**Comparative effects of tea and coffee drinking on body weight in adults: a systematic review and network meta-analysis of randomized trials**

**Supplementary** **Table 1.** Search strategy (PubMed) to find potential eligible trials.

|  |
| --- |
| **PubMed (326)** |
| 1. Coffee [Mesh] OR Tea [Mesh] OR Teas, Herbal [Mesh] coffee [Title/Abstract] OR green coffee [Title/Abstract] OR Decaffeinated coffee [Title/Abstract] OR tea [Title/Abstract] OR green tea [Title/Abstract] OR Sour tea [Title/Abstract] OR Black tea [Title/Abstract] OR Herbal tea [Title/Abstract] |
| 2. Weight loss [Mesh] OR “Weight loss” [All fields] OR “Body weight” [All fields] |
| 3. Randomized [Title/Abstract] OR placebo [Title/Abstract] OR randomly [Title/Abstract] OR trial [Title] OR clinical trials as topic" [Mesh] OR controlled clinical trial [Publication Type] OR randomized controlled trial [Publication Type] |
| 4. #1 AND #2 AND #3 |
| **Scopus (1536)** |
| **CENTRAL (458)** |
| **Clinicaltrial.gov (121)** |
| **ProQuest (78)** |
| **Total: 2519** |

**Supplementary** **Table 2**. List of studies excluded via full text assessment with reasons for exclusion.

|  |
| --- |
| Abstract (n=1) 1 |
| Active control (n=10) 2-11 |
| Critically ill patients (n=1) 12 |
| Letter (n-=2) 13, 14 |
| Multicomponent (n=13) 15-27 |
| Not relevant intervention (n=18) 28-45 |
| Extract (n=50) 46-94 |
| Not relevant outcome (n=23) 95-116 |
| Not sufficient information (n=2) 117, 118 |
| Pregnant (n=4) 119-122 |
| Quasi experimental (n=7) 123-129 |
| Review (n=6) 130-135 |
| Shorter than 2 weeks (n=41) 136-176 |
| Without washouts (n=1) 177 |

**Supplementary** **Table 3.** Quality of trials included in the network meta-analysis of tea and coffee drinking on weight loss in adults.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Study, year | Randomization process | Deviation from intended interventions | Missing outcome data | Measurement of the outcome | Selection of the reported results | Overall quality |
| Al-Naggar, 2022 | High | Unclear | Unclear | Unclear | Low | High risk of bias |
| Alperet, 2020 | Low | Low | Low | Low | Low | Low |
| Bak, 1989 | Low | Low | Unclear | Unclear | Low | Some concerns |
| Basu, 2013 | Low | Low | Unclear | Unclear | Low | High risk of bias |
| Bohn, 2014 | Low | Low | Unclear | Low | Low | Some concerns |
| Cardoso, 2013 | Unclear | Unclear | Unclear | Unclear | Low | High risk of bias |
| Hochkogler, 2019 | Low | Low | Low | Low | Low | Low risk of bias |
| Kajimoto, 2005 | Unclear | Low | Low | Unclear | Low | High risk of bias |
| Kobayashi, 2016 | Low | Low | Low | Unclear | Low | Some concerns |
| Lecoultre, 2014 | Low | Low | Low | Unclear | Low | Some concerns |
| Martínez‑López, 2019 | Unclear | Low | Low | Unclear | Low | High risk of bias |
| Mortazavi, 2018 | Low | Unclear | Low | Unclear | Low | Some concerns |
| Mousavi, 2012 | Unclear | Unclear | Low | Unclear | Low | High risk of bias |
| Mozaffari, 2013 | Unclear | Low | Low | Unclear | Low | High risk of bias |
| Naderi Nabi, 2017 | High | Unclear | Low | Low | Low | High risk of bias |
| Ohnaka, 2012 | Low | Low | Low | Low | Low | Low risk of bias |
| Revuelta, 2014 | Unclear | Unclear | Low | Unclear | Unclear | High risk of bias |
| Senger, 2012 | Low | Unclear | Low | Unclear | Low | High risk of bias |
| Superko, 1991 | Unclear | Unclear | Low | Unclear | Low | High risk of bias |
| Toolsee, 2013 | Low | Unclear | High | Low | Low | High risk of bias |
| van Dusseldorp, 1991 | Unclear | Low | Low | Unclear | Low | High risk of bias |
| Wedik, 2011 | Low | Low | Low | Low | Low | Low risk of bias |

