



National Alliance for Nutrition & Activity

## Making Sense of the Science on Sodium

### Research supports reducing children's sodium intakes

Sodium is an essential nutrient, but the average amounts children eat far exceed biologic needs and the Institute of Medicine's (IOM) maximum recommended levels.<sup>1,2</sup> Schools have been encouraged (but not required) to lower sodium since 1995. In 2010, the Healthy, Hunger-Free Kids Act made the first major changes to school meal nutrition in 15 years.

The new standards align school meals with the latest nutrition science, current concerns regarding child nutrition and health, and the real world circumstances of America's schools. As part of that alignment, the U.S. Department of Agriculture (USDA) set sodium limits for school meals. Sodium levels are to gradually decrease in three phases until final target levels are reached in school year 2022-2023.

#### Here are 5 myths about sodium reduction, school meals, and kids:

**MYTH #1:** Scientific research doesn't support the reduction of daily sodium intake for children.

**FACT:**

- Eating more sodium is associated with increased blood pressure in children and adolescents, and the effect is even greater in overweight and obese children and adolescents.<sup>3</sup>
- High blood pressure in childhood often leads to high blood pressure in adulthood, and is linked to early development of heart disease and risk for premature death.<sup>4</sup>
- After reviewing evidence on sodium intake and heart disease outcomes, in 2013 the IOM affirmed the need to reduce the population's current sodium intake, concluding that it would positively affect public health.<sup>5,6</sup>

**MYTH #2:** Industry doesn't provide enough foods that will meet USDA's sodium targets for school meals or Smart Snacks. Furthermore, because sodium occurs naturally in foods like milk and meat, it will be extremely difficult to achieve USDA's 2017-2018 sodium reduction targets.

**FACT:**

- The IOM recognized that implementing phased sodium reductions would take time and involve industry to develop appealing foods with less sodium, so it recommended that schools have until 2020 to achieve final targets.<sup>7</sup> USDA gave schools until the 2022-2013 school year, plenty of time for companies to reformulate.
- Numerous multi-national food companies have commitments to reduce sodium in their products, and are actively working toward these commitments.<sup>8</sup>
- An IOM analysis of sample breakfast menus indicates that school breakfasts can be planned with sodium levels close to recommended amounts with little change of commonly used products.<sup>8</sup>
- Sodium does occur naturally in some foods, but available evidence indicates that only about 12% of the sodium in our diets is contributed by naturally-occurring sodium. More than 75% of the sodium in our diets is added to food during manufacturing,<sup>9</sup> and a variety of methods and technologies are available to help reduce this amount in many food categories.<sup>8</sup>

**MYTH #3** Kids won't like the taste of foods that are decreased in sodium and will eat less of those foods, which will decrease their consumption of the beneficial nutrients provided by those foods.

**FACT:**

- Taste preferences for salty foods may be established early in life, so children's liking for salt may remain lower if they are exposed to lower sodium diets at a young age.<sup>10</sup>
- Children's preference for salty taste is shaped by dietary exposure, so the less they eat, the less they want.<sup>11</sup> Repeated exposure to lower-sodium foods can lead to decreased preference for salty taste over time,<sup>10</sup> consistent with the 3-phased approach to reduce sodium in school meals gradually.
- Research hasn't shown whether exposing kids to lower-sodium foods will decrease their overall consumption of other beneficial nutrients. In addition, foods naturally low in sodium, like most fruits and vegetables, are an important source of beneficial nutrients.

**MYTH #4:** The only health issues associated with too much sodium are high blood pressure and heart disease, and kids don't need to worry about those because they are adult problems.

**FACT:**

- The prevalence of high blood pressure is increasing in American children.<sup>12</sup> Among ages 12–19, prevalence of prehypertension/hypertension is 14%.<sup>13</sup>
- Children are at higher risk of developing heart disease and elevated blood pressure at earlier ages if they are obese or eat too much sodium. Kids who eat high sodium diets are about 40% more likely to have elevated blood pressure as kids who eat lower sodium diets.<sup>14</sup>
- Besides being a major risk factor for heart disease, high sodium intake also increases the risk for stroke, osteoporosis, stomach cancer, and kidney disease.<sup>15</sup>

**MYTH #5:** Recent studies suggest that current sodium recommendations are too low, so kids' current sodium intakes (even those in the 4,000 mg/day-range) are safe.

