Supplementary Methods

To perform meta-analyses, we converted all reported CIs or SEMs to SDs. Rather than reporting net change, all included parallel trials reported only baseline and post-intervention results. Therefore, we calculated within-group change scores by subtracting baseline values from final measures. To estimate intervention effects, we used the difference between within-group change scores as net change. We then imputed missing SDs of net change based on reported baseline and final SDs and a common correlation coefficient of 0.5. Sensitivity analyses using correlation coefficients of 0.2 and 0.8 found no change in overall conclusions for pooled effects.

Similarly, all included crossover trials reported means and SDs or SEMs for each intervention separately rather than reporting net change. To deal with this inappropriate reporting, we approximated paired analyses for these studies by calculating net change means and imputing missing standard deviations of net change. Some crossover trials reported pooled baseline values due to no difference in baseline characteristics between participants assigned to each sequence. We used these pooled results as baseline values for the separate interventions.

Next, as outlined in the Cochrane Handbook, we used reported P values to determine associated t-scores, calculate the standard error and standard deviation of change, and estimate correlation coefficients. If studies reported upper limits rather than exact P values, we adopted the reported upper limits as conservative P values for those studies as is recommended (e.g., P<0.001 became P=0.001). No P values were reported for OxLDL results, and for IL-6 and MDA, correlations coefficients differed across studies and were at or below |0.5|. Consequently, rather than using change from baseline values, we used post-intervention values to calculate net change means and estimate standard error of net change more precisely, as suggested in the Cochrane Handbook. For these three markers, net change means were calculated as between-group differences for final measurements. Standard errors of net change were calculated from final group SDs and a common correlation coefficient of 0.5. Sensitivity analyses using values of 0.2 and 0.8 produced similar results.

For high-sensitivity C-reactive protein (hs-CRP), correlation coefficients derived from reported P values showed some variation but were all >0.5, and the average correlation coefficient for the one study reporting P values for both baseline and post-intervention between-group differences was 0.78. Here, using change from baseline hs-CRP to calculate means and standard errors of net change was justified, and this was done as described above for parallel trials. A common correlation coefficient of 0.78 was used to impute standard errors of net change, and sensitivity analyses using coefficients of 0.2 and 0.5 resulted in similar findings.

For all markers, data were insufficient to perform pre-specified subgroup meta-analyses by health status of the study population (healthy or at-risk). For one marker, IL-6, data were sufficient to conduct the pre-specified subgroup meta-analysis by orange juice (OJ) preparation type (fresh-squeezed or commercial 100% OJ). In sensitivity meta-analyses, we excluded studies involving...
rated high risk of bias (ROB), and overall conclusions did not change, or remaining data were insufficient to analyze.

We avoided double counting participants in each meta-analysis. For controlled trials with multiple comparators, we selected interventions most closely matched to the 100% OJ intervention to reduce confounding. For example, if comparators included both water and an isocaloric beverage (e.g., water with glucose), we used only the isocaloric beverage for analysis, as this would control for energy intake. One crossover trial compared two 100% OJ interventions (commercial OJ without pulp and 0.7 g fiber/serving; juice from blended whole orange with 6.3 g fiber/serving) with two fiber-matched comparators (isocaloric sugar-matched control with no fiber; commercial OJ with 5.4 g added fiber/serving) (3). To avoid double counting participants from this study, we included only the non/low-fiber 100% OJ and comparator interventions due to similar fiber content with other meta-analyzed studies. Another crossover trial was conducted once in a polluted area and again in a non-polluted area with no difference in results between environments (4). To avoid double counting these participants, we analyzed only results from the first trial conducted in the polluted area. Each forest plot clearly identifies group comparisons to aid interpretation.
Supplementary Tables

Supplemental Table 1. Eligibility criteria for inclusion of studies in this review of the effect of 100% orange juice on markers of inflammation or oxidative stress

| Category                  | Inclusion criteria                                                                 | Exclusion criteria                                                                 |
|---------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| Study design              | Any intervention study:                                                              | Mendelian randomization studies                                                     |
|                           | • Randomized controlled trials including those with crossover designs               | Retrospective cohort studies                                                        |
|                           | • Non-randomized controlled trials including quasi-experimental, crossover, and     | Cross-sectional studies                                                             |
|                           |   controlled before-after studies                                                   | Narrative reviews                                                                   |
|                           | • Uncontrolled trials (e.g., single arm studies)                                     | Systematic reviews                                                                  |
|                           |                                                                                     | Meta-analyses                                                                      |
|                           | Prospective cohort studies                                                          | Letters to the editor                                                               |
|                           | Nested case-control studies                                                         | Case studies or case series                                                         |
|                           | Case-cohort studies                                                                 | Conference proceedings                                                              |
|                           |                                                                                     | Abstracts                                                                          |
| Study duration            | No restriction                                                                      | None                                                                                |
| Sample size               | No restriction                                                                      | None                                                                                |
| Intervention/exposure     | 100% orange juice (other terms could be “fresh,” “pure,” “whole,”                    | Interventions other than 100% orange juice (e.g., juice from concentrate,           |
|                           |   “natural,” or “not from concentrate”)                                             |   juice with additives or where something has been removed, studies                |
|                           | Juice made from whole oranges where variety is specified (e.g., mandarin, bergamot, |   where only “orange juice” is specified)                                           |
|                           |   satsuma, etc.)                                                                     |                                                                                     |
| Comparator                | Comparisons across different 100% orange juice amounts.                             | None                                                                                |
|                           | Comparisons of 100% orange juice to other foods/beverages (including comparison to   |                                                                                     |
|                           |   usual diet in the case of single-arm studies).                                    |                                                                                     |
|                           | Comparison(s) to a placebo.                                                         |                                                                                     |
| Outcomes                  | Oxidative stress and inflammatory markers such as (but not limited to):             | Other outcomes                                                                      |
|                           | • Cytokines such as TNFα, IL-1, IL-6, and C-reactive protein                        |                                                                                     |
|                           | • Toll-like receptors and transcription nuclear factors such as NFκB,                |                                                                                     |
| Category                  | Inclusion criteria                                      | Exclusion criteria                                                                 |
|---------------------------|---------------------------------------------------------|-------------------------------------------------------------------------------------|
| Date of publication       | No restriction                                          | None                                                                                |
| Publication status        | Articles published in peer-reviewed journals            | Articles not published in peer-reviewed journals, including unpublished data, manuscript reports, abstracts, pre-prints, and conference proceedings |
| Language of publication   | English                                                 | Languages other than English                                                        |
| Country                   | No restriction                                          | None                                                                                |
| Study participants        | Human subjects                                          | Non-human subjects, Pregnant and lactating women                                     |
| Age of study participants | Adults, 18-years or older (based on mean/median if available or mid-point of reported age range) | None                                                                                |
| Health status of participants | Healthy populations                                    | Other diseased populations                                                          |
|                           | • Includes observational studies with <20% disease at baseline |                                                      |
|                           | • Includes studies with overweight populations that are otherwise healthy |                                                      |
|                           | At-risk populations such as those with the following:   |                                                      |
|                           | • Metabolic syndrome                                    |                                                      |
|                           | • Obesity                                               |                                                      |
|                           | • Mild hypercholesterolemia                             |                                                      |
|                           | • Prediabetes                                           |                                                      |
|                           | • Hypertension                                          |                                                      |
Supplemental Table 2. Publications excluded from the review with reasons for exclusion

