The Global Fruit & Veg Newsletter

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Consume F&V for your mental health

Staying happy, whatever the season

Depending on the season, our experience of a good mood changes. In summer and winter, it's not just our clothes that change – the way we take care of our health differs too. Your mind and your brain are like a garden; to produce fruits, vegetables, or a healthy state of mind, you have to follow certain common-sense rules, respect seasonal changes, alternate between reflection, projects, hard work and rest. Some seasons are for anticipating what we plan to do, others are used to sow the seeds, and others enable us to reap the fruits of our labour. Just like a well-kept garden, your mind doesn't need artificial fertilisers. It is overflowing with natural resources that are full of surprises.

There are health techniques adapted to each season. Why not give them a go?

Good mood foods.

Vitamins, fruits and vegetables all help your brain to produce the molecules it needs to keep you well.

Physical and artistic ways to stay happy.

They get your body moving and have an effect on your neurones.

The ways of thinking, communicating and understanding the world that fill you with positive energy. This year, you can make sure you won't just wish your friends and family, and yourself, a happy new year...

You can learn how to make it a reality. You can choose to stack all the odds in your favour to succeed in your projects and make your dreams come true, no matter how big or small they are. A virtuous circle exists between good health, optimism and natural stimulants. I myself am certain that this virtuous circle is the best antidote to collective or personal low spirits.

Pr Michel Lejoyeux[1, 2]

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Book's extract
"The 4 seasons of GOOD HUMOR",
Pr Michel Lejoyeux

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Fruit and vegetable consumption and psychological distress: cross-sectional and longitudinal analyses based on a large Australian sample

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Diet and mental health

Mental health disorders currently account for the greatest burden of disability worldwide and a third of the global burden of non-fatal diseases[1]. Public health prevention strategies are urgently needed.

There has been growing interest in examining the role of diet in mental health. Observational studies have generally shown a positive association between an overall healthy eating pattern (consistent with the "Mediterranean diet"; based on diets high in fruit and vegetables (F&V), unprocessed grains and fish, and low in processed foods) and mental wellbeing[2-5].

The role of F&V consumption in mental health has received increasing attention. Fruits and vegetables are rich in nutrients, and their protective effects in relation to several chronic diseases are well known[6-7]. In addition, diets low in fruit have been reported to be the leading dietary risk factor for the global burden of disease[8]. There is also growing evidence, particularly from cross-sectional studies, which suggests a potential link between fruit and vegetable consumption and psychological distress[9]. However, to build stronger evidence, more prospective studies are needed[10-11]. Therefore, this study aimed to examine the association between F&V consumption and both the prevalence and incidence of psychological distress in a large cohort of Australian adults.

Study population and measurements

Baseline (2006-2008) and follow-up (2010) questionnaires were completed by participants aged 45 years and over (60,404 for cross-sectional analyses and 54,345 for prospective analyses) from the Sax Institute's 45 and Up Study (https://www.saxinstitute.org.au/our-work/45-up-study/). Psychological distress was assessed using the validated Kessler Psychological Distress Scale (K10) which measures anxiety and depression symptoms[12-13]. Usual F&V consumption was assessed using validated short questions.

Cross-sectional analyses: prevalence of psychological distress

At baseline, 5.6% of participants reported psychological distress. Baseline F&V consumption, together or separately, was associated with a lower prevalence of psychological distress, even after adjusting for socio-demographic characteristics and lifestyle risk factors.

Prospective analyses: incidence of psychological distress

After a three-year follow up, 4.0% of those who did not report distress at baseline reported distress at follow-up. The prospective association between F&V consumption and psychological distress was less consistent, although generally in the same direction as findings from previous studies. Moderate daily F&V consumption was associated with lower odds of psychological distress. For example, people who ate 5-7 daily serves of F&V had 14% lower odds of psychological distress than those who ate 0-4 serves daily. Overall, our study's findings were consistent with those from several cross-sectional studies and a limited number of prospective studies.

Differences between men and women

The more novel, additional analyses in men and women, surprisingly showed that F&V consumption was more protective for women. There were no clear associations in men over the three-year follow-up period. A mechanism that could explain a true physiological difference between men and women remains unclear and requires further investigation. Women may have more accurately reported their consumption than men, and this may have contributed to the differences observed.