**Supplementary** **Table 4**. Comparative effects of different beverages on body weight in participants with overweight/obesity (mean difference [kg] and 95% credible interval).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Treatments | Green tea |  |  |  |  |  |
| Black tea | -2.84  (-9.37, 3.60) | Black tea |  |  |  |  |
| Coffee | -1.94  (-6.19, 2.55) | -0.89  (-5.86, 3.73) | Coffee |  |  |  |
| No coffee | -1.79  (-3.41, 7.04) | -1.05  (-4.90, 2.79) | -0.15  (-2.88, 2.88) | No coffee |  |  |
| Placebo | -1.04  (-3.21, 0.98) | -3.85  (-10.19, 2.10) | -2.97  (-6.83, 0.90) | -2.81  (-7.76, 1.84) | Placebo |  |
| Water | -1.42  (-3.84, 1.08) | -4.27  (-11.22, 2.66) | -3.37  (-8.20, 1.84) | -3.23  (-8.97, 2.57) | -0.39  (-3.48, 2.97) | Water |

**Supplementary** **Table 5**. Comparative effects of different beverages on body weight in individuals with a history of chronic disease or with cardiometabolic risk factors (mean difference and 95% credible interval).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Green tea | Green tea |  |  |  |  |  |  |  |
| Black tea | -1.63  (-6.59, 3.29) | Black tea |  |  |  |  |  |  |
| Sour tea | 0  (-4.28, 4.29) | -1.64  (-8.12, 4.86) | Sour tea |  |  |  |  |  |
| Coffee | -1.04  (-4.26, 2.16) | -0.59  (-4.36, 3.16) | 1.05  (-4.29, 6.37) | Coffee |  |  |  |  |
| No coffee | -0.59  (-4.62, 3.41) | -1.05  (-3.93, 1.84) | 0.60  (-5.23, 6.43) | -0.45  (-2.85, 1.96) | No coffee |  |  |  |
| Decaffeinated coffee | -0.53  (-4.79, 3.72) | -2.17  (-6.21, 1.87) | -0.52  (-6.53, 5.45) | -1.58  (-4.36, 1.24) | -1.1  (-3.96, 1.68) | Decaffeinated coffee |  |  |
| Placebo | -0.73  (-3.22, 1.74) | -2.36  (-6.68, 1.87) | -0.72  (-5.66, 4.20) | -1.77  (-3.83, 0.26) | -1.31  (-4.51, 1.81) | -0.19  (-3.70, 3.25) | Placebo |  |
| Water | -1.30  (-2.94, 0.43) | -2.93  (-8.12, 2.32) | -1.29  (-5.86, 3.35) | -2.34  (-5.92, 1.33) | -1.88  (-6.21, 2.50) | -0.76  (-5.31, 3.85) | -0.56  (-3.51, 2.48) | Water |

**Supplementary** **Table 6.** GRADE assessment for direct estimates in the network meta-analysis of coffee and tea drinking and weight loss.