| First author        | Year | Title                                                                 | Reason for excluding |
|---------------------|------|-----------------------------------------------------------------------|----------------------|
| None listed (5)     | 2009 | Sugar-sweetened drinks and fructose linked to gout                     | Wrong publication type |
| Alvarez-Parrilla (6)| 2010 | Daily consumption of apple, pear and orange juice differently affects plasma lipids and antioxidant capacity of smoking and non-smoking adults | Wrong intervention |
| Aptekmann (7)       | 2010 | Orange juice improved lipid profile and blood lactate of overweight middle-aged women subjected to aerobic training | Wrong intervention |
| Baird (8)           | 1979 | The effects of ascorbic acid and flavonoids on the occurrence of symptoms normally associated with the common cold | Wrong outcome |
| Bond (9)            | 2014 | Cardiorespiratory function associated with dietary nitrate supplementation | Wrong intervention |
| Brain (10)          | 2019 | The effect of a pilot dietary intervention on pain outcomes in patients attending a tertiary pain service | Wrong intervention |
| Bub (11)            | 2003 | Fruit juice consumption modulates antioxidative status, immune status and DNA damage | Wrong intervention |
| Büsing (12)         | 2017 | Impact of regular orange juice or cola consumption on uric acid levels in healthy adults | Wrong publication type |
| Cerletti (13)       | 2012 | Blood cell response to a fatty meal in healthy subjects at different degree of cardiovascular risk: Effect of orange juice (OJ) intake | Wrong publication type |
| Cerletti (14)       | 2013 | Blood cell response to a fatty meal in healthy subjects at different degree of cardiovascular risk: Effect of orange juice intake | Wrong publication type |
| Choi (15)           | 2010 | Fructose-rich beverages and risk of gout in women                      | Wrong intervention |
| Chrysohoou (16)     | 2011 | Cardiovascular disease-related lifestyle factors and longevity         | Wrong publication type |
| Cilla (17)          | 2009 | Impact of fruit beverage consumption on the antioxidant status in healthy women | Wrong intervention |
| Constans (18)       | 2015 | Marked antioxidant effect of orange juice intake and its phytomicronutrients in a preliminary randomized crossover trial on mild hypercholesterolemic men | Wrong intervention |
| Coppola (19)        | 2004 | Impairment of coronary circulation by acute hyperhomocysteinaemia and reversal by antioxidant vitamins | Wrong intervention |
| Crutchley (20)      | 2013 | Effect of sugar-sweetened soft drinks on serum uric acid and associated metabolic risk factors | Wrong intervention |
| Devaraj (21)        | 2011 | Effect of orange juice and beverage with phytosterols on cytokines and PAI-1 activity | Wrong intervention |
| First author | Year  | Title                                                                 | Reason for excluding |
|-------------|-------|----------------------------------------------------------------------|----------------------|
| Devaraj (22) | 2006  | Reduced-calorie orange juice beverage with plant sterols lowers C-reactive protein concentrations and improves the lipid profile in human volunteers | Wrong intervention |
| Di Folco (23) | 2018  | Effects of a nutraceutical multicomponent including bergamot (Citrus Bergamia Risso) juice on metabolic syndrome: A pilot study | Wrong intervention |
| do Rosario (24) | 2021  | Food anthocyanins decrease concentrations of TNF-alpha in older adults with mild cognitive impairment: A randomized, controlled, double blind clinical trial | Wrong intervention |
| Ekhlasi (25) | 2015  | Effects of pomegranate and orange juice on antioxidant status in non-alcoholic fatty liver disease patients: a randomized clinical trial | Wrong intervention |
| Ghanim (26)  | 2007  | Orange juice or fructose intake does not induce oxidative and inflammatory response | Wrong intervention |
| Giordano (27) | 2012  | Four-week ingestion of blood orange juice results in measurable anthocyanin urinary levels but does not affect cellular markers related to cardiovascular risk: a randomized cross-over study in healthy volunteers | Wrong outcome |
| Goncalves (28) | 2017  | Orange juice as dietary source of antioxidants for patients with hepatitis C under antiviral therapy | Wrong intervention |
| Goszcz (29)  | 2019  | Consumption of antioxidant-rich drinks does not protect against endothelial dysfunction associated with a high-calorie meal challenge | Wrong intervention |
| Goszcz (30)  | 2019  | Co-ingestion of antioxidant drinks with an unhealthy challenge meal fails to prevent post-prandial endothelial dysfunction: an open-label, crossover study in healthy older adults | Wrong intervention |
| Harima-Mizusawa (31) | 2016  | Citrus juice fermented with Lactobacillus plantarum YIT 0132 alleviates symptoms of perennial allergic rhinitis in a double-blind, placebo-controlled trial | Wrong intervention |
| Hofmann (32)  | 2006  | Intervention with polyphenol-rich fruit juices results in an elevation of glutathione S-transferase P1 (hGSTP1) protein expression in human leucocytes of healthy volunteers | Wrong intervention |
| Johnston (33) | 2003  | Orange Juice Ingestion and Supplemental Vitamin C Are Equally Effective at Reducing Plasma Lipid Peroxidation in Healthy Adult Women | Wrong intervention |
| Joosten (34)  | 2014  | Effect of moderate alcohol consumption on fetuin-A levels in men and women: Post-hoc analyses of three open-label randomized crossover trials | Wrong intervention |
| Joosten (35)  | 2012  | Moderate alcohol consumption alters both leucocyte gene expression profiles and circulating proteins related to immune response and lipid metabolism in men | Wrong intervention |
| Kirkhus (36)  | 2012  | Effects of similar intakes of marine n-3 fatty acids from enriched food products and fish oil on cardiovascular risk markers in healthy human subjects | Wrong intervention |
| First author | Year  | Title                                                                                                                                                                                                 | Reason for excluding |
|--------------|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|
| Ko (37)      | 2005  | Comparison of the antioxidant activities of nine different fruits in human plasma                                                                                                                      | Wrong outcome       |
| Kurowska (38)| 2000  | HDL-cholesterol-raising effect of orange juice in subjects with hypercholesterolemia                                                                                                                    | Wrong outcome       |
| Li (39)      | 2018  | Effects of blood orange juice consumption on vascular function in healthy overweight subjects of European origin                                                                                     | Wrong intervention  |
| Li (40)      | 2020  | Blood Orange Juice Consumption Increases Flow-Mediated Dilation in Adults with Overweight and Obesity: a Randomized Controlled Trial                                                                 | Wrong intervention  |
| Liu (41)     | 2017  | Association Between Inflammatory Diet Pattern and Risk of Colorectal Carcinoma Subtypes Classified by Immune Responses to Tumor                                                                            | Wrong intervention  |
| Milenkovic (42)| 2011 | Hesperidin displays relevant role in the nutrigenomic effect of orange juice on blood leukocytes in human volunteers: a randomized controlled cross-over study                                                      | Wrong intervention  |
| Milenkovic (43)| 2009 | Identification of molecular targets of hesperidin, the major flavonoid of orange juice, in relation to its beneficial vascular action in healthy men                                                                 | Wrong intervention  |
| Milenkovic (44)| 2013 | The role of hesperidin in the nutrigenomic effect of orange juice on blood leukocytes in human volunteers                                                                                               | Wrong intervention  |
| Morand (45)  | 2011  | Hesperidin contributes to the vascular protective effects of orange juice: a randomized crossover study in healthy volunteers                                                                           | Wrong intervention  |
| Mullan (46)  | 2016  | Effects of a beverage rich in (poly)phenols on established and novel risk markers for vascular disease in medically uncomplicated overweight or obese subjects: A four week randomized placebo-controlled trial | Wrong intervention  |
| Murphy (47)  | 2013  | The effect of post-match alcohol ingestion on recovery from competitive rugby league matches                                                                                                          | Wrong intervention  |
| Nakamura (48)| 2017  | Effect of β-cryptoxanthin–rich Satsuma mandarin juice supplementation on pulse wave velocity: A randomized controlled trial                                                                                | Wrong intervention  |
| Napoleone (49)| 2012 | Orange juice intake decreases the procoagulant activity of whole blood: A randomized crossover study in healthy volunteers                                                                              | Wrong intervention  |
| Napoleone (50)| 2013 | Both red and blond orange juice intake decreases the procoagulant activity of whole blood in healthy volunteers                                                                                      | Wrong outcome       |
| Nasser (51)  | 2011  | Evaluation of serum oxidative stress in regular consumers of orange juice                                                                                                                            | Wrong intervention  |
| Nishino (52) | 2009  | Cancer prevention by carotenoids                                                                                                                                                                      | Wrong intervention  |
| Numminen (53)| 2000  | The effect of acute ingestion of a large dose of alcohol on the hemostatic system and its circadian variation                                                                                         | Wrong intervention  |
| First author     | Year | Title                                                                 | Reason for excluding |
|------------------|------|----------------------------------------------------------------------|----------------------|
| O’Neil (54)      | 2012 | 100% orange juice consumption is associated with better diet quality, improved nutrient adequacy, decreased risk for obesity, and improved biomarkers of health in adults: National Health and Nutrition Examination Survey, 2003-2006 | Wrong study design   |
| Perche (55)      | 2014 | Orange juice and its major polyphenol hesperidin consumption do not induce immunomodulation in healthy well-nourished humans | Wrong intervention   |
| Pereira-Caro (56) | 2015 | Chronic administration of a microencapsulated probiotic enhances the bioavailability of orange juice flavanones in humans | Wrong intervention   |
| Rangel (57)      | 2012 | Evolution of plasma inflammatory biomarkers after the intake of an orange-based beverage enriched with polyphenols in overweight adults (BIONAOS Study) | Wrong intervention   |
| Rangel (58)      | 2013 | Consumption of a polyphenol-rich orange juice improves endothelial biomarkers in overweight and obese adults (bionaos study) | Wrong outcome        |
| Rendeiro (59)    | 2016 | Flavanone-rich citrus beverages counteract the transient decline in postprandial endothelial function in humans: a randomised, controlled, double-masked, cross-over intervention study | Wrong outcome        |
| Rocha (60)       | 2017 | Orange juice modulates proinflammatory cytokines after high-fat saturated meal consumption | Wrong intervention   |
| Rouyer (61)      | 2019 | Effects of a high fat meal associated with water, juice, or champagne consumption on endothelial function and markers of oxidative stress and inflammation in young, healthy subjects | Wrong intervention   |
| Smith (62)       | 1997 | Caffeine and the common cold                                           | Wrong intervention   |
| Szeto (63)       | 2013 | A study of DNA protective effect of orange juice supplementation        | Wrong intervention   |
| Teng (64)        | 2013 | Consumption of green tea and alcohol, and serum urate levels: The singapore chinese health study | Wrong intervention   |
| Valls (65)       | 2020 | Effects of hesperidin in orange juice on blood and pulse pressures in mildly hypertensive individuals: a randomized controlled trial (Citrus study) | Wrong outcome        |
| Venneria (66)    | 2013 | Potential beneficial effects of anthocyanins on nutritional status of obese human subjects | Wrong intervention   |
| Volman (67)      | 2010 | Effects of α-glucans from Agaricus bisporus on ex vivo cytokine production by LPS and PHA-stimulated PBMCs; A placebo-controlled study in slightly hypercholesterolemic subjects | Wrong intervention   |
### Supplemental Table 3. GRADE evidence profiles for commonly reported markers assessed by included studies

