th ,2016

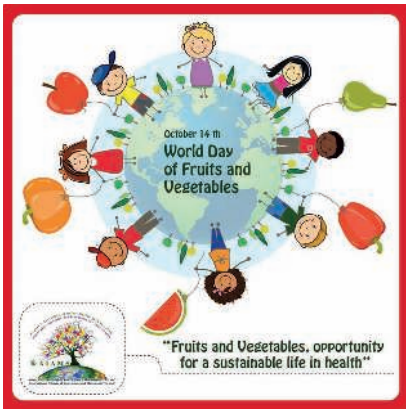
In 2012, in presence of representatives from FAO, PAHO and Ministry of health of Colombia, AIAM5 - the Global Alliance for the Promotion of Fruit and Vegetable Consumption «5 a day»- agreed in Cali (Colombia), to celebrate every year the World Fruit and Vegetables Day.

This day is intended to commemorate the importance of eating fruit and vegetables for human development, their key role in the biodiversity and sustainability of our planet, by increasing the consumption and production of fruit and vegetables to prevent and control NCDs and also to improve the global food security. October the 14th is the fifth day of the week in which FAO celebrates worldwide the World Food Day (October 16th).

Like last year, we want to make this day an important event at national and international levels. The final aspiration is to adopt national commitments to ask FAO to recognise globally the World F&V Day. This goal has been reached by Costa Rica and El Salvador, whose National Parliaments have already recognized this day. In 2016, the 4th edition of the World Day Fruit and Vegetables will be on October 14th. A press release with all the activities carried out by the 25 AIAM5's partners, will be disseminated October the 13th.

Have a nice World F&V Day! Follow us in Twitter # 4thWorldF&VDay @WDFAV

AIAM5 gathers 25 national organizations from 24 countries: Colombia, Costa Rica, El Salvador, Brazil, Cuba, Nicaragua, USA, New Zealand, Finland, Switzerland, Norway, Japan, Canada, France, Mexico, Venezuela, Germany, Bolivia, Uruguay, Argentina, Hungary, Spain, Chile, Poland and Portugal.



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Acknowledgement to 250 contributors since 2006

Mars 2012 : BM. Popkin; C. Dubuisson; C. Piernas ; G. Varela-Moreiras (Trends in food intake)

Avril 2012: E. Pivonka ; D. Hyson ; C.Thomson ; A. Rosenfeld (New F&V literature reviews)

Mai 2012: M. Caroli; N. Nathan; L. Wolfenden; L. DiSogra; C. Zinn; S. Boyd (F&V at school : a worldwide concern)

Juin 2012: B. Watzl; J. Vina & collaborators, T. Gibault; JM. Núñez-Córdoba (Recent knowledge on antioxidants)

Juillet/Août 2012: E. Riboli ; D. Romaguera ; A-C Vergnaud ; G. Masala (Recent news from EPIC)

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Maintaining a healthy weight with the consumption of fruits and vegetables

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Promoting healthy dietary patterns fits into the 2010 Dietary Guideline for Americans. In particular, it includes a variety of fruits and vegetables (F&V) to prevent chronic diseases, like cardiovascular disease, and to help individuals maintain a healthy weight. However, unlike cardiovascular diseases, there is a lack of evidence on specific types of fruits and vegetables that may help individuals maintain "a healthy weight". This study examined the relationship between increased F&V consumption and weight change over 24 years of follow-up among Americans.

Fruits and vegetables to promote weight stability

F&V have several constituents that may aid in weight maintenance. Their fiber content and lower glycemic load (GL[1]), which produces smaller postprandial glucose spikes, may increase satiety and thus may reduce total energy intake. Furthermore, insulin sensitivity, the gut microbiome and the anabolic state of adipose tissue may be influenced by intake of polyphenols which come from plant foods like F&V. All of these components and biologically active constituents may promote weight stability.

Dietary and weight change assessment

From 1986 to 2010, a food frequency questionnaire (FFQ) was administered every 4 years (4-y) in three prospective cohorts of 133 468 Americans: the Nurses' Health Study (NHS); the Health Professionals Follow-up Study (HPFS); and the Nurses' Health Study II (NHS II). The 131-item FFQ included 44 line items for commonly consumed F&V. The latter were grouped into specific subgroups (with similar nutritional value) as well as high or low fiber content and GL:

- Fruits : citrus, melon, berries
- Vegetables : cruciferous, green leafy, legumes

Participants reported their weight on biennial questionnaires and weight change was calculated as the difference in weight between the beginning and end of each 4-y interval.

An inverse correlation between total F&V intake and weight change

Within each 4-y time interval, average weight gain in the three cohorts was +2,1 lb for men in the HPFS; +2,8 lb for women in the NHS; +5,0 lb for women in the NHS II. However, increased total fruit and total vegetable consumption was inversely correlated with weight change in all cohorts. An additional daily serving of total vegetables was associated with -0,25 lb less weight gained over 4-y and an additional daily serving of whole fruit was associated with -0,53 lb less weight gained.

