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Promoting vegetable acceptance in toddlers using a contingency management program: a cluster randomised trial

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INTRODUCTION: The early development of healthy eating habits is a way to prevent the onset of diet-related diseases, such as obesity, cardiovascular disease and certain cancers later in life. Children need to be exposed to new and disliked food products (e.g., bitter tasting vegetables) multiple times to learn to accept novel foods. In the current study, we investigated whether a program (*The Vegetable Box*) of repeated vegetable exposure in combination with non-food rewards during three months at day-cares centres increases the knowledge about and the willingness to try vegetables in toddlers.

METHODS: A total of 598 children (1-4 years old) were recruited at 20 day-care centres in Limburg, the Netherlands. The day-care centres were randomly assigned to one of three conditions (exposure plus reward, exposure without reward, or control). Children's vegetable knowledge and consumption were tested before and directly after the intervention period by the staff at the day-care centres (instructed and fidelity monitored by the executive researcher). To test their knowledge, children needed to identify various vegetables (max score = 14). Subsequently, to test their willingness to try, the children got the opportunity to taste and consume 1 or 2 pieces of tomato, cucumber, carrot, bell pepper, radish and cauliflower. Data were analysed with mixed effect regression analyses in R.

RESULTS: Vegetable knowledge in toddlers increased in both the 'exposure plus reward' and the 'exposure without reward' group, relative to the control group. The willingness to try vegetables only increased significantly in the 'exposure plus reward' group.

CONCLUSION: Regularly offering vegetables to children at day-care centres significantly increases toddlers' ability to recognize various vegetables. But rewarding toddlers for tasting vegetables appears particularly efficient to also increase their willingness to try (i.e., taste and consume) different vegetables.