| Outcome | Total studies | n studies by design | Limitations | Imprecision | Inconsistency | Indirectness | Publication bias | Summary of findings | Strength of evidence |
|---------|---------------|---------------------|-------------|-------------|--------------|--------------|-----------------|---------------------|---------------------|
| C-reactive protein (CRP) measured in plasma or serum | 2 | 1 Crossover RCT (3) 1 Before-after (68) | Very serious limitations: Information is from studies at moderate and high ROB. The crossover RCT was rated *some concern* for overall ROB and bias due to period and carryover effects and selection of reported results. The before-after study had *high overall ROB* due to study design. | Very serious imprecision: Both the crossover RCT (n=36) and the before-after study (n=20) had small sample sizes. Both studies reported no effect of 100% OJ. and CIs were not sufficiently narrow for either study. | No serious inconsistency: Both studies showed no effects with 100% OJ. | No serious indirectness: Clinical outcome. | Unlikely: Both studies showed no effect. One study was industry funded. | 100% OJ interventions may have no effects on CRP levels. | VERY LOW |
| High-sensitivity C-reactive protein (hs-CRP) measured in serum | 7 | 3 Crossover RCTs (69-71) 1 Parallel RCT (72) 1 Non-randomized parallel controlled intervention (73) 2 Before-after (74, 75) | Very serious limitations: Most of the information is from studies at high ROB. Two crossover and one parallel RCT were rated *some concern* for overall ROB due to either randomization and/or reporting. Two trials were rated *high overall ROB* including one crossover RCT for period and carryover effects and one parallel trial with ROB due to randomization and adherence to assigned intervention. The two before-after studies have | Very serious imprecision: A forest plot of two crossover RCTs and two parallel controlled trials had a small total sample size (n=139). Two of these studies found no effect for 100% OJ, and the CIs for three of these studies were not sufficiently narrow. One other crossover RCT (n=45) had no non-100% OJ comparator and reported no effect with either 100% OJ intervention. The two before-after studies had small sample size. | Serious inconsistency: A random effects meta-analysis of the four controlled trials with non-100% OJ comparators showed no effect of 100% OJ, widely overlapping CIs, and high significant heterogeneity ($I^2=78.8\%$, $P=0.003$). Separate random effects meta-analyses by study design showed two crossover RCTs had high significant heterogeneity ($I^2=86.5\%$, $P=0.007$) that may be explained by differing study characteristics (health status and/or juice preparation). Results for 100% OJ interventions may have beneficial effects on hs-CRP levels. | Unlikely: Three studies showed no effect. Two studies were industry funded. | 100% OJ interventions may have beneficial effects on hs-CRP levels. | VERY LOW |
## Quality assessment