Potential mechanisms linking fruit and vegetables to mental health

Fruit and vegetables are high in antioxidants (e.g. vitamins C and E) that can help reduce oxidative stress and inflammation, which can be harmful to mental health. Additionally, B-vitamin deficiencies (e.g. folic acid or vitamin B9) influence mood regulation and have been associated with depression. Prebiotic foods have also been linked to improved mental health. F&V may therefore affect several biological pathways related to mental health; however, more studies are needed.

Study implications and conclusions

In interpreting this study's findings, several points should be highlighted:

1. The study questionnaire was limited in its dietary assessment and there may have been residual confounding from dietary/non-dietary factors.
2. Assuming that there was a causal link, the direction of the associations could not be inferred. We tried to minimise the possibility of "reverse causation" (i.e., that poor mental health leads to a poor diet) by excluding participants who were being treated for depression/anxiety, were taking antidepressants, or reported being psychological distressed.
3. Causality could not be inferred from this observational study.
4. Those who consume healthy amounts of F&V may also be engaging in other healthy lifestyle behaviours which together could have contributed to lower psychological distress.

Among this cohort of middle-aged and older adults, F&Vconsumption may help reduce the prevalence of psychological distress. Our longitudinal findings contribute to the limited evidence base for an association between F&V consumption and the incidence of psychological distress. Whilst our findings lend support to existing public health guidelines that promote F&V consumption as part of a healthy diet, further longitudinal studies are needed.

Based on : Nguyen B, Ding D, Mihrshahi S. Fruit and Vegetable Consumption and Psychological Distress: Cross-Sectional and Longitudinal Analyses Based on a Large Australian Sample. BMJ Open 2017;7:e014201. doi:10.1136/bmjopen-2016-014201

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Understanding fruit and vegetable consumption from the psychology of personality

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Fruit and vegetable (F&V) consumption is an essential component of a healthy diet that is linked to better physical and mental health. Given the importance of this healthy habit, it is crucial to understand what factors predict higher F&V consumption. The majority of research has focused on how demographic factors like female gender, high socioeconomic status and lower body mass index predict greater F&V consumption. Less is known about how psychological factors – namely, personality traits– influence F&V consumption.

Personality shapes food preference

There are five main personality traits recognised in psychology— neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness. You have probably heard of neuroticism, characterised by negative emotionality and the tendency to perceive threats in the environment, and extraversion, characterised by positive emotionality and the tendency to be energised by the company of people. Lesser known but equally important personality traits are openness to experience (the desire for novelty, complex abstract thinking, and aesthetic sensitivity), agreeableness (the tendency to be cooperative and altruistic), and conscientiousness (the tendency to be self-disciplined and organised). Given that personality shapes the perception, interpretation, and behaviour of people in their environments[1], and food is a major part of our everyday environments, it seems likely that personality may shape food preferences, including the likelihood of consuming fruits and vegetables.

Personality affects the consumption of F&V

In my research, I have been investigating how personality is related to the likelihood of consuming more fruit and vegetables in young adults ages 18 to 25. Young adults are not known for reaching the minimum recommended 5+ a day of servings of fruits and vegetables; in fact, they are usually the age demographic least likely to eat fruits and vegetables[2]. Yet, even within this age range, some young adults are eating more F&V than others. The question is, can we predict those differences from their personality traits?

People open to experience: Number 1 eaters of fruits and vegetables

Yes, we can. Three out of the five personality traits predict higher FV consumption. The strongest finding is that young adults higher in openness to experience report higher daily F&V consumption than their less open peers. Openness is characterised by a desire for variety, a willingness to try new things, and higher intellect[1] – characteristics that could promote a more varied and healthy diet including plant-foods. As a trait associated with exploration, openness may enable young adults to broaden their pallet, try new and unusual foods, and overcome taste aversions.

