



**Kazakh Academy of Nutrition (KAN)**

**ALE "National Harm Reduction Association of Risk Factors for Human Health - Densaulyk"**

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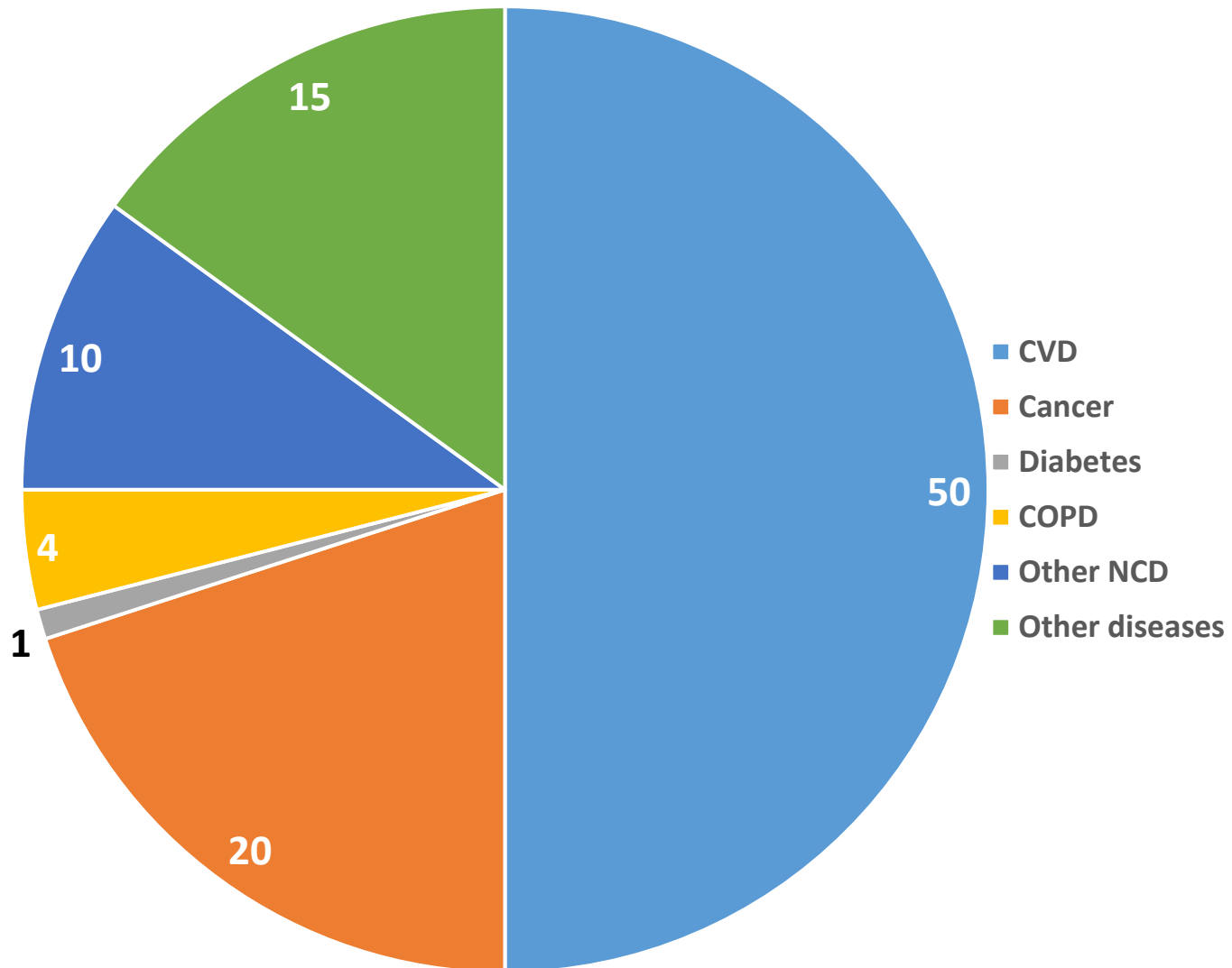
**Doctor of Medical Sciences, Professor**

