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Drying stresses and strains in a spherical food model.

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Kurzfassung

This paper reports the findings of two systematic reviews of the use and effects of small-group discussions in high school science teaching. 94 studies were included in an overview (systematic map) of work in the area, and 24 studies formed the basis of the in-depth reviews. The reviews indicate that there is considerable diversity in the topics used to promote small-group discussions. They also demonstrate that students often struggle to formulate and express coherent arguments, and demonstrate a low level of engagement with tasks. The reviews suggest that groups function more purposefully, and understanding improves most, when specifically constituted such that differing views are represented, when some form of training is provided for students on effective group work, and when help in structuring discussions is provided in the form of 'cues'. Single sex groups function more purposefully than mixed sex groups, though improvements in understanding are independent of gender composition of groups. Finally, the reviews demonstrate very clearly that, for small-group discussions to be effective, teachers and students need to be given explicit teaching in the skills associated with the development of arguments and the characteristics associated with effective group discussions.

In addition to the substantive findings, the paper also reports on key features of the methods employed to gather and analyse data. Of particular note are the two contrasting approaches to data analysis, one adopting a grounded theory approach and the other drawing on established methods of discourse analysis.