Peer support in the estimation of carbohydrates

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Background and Aims

People with Diabetes (PwD) have been shown to frequently estimate their food intake inaccurately which can result in postprandial hyper- and hypoglycemia[2]. Applications like bolus calculators and Artificial Pancreas Systems rely on the correct carb estimation[3]. Eating out-of-home makes it more difficult to estimate the exact amount of carbs[4,5]. This study aims to detect the delta between actual and estimated carbohydrates and if peer groups have an effect on individual carb counting decisions.

Methods

By using the community meal adviser platform "meala", we gained carbohydrate estimations of meals. Within an online-based survey, selected meals were presented as pictures acting as an accurate proxy of the real meal. Participants estimated the number of carbohydrates and were confronted with the average result of all participants to detect the behavioral change through crowd knowledge. The estimations were compared with the actual value to calculate the degree of deviation.

Results

Within the dataset (n=51), we discovered an average underestimation of 18,1%. Five participants were able to estimate the correct amount of carbohydrates. A minority of responses were above the actual value. For 56,86% of the participants it is useful to get carb estimations from other PwD and 54,9% tend to change their guess based on the average estimated result from a peer group.

Conclusions

Insights of peer groups and crowd intelligence can be supportive. However, the lack of information for out-of-home food intake is a challenge and accurate nutrition data would be preferable.
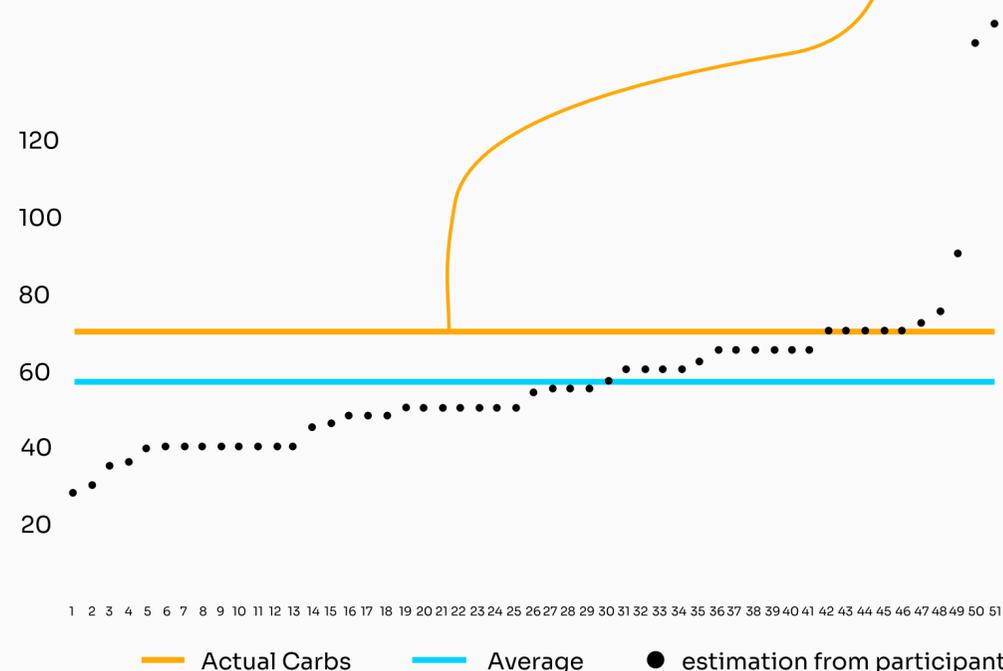
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Grams carbohydrates

120
100
80
60
50
40
20

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51

— Actual Carbs   — Average   ● estimation from participant