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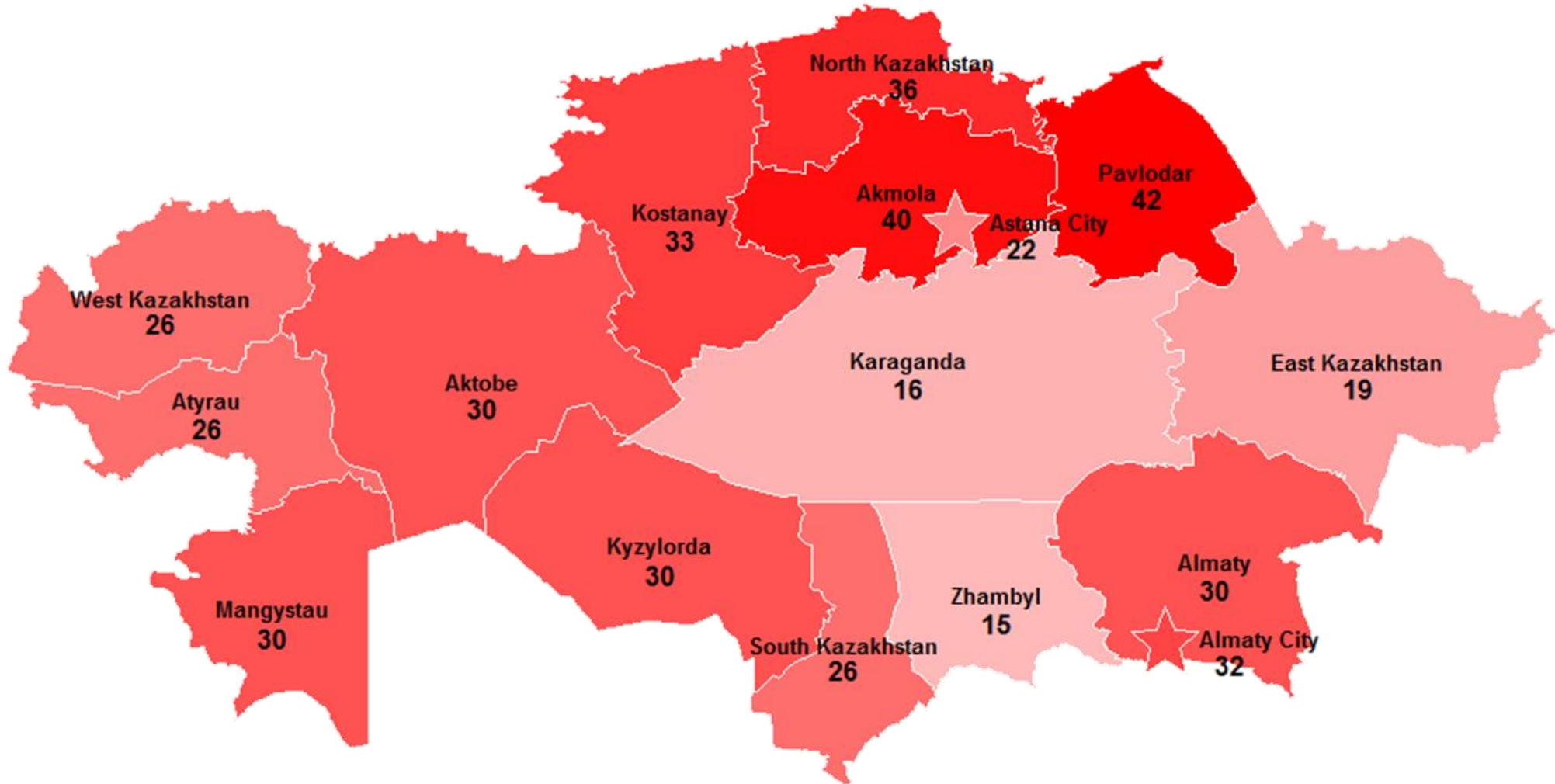
**The role of healthy nutrition in preventing and harm reduction of noncommunicable diseases**