| **Certainty assessment** | | | | | | **№ of patients** | | **Mean difference (95%CI)** | **Certainty without imprecision** | **Importance** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **№ of studies** | **Study design** | **Risk of bias** | **Inconsistency** | **Indirectness** | **Other considerations** | **[intervention]** | **[comparison]** |
| Green tea versus sour tea | | | | | | | | | | |
| 1 | randomised trials | seriousa | not serious | seriousb | none | 30 | 30 | MD **0.01 kg lower** (4.10 lower to 4.12 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| Green tea versus placebo | | | | | | | | | | |
| 3 | randomised trials | seriousc | not serious | not serious | none | 124 | 126 | MD **0.98 kg lower** (2.31 lower to 0.30 higher) | ⨁⨁⨁◯ Moderate | IMPORTANT |
| Green tea versus water | | | | | | | | | | |
| 5 | randomised trials | seriousc | seriousd | not serious | none | 175 | 176 | MD **0.98 kg lower** (2.31 lower to 0.30 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| |  | | --- | | Black tea versus no coffee | |  | | | | | | | | | | | |
| 1 | randomised trials | seriousc | not serious | seriousb | none | 30 | 30 | MD **1.05 kg lower** (3.55 lower to 1.46 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| Coffee versus no coffee | | | | | | | | | | |
| 7 | randomised trials | seriouse | seriousf | not serious | none | 250 | 248 | MD **0.81 kg lower** (1.08 lower to 0.92 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| Coffee versus decaffeinated coffee | | | | | | | | | | |
| 4 | randomised trials | seriouse | seriousg | not serious | none | 53 | 54 | MD **0.50 kg lower** (1.84 lower to 0.75 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| Coffee versus green coffee | | | | | | | | | | |
| 1 | randomised trials | seriousa | not serious | seriousb | none | 20 | 20 | MD **0.01 kg lower** (3.10 lower to 3.11 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| Coffee versus placebo | | | | | | | | | | |
| 3 | randomised trials | seriouse | serioush | not serious | none | 124 | 126 | MD **1.09 kg lower** (2.55 lower to 0.37 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| Coffee versus water | | | | | | | | | | |
| 1 | randomised trials | seriousa | not serious | seriousb | none | 44 | 42 | MD **0.13 kg lower** (2.75 lower to 2.47 higher) | ⨁⨁◯◯ Low | IMPORTANT |
| Decaffeinated coffee versus no coffee | | | | | | | | | | |
| 3 | randomised trials | seriouse | seriousi | seriousb | none | 94 | 87 | MD **0.14 kg lower** (1.50 lower to 1.86 higher) | ⨁⨁◯◯ Low | IMPORTANT |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Decaffeinated coffee versus placebo | | | | | | | | | | |
| 1 | randomised trials | not serious | not serious | seriousb | none | 10 | 10 | MD **1.08 kg lower** (1.48 lower to 3.62 higher) | ⨁⨁⨁◯ Moderate | IMPORTANT |

**CI:** confidence interval.

#### Explanations

a. Serious risk of bias since only one trial with a high risk of bias was available. Downgraded.

b. Serious indirectness since only one trial was available and thus, the results cannot be generalized to other populations. Downgraded.

c. Serious risk of bias since half of the studies were rated to have serious risk of bias or some concerns. Downgraded.

d. Serious inconsistency since I2=94%. Downgraded.

e. Serious risk of bias since most of the studies were rated to have serious risk of bias or some concerns. Downgraded.

f. Serious inconsistency since I2=96%. Downgraded.

g. Serious inconsistency since I2=89%. Downgraded.

h. Serious inconsistency since I2=99%. Downgraded.

i. Serious inconsistency since I2=63%. Downgraded.

**Supplementary** **Table 7**. GRADE assessment for indirect estimates in the network meta-analysis of coffee and tea drinking and weight loss.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Comparison groups** | **Indirect evidence** | | | |
| MD (95%CrI) | First order loop of the most contribution | Intransitivity | Indirect rating without imprecision |
| Green tea versus black tea | -0.27 (-3.40, 2.87) | No coffee | No | Low |
| Green tea versus coffee | -0.59 (-2.21, 1.01) | Placebo | No | Low |
| Green tea versus no coffee | -0.78 (-2.67, 1.10) | Placebo | No | Low |
| Green tea versus decaffeinated coffee | -1.03 (-2.94, 0.92) | Placebo | No | Low |
| Green tea versus green coffee | -0.59 (-4.09, 2.91) | Placebo | No | Low |
| Green tea versus placebo | -2.67 (-5.93, 0.61) | Water | No | Low |
| Green tea versus water | -0.22 (-3.52, 2.98) | Coffee | No | Low |
| Black tea versus sour tea | -0.28 (-5.43, 4.90) | No coffee | No | Low |
| Black tea versus coffee | -0.85 (-3.57, 1.85) | No coffee | No | Low |
| Black tea versus decaffeinated coffee | -1.31 (-4.10, 1.58) | No coffee | No | Low |
| Black tea versus green coffee | -0.86 (-4.96, 3.28) | No coffee | No | Low |
| Black tea versus placebo | -1.5 (-4.47, 1.50) | No coffee | No | Low |
| Black tea versus water | -1.88 (-5.10, 1.32) | No coffee | No | Low |
| Coffee versus sour tea | 0.58 (-3.81, 5.01)) | Green tea | No | Moderate |
| Coffee versus no coffee | 0.33 (-1.25, 1.91) | Decaffeinated coffee | No | Low |
| Coffee versus decaffeinated coffee | -0.42 (-1.36, 0.41) | No coffee | No | Low |
| Coffee versus placebo | 0.79 (-2.48, 4.00) | Decaffeinated coffee | No | Moderate |
| Coffee versus water | -1.81 (-4.14, 0.57) | Green tea | No | Low |
| Sour tea versus no coffee | -0.77 (-5.31, 3.73) | Green tea | No | Low |
| Sour tea versus decaffeinated coffee | -1.02 (-5.56, 3.51) | Green tea | No | Moderate |
| Sour tea versus green coffee | -0.58 (-5.97, 4.79) | Green tea | No | Low |
| Sour tea versus placebo | -1.22 (-3.04, 5.52) | Green tea | No | Low |
| Sour tea versus water | -1.60 (-5.94, 2.68) | Green tea | No | Low |
| No coffee versus decaffeinated coffee | -1.39 (-4.26, 1.52) | Coffee | No | Low |
| No coffee versus green coffee | 0.2 (-3.07, 3.46)) | Coffee | No | Low |
| No coffee versus placebo | -0.45 (-2.05, 1.17) | Coffee | No | Low |
| No coffee versus water | -0.83 (-2.86, 1.19) | Coffee | No | Low |
| Decaffeinated coffee versus green coffee | 0.45 (-2.92, 3.75) | Coffee | No | Low |
| Decaffeinated coffee versus placebo | -1.13 (-3.34, 1.00) | Coffee | No | Low |
| Decaffeinated coffee versus water | -0.57 (-2.69, 1.46) | Coffee | No | Low |
| Placebo versus water | -0.38 (-1.99, 1.21) | Green tea | No | Moderate |