Increase the intake of berries, apples, pears, tofu, cauliflower, cruciferous and green leafy vegetables

Specific subgroups of F&V were also inversely associated with weight change (Table 1).

Table 1 : Association between specific subgroups of fruits and vegetables and weight change

Subgroups of fruits and vegetables	Cruciferous	Green leafy vegetables	Berries	Citrus fruits
Weight change (+/- lb[1])	- 0,68	- 0,52	-1,11	- 0,27

1. +/- are respectively associated with weight gain/loss

The association between individual F&V and weight change was also examined. Although increased intake of the majority of individual fruits was inversely associated with weight change, not all vegetables were inversely associated, for example, increased intake of starchy vegetables (potatoes, peas and corn) was associated with greater weight gain (Table 2).

Table 2 : Association between selected individual vegetables and weight change

	Non starchy vegetables			Starchy vegetables		
Vegetables	Tofu/ soy	Peppers	Carrots	Potatoes	Peas	Corn
Weight change (+/- lb[1])	- 2,47	- 0,76	-0,41	+ 0,74	+ 1,13	+2,04

1. +/- are respectively associated with weight gain/loss

Finally, the inverse correlation between F&V intake and weight change was stronger for berries (-1,11 lb), apples/pears (-1,24 lb), tofu (-2,47), cauliflower (-1,37 lb), cruciferous (-0,68 lb), and green leafy vegetables (-0,52 lb). Furthermore, increased intake of higher fiber and lower-GL vegetables was more strongly associated with negative weight change compared to lower fiber and higher-GL vegetables. This could reflect the impact of these factors on satiety, glucose and insulin responses, fat storage, and energy expenditure. Regarding starchy vegetables (potatoes, peas, corn), their association with weight gain could potentially be related to their higher GL, although they rank in the top half of vegetables based on fiber content and they have relevant nutritional value (potassium, vitamin C, B6, iron, fiber, protein).

More daily servings of F&V to reduce weight gain

Each increased daily serving of F&V was modestly associated with weight change but theoretically, an increase of one-to-two servings for F&V/day respectively could substantially reduce weight gain over the long-term. For example an additional daily serving of berries or summer squash was associated with about a lb less weight gained over each 4-y interval, which is half of the average weight gained by each male participant This study emphasizes the role of F&V intake in preventing long-term weight gain and thus obesity. Public health recommendations and nutritional guidelines should promote specific subgroups or individual F&V to maintain a healthy weight and prevent chronic diseases.

1. Carbohydrate content of each fruit/vegetable grams per serving multiplied with the glycemic index of that fruit/vegetable

Based on: *Bertoia ML, Mukamal KJ, Cahill LE, Hou T, Ludwig DS, Mozaffarian D, Willett WC, Hu FB, Rimm EB. Changes in intake of fruits and vegetables and weight change in United States men and women followed for up to 24 years: analysis from three prospective cohort studies. PLoS Med. 2015 Sep;12(9):e1001878.*

Improving Fruit and Vegetable Consumption among Overweight and Obese Adults

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Dietary Approaches to Weight Change

Rates of obesity, which is defined as a body mass index (BMI) of 30 kg/m2 or higher, are increasing in the U.S. Close to one-third of all children and adolescents and over two-thirds of all adults are overweight or obese. The concern regarding the rising rates of obesity are the negative health effects, including hypertension, stroke, coronary heart disease, type 2 diabetes mellitus, and various cancers. Changes in dietary intake, including increased fruits and vegetables consumption, can be helpful in promoting weight loss in overweight and obese individuals. Yet, fewer than 22% of Americans consume the recommended daily goal of two cup-equivalents of fruits and two and a half cup-equivalents of vegetables. Lower than recommended fruit and vegetable consumption has been seen repeatedly in different adult cohorts with overall consumption in some adult cohorts actually decreasing over time.

Nutrition Education and Fruit and Vegetable Consumption

A recent investigation of the effectiveness of a community-based fruit and vegetable education program and provision of fruits and vegetables on changes in fruit and vegetable consumption among overweight and obese adults yielded interesting results. The adults were randomly assigned to one of three intervention groups: the control group received no intervention, the education group attended weekly nutrition lessons promoting fruit and vegetable consumption, and the fruit and vegetable group attended weekly nutrition lessons and received samples of fruits and vegetables daily for 10 weeks. Semi-quantitative food frequency questionnaires and three-day food records were used to assess fruit and vegetable consumption.