## Causes of mortality in Kazakhstan, %



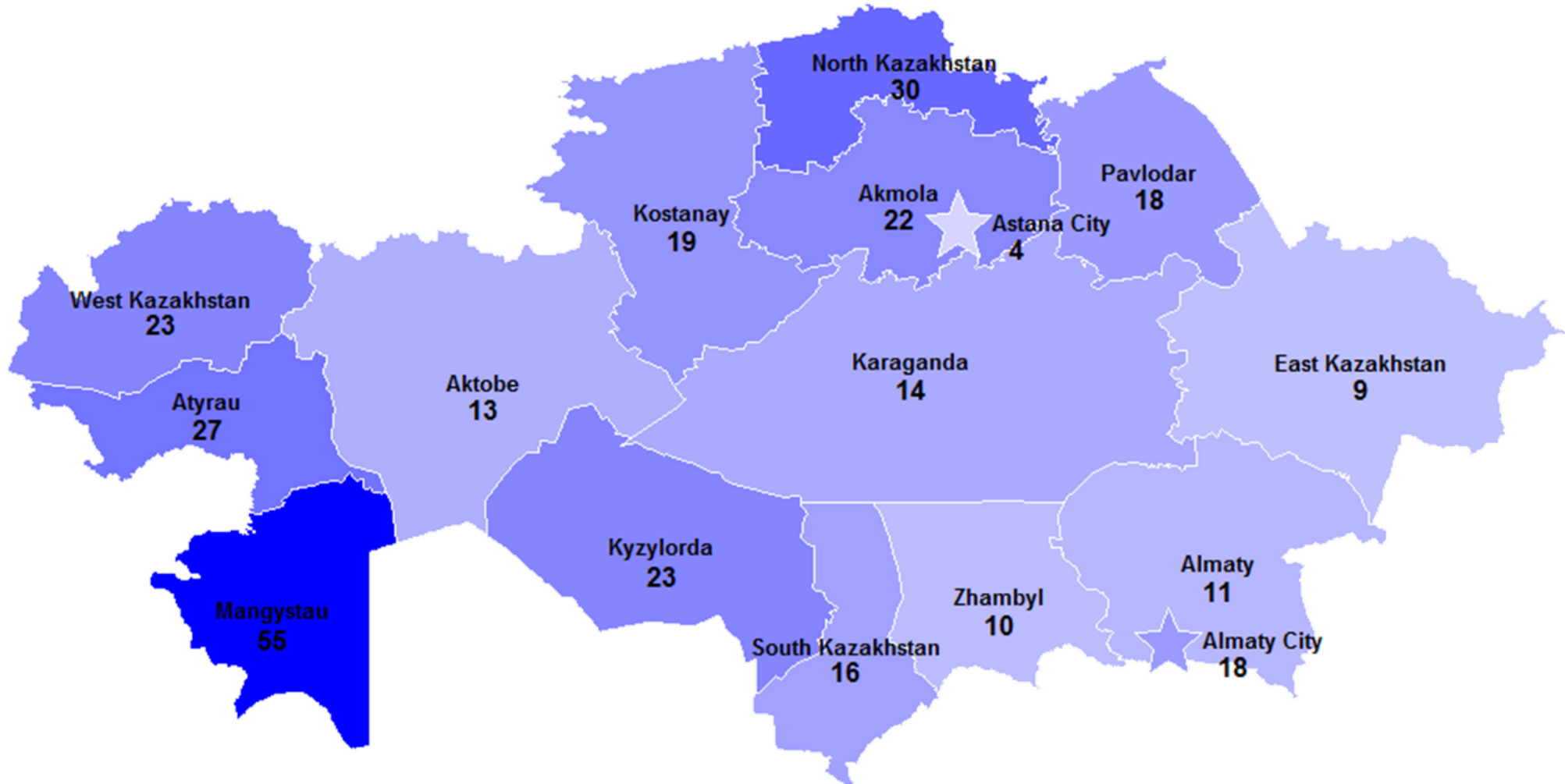
**Noncommunicable diseases (NCDs) cause 85% of deaths**

## Obesity prevalence (BMI $\geq$ 30) among women in regions of Kazakhstan (%)



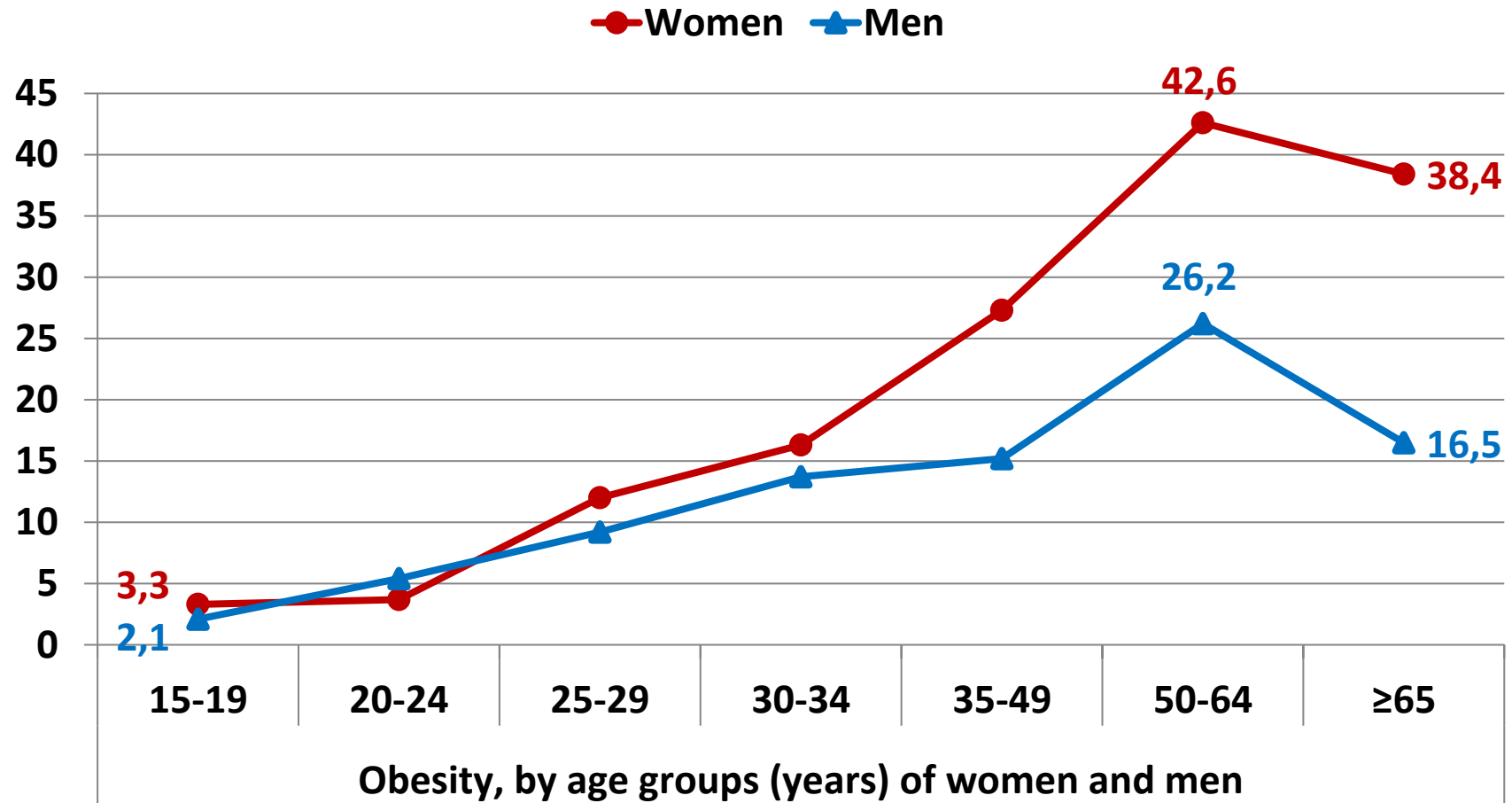
Nationally representative survey, 2014: 1301 men, **2435 women**, 3736 total people