**Supplementary** **Table 8**. GRADE assessment for network estimates in the network meta-analysis of coffee and tea drinking and weight loss in adults.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Comparison groups** | Direct evidence | | Indirect evidence | | Network evidence | | | | |
| MD  (95%CI) | Direct rating without imprecision | MD  (95%CI) | Indirect rating without imprecision | MD  (95%CI) | Higher rating of direct and indirect without imprecision | Incoherence (P-value) | NMA Imprecision | Network rating |
| Green tea versus black tea | - | - | -0.27  (-3.40, 2.87) | Low | -0.27  (-3.40, 2.87) | Low | - | Serious | Very low |
| Green tea versus sour tea | -0.01  (-4.10, 4.12) | Low | - | - | -0.01  (-4.10, 4.12) | Low | - | Serious | Very low |
| Green tea versus coffee | - | - | -0.59  (-2.21, 1.01) | Low | -0.59  (-2.21, 1.01) | Low | - | Serious | Very low |
| Green tea versus no coffee | - | - | -0.78  (-2.67, 1.10) | Low | -0.78  (-2.67, 1.10) | Low | - | Serious | Very low |
| Green tea versus decaffeinated coffee | - | - | -1.03  (-2.94, 0.92) | Low | -1.03  (-2.94, 0.92) | Low | - | Serious | Very low |
| Green tea versus green coffee | - | - | -0.59  (-4.09, 2.91) | Low | -0.59  (-4.09, 2.91) | Low | - | Serious | Very low |
| Green tea versus placebo | -0.98  (-2.31, 0.30) | Moderate | -2.67  (-5.93, 0.61) | Low | -1.23  (-2.45, -0.02) | Moderate | 0.33 | Serious | Low |
| Green tea versus water | -1.84  (-3.23, -0.48) | Low | -0.22  (-3.52, 2.98) | Low | -1.61  (-2.90, -0.35) | Low | 0.34 | Serious | Very low |
| Black tea versus sour tea | - | - | -0.28  (-5.43, 4.90) | Low | -0.28  (-5.43, 4.90) | Low | - | Serious | Very low |
| Black tea versus coffee | - | - | -0.85  (-3.57, 1.85) | Low | -0.85  (-3.57, 1.85) | Low | - | Serious | Very low |
| Black tea versus no coffee | -1.05  (-3.55, 1.46) | Low | - | - | -1.05  (-3.55, 1.46) | Low | - | Serious | Very low |
| Black tea versus decaffeinated coffee | - | - | -1.31  (-4.10, 1.58) | Low | -1.31  (-4.10, 1.58) | Low | - | Serious | Very low |
| Black tea versus green coffee | - | - | -0.86  (-4.96, 3.28) | Low | -0.86  (-4.96, 3.28) | Low | - | Serious | Very low |
| Black tea versus placebo | - | - | -1.5  (-4.47, 1.50) | Low | -1.5  (-4.47, 1.50) | Low | - | Serious | Very low |
| Black tea versus water | - | - | -1.88  (-5.10, 1.32) | Low | -1.88  (-5.10, 1.32) | Low | - | Serious | Very low |
| Coffee versus sour tea | - | - | 0.58  (-3.81, 5.01)) | Moderate | 0.58  (-3.81, 5.01)) | Moderate | - | Serious | Low |
| Coffee versus no coffee | -0.81  (-1.08, 0.92) | Low | 0.33  (-1.25, 1.91) | Low | -0.19  (-1.23, 0.84) | Low | 0.45 | Serious | Very low |
| Coffee versus decaffeinated coffee | -0.50  (-1.74, 0.85) | Low | -0.42  (-1.36, 0.41) | Low | -0.45  (-1.64, 0.83) | Low | 0.27 | Serious | Very low |
