6454 articles identified during initial database searches:

- PubMed database (n = 1839)

- Web of Science database (n = 4615)

Duplicate removed (n = 1287)

5167 articles

Excluded by abstracts/titles (n = 5132)

Articles selected for full-text evaluation (n = 35)

7 articles were excluded (see the list on the next page):

- Investigated only total meat consumption (n = 4)

- Conducted in the same study population (n = 1)

- Investigated only protein from red meat, fish, and chicken (n = 1)

- Risk estimate was not reported (n = 1)

28 articles were included in the present meta-analysis

**Figure S1** Flow-chart of the study selection process

**The list of the excluded studies**

Studies that investigated only the association between total meat consumption and metabolic syndrome risk:

1. Lutsey PL, Steffen LM, Stevens J. Dietary intake and the development of the metabolic syndrome: the Atherosclerosis Risk in Communities study. Circulation 2008; 117: 754-761.
2. de Oliveira EP, McLellan KC, Vaz de Arruda Silveira L, Burini RC. Dietary factors associated with metabolic syndrome in Brazilian adults. Nutr J 2012; 11: 13.
3. Strand MA, Perry J, Wang P, Liu S, Lynn H. Risk factors for metabolic syndrome in a cohort study in a north China urban middle-aged population. Asia Pac J Public Health 2015; 27: 255-265.
4. He YN, Zhao WH, Bai GY, et al. [Relationship between meat consumption and metabolic syndrome in adults in China]. Zhonghua Liu Xing Bing Xue Za Zhi 2018; 39: 892-897. (Article in Chinese)

Study that conducted in the same study population as the included study (see Becerra-Tomás et al., 2016)

1. Babio N, Sorlí M, Bulló M, et al. Association between red meat consumption and metabolic syndrome in a Mediterranean population at high cardiovascular risk: cross-sectional and 1-year follow-up assessment. Nutr Metab Cardiovasc Dis 2012; 22: 200-207.

Study that investigated the association between protein from red meat, chicken, and fish and metabolic syndrome risk:

1. Shang X, Scott D2, Hodge A3, et al. Dietary protein from different food sources, incident metabolic syndrome and changes in its components: An 11-year longitudinal study in healthy community-dwelling adults. Clin Nutr 2017; 36: 1540-1548.

Study did not reported the risk estimate for the association between fish consumption and prevalent metabolic syndrome

1. Pašalić D, Dodig S, Corović N, Pizent A, Jurasović J, Pavlović M. High prevalence of metabolic syndrome in an elderly Croatian population - a multicentre study. Public Health Nutr 2011; 14: 1650-1657.