| Outcome | Total studies | n studies by design | Limitations | Imprecision | Inconsistency | Indirectness | Publication bias | Summary of findings | Strength of evidence |
|---------|---------------|---------------------|-------------|-------------|--------------|--------------|------------------|----------------------|---------------------|
| Interleukin 6 (IL-6) measured in serum | 4 | Crossover RCTs (3, 69, 70, 76) | Serious limitations: Most of the information is from studies at moderate ROB. Of the 4 crossover RCTs, 3 were rated *some concern* for overall ROB due to randomization, period and carryover effects, or selection of reported results. The other RCT was rated *high* overall ROB due to period and carryover effects. | Very serious imprecision: A random effects meta-analysis on the 4 trials had a small total sample size (n=88). The significant pooled net difference CI was not sufficiently narrow (-2.3, -0.70). | No serious inconsistency: A random effects meta-analysis on the four crossover RCTs showed widely overlapping CIs, low non-significant heterogeneity ($I^2=23.0\%$, $P=0.27$), and significantly beneficial effects with 100% OJ. | No serious indirectness: Clinical outcome. | Unlikely: One trial showed no effects. One study was industry funded. | 100% OJ interventions may have beneficial effects on IL-6 levels. | ☀️ ☀️ ☀️ VERY LOW |
| Tumor necrosis factor alpha (TNF-α) measured in plasma or serum | 4 | 2 Crossover RCTs (3, 70) 2 Before-after (68, 74) | Very serious limitations: Most of the information is from studies at high ROB. Of crossover RCTs, one was rated *some concern* and one was rated *high* for overall ROB due to period and carryover effects. | Very serious imprecision: The crossover RCTs had small sample sizes (n=21 and 39). One crossover RCT found significant effects with 100% OJ, but the CIs were not sufficiently narrow. The two parallel controlled trials showed no heterogeneity ($I^2=0.0\%$, $P=0.945$) and a beneficial effect with 100% OJ. | Serious inconsistency: One crossover RCT showed significantly beneficial effects with 100% OJ. One crossover RCT and two before-after studies | No serious indirectness: Clinical outcome. | Unlikely: Three studies showed no effect. Two studies were industry funded. | 100% OJ interventions may have no effect on TNF-α levels. | ☀️ ☀️ ☀️ VERY LOW |
### 100% Orange Juice and Inflammation

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#### Supplementary data

| Outcome | Total studies | n studies by design | Limitations | Imprecision | Inconsistency | Indirectness | Publication bias | Summary of findings | Strength of evidence^2 |
|---------|---------------|---------------------|-------------|-------------|---------------|--------------|------------------|----------------------|-----------------------|
| Malondialdehyde (MDA) measured in plasma or serum | 6 | 3 Crossover RCTs (4, 77, 78) 1 Parallel RCT (72) 1 Non-randomized parallel controlled intervention (79) 1 Before-after (74) | Very serious limitations: Most of the information is from studies at high ROB. One crossover and one parallel RCT were rated some concern for overall ROB due to randomization and reporting of results. Three trials rated high overall ROB due to adherence to the assigned intervention and one crossover RCT with period and carryover effects. The before-after study had high overall ROB due to study design. Very serious imprecision: A random effects meta-analysis on 3 crossover RCTs had a small total sample size (n=127) and non-significant pooled effects for 100% OJ with a sufficiently narrow CI (-0.19, 0.08). A forest plot of the two parallel trials with a small total sample size (n=100) showed the CIs for individual studies were not sufficiently narrow, and one study reported significant effects with 100% OJ. The before-after study had a small sample size (n=50) and reported a significant effect with 100% when participants served as their own controls. CIs were not sufficiently narrow. Serious inconsistency: A random effects meta-analysis on the five controlled trials showed no effects for 100% OJ, widely overlapping CIs among four studies, and high significant heterogeneity (I^2=78.3%, p=0.001). Separate random effects meta-analyses by study design showed moderate non-significant heterogeneity in three crossover RCTs (I^2=45.3%, p=0.16), and high significant heterogeneity in two parallel trials (I^2=86.2%, p=0.007). Heterogeneity may be explained by health status differences (healthy vs. at-risk). | showed no effects with 100% OJ. | | | | Unlikely: Four studies showed no effect. Three studies were industry funded. | 100% OJ interventions may have no effect on MDA levels. | 🌟🌟🌟🌟

The two before-after studies have high overall ROB due to study design. Other crossover RCT reported no effect, and CI could not be determined. The before-after studies had small sample sizes (n=20 and 50) with no effect from 100% OJ when participants served as their own controls. CIs were not sufficiently narrow.

Malondialdehyde (MDA) measured in plasma or serum
### Quality assessment

| Outcome | Total studies | n studies by design | Limitations | Imprecision | Inconsistency | Indirectness | Publication bias | Summary of findings | Strength of evidence² |
|---------|---------------|---------------------|-------------|-------------|---------------|--------------|----------------|-------------------|----------------------|
| Oxidized LDL (oxLDL) measured in plasma | 3 | 2 Crossover RCTs (3, 77) 1 Non-randomized parallel controlled intervention (73) | Serious limitations: Most of the information is from studies at moderate ROB. Two crossover RCTs had some concern for overall ROB due to randomization, period and carryover effects, and/or reported results. The parallel trial was rated high overall ROB due to randomization and adherence issues. | Served as their own controls, but CIs were not sufficiently narrow. | The before-after study and one of the parallel trials found significant benefits with 100% OJ. | No serious inconsistency: A random effects meta-analysis for all three studies showed no effects with 100% OJ, widely overlapping CIs, and no heterogeneity ($I^2=0.0\%$, $p=0.846$) | No serious indirectness: Clinical outcome. | Unlikely: All three studies showed no effect. Two studies were industry funded. | Very low (WE have very little confidence in the effect estimate: The true effect is likely to be substantially different from the estimate of effect.). |

¹GRADE, Grades of Recommendation, Assessment, Development, and Evaluation; OJ, orange juice; RCT, randomized controlled trial; ROB, risk of bias.

