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# A pinch less salt, a dash more health?: reformulating independent Chinese takeaway meals

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Takeaway meals served by small independent establishments have been shown to be high in salt<sup>(1)</sup>, and high salt intake is linked with increased risk of hypertension and cardiovascular disease<sup>(2)</sup>. With 22% of adults in Merseyside eating takeaway meals once or twice a week<sup>(3)</sup>, the government expects the takeaway sector to voluntarily commit to reducing salt within meals to help reduce population average salt intake to 6 g per day<sup>(4)</sup>.

The aim of this real-world pilot study was to reduce salt in three different Chinese takeaway meals via recipe reformulation and sensory acceptance testing. The objectives were to produce tailored recipe changes for each takeaway meal at each establishment and determine whether meals at these establishments were subsequently served with less salt.

Liverpool Trading Standards visited four independent takeaways and collected detailed recipe information ('original') for black bean, chow mein and satay meals (where available). To determine baseline salt content, meals were purchased anonymously and sent to an accredited public analyst laboratory (PAL) for nutritional analysis.

Recipe reformulation was used to reduce salt, mainly by reducing sodium containing ingredients. Descriptive sensory evaluation was conducted for the 'original' and 'reformulated' meals (randomized by a three-digit code) via a sensory panel of takeaway consumers (n = 8, minimum). Six sensory attributes (appearance, aroma, flavour, mouthfeel, aftertaste, overall acceptability) were evaluated using a 9-point hedonic scale (9='like extremely', 1='dislike extremely'). Final recipe modifications were determined based on spider plots of the sensory attributes for the 'original' and 'reformulated' meals.

Trading Standards revisited each establishment with the reformulated recipes for consideration by the chef. Once some or all recipe changes were implemented, meal samples were once again purchased anonymously from the establishments and sent to PAL for final nutritional analysis. Baseline and final PAL results were compared to determine whether reductions in salt content had been attained.

Comparison of baseline and final PAL results suggest chefs implemented some recipe changes, with salt reductions ranging between 1.1–54.4% for the three meals (black bean: 9.6–32.0%, chow mein: 22.1–38.6%, satay: -1.1–54.4%). The variability within meal types was probably largely due to the variability in salt content at baseline between establishments.

This research was costly, time consuming and involved small sample sizes, however, it also involved working with a hard-to-reach group. This study provides evidence that Chinese takeaway meals can be reformulated to contain less salt without affecting their acceptability with chefs and consumers. Further research may benefit from working with chefs in groups (rather than individually), assisting them to provide healthier takeaway meals without accruing extra costs or losing customers. Reducing salt in takeaway food could help to reduce the impact that frequent takeaway consumption may have on consumers health by reducing blood pressure and risk of cardiovascular disease<sup>(2)</sup>.

## Acknowledgments

Liverpool City Council Trading Standard

## References

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