**Supplementary Table 1: Reviewers’ judgment for risk of bias assessment in the included trials.**

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Study author (year)** | **Random sequence generation** | **Allocation concealment** | **Double blinding** | **Blinding of outcome assessment** | **Incomplete outcome data** | **Selective outcome reporting** | **Other sources of bias** |
| Litonjua *et al*. (2020)[28] | LowUsing a system that automates the random assignment of treatment groups to study ID number | LowAssignment of treatment groups to study ID number is automatically done | LowThe participants and investigators remained unaware of the treatment group assignments until after the visit corresponding to each child’s sixth birthday | LowThe participants and investigators remained unaware of the treatment group assignments until after the visit corresponding to each child’s sixth birthday | LowMissing outcome data balanced in numbers, with similar reasons for missing data between intervention group and control group | LowThe predefined outcomes (as stated in the Methods section) are reported | LowNone identified |
| Rosendahl *et al*. (2019)[24] | UnclearInsufficient information about the sequence generation process | LowPharmacy-controlled randomization; sequentially numbered drug containers of identical appearance | Low Participants and investigators were blinded to the treatment code | LowInvestigators and staff were blind to the treatment code | Low About 9% of participants are missing | LowThe predefined outcomes (as stated in the Methods section) are reported | LowNone identified |
| Brustad *et al*. (2019)[30] | LowA computer-generated list of random numbers was used, supplied by an external investigator | UnclearInsufficient information to permit judgment of “Low risk” or “High risk”. This is usually the case if the method of concealment is not described or not described in sufficient detail to allow a definite judgment | UnclearInsufficient information to permit judgment of “Low risk” or “High risk” | UnclearInsufficient information to permit judgment of “Low risk” or “High risk” | LowMissing outcome data balanced in numbers, with similar reasons for missing data between intervention group and control group | LowThe predefined outcomes (as stated in the Methods section) are reported | UnclearWomen also received long-chain n-3 polyunsaturated fatty acids supplement and it was unclear whether the supplement had an impact on the study results |
| Chawes *et al*. (2016)[25] | LowA computer-generated list of random numbers was used, supplied by an external investigator | LowRandom numbers were supplied by an external investigator who had no further involvement in the RCT.The intervention code was unblinded when the youngest child reached age 3 years | LowThe intervention code was unblinded when the youngest child reached age 3 years or in case of a medical emergency | LowThe study pediatricians who acted as general practitioners were blinded to the intervention | LowMissing outcome data balanced in numbers, with similar reasons for missing data between intervention group and control group | LowThe predefined outcomes (as stated in the Methods section) are reported | UnclearWomen also received long-chain n-3 polyunsaturated fatty acids supplement and it was unclear whether the supplement had an impact on the study results |
| Goldring *et al*. (2013)[29] | LowA computer-generated random number list in blocks of 15, stratified by four ethnic groups in a 1:1:1 ratio | LowThe treatment was allocated from the hospital pharmacy | HighNot possible to blind participants or investigators as they would know if they had no treatment, daily tablets, or a single bolus | LowInvestigators kept blind to original treatment allocation at the extended follow-up | LowMissing data are well balanced between the groups | LowThe predefined outcomes (as stated in the Methods section) are reported | LowThis trial was conducted before national guidanceon vitamin D intake during pregnancy was introduced in March 2008 |
| Rueter *et al*. (2019)[27] | LowThe pharmacy created a randomization plan from an online source for each of the four stratification groups | LowRandomization was conducted by the Princess Margaret Hospital for Children Clinical Trials Pharmacy and stratified according to a history of maternal allergic disease and the participant’s sex | LowPharmacy staff had no contact with participants, and all research staff remained blind to the allocations until analyses were completed | LowPharmacy staff had no contact with participants, and all research staff remained blind to the allocations until analyses were completed | LowMissing data are well balanced between the groups | Low The predefined outcomes (as stated in the Methods section) are reported | LowNone identified |
| Grant *et al*. (2016)[26] | LowRandomization was performed by the study biostatistician  | LowStudy participants and research staff remained unaware of treatment allocations throughout the recruitment, enrolment phases | LowStudy participants and research staff remained unaware of treatment allocations throughout the enrolment, treatment | LowStudy participants and research staff remained unaware of data acquisition phases | Low Missing data are well balanced between the groups. The proportion of missing outcomes compared with observed event risk is not enough to have a clinically relevant impact on the intervention effect estimate | Low The predefined outcomes (as stated in the Methods section) are reported | LowNone identified |

RCT: Randomized controlled trial.