At the beginning of the study, none of the participants were consuming the recommended daily amounts of fruits and vegetables. Increases in the frequency of consuming fruits and vegetables following the intervention were reported among participants in the two intervention groups, but not in the control group. However, no additional increases were noted in fruit and vegetable group participants compared to education group participants, suggesting that nutrition education, but not samples of fruits and vegetables, may have contributed to success in increasing fruit and vegetable consumption among participants. Even with increases in consumption reported among education and fruit and vegetable group participants, actual consumption of fruits and vegetables was still below current recommendations at the end of the study.

Throughout the nutrition education intervention, emphasis was placed on encouraging participants to replace energy-dense, nutrient-poor foods previously consumed with fruits and vegetables. This was emphasized in order to promote increased consumption of fruits and vegetables while maintaining and/or decreasing overall caloric intake. One suggestion offered to participants was to consume fruits and vegetables as a snack. Since snack foods tend to be high in energy density while low in nutrients, substituting fruits and vegetables can help to both increase fruit and vegetable intake while decreasing consumption of less nutritious foods.

While the authors' hypothesis that nutrition education and nutrition education with the provision of fruits and vegetables would have a differential effect on changes in frequency of fruit and vegetable consumption over time compared to no intervention was not supported by the study results, the increased weekly frequency of fruit and vegetable consumption among those who received the intervention was positive.

Recommendations

With over 37% and 22% of Americans consuming fruits and vegetables less than once per day, and rates of overweight and obesity rising, recommendations include to both increase consumption of fruits and vegetables and decrease consumption of high-energy, nutrient-poor foods. If maintained as part of an overall healthy lifestyle change, improvements in fruit and vegetable consumption may contribute to improved nutrient intake, weight loss, and decreased disease risk in adults. Future studies should include post-intervention follow ups to determine the effectiveness over time of nutrition education on changes in fruit and vegetable consumption

« Yet, fewer than 22% of Americans consume the recommended daily goal of two cup-equivalents of fruits and two and a half cup-equivalents of vegetables »

Based on: *Wagner, M.G., Rhee, Y., Honrath, K., Blodgett Salafia, E.H., Terbizan, D. (2016). Nutrition education effective in increasing fruit and vegetable consumption among overweight and obese adults. Appetite, 100, 94-101.*

The Influence of Doctor's Advice to Lose Weight on Fruit and Vegetable Consumption

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The U.S. Preventive Task Force recommends that physicians screen all patients for obesity and if needed, provide weight loss advice[1]. Increasing the proportion of physicians who provide nutrition and weight loss counseling is also a key objective of the United States Healthy People 2020 initiative[2]. Research on the effect of physician counseling and weight loss advice shows that it positively influences behavior; those that receive weight loss counseling are more likely to eat less fat, decrease their caloric intake, and lose more weight than those who do not receive counseling[3,4].

Fruit and vegetables are not only part of a healthy diet, but they can help with maintaining a healthy weight and assist with weight loss as well. A systematic review of longitudinal and experimental studies found that among overweight and obese adults, an increase in fruit and vegetable consumption resulted in a lower amount of body fat[5].The exact mechanism is not clear for why fruit and vegetables appear to help with weight maintenance and loss, but it may be due to their high fiber content or from people replacing energy-dense foods with lower-calorie fruits and vegetables[5].

1,708 adults interviewed via a household phone survey in 2009-10 in five cities in New Jersey

Eligible participants had at least one child ages 3-18 in the home and made the food purchasing decisions for the household. Participants were asked about their height, weight, eating behaviors, weight loss efforts, and if they had received weight loss advice from their health care provider in the past 12 months. Multivariable negative binomial regression was used to determine the association between weight loss advice, trying to lose weight, and eating behaviors[6].

More fruit and salad for study participants who received doctor's advice to lose weight

Of the 1,708 adults, 548 (32%) were obese. Of the 548 obese adults, 48% received doctor's advice to lose weight and 68% stated they were attempting to lose weight. Seventy six percent of those who received advice to lose weight were attempting to lose weight compared to only 60% of those who did not receive advice.

Study participants who received doctor's advice to lose weight ate more fruit and salad ($p=0.03$ and $p=0.01$, respectively). Participants who stated they were trying to lose weight were more likely to eat more fruit ($p=0.004$), more vegetables ($p=0.01$) and more likely to eat fruit and vegetables as snacks ($p<0.001$). This relationship held even when controlling for receiving doctor's advice to lose weight[6].

Doctor's Advice to Lose Weight

Physician's advice to lose weight can help promote healthy eating behaviors as well as increase the likelihood of weight loss attempts. This study and others have found persons who received weight loss advice from their health care provider were more likely to try to lose weight [6,7]. Other studies have also found that when people are trying to lose weight, eating more fruits and vegetables are one of the key behaviors chosen[8]. Given the role physician's advice plays in patient's health, it is imperative that physicians follow national guidelines in providing nutrition and weight loss counseling to the appropriate patients. This can lead to an increase in fruit and vegetable consumption, which may not only lead to a reduction in weight but also the risk of chronic disease as well.

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