²Symbols indicate the following strength of evidence: ➀❼❼❼, High (We are very confident that the true effect lies close to that of the estimate of the effect.); ❼❼❼❼, Moderate (We are moderately confident in the effect estimate: The true effect is likely to be close to the estimate of the effect, but there is a possibility that it is substantially different.); ❼❼❼❼❼, Low (Our confidence in the effect estimate is limited: The true effect may be substantially different from the estimate of the effect.); and ❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼❼⢣

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Supplementary Figures

Supplemental Figure 1. Domain-specific and overall risk of bias judgment results for five included parallel trials
Supplemental Figure 2. Domain-specific and overall risk of bias judgment results for 11 included crossover trials
Supplemental Figure 3. Random-effects model meta-analysis of crossover trials measuring IL-6 in participants given 100% OJ and non-100% OJ interventions with subgroup analysis by juice preparation type (fresh or commercial). Box sizes represent study weight; OJ, orange juice; ROB, risk of bias.
Supplementary References

1. Higgins J, Li T, Deeks J, eds. Chapter 6: Choosing effect measures and computing estimates of effect. In: Higgins J, Thomas J, Chandler J, Cumpston M, Li T, Page M, & Welch V, eds. Cochrane Handbook for Systematic Reviews of Interventions version 6.2 (updated February 2021). Cochrane, 2021.

2. Higgins J, Eldridge S, Li T, eds. Chapter 23: Including variants on randomized trials. In: Higgins J, Thomas J, Chandler J, Cumpston M, Li T, Page M, & Welch V, eds. Cochrane Handbook for Systematic Reviews of Interventions version 6.2 (updated February 2021). Cochrane, 2021.

3. Dong H, Rendeiro C, Kristek A, Sargent LJ, Saunders C, Harkness L, Rowland I, Jackson KG, Spencer JPE, Lovegrove JA. Addition of orange pomace to orange juice attenuates the increases in peak glucose and insulin concentrations after sequential meal ingestion in men with elevated cardiometabolic risk. Journal of Nutrition 2016;146(6):1197-203. doi: 10.3945/jn.115.226001.

4. Boussetta N, Abedelmalek S, Khouloud A, Ben anes A, Souissi N. Does red orange juice supplementation has a protective effect on performance, cardiovascular parameters, muscle damage and oxidative stress markers following the Yo-Yo Intermittent Recovery Test Level-1 under polluted air? International journal of environmental health research 2020;30(6):630-42. doi: 10.1080/09603123.2019.1614155.

5. Sugar-sweetened drinks and fructose linked to gout. Australian Journal of Pharmacy 2009;90(1067):75.

6. Alvarez-Parrilla E, De La Rosa LA, Legarreta P, Saenz L, Rodrigo-Garcia J, Gonzalez-Aguilar GA. Daily consumption of apple, pear and orange juice differently affects plasma lipids and antioxidant capacity of smoking and non-smoking adults. Int J Food Sci Nutr 2010;61(4):369-80. doi: 10.3109/09637480903514041.

7. Aptekmann NP, Cesar TB. Orange juice improved lipid profile and blood lactate of overweight middle-aged women subjected to aerobic training. Maturitas 2010;67(4):343-7. doi: 10.1016/j.maturitas.2010.07.009.

8. Baird IM, Hughes RE, Wilson HK. The effects of ascorbic acid and flavonoids on the occurrence of symptoms normally associated with the common cold. Am J Clin Nutr 1979;32(8):1686-90. doi: 10.1093/ajcn/32.8.1686.

9. Bond V, Jr., Curry BH, Adams RG, Millis RM, Haddad GE. Cardiorespiratory function associated with dietary nitrate supplementation. Appl Physiol Nutr Metab 2014;39(2):168-72. doi: 10.1139/apnm-2013-0263.

10. Brain K, Burrows TL, Rollo ME, Hayes C, Hodson FJ, Collins CE. The effect of a pilot dietary intervention on pain outcomes in patients attending a tertiary pain service. Nutrients 2019;11(1). doi: 10.3390/nu11010181.

11. Bub A, Watzl B, Blockhaus M, Briviba K, Liegibel U, Muller H, Pool-Zobel BL, Rechkemmer G. Fruit juice consumption modulates antioxidative status, immune status and DNA damage. J nutr biochem 2003;14(2):90-8. doi: 10.1016/s0955-2863(02)00255-3.
12. Büsing F, Hägele F, Nas A, Kaelble A, Sprügel L, Aschof J, Carle R, Bosy-Westphal A. Impact of regular orange juice or cola consumption on uric acid levels in healthy adults. Obesity Facts 2017;10:185.

13. Cerletti C, Tamburrelli C, Gianfagna F, D'Imperio M, De Curtis A, Lorenzet R, Rotilio D, Iacoviello L, De Gaetano G, Donati MB. Blood cell response to a fatty meal in healthy subjects at different degree of cardiovascular risk: Effect of orange juice (OJ) intake. Blood Transfusion 2012;10(4).

14. Cerletti C, Tamburrelli C, Gianfagna F, D'Imperio M, De Curtis A, Lorenzet R, Rotilio D, Iacoviello L, De Gaetano G, Donati MB. Blood cell response to a fatty meal in healthy subjects at different degree of cardiovascular risk: Effect of orange juice intake. Journal of thrombosis and haemostasis: JTH 2013;11(s2):870.

15. Choi HK, Willett W, Curhan G. Fructose-rich beverages and risk of gout in women. JAMA - Journal of the American Medical Association 2010;304(20):2270-8. doi: 10.1001/jama.2010.1638.

16. Chrysohoou C, Stefanadis C, Pitsavos C, Panagiotakos D, Das UN, Giugliano D. Cardiovascular disease-related lifestyle factors and longevity. Cardiology Research and Practice 2011;1(1):386892. doi: 10.4061/2011/386892.

17. Cilla A, De Palma G, Lagarda MJ, Barberá R, Farré R, Clemente G, Romero F. Impact of fruit beverage consumption on the antioxidant status in healthy women. Annals of Nutrition and Metabolism 2009;54(1):35-42. doi: 10.1159/000205318.