## Obesity prevalence (BMI $\geq$ 30) among men in regions of Kazakhstan (%)



Nationally representative survey, 2014: 1301 men, 2435 women, 3736 total people

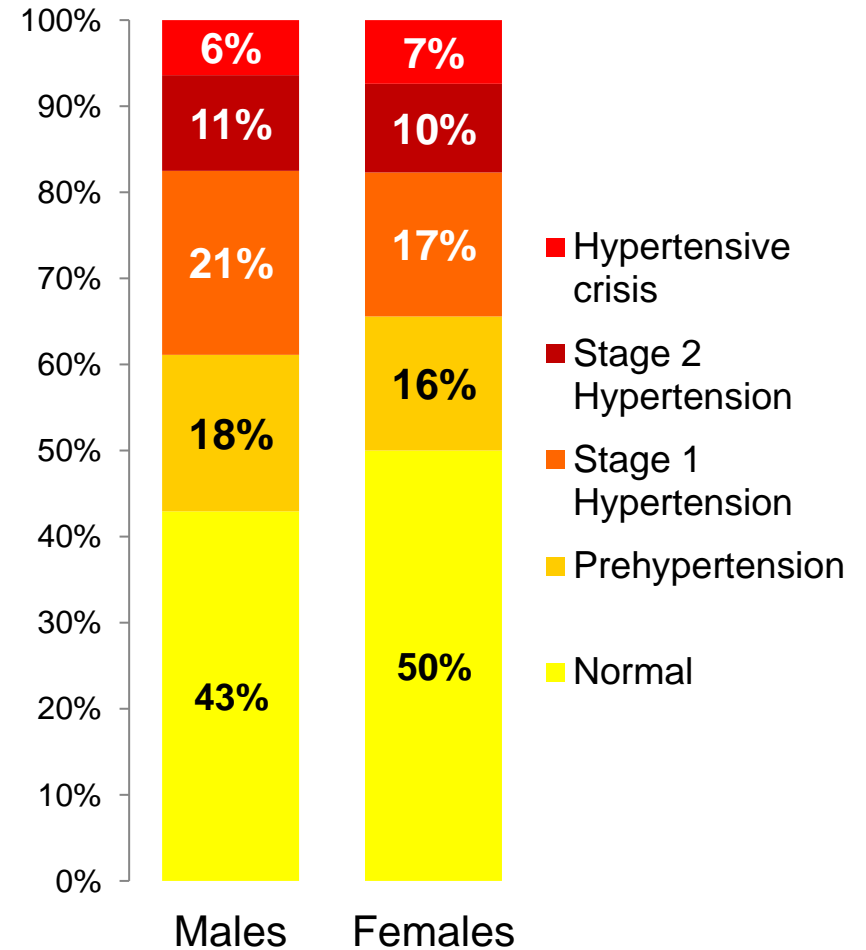
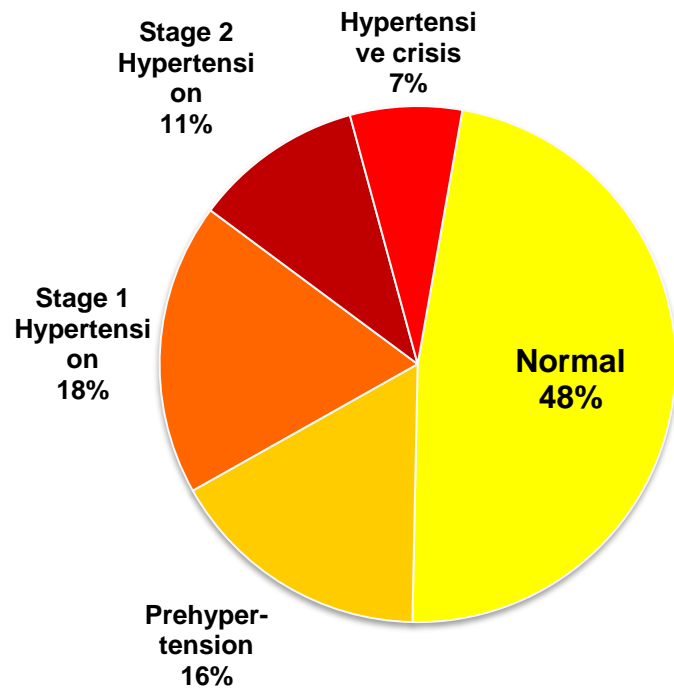
# Prevalence of obesity (BMI $\geq 30$ ) among adults $\geq 18$ years, by age and gender, Kazakhstan



