**Supplementary file description:**

Search strategy used in this study is shown in supplementary table 1 which describes the key terms used to search in each database. Quality assessment of included studies evaluated using Newcastle-Ottawa Scale (Supplementary Table 2). Sensitivity analysis is employed to evaluate the robustness of the findings (Supplementary Figures 1). Meta-regression is applied to find the potential source of heterogeneity based on age and BMI of participants (Supplementary Figure 2 and 3). Funnel plot is used to assess the potential role of publication bias based on visual or analytical detection of asymmetry (Supplementary Fig 4).

**Supplementary Table 1.** The structure of key terms used to search international databases (Search date: 11/21/2023).

Supplementary Table **2.** Quality assessment of included studies.

**Supplementary Figure 1.** Sensitivity analysis using the random effect model on the association between greater adherence to inflammatory potential of diet and the risk colorectal cancer.

**Supplementary Figure 2.** Meta-regression plots of the association between inflammatory potential of diet and risk of colorectal cancer based on the age of participants.

**Supplementary Figure 3.** Meta-regression plots of the association between inflammatory potential of diet and risk of colorectal cancer based on the BMI of participants.

**Supplementary Figure 4.** Funnel plot to assess publication bias.

**Supplementary Table 1.** The structure of key terms used to search international databases (Search date: 07/07/2023)

|  |  |  |
| --- | --- | --- |
| PubMed | Scopus | Web of Science |
| (“dietary inflammatory index”[tiab] OR “dietary inflammatory score”[tiab] OR “diet-related inflammation”[tiab] OR “dietary inflammatory potential”[tiab] OR “proinflammatory diet”[tiab] OR “anti-inflammatory diet”[tiab] OR “Empirical dietary index”[tiab] OR "Empirical Dietary Inflammatory Index"[tiab] OR EDII[tiab] OR "empirical dietary inflammatory pattern"[tiab] OR EDIP[tiab]) AND ("Neoplasms"[Mesh] OR "Carcinogens"[Mesh] OR "Leukoplakia"[Mesh] OR "Hyperplasia"[Mesh] OR cancer\*[tiab] OR neoplasm\*[tiab] OR carcinoma\*[tiab] OR tumor\*[tiab] OR carcinogen\*[tiab] OR tumour\*[tiab] OR adenoma\*[tiab]) AND (colorectal[tiab] OR colon[tiab] OR ractal[tiab]) | TITLE-ABS-KEY(“dietary inflammatory index” OR “dietary inflammatory score” OR “diet-related inflammation” OR “dietary inflammatory potential” OR “proinflammatory diet” OR “anti-inflammatory diet” OR “Empirical dietary index” OR "Empirical Dietary Inflammatory Index" OR EDII OR "empirical dietary inflammatory pattern" OR EDIP) AND TITLE-ABS-KEY(neoplasm\* OR cancer\* OR tumor\* OR carcinoma\* OR carcinogen\* OR leukoplakia\* OR dysplasia\* OR hyperplasia\* OR malignancy\* OR adenoma\*) AND TITLE-ABS-KEY(colorectal OR colon OR ractal) | TS=(“dietary inflammatory index” OR “dietary inflammatory score” OR “diet-related inflammation” OR “dietary inflammatory potential” OR “proinflammatory diet” OR “anti-inflammatory diet” OR “Empirical dietary index” OR "Empirical Dietary Inflammatory Index" OR EDII OR "empirical dietary inflammatory pattern" OR EDIP) AND TS=(neoplasm\* OR cancer\* OR tumor\* OR carcinoma\* OR carcinogen\* OR leukoplakia\* OR dysplasia\* OR hyperplasia\* OR malignancy\* OR adenoma\*) AND TS=(colorectal OR colon OR ractal) |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Supplementary Table 2.** Quality assessment of included studies | | | | |
| Study | Selection | Comparability | Outcome | NOS Score |
| **Cohort studies** |  |  |  |  |
| Shivappa N et al. (2014) | \*\*\*\*\* | \*\* | \*\*\* | 9 |
| Tabung F et al. (2015) | \*\*\*\* | \*\* | \*\*\* | 9 |
| Wirth M et al. (2015) | \*\*\*\* | \*\* | \*\*\* | 9 |
| Brouwer J et al. (2017) | \*\*\* | \* | \*\*\* | 7 |
| Harmon B et al. (2017) | \*\*\*\* | \*\* | \*\*\* | 9 |
| Liu L et al. (2017) | \*\*\* | \*\* | \*\*\* | 8 |
| Tabung F et al. (2017) | \*\*\* | \*\* | \*\*\* | 8 |
| Liu L et al. (2018) | \*\*\* | \*\* | \*\*\* | 8 |
| Tabung, F et al. (2018) | \*\*\*\* | \* | \*\* | 7 |
| Jakszyn, P et al. (2020) | \*\*\*\* | \*\* | \*\*\* | 9 |
| Li, Z et al. (2022) | \*\*\*\* | \*\* | \*\* | 8 |
| Qi, J et al. (2023) | \*\*\*\* | \* | \*\*\* | 8 |
| Lee, D et al. (2023) | \*\*\* | \*\* | \*\* | 7 |
| Wang, P et al. (2023) | \*\*\* | \* | \*\*\* | 7 |
| **Case-control studies** |  |  |  |  |
| Shivappa N et al. (2015) | \*\*\* | \*\* | \*\*\* | 8 |
| Zamora-Ros R et al. (2015) | \*\* | \*\* | \*\*\* | 7 |
| Cho Y et al. (2016) | \*\*\*\* | \*\* | \*\* | 8 |
| Cho Y et al. (2017) | \*\*\*\* | \*\* | \*\* | 8 |
| Sharma I et al. (2017) | \*\*\*\* | \*\* | \*\*\* | 9 |
| Shivappa N et al. (2017) | \*\*\* | \*\* | \*\* | 7 |
| Niclis C et al. (2018) | \*\*\*\* | \*\* | \*\*\* | 9 |
| Shivappa N et al. (2018) | \*\*\* | \*\* | \*\*\* | 8 |
| Accardi, G et al. (2019) | \*\*\* | \*\* | \*\* | 7 |
| Cho, A et al. (2019) | \*\*\* | \* | \*\*\* | 7 |
| Obón-Santacana, M et al. (2019) | \*\*\*\* | \* | \*\* | 7 |
| Rafiee, P et al. (2019( | \*\*\* | \* | \*\*\* | 7 |
| Abulimiti, A et al. (2020) | \*\*\* | \* | \*\*\* | 7 |
| Lee, D et al. (2023) | \*\*\* | \*\* | \*\*\* | 8 |
| Shafiee, N et al. (2023) | \*\*\* | \* | \*\*\* | 7 |

Abbreviation: NOS: Newcastle-Ottawa Scale

**Supplementary Figure 1.** Sensitivity analysis using the random effect model on the association between greater adherence to inflammatory potential of diet and the risk colorectal cancer.

****

**Supplementary Figure 2.** Meta-regression plots of the association between inflammatory potential of diet and risk of colorectal cancer based on the age of participants.



**Supplementary Figure 3.** Meta-regression plots of the association between inflammatory potential of diet and risk of colorectal cancer based on the BMI of participants.

****

**Supplementary Figure 4.** Funnel plot to assess publication bias.