F&V consumption contributes to happiness and extraversion

The second strongest finding is that young adults higher in extraversion also eat more F&V than their less extraverted peers. This finding surprised us because there is no clear explanation for it. Extraversion is associated with a larger brain response to rewards, which might suggest this trait would predict higher consumption of rewarding sugary foods, but this is not what we found. One interpretation is that happier people eat healthier foods. Experimental evidence shows that inducing positive moods can shift people towards healthier food options[3]. However, more recent research shows that higher F&V consumption shifts people into happier moods[4,5], so it is possible that the higher F&V intake contributes to feelings of happiness, which contributes to extraversion.

Being conscious increases F&V consumption

The third finding is that young adults higher in conscientiousness eat more fruits and vegetables than their less conscientious peers. This is not surprising given that conscientiousness is a marker of self-discipline. However, in our research, this effect is surprisingly weak— surprising because conscientiousness usually stands out as the single most important predictor of other healthy habits like exercising, wearing a seatbelt, wearing sunscreen, and getting regular health check-ups[6]. It is possible that self-discipline, while critical to a wider range of health behaviours, may not matter as much for plant-food consumption, which has more of a taste component.

Perspective: Understanding the personality traits to design more effective campaigns

So what does this all mean? From a health perspective, these findings suggest that personality traits are important in establishing healthy habits in early adulthood. These traits – notably openness, extraversion, and conscientiousness– could set the stage for better health now and later in life through increased F&V consumption. From a public health perspective, understanding the personality traits of people who do (or don't) eat their fruits and vegetables could help institutions design more effective campaigns to increase F&V consumption. For example, public health campaigns could try to cultivate greater openness towards FV by encouraging people to explore novel foods and try new plant-foods through a "Try it!" campaign. Similar strategies could be employed by the fruit and vegetable industry to market their products.

Based on : Conner, T. S., Thompson, L. M., Knight, R., Flett, J. A. M., Richardson, A. C., & Brookie K. L. (2017). The role of personality traits in young adult fruit and vegetable consumption. Frontiers in Psychology, 8, 119. https://dx.doi.org/10.3389/fpsyg.2017.00119 [open access]

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The Effects of Blueberry Flavonoids on Mood in Young People

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Depressive disorders: a public health issue

According to the WHO, depressive disorders are the second most common cause of death in young people because of the link between suicide and depression. Psychological therapies and a single licenced pharmacological treatment, Fluoxetine, are recommended as treatment for adolescent depression. However, they are only moderately effective, with up to 50% of young people not responding to treatment or experiencing relapse and further episodes of depression. An important area for development therefore is to prevent depression via public health interventions that can be delivered to a whole population of children and adolescents.

Fruit & vegetable consumption reduces the incidence of depression

There is emerging evidence linking diet and the onset of depression. Epidemiological data shows that lifetime consumption of fruit and vegetables predicts a lower incidence of depression in later life. In our recent review of the literature on diet and depression in young people, we found that although the quality of evidence was weak, there were consistent links between nutrition and depression in both cross-sectional and longitudinal studies. This may be attributed to the presences of high amounts of nutrients called flavonoids. Flavonoids are a class of polyphenols (micronutrients) found naturally in fruit, vegetables, tea, coffee and cocoa. However, there is an absence of studies exploring the effects of flavonoid-rich interventions on mood.

Wild blueberry drink increases the positive emotional state

Given the well-documented links between fruit and vegetable consumption and depression, we tested the acute effects of flavonoid-rich wild blueberries (WBB) in a double blind randomized trial. We carried out 3 independent studies, with healthy children (7-10 years) N=50, adolescents (12-17 years) N=33 and young adults (18-21 years) N=21. All participants were randomised to either a WBB drink (equivalent to 240g of fresh WBB) or a placebo drink (matched for sugars and vitamins). They were asked to complete a questionnaire measuring their negative (NA) and positive (PA) emotional states (the Positive and Negative affect schedule; PANAS) before and 2 hours after consumption. This period represents the time of peak absorption and metabolism of blueberry flavonoids. We analysed the data from these studies using repeated measures ANOVA, mixed ANOVA and General linear modeling depending on the study design. Significant main effects and interactions were explored with Bonferroni corrected post-hoc t-tests.