Odds ratios (**OR**), adjusted OR (**aOR**) and 95% confidence interval (**95%CI**)  
in two groups of women and men – with and without obesity, **by ages**,  
Kazakhstan

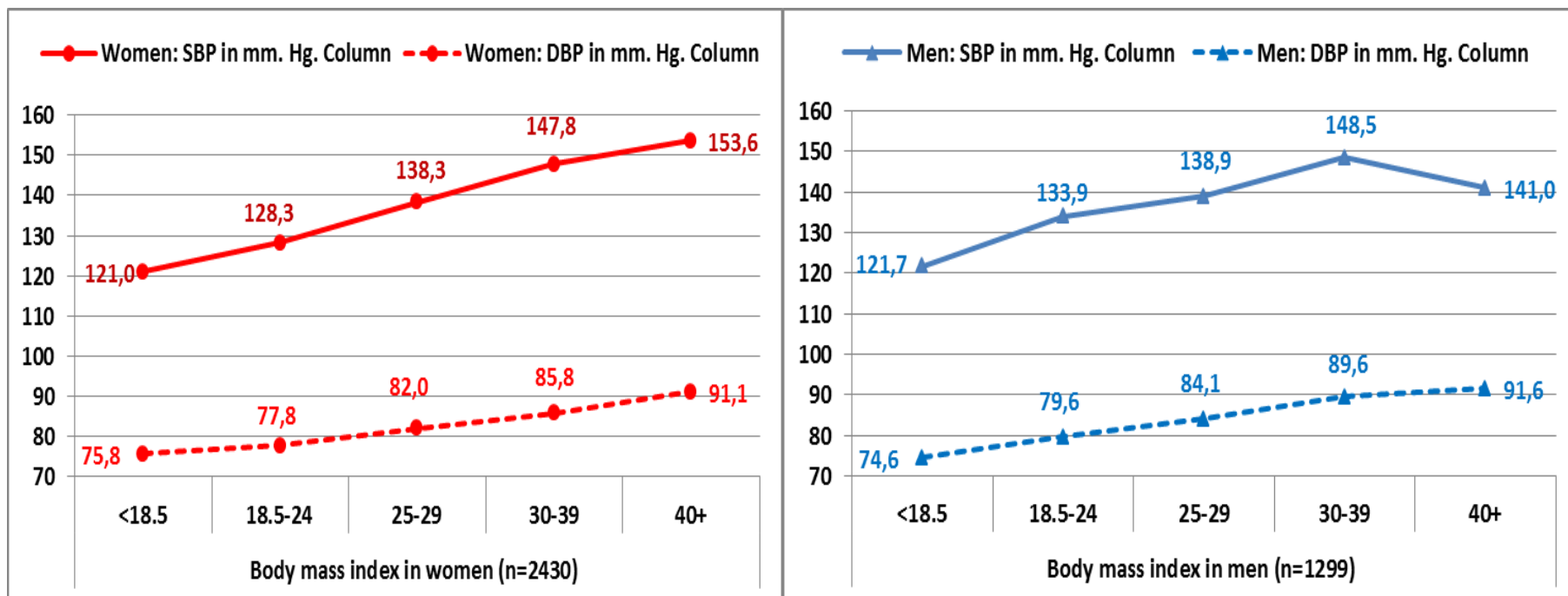
Age	n	BMI≥30 n (%)	BMI<30 n (%)	OR (95%)	p-value	aOR (95%)	p-value
<b>18-24</b>	349	13 (3.7)	336 (96.3)	<b>Ref. 1.0</b>		<b>Ref. 1.0</b>	
<b>25-34</b>	672	88 (13.1)	584 (86.9)	<b>3.89</b> (2.14- 7.08)	<0.001*	<b>4.0</b> (2.02- 7.9)	<0.001*
<b>35-49</b>	1041	237 (22.8)	804 (77.2)	<b>7.62</b> (4.3- 13.51)	<0.001*	<b>8.0</b> (4.15- 15.43)	<0.001*
<b>50-64</b>	954	348 (36.5)	606 (63.5)	<b>14.84</b> (8.4- 26.23)	<0.001*	<b>14.78</b> (7.68- 28.45)	<0.001*

