Comparison Of Mouth Level Exposure To Tar And Nicotine In Russian Smokers Of Regular And Superslim King Size Cigarettes
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INTRODUCTION
Previous studies (e.g., reference 1) have demonstrated that small diameter (slim) cigarettes (circumference 17-23mm; Figure 1) exhibit lower machine yields of certain toxicants than regular format cigarettes (circumference about 25mm) of equivalent ISO tar. However, since smokers do not smoke like machines, here we have examined mouth level exposure (MLE) per cigarette to tar and nicotine in subjects who smoked either king size superslim (KSSS) or regular king size (KS) cigarettes.

OBJECTIVES
• Measure the yields of various smoke components in mainstream smoke from KSSS and KS cigarettes
• Use filter analysis methodology to evaluate whether cigarette circumference influences MLE to tar and nicotine in a Russian population

PRODUCTS
• Commercial cigarettes manufactured in Russia
• King size (KS) cigarettes at 1 mg, 4 mg and 7 mg per cigarette ISO pack tar yields
• King size superslim (KSSS) cigarettes at 1 mg, 4 mg and 7 mg per cigarette ISO pack tar yields
• Mainstream smoke yields of nicotine free dry particulate matter (NFDPM), nicotine, carbon monoxide and selected Hoffmann analytes were measured at International Organization for Standardization (ISO) and Health Canada Intense (HCI) machine smoking regimes (for details see reference 2).

SUBJECT SELECTION
• Target of 60 smokers in each group; recruited by market research agency at point of sale
• 21-50 years of age; approximately equal gender distribution
• Average self-reported consumption of at least 10 cigarettes per day ≥6 months
• Female smokers must not be pregnant or lactating
• Subjects gave written informed consent before commencing the study
• Subjects given 2 day supply of regular product cigarettes based on self-reported daily consumption ≥15 smoked part-filters
• Subjects returned cutter / collectors containing part-filters
• Collectors sent to BAT laboratory for filter analysis (Figure 3; references 3 and 4)
• MLE data were analysed using GLM ANOVA and Tukey’s post hoc test

EXPERIMENTAL PROCEDURES
• Subjects provided with a filter cutter / collector (Figure 2)
• Cutter / collector varied depending on circumference
• Subjects instructed to smoke only supplied cigarettes, as normal, and to collect ≥15 smoked part-filters
• Subjects returned cutter / collectors containing part-filters
• Data are means from 5 replicates

RESULTS

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Smoking regime</th>
<th>KS</th>
<th>KSSS</th>
<th>KS</th>
<th>KSSS</th>
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<tbody>
<tr>
<td></td>
<td>Pack tar (mg/cig)</td>
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<td>HCl</td>
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<td>HCl</td>
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<tr>
<td>NFDPM</td>
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<td>1.7</td>
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<td>1.8</td>
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</table>

Figure 4. MLE to tar (left) and nicotine (right) for all products. Data are means ± SD. Asterisks indicate outliers. KSSS, king size superslim product; KS, king size conventional product. * Same letter indicates no statistical difference, p > 0.05.

CONCLUSIONS
• Generally, king size superslim cigarettes yielded lower amounts of selected Hoffmann analytes compared to conventional king size products of equivalent pack tar.
• MLE to tar was not significantly different between smokers of 1mg ISO tar yield regular KS and KSSS products.
• Smokers of the 4mg and 7mg KSSS products obtained significantly lower MLE to tar compared with smokers of the respective regular KS products.
• For MLE to nicotine, no significant differences were found between the smokers of the 1mg and 7mg KS regular products and the smokers of the respective KSSS products.
• Smokers of the 4mg KSSS product obtained significantly lower MLE to nicotine compared with smokers of the regular KS product.

REFERENCES