18. Constans J, Bennetau-Pelissero C, Martin JF, Rock E, Mazur A, Bedel A, Morand C, Berard AM. Marked antioxidant effect of orange juice intake and its phytomicronutrients in a preliminary randomized cross-over trial on mild hypercholesterolemic men. Clin Nutr 2015;34(6):1093-100. doi: 10.1016/j.clnu.2014.12.016.

19. Coppola A, Astarita C, Liguori E, Fontana D, Oliviero M, Esposito K, Coppola L, Giugliano D. Impairment of coronary circulation by acute hyperhomocysteinaemia and reversal by antioxidant vitamins. Journal of Internal Medicine 2004;256(5):398-405. doi: 10.1111/j.1365-2796.2004.01389.x.

20. Crutchley PW, Morenga LT. Effect of sugar-sweetened soft drinks on serum uric acid and associated metabolic risk factors. FASEB journal 2013;27.

21. Devaraj S, Jialal I, Rockwood J, Zak D. Effect of orange juice and beverage with phytosterols on cytokines and PAI-1 activity. Clin Nutr 2011;30(5):668-71. doi: 10.1016/j.clnu.2011.03.009.

22. Devaraj S, Autret BC, Jialal I. Reduced-calorie orange juice beverage with plant sterols lowers C-reactive protein concentrations and improves the lipid profile in human volunteers. Am J Clin Nutr 2006;84(4):756-61.

23. Di Folco U, Pollakova D, De Falco D, Nardone MR, Tubili F, Tubili C. Effects of a nutraceutical multicomponent including bergamot (Citrus Bergamia Risso) juice on metabolic syndrome: A pilot study. Mediterranean Journal of Nutrition and Metabolism 2018;11(2):119-26.
24. do Rosario VA, Fitzgerald Z, Broyd S, Paterson A, Roodenrys S, Thomas S, Bliokas V, Potter J, Walton K, Weston-Green K, et al. Food anthocyanins decrease concentrations of TNF-alpha in older adults with mild cognitive impairment: A randomized, controlled, double blind clinical trial. Nutr Metab Cardiovasc Dis 2021;31(3):950-60. doi: https://dx.doi.org/10.1016/j.numecd.2020.11.024.

25. Ekhlasi G, Shidfar F, Agah S, Merat S, Hosseini AF. Effects of pomegranate and orange juice on antioxidant status in non-alcoholic fatty liver disease patients: a randomized clinical trial. International Journal for Vitamin and Nutrition Research 2015;85(5):292-8. doi: 10.1024/0300-9831/a000292.

26. Ghanim H, Mohanty P, Pathak R, Chaudhuri A, Sia CL, Dandona P. Orange juice or fructose intake does not induce oxidative and inflammatory response. Diabetes Care 2007;30(6):1406-11. doi: 10.2337/dc06-1458.

27. Giordano L, Coletta W, Tamburrelli C, D’Imperio M, Crescente M, Silvestri C, Rapisarda P, Reforgiato Recupero G, De Curtis A, Iacoviello L, et al. Four-week ingestion of blood orange juice results in measurable anthocyanin urinary levels but does not affect cellular markers related to cardiovascular risk: a randomized cross-over study in healthy volunteers. Eur J Nutr 2012;51(5):541-8. doi: 10.1007/s00394-011-0237-9.

28. Gonçalves D, Lima C, Ferreira P, Costa P, Costa A, Figueiredo W, Cesar T. Orange juice as dietary source of antioxidants for patients with hepatitis C under antiviral therapy. Food Nutr Res 2017;61(1):1296675. doi: 10.1080/16546628.2017.1296675.

29. Goszcz K, Muggeridge DJ, Crabtree D, Treweeke A, Adamson J, Hickson K, Megson IL. Consumption of antioxidant-rich drinks does not protect against endothelial dysfunction associated with a high-calorie meal challenge. Heart 2019;105:A7-A8.

30. Goszcz K, Muggeridge DJ, Treweeke A, Adamson J, Hickson K, Megson IL. Coingestion of antioxidant drinks with an unhealthy challenge meal fails to prevent post-prandial endothelial dysfunction: an open-label, crossover study in healthy older adults. Proc Nutr Soc 2019;78.

31. Harima-Mizusawa N, Kano M, Nozaki D, Nonaka C, Miyazaki K, Enomoto T. Citrus juice fermented with Lactobacillus plantarum YIT 0132 alleviates symptoms of perennial allergic rhinitis in a double-blind, placebo-controlled trial. Beneficial Microbes 2016;7(5):649-58. doi: 10.3920/BM2016.0003.

32. Hofmann T, Liegibel U, Winterhalter P, Bub A, Rechkemmer G, Pool-Zobel BL. Intervention with polyphenol-rich fruit juices results in an elevation of glutathione S-transferase P1 (hGSTP1) protein expression in human leucocytes of healthy volunteers. Mol Nutr Food Res 2006;50(12):1191-200. doi: 10.1002/mnr.20060177.

33. Johnston CS, Dancho CL, Strong GM. Orange Juice Ingestion and Supplemental Vitamin C Are Equally Effective at Reducing Plasma Lipid Peroxidation in Healthy Adult Women. Journal of the American College of Nutrition 2003;22(6):519-23.

34. Joosten MM, Schrieks IC, Hendriks HFJ. Effect of moderate alcohol consumption on fetuin-A levels in men and women: Post-hoc analyses of three open-label randomized crossover trials. Diabetology and Metabolic Syndrome 2014;6(1):24. doi: 10.1186/1758-5996-6-24.
35. Joosten MM, van Erk MJ, Pellis L, Witkamp RF, Hendriks HF. Moderate alcohol consumption alters both leucocyte gene expression profiles and circulating proteins related to immune response and lipid metabolism in men. Br J Nutr 2012;108(4):620-7. doi: 10.1017/S0007114511005988.

36. Kirkhus B, Lamglait A, Eilertsen KE, Falch E, Haider T, Vik H, Hoem N, Hagve TA, Basu S, Olsen E, et al. Effects of similar intakes of marine n-3 fatty acids from enriched food products and fish oil on cardiovascular risk markers in healthy human subjects. Br J Nutr 2012;107(9):1339-49. doi: 10.1017/S0007114511004508.

37. Ko SH, Choi SW, Ye SK, Cho BL, Kim HS, Chung MH. Comparison of the antioxidant activities of nine different fruits in human plasma. J med food 2005;8(1):41-6. doi: 10.1089/jmf.2005.8.41.

38. Kurowska EM, Spence JD, Jordan J, Wetmore S, Freeman DJ, Piché LA, Serratore P. HDL-cholesterol-raising effect of orange juice in subjects with hypercholesterolemia. Am J Clin Nutr 2000;72(5):1095-100. doi: 10.1093/ajcn/72.5.1095.

