In patients with chronic kidney disease (CKD), consumption of high amounts of potassium (K), phosphorus (P) and sodium (Na) can lead to hyperkalemia, hyperphosphatemia and hypertension, increasing the risk of cardiovascular disease and mortality.

Patients with CKD are therefore advised to limit their dietary intake of K, P and Na as part of their renal diet.

K, P and Na are frequently added to foods in the form of food additives which are included on the ingredient list and which contribute to the K, P and Na content of the foods.

The content of K and P (mg per serving) may not always be present on the Nutrition Facts table, making it difficult for patients to make appropriate choices when buying foods such as soups.

### Methods

- All canned or boxed soup products sold at three top grocery stores in Canada (Loblaws, Metro and Sobeys) were scanned.
- The nutritional information was collected from the Nutrition Facts table and the ingredients list using specified data collection forms and product label photographs.
- 11 soups with additives were purchased and matched with similar soup types without K additives (n=11) and were sent to Maxxam Analytics Mississauga Ontario for analysis of K content by AOAC official methods.
- Data was analysed using IMB SPSS Statistics 24.

### Table 2. Soup types with and without K additives analysed for K content

<table>
<thead>
<tr>
<th>Soup Types</th>
<th>K additives*</th>
<th>No K additives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beef/Beef &amp; barley</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Chicken and rice</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Chicken Noodle</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Cream of mushroom</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Lentil</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

*All K additives were KCl

### Figure 2. Chemically analyzed K content of soups with and without K additives (n=22)

*p<0.001 by Mann-Whitney u test

**9/11 of soups with K additives did not have the K content listed on the Nutrition Facts table.

### Conclusion

- 1/5 of the soups have P additives, over a quarter of the soups have K additives, while almost all soups had Na additives.
- Soups with Na additives had 16 times more Na than those without Na additives.
- Based on the Nutrition Facts table, there was no association between the presence of K additives and K content of soups. However, chemically analysed K content was significantly associated with presence of K additive.
- P content was missing on all Nutrition Facts tables and more research is needed to determine the association of the presence of P additives and P content in commercially available soups.
- K content level cannot be inferred from the presence of K additives listed. Therefore, this study supports the eventual inclusion of K content on the Nutrition Facts table.