# Prevalence of hypertension among population aged 15 and older



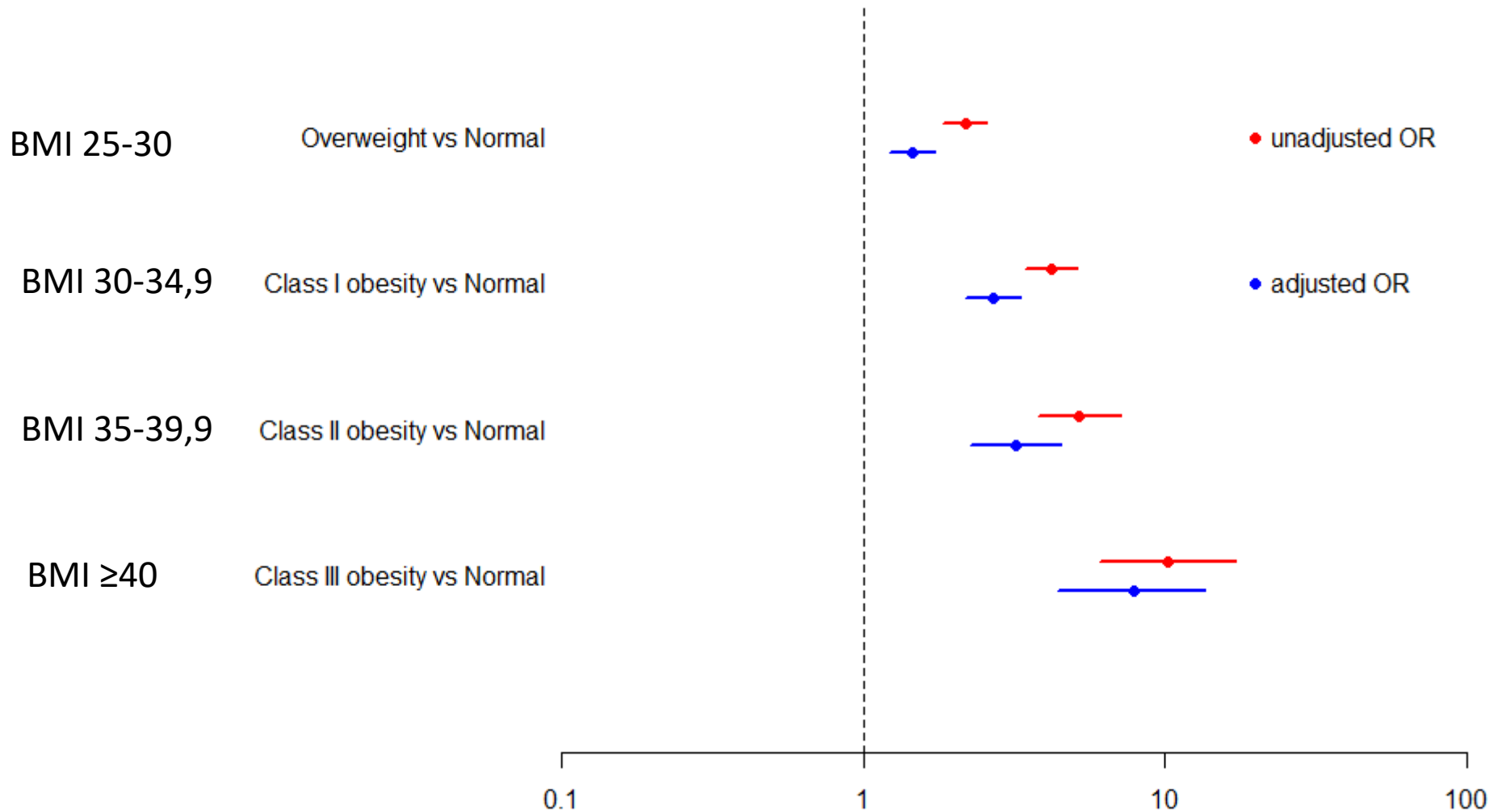
1 degree - 140-159 / 90-99 mm Hg;  
2 degree - 160-179 / 100-109 mm Hg;  
3 degree - above 180/100 mm Hg.