The effect of flavonoids on mood was consistent across all three of the studies, at different times of day (morning, afternoon and evening), and in a between- and a within-subject design. Young adults: There was a significant increase in positive affect after consuming the blueberry drink. There was no change in positive affect after consuming the placebo drink (Figure 1). Children: There was no significant change in positive affect after consuming the placebo drink, but a significant increase in positive affect after consuming the blueberry drink. There was no significant difference in NA between Placebo and WBB at the post consumption (Figure 2). Adolescents: There were no significant changes to positive affect or negative affect as a result of the drink. However, there was an increase in mean positive affect scores two hours post consumption, though this was not significant. No such effects of blueberry on negative affect were observed (Figure 3).

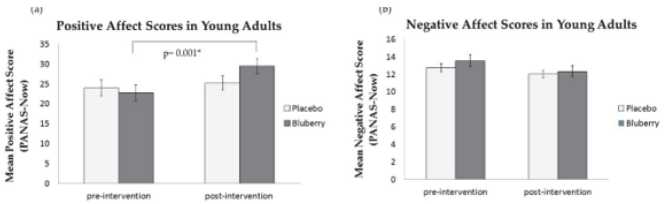

Figure 1. Mean PANAS-NOW Mood scores in adults aged 18-21 years: (a) Mean PA scores pre-and post-consumption of placebo and intervention drinks (b) Mean NA scores pre-and post-consumption of placebo and intervention drinks.

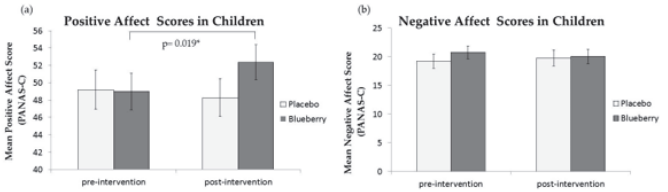

Figure 2. Mean PANAS-C Mood scores in children aged 7-10 years: (a) Mean PA scores pre-and post-consumption of placebo and intervention drinks (b) Mean NA scores pre-and post-consumption of placebo and intervention drinks.
* Significant at <0.05. Attained from post hoc paired t-test.

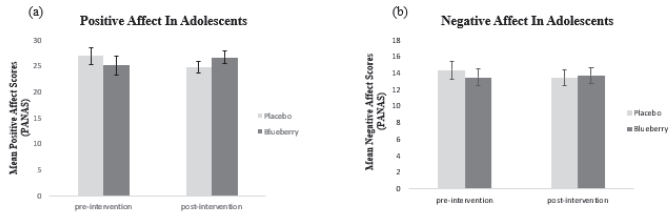

Figure 3. Mean PANAS-NOW Mood scores in adolescents aged 12-17 years: (a) Mean PA scores pre-and post-consumption of placebo and intervention drinks (b) Mean NA scores pre-and post-consumption of placebo and intervention drinks.

Flavonoid may prevent dysphoria, a strong predictor of the emergence of major depressive disorder

Sustained periods of low mood or dysphoria (low positive affect) are a strong predictor of the emergence of major depressive disorder. Therefore, if acute flavonoid consumption improves positive affect, we hypothesis that sustained consumption of flavonoids may help prevent dysphoria, and thus the onset of major depression. Given that depression tends to emerge for the first time during adolescence and early adulthood, and typically leads to repeated episodes later in life, an intervention that increases flavonoid consumption during this critical period of development could decrease incidence of adolescent and life-long depression.

Perspective: dietary intervention to promote positive mood

These studies demonstrated that consuming blueberry flavonoid improved positive affect and had no effect on negative affect in healthy children, and young adults. There seems to be similar effects of blueberry flavonoids on adolescent mood, however not significant. Dietary interventions, particularly F&V, could play a key role in promoting positive mood and are a possible way to prevent dysphoria and depression. Given the potential implications of these findings for preventing depression, it is important to replicate the study and assess the potential to translate these findings to practical, cost-effective and acceptable interventions.

Acknowledgments: We are grateful to the Wild Blueberry Association of North America who provided the freeze-dried wild blueberry powder used for this study.

Based on: Khalid S, Barfoot KL, May G, Lamport DJ, Reynolds SA, Williams CM. Effects of Acute Blueberry Flavonoids on Mood in Children and Young Adults. Nutrients. 2017;9(2):158. doi:10.3390/nu9020158.