| Coffee versus green coffee | 0.01  (-3.10, 3.11) | Low | - | - | 0.01  (-3.10, 3.11) | Low | - | Serious | Very low |
| Coffee versus placebo | -1.09  (-2.55, 0.37) | Low | 0.79  (-2.48, 4.00) | Moderate | -0.64  (-1.92, 0.66) | Moderate | 0.28 | Serious | Low |
| Coffee versus water | -0.13  (-2.75, 2.47) | Low | -1.81  (-4.14, 0.57) | Low | -1.02  (-2.78, 0.73) | Low | 0.33 | Serious | Very low |
| Sour tea versus no coffee | - | - | -0.77  (-5.31, 3.73) | Low | -0.77  (-5.31, 3.73) | Low | - | Serious | Very low |
| Sour tea versus decaffeinated coffee | - | - | -1.02  (-5.56, 3.51) | Moderate | -1.02  (-5.56, 3.51) | Moderate | - | Serious | Low |
| Sour tea versus green coffee | - | - | -0.58  (-5.97, 4.79) | Low | -0.58  (-5.97, 4.79) | Low | - | Serious | Very low |
| Sour tea versus placebo | - | - | -1.22  (-3.04, 5.52) | Low | -1.22  (-3.04, 5.52) | Low | - | Serious | Very low |
| Sour tea versus water | - | - | -1.60  (-5.94, 2.68) | Low | -1.60  (-5.94, 2.68) | Low | - | Serious | Very low |
| No coffee versus decaffeinated coffee | 0.14  (-1.50, 1.86) | Low | -1.39  (-4.26, 1.52) | Low | -0.56  (-1.56, 1.12) | Low | 0.33 | Serious | Very low |
| No coffee versus green coffee | - | - | 0.2  (-3.07, 3.46)) | Low | 0.2  (-3.07, 3.46)) | Low | - | Serious | Very low |
| No coffee versus placebo | - | - | -0.45  (-2.05, 1.17) | Low | -0.45  (-2.05, 1.17) | Low | - | Serious | Very low |
| No coffee versus water | - | - | -0.83  (-2.86, 1.19) | Low | -0.83  (-2.86, 1.19) | Low | - | Serious | Very low |
| Decaffeinated coffee versus green coffee | - | - | 0.45  (-2.92, 3.75) | Low | 0.45  (-2.92, 3.75) | Low | - | Serious | Very low |
| Decaffeinated coffee versus placebo | 1.08  (-1.48, 3.62) | Moderate | -1.13  (-3.34, 1.00) | Low | -0.19  (-1.86, 1.41) | Low | 0.17 | Serious | Very low |
| Decaffeinated coffee versus water | - | - | -0.57  (-2.69, 1.46) | Low | -0.57  (-2.69, 1.46) | Low | - | Serious | Very low |
| Placebo versus water | - | - | -0.38  (-1.99, 1.21) | Moderate | -0.38  (-1.99, 1.21) | Moderate | - | Serious | Low |

J:\Ongoing\NMA\NMA-7-Tea-Coffee-Weight loss\5-Results\Results\Age.tif

**Supplementary** **Figure 1**. Box plots showing the distribution of the mean age of the trials across the available direct comparisons.

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**Supplementary** **Figure 2**. Box plots showing the distribution of the mean body mass index of the trials across the available direct comparisons.

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**Supplementary** **Figure 3**. Box plots showing the distribution of the %female participants in the trials across the available direct comparisons.

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**Supplementary** **Figure 4**. Comparison-adjusted funnel plot involving all trials.

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