## Systolic (**SBP**) and diastolic (**DBP**) blood pressure (in mm.Hg.Column) in women and men of $\geq 15$ years old according to body mass index in Kazakhstan, 2012

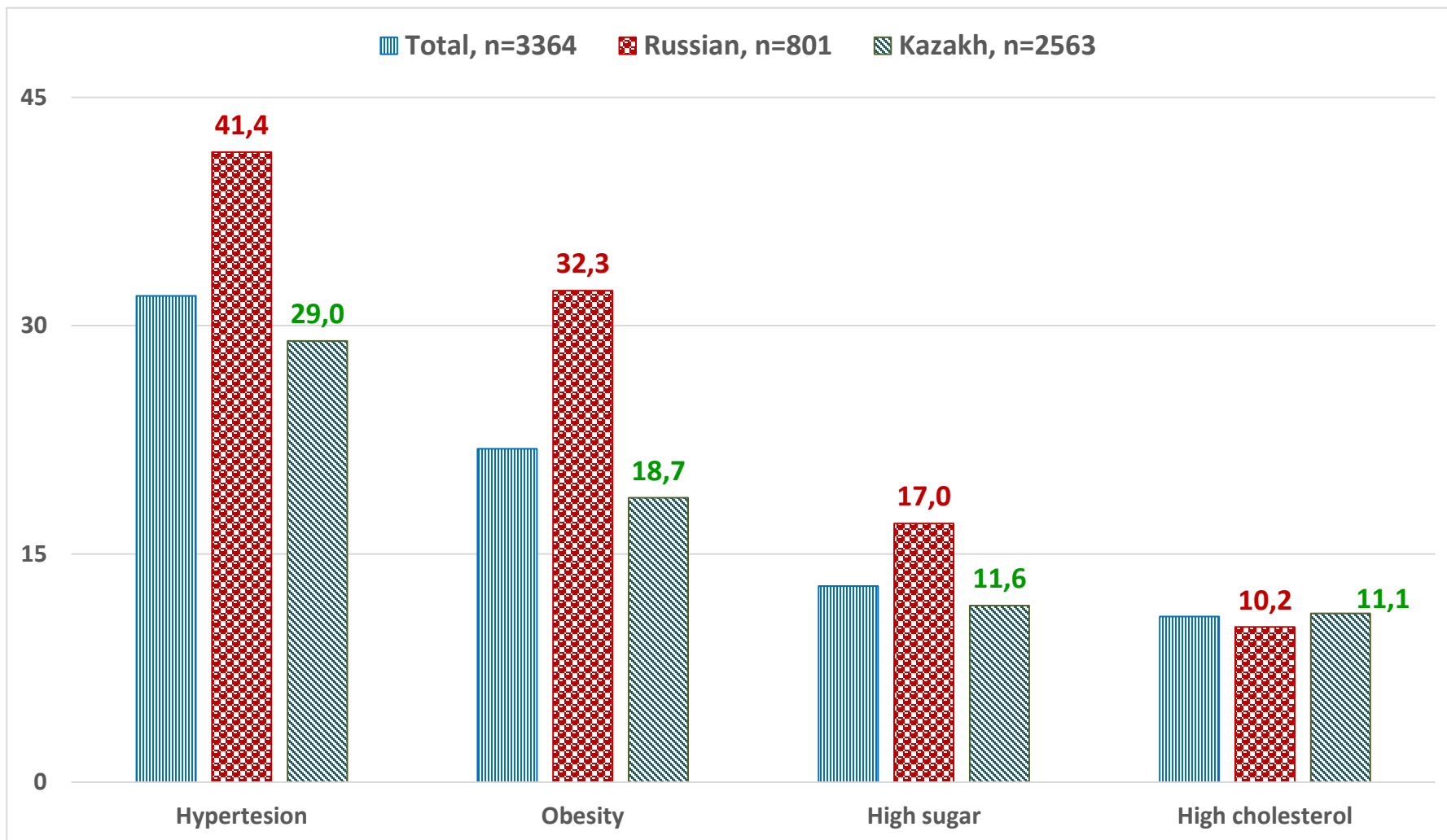




# Association between hypertension and body mass index: **unadjusted OR** and **adjusted OR** (odds ratios)



The prevalence of **obesity** (BMI $\geq$ 30), **hypertension** ( $\geq$  140/90 Hg column), **high sugar content** ( $\geq$ 6.1 mmol / l) and **cholesterol** ( $\geq$ 6.2 mmol / l) in fasting serum in people 18 years of age and older **depending on nationality**



# Conclusion

- ✓ **High prevalence of NCD risk factors among adults in Kazakhstan:**
  - Hypertension
  - Obesity
  - Hyperglycemia
  - Hypercholesterolemia
- ✓ **Ethnic differences in the prevalence of these nutritionally dependent risk factors may be due to:**
  - Genetic features
  - The nature of nutrition and lifestyle
- ✓ **Healthy nutrition can reduce these risk factors for the development and progression of NCDs**

