

The effective control of moisture and microbes is necessary for the success of restoration procedures. Search methods: Cochrane Oral Health's Information specialist searched the following electronic databases: Cochrane Oral Health's Trials Register (searched 13 January 2021), Cochrane Central Register of Controlled Trials (CENTRAL; 2020, Issue 12) in the Cochrane Library (searched 13 January 2021), MEDLINE Ovid (1946 to 13 January 2021), Embase Ovid (1980 to 13 January 2021), LILACS BIREME Virtual Health Library (Latin American and Caribbean Health Science Information database; 1982 to 13 January 2021), and SciELO BIREME Virtual Health Library (1998 to 13 January 2021). Yan Wang: none known. Pooled results from two studies involving 192 participants indicated that the use of rubber dam isolation may increase the survival rates of direct composite restorations of non-carious cervical lesions (NCCLs) at six months (odds ratio (OR) 2.29, 95% confidence interval (CI) 1.05 to 4.99; low-certainty evidence). At 24 months, the use of rubber dam may decrease the risk of failure of the restorations in children undergoing proximal atraumatic restorative treatment in primary molars but the evidence is very uncertain (hazard ratio (HR) 0.80, 95% CI 0.66 to 0.97; 1 study, 559 participants; very low-certainty evidence). Selection criteria: We included randomised controlled trials (including split-mouth trials) over one month in length assessing the effects of rubber dam compared with alternative isolation methods for dental restorative treatments. We searched ClinicalTrials.gov and the World Health Organization International Clinical Trials Registry Platform, OpenGrey, and Sciencepaper Online (in Chinese) for ongoing trials. We also searched Chinese BioMedical Literature Database (CBM, in Chinese) (1978 to 13 January 2021), VIP database (in Chinese) (1989 to 13 January 2021), and China National Knowledge Infrastructure (CNKI, in Chinese) (1994 to 13 January 2021). Data collection and analysis: Two review authors independently screened the results of the electronic searches, extracted data, and assessed the risk of bias of the included studies. However, the use of rubber dam in NCCLs composite restorations may have little to no effect on the survival rates of the restorations compared to cotton rolls at 12 months (OR 1.38, 95% CI 0.45 to 4.28; 1 study, 30 participants; very low-certainty evidence) and at 18 months (OR 1.00, 95% CI 0.45 to 2.25; 1 study, 30 participants; very low-certainty evidence) but the evidence is very uncertain. Objectives: To assess the effects of rubber dam isolation compared with other types of isolation used for direct and indirect restorative treatments in dental patients. Authors' conclusions: This review found some low-certainty evidence that the use of rubber dam in dental direct restorative treatments may lead to a lower failure rate of the restorations compared with cotton roll usage after six months. The rubber dam, as an isolation method, has been widely used in dental restorative treatments. This review compares the effects of rubber dam with other isolation methods in dental restorative treatments. Main results: We included six studies conducted worldwide between 2010 and 2015 involving a total of 1342 participants (of which 233 participants were lost to follow-up). The effects of rubber dam usage on the longevity and quality of dental restorations still require evidence-based discussion. We strictly followed Cochrane's statistical guidelines and assessed the certainty of the evidence using GRADE. Of the four remaining trials, three reported survival rates of the restorations with a minimum follow-up of six months. Further high-quality research evaluating the effects of rubber dam usage on different types of restorative treatments is required. There were no restrictions on the language or date of publication when searching the electronic databases. Five studies

compared rubber dam with traditional cotton rolls isolation. One study was excluded from the analysis due to inconsistencies in the presented data. None of the included studies mentioned adverse effects or reported the direct cost of the treatment. PubMed Disclaimer Conflict of interest statement Cheng Miao: none known. May CM Wong is an Editor with Cochrane Oral Health. This is an update of the Cochrane Review first published in 2016. All the included studies were at high risk of bias. Copyright (C) 2021 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd. Disagreement was resolved by discussion. Xiaoyu Yang: none known. May CM Wong: none known. Jing Zou: none known. Xuedong Zhou: none known. Chunjie Li: none known.