**FACT:**

- A systematic review of those types of studies showed that they tend to have several major flaws. Those flaws limit the usefulness of the studies in setting, much less reversing, sodium intake recommendations.<sup>16</sup>
- Public health recommendations are made after weighing all of the evidence, including studies of greater and lesser design and some with conflicting results. On balance, a vast body of diverse research indicates that lowering sodium intake lowers blood pressure, a major risk factor for heart disease, in adults and children.<sup>17</sup>

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<sup>1</sup> Institute of Medicine (IOM). 2004. *Dietary Reference Intakes for Water, Potassium, Sodium, Chloride, and Sulfate*. Washington, DC: The National Academies Press.

<sup>2</sup> U.S. Department of Agriculture, Agricultural Research Service. 2012. Nutrient Intakes from Food: Mean Amounts Consumed per Individual, by Gender and Age, What We Eat in America, NHANES 2009-2010. Available: [www.ars.usda.gov/ba/bhnrc/fsrg](http://www.ars.usda.gov/ba/bhnrc/fsrg).

<sup>3</sup> Yang et al. Sodium intake and blood pressure among US children and adolescents. *Pediatrics*. 2012;130:611-619.

<sup>4</sup> CDC. 2012 fact sheet. [http://www.cdc.gov/salt/pdfs/sodium\\_pediatrics\\_highlights.pdf](http://www.cdc.gov/salt/pdfs/sodium_pediatrics_highlights.pdf)

<sup>5</sup> IOM. 2013. *Sodium Intake in Populations: Assessment of Evidence*. Washington, DC: The National Academies Press.

<sup>6</sup> Letter from IOM President to HHS Secretary, June 2013. [http://cspinet.org/new/pdf/iom\\_fineberg\\_letter\\_to\\_sibelius06032013.pdf](http://cspinet.org/new/pdf/iom_fineberg_letter_to_sibelius06032013.pdf)

<sup>7</sup> IOM. 2010. *School Meals: Building Blocks for Healthy Children*. Washington, DC: The National Academies Press.

<sup>8</sup> Antman et al. Stakeholder discussion to reduce population-wide sodium intake and decrease sodium in the food supply: A conference report from the American Heart Association sodium conference 2013 planning group. *Circulation*. 2014.

<sup>9</sup> Mattes RD, Donnelly D. Relative contributions of dietary sodium sources. *J Am Coll Nutr*. 1991;10:383-393.

<sup>10</sup> IOM. 2010. *Strategies to Reduce Sodium Intake in the United States*. Washington, DC: The National Academies Press.

<sup>11</sup> CDC. 2013. High sodium intake in children and adolescents: Cause for concern. Fact sheet. [http://www.cdc.gov/salt/pdfs/children\\_sodium.pdf](http://www.cdc.gov/salt/pdfs/children_sodium.pdf)

<sup>12</sup> Lloyd-Jones et al. Defining and Setting National Goals for Cardiovascular Health Promotion and Disease Reduction: The American Heart Association's Strategic Impact Goal through 2020 and Beyond. *Circulation*. 2010 Feb 2;121(4):586-613.

<sup>13</sup> Go et al. on behalf of the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Heart disease and stroke statistics—2014 update: a report from the American Heart Association. *Circulation*. 2014;129:e28–e292.

<sup>14</sup> Rosner et al. Childhood blood pressure trends and risk factors for high blood pressure: The NHANES experience 1998-2008. *Hypertension* 2013;62:247-254.

<sup>15</sup> Appel et al. The importance of population-wide sodium reduction as a means to prevent cardiovascular disease and stroke: A call to action from the American Heart Association. *Circulation*. 2011, 15;123(10):1138-43.

<sup>16</sup> Cobb et al. Methodological issues in cohort studies that relate sodium intake to cardiovascular disease outcomes: A science advisory from the American Heart Association. *Circulation*. 2014;129:1173-1186.

<sup>17</sup> Whelton et al. Sodium, blood pressure, and cardiovascular disease: Further evidence supporting the American Heart Association sodium reduction recommendations. *Circulation*. 2012;126:2880-2889.