39. Li L, Birch KM, Boesch C. Effects of blood orange juice consumption on vascular function in healthy overweight subjects of European origin. Proc Nutr Soc 2018;77.

40. Li L, Lyall GK, Martinez-Blazquez JA, Vallejo F, F AT-B, Birch KM, Boesch C. Blood Orange Juice Consumption Increases Flow-Mediated Dilation in Adults with Overweight and Obesity: a Randomized Controlled Trial. J Nutr 2020;150(9):2287-94. doi: 10.1093/jn/nxaa158.

41. Liu L, Nishihara R, Qian ZR, Tabung FK, Nevo D, Zhang X, Song M, Cao Y, Mima K, Masugi Y, et al. Association Between Inflammatory Diet Pattern and Risk of Colorectal Carcinoma Subtypes Classified by Immune Responses to Tumor. Gastroenterology 2017;153(6):1517-30.e14.

42. Milenkovic D, Deval C, Dubray C, Mazur A, Morand C. Hesperidin displays relevant role in the nutrigenomic effect of orange juice on blood leukocytes in human volunteers: a randomized controlled cross-over study. PLoS ONE 2011;6(11):e26669. doi: 10.1371/journal.pone.0026669.

43. Milenkovic D, Deval C, Mazur A, Scalbert A, Morand C. Identification of molecular targets of hesperidin, the major flavonoid of orange juice, in relation to its beneficial vascular action in healthy men. Circulation Research 2009;105(7):e39.

44. Milenkovic D, Dubray C, Mazur A, Morand C. The role of hesperidin in the nutrigenomic effect of orange juice on blood leukocytes in human volunteers. Journal of Nutrigenetics and Nutrigenomics 2013;6(4):235.

45. Morand C, Dubray C, Milenkovic D, Lioger D, Martin JF, Scalbert A, Mazur A. Hesperidin contributes to the vascular protective effects of orange juice: a randomized crossover study in healthy volunteers. Am J Clin Nutr 2011;93(1):73-80. doi: 10.3945/ajcn.110.004945.

46. Mullan A, Delles C, Ferrell W, Mullin W, Edwards CA, McColl JH, Roberts SA, Lean ME, Sattar N. Effects of a beverage rich in (poly)phenols on established and novel risk markers for vascular disease in medically uncomplicated overweight or obese subjects: A
four week randomized placebo-controlled trial. Atherosclerosis 2016;246:169-76. doi: 10.1016/j.atherosclerosis.2016.01.004.

47. Murphy AP, Snape AE, Minett GM, Skein M, Duffield R. The effect of post-match alcohol ingestion on recovery from competitive rugby league matches. J Strength Cond Res 2013;27(5):1304-12. doi: 10.1519/JSC.0b013e318267a5e9.

48. Nakamura M, Sugiura M, Shibata Y, Ojima T. Effect of β-cryptoxanthin–rich Satsuma mandarin juice supplementation on pulse wave velocity: A randomized controlled trial. Journal of Nutrition and Intermediary Metabolism 2017;8:8-13.

49. Napoleone E, Cutrone A, Zurlo F, Di Castelnuovo A, D'Imperio M, Giordano L, De Curtis A, Iacoviello L, Cerletti C, Rotilio D, et al. Orange juice intake decreases the procoagulant activity of whole blood: A randomized crossover study in healthy volunteers. Blood Transfusion 2012;10:s56.

50. Napoleone E, Cutrone A, Zurlo F, Di Castelnuovo A, D'Imperio M, Giordano L, De Curtis A, Iacoviello L, Rotilio D, Cerletti C, et al. Both red and blond orange juice intake decreases the procoagulant activity of whole blood in healthy volunteers. Thromb Res 2013;132(2):288-92.

51. Nasser ALM, Dourado GK, Manjate DA, Carlos IZ, Cesar TB. Evaluation of serum oxidative stress in regular consumers of orange juice. Revista de Ciencias Farmaceuticas Basica e Aplicada 2011;32(2):275-9.

52. Nishino H, Murakoshi M, Tokuda H, Satomi Y. Cancer prevention by carotenoids. Archives of Biochemistry and Biophysics 2009;483(2):165-8. doi: 10.1016/j.abb.2008.09.011.

53. Numminen H, Syrjälä M, Benthin G, Kaste M, Hillbom M. The effect of acute ingestion of a large dose of alcohol on the hemostatic system and its circadian variation. Stroke 2000;31(6):1269-73. doi: 10.1161/01.str.31.6.1269.

54. O'Neil CE, Nicklas TA, Rampersaud GC, Fulgoni VL, 3rd. 100% orange juice consumption is associated with better diet quality, improved nutrient adequacy, decreased risk for obesity, and improved biomarkers of health in adults: National Health and Nutrition Examination Survey, 2003-2006. Nutr J 2012;11:107. doi: 10.1186/1475-2891-11-107.

55. Perche O, Vergnaud-Gauduchon J, Morand C, Dubray C, Mazur A, Vasson MP. Orange juice and its major polyphenol hesperidin consumption do not induce immunomodulation in healthy well-nourished humans. Clin Nutr 2014;33(1):130-5. doi: 10.1016/j.clnu.2013.03.012.

56. Pereira-Caro G, Oliver CM, Weerakkody R, Singh T, Conlon M, Borges G, Sanguansri L, Lockett T, Roberts SA, Crozier A, et al. Chronic administration of a microencapsulated probiotic enhances the bioavailability of orange juice flavanones in humans. Free Radic Biol Med 2015;84:206-14. doi: 10.1016/j.freeradbiomed.2015.03.010.

57. Rangel OD, Rico MC, Vallejo F, Boza JJ, Kellernhals M, Perez de La Cruz AJ, Tomas-Barberan F, Gil A, Mesa MD, Aguilera CM. Evolution of plasma inflammatory
100% Orange Juice and Inflammation, Cara et al.  

Supplementary data

biomarkers after the intake of an orange-based beverage enriched with polyphenols in overweight adults (BIONAOS Study). Proc Nutr Soc 2012;72(15).

58. Rangel O, Rico M, Vallejo F, Boza J, Kellerhals M, Perez de la Cruz A, Tomas-Barbera F, Gil A, Mesa M, Aguilera C. Consumption of a polyphenol-rich orange juice improves endothelial biomarkers in overweight and obese adults (bionaos study). Annals of Nutrition and Metabolism 2013;63:213.

59. Rendeiro C, Dong H, Saunders C, Harkness L, Blaze M, Hou Y, Belanger RL, Altieri V, Nunez MA, Jackson KG, et al. Flavanone-rich citrus beverages counteract the transient decline in postprandial endothelial function in humans: a randomised, controlled, double-masked, cross-over intervention study. Br J Nutr 2016;116(12):1999-2010. doi: 10.1017/S0007114516004219.