# The role of nutrition in the development of noncommunicable diseases (NCDs)

**A key role in the development of NCDs plays unhealthy nutrition, including:**

## **Overconsumption of:**

- ✓ **Calories (overweight and obesity)**
- ✓ **Simple sugars**
- ✓ **Salt**
- ✓ **Total fat, including:**
  - **Trans fat**
  - **Cholesterol**
  - **Saturated fatty acids**

## **Insufficient intake of:**

- ✓ **Dietary fiber**
- ✓ **Omega 3 fatty acids**
- ✓ **Micronutrients, including:**
  - **Folic acid and other B vitamins**
  - **Fat-soluble vitamins A, D, E, K**
  - **A number of trace elements (iron, zinc, selenium, etc.)**

Average daily consumption of **total fat**, saturated fatty acids (**SFA**) and trans-fatty acids (**TFA**), **salt**, mono- and disaccharides (**sugar**) by schoolchildren in grades 8-11 in Kazakhstan, KAN, 2019

Nutrients	Consumption, g/day	Consumption, % to WHO recommendations
Total fat	88	<b>119<sup>a</sup></b>
SFA	31	<b>127<sup>a</sup></b>
TFA	2,8	<b>114<sup>a</sup></b>
Salt	7,7	<b>154<sup>b</sup></b>
Sugar	113	<b>204<sup>c</sup></b>

<sup>a</sup> – WHO, 2003. The average daily intake of fat should be **less than 30%**, saturated fat **less than 10%**, trans fat **less than 1%** of total energy intake (the calorie content of the daily diet of schoolchildren was 2228 kcal/day). WHO, 2003. Diet, nutrition and the prevention of chronic diseases: report of a Joint WHO/FAO Expert Consultation. WHO Technical Report Series, No. 916. Geneva: World Health Organization; 2003.

<sup>b</sup> – WHO, 2014. Average daily salt intake should be **less than 5 g**. WHO, 2014. Guideline: Sodium intake for adults and children. Geneva: World Health Organization, 2014.

<sup>c</sup> – WHO, 2015. The average daily intake of mono- and disaccharides should be **less than 10%** of total energy intake. WHO, 2015. Guideline: Sugars intake for adults and children. Geneva: World Health Organization; 2015.

Major dietary sources of **total fat, cholesterol, saturated fatty acids (SFAs), trans fatty acids (TFAs), salt and sugar** (mono- and disaccharides).

Nutrients	Main food sources in Kazakhstan
Total fat Cholesterol SFAs	<ul style="list-style-type: none"> <li>• Meat and meat products</li> <li>• Oils, fats</li> <li>• Milk and dairy products</li> </ul>
TFAs	<p><b>Natural products:</b></p> <ul style="list-style-type: none"> <li>• Meat and meat products</li> <li>• Milk and dairy products</li> </ul>
	<p><b>Industrial food products:</b></p> <ul style="list-style-type: none"> <li>• <b>Fast food:</b> pastries (pies, cookies, cakes and buns); biscuits; fried foods (french fries, potato pancakes, chicken nuggets, shawarma).</li> <li>• <b>Products from supermarkets:</b> microwave popcorn; some biscuits, waffles and pastries.</li> <li>• <b>Fats and oils:</b> cooking oil; partially hydrogenated oils; margarines</li> <li>• <b>Bakery products:</b> pies; cookies; sweet buns; cakes; puffs; cakes.</li> </ul>
Salt	<ul style="list-style-type: none"> <li>• Bread and bread products</li> <li>• Meat and meat products</li> <li>• Pickles</li> <li>• Homemade products (soups, lagman, pilaf and doner kebab, etc.)</li> </ul>
Sugar	<ul style="list-style-type: none"> <li>• Sugar, including added to tea and coffee</li> <li>• Confectionery</li> <li>• Vegetable and fruit preserves, juices, sweetened drinks, yogurt</li> </ul>

## **NCD harm reduction requires:**

- Consume a variety of foods and drinks rich in different nutrients.
- **Limit consumption of:**
  - ✓ saturated fats (animal fats);
  - ✓ fats with trans fatty acids (margarines);
  - ✓ cholesterol;
  - ✓ easily digestible carbohydrates (sweets);
  - ✓ salt.
- **The amount of nutrients should be :**
  - ✓ balanced and comply with recommended standards;adequate calorie needs.

# Encouraged for consumption foods to reduce the harm of NCDs

- **Vegetables and fruits** daily:
  - To rotate vegetables from the following groups during the week: dark green vegetables, yellow-orange vegetables, vegetables with a high starch content, and other vegetables.
- Consume **legumes** several times a week.
  - Legumes (beans, beans, peas, soybeans, mung beans, lentils) are rich in proteins with a good amino acid composition and dietary fiber.
- Consume about 90 grams of **whole grains** daily.
  - Whole grain products should make up about half of the total amount of cereals and bread products consumed.
- Consume 3 cups of **milk** or dairy equivalent daily (about 600 g/day