60. Rocha D, Lopes LL, da Silva A, Oliveira LL, Bressan J, Hermsdorff HHM. Orange juice modulates proinflammatory cytokines after high-fat saturated meal consumption. Food Funct 2017;8(12):4396-403. doi: 10.1039/c7fo01139c.

61. Rouyer O, Auger C, Charles AL, Talha S, Meyer A, Piquard F, Andres E, Schini-Kerth V, Geny B. Effects of a high fat meal associated with water, juice, or champagne consumption on endothelial function and markers of oxidative stress and inflammation in young, healthy subjects. Journal of Clinical Medicine 2019;8(6). doi: 10.3390/jcm8060859.

62. Smith A, Thomas M, Perry K, Whitney H. Caffeine and the common cold. Journal of Psychopharmacology 1997;11(4):319-24. doi: 10.1177/026988119701100406.

63. Szeto YT, To TL, Pak SC, Kalle W. A study of DNA protective effect of orange juice supplementation. Appl Physiol Nutr Metab 2013;38(5):533-6. doi: 10.1139/apnm-2012-0344.

64. Teng GG, Tan CS, Santosa A, Yuan JM, Koh WP. Consumption of green tea and alcohol, and serum urate levels: The singapore chinese health study. Annals of the Rheumatic Disease 2013;71.

65. Valls RM, Pedret A, Calderón-Pérez L, Llauradó E, Pla-Pagà L, Companys J, Moragas A, Martín-Luján F, Ortega Y, Giralt M, et al. Effects of hesperidin in orange juice on blood and pulse pressures in mildly hypertensive individuals: a randomized controlled trial (Citrus study). Eur J Nutr 2020. doi: 10.1007/s00394-020-02279-0.

66. Venneria E, Foddai MS, Intorre F, Palomba L, Mauro B, Ciaparica D, Azzini E, Griner M, Barnaba L, Maiani F. Potential beneficial effects of anthocyanins on nutritional status of obese human subjects. Annals of Nutrition and Metabolism 2013;62:56.

67. Volman JJ, Mensink RP, Van Griensven LJLD, Plat J. Effects of α-glucans from Agaricus bisporus on ex vivo cytokine production by LPS and PHA-stimulated PBMCs; A placebo-controlled study in slightly hypercholesterolemic subjects. Eur J Clin Nutr 2010;64(7):720-6. doi: 10.1038/ejcn.2010.32.

68. Azzini E, Venneria E, Ciarapica D, Foddai MS, Intorre F, Zaccaria M, Maiani F, Palomba L, Barnaba L, Tubili C, et al. Effect of Red Orange Juice Consumption on Body Composition and Nutritional Status in Overweight/Obese Female: A Pilot Study. Oxid Med Cell Longev 2017;2017:1672567. doi: 10.1155/2017/1672567.
69. Asgary S, Keshvari M, Afshani MR, Amiri M, Laher I, Javanmard SH. Effect of fresh orange juice intake on physiological characteristics in healthy volunteers. ISRN Nutrition 2014;405867(38):405867. doi: 10.1155/2014/405867.

70. Buscemi S, Rosafio G, Arcoleo G, Mattina A, Canino B, Montana M, Verga S, Rini G. Effects of red orange juice intake on endothelial function and inflammatory markers in adult subjects with increased cardiovascular risk. American Journal of Clinical Nutrition 2012;95(5):1089-95. doi: 10.3945/ajcn.111.031088.

71. Hollands WJ, Armah CN, Doleman JF, Perez-Moral N, Winterbone MS, Kroon PA. 4-Week consumption of anthocyanin-rich blood orange juice does not affect LDL-cholesterol or other biomarkers of CVD risk and glycaemia compared with standard orange juice: a randomised controlled trial. British Journal of Nutrition 2018;119(4):415-21. doi: 10.1017/S0007114517003865.

72. Ribeiro C, Dourado G, Cesar T. Orange juice allied to a reduced-calorie diet results in weight loss and ameliorates obesity-related biomarkers: A randomized controlled trial. Nutrition 2017;38:13-9. doi: 10.1016/j.nut.2016.12.020.

73. Perrone MA, Donatucci B, Pieri M, Salimei C, Marini S, Bernardini S, Iellamo F. The anti-inflammatory and antioxidant effects of bergamot (citrus bergamia) in professional athletes during endurance training. Acta Medica Mediterranea 2020;36(4):2491-7.

74. Dourado GZKS, Cesar TB. Investigation of cytokines, oxidative stress, metabolic, and inflammatory biomarkers after orange juice consumption by normal and overweight subjects. Food and Nutrition Research 2015;59:28147. doi: 10.3402/fnr.v59.28147.

75. Silveira JQ, Dourado GK, Cesar TB. Red-fleshed sweet orange juice improves the risk factors for metabolic syndrome. International Journal of Food Sciences & Nutrition 2015;66(7):830-6. doi: 10.3109/09637486.2015.1093610.

76. Chaves DFS, Carvalho PC, Brasili E, Rogero MM, Hassimotto NA, Diedrich JK, Moresco JJ, Yates JR, 3rd, Lajolo FM. Proteomic Analysis of Peripheral Blood Mononuclear Cells after a High-Fat, High-Carbohydrate Meal with Orange Juice. Journal of Proteome Research 2017;16(11):4086-92. doi: 10.1021/acs.jproteome.7b00476.

77. Rangel-Huerta OD, Aguilera CM, Martin MV, Soto MJ, Rico MC, Vallejo F, Tomas-Barberan F, Perez-de-la-Cruz AJ, Gil A, Mesa MD. Normal or High Polyphenol Concentration in Orange Juice Affects Antioxidant Activity, Blood Pressure, and Body Weight in Obese or Overweight Adults. Journal of Nutrition 2015;145(8):1808-16. doi: 10.3945/jn.115.213660.

78. Riso P, Visioli F, Gardana C, Grande S, Brusamolino A, Galvano F, Galvano G, Porrini M. Effects of blood orange juice intake on antioxidant bioavailability and on different markers related to oxidative stress. Journal of Agricultural & Food Chemistry 2005;53(4):941-7. doi: 10.1021/jf0485234.

79. Pittaluga M, Sgadari A, Tavazzi B, Fantini C, Sabatini S, Ceci R, Amorini AM, Parisi P, Caporossi D. Exercise-induced oxidative stress in elderly subjects: the effect of red orange supplementation on the biochemical and cellular response to a single bout of intense physical activity. Free Radical Research 2013;47(3):202-11. doi: 10.3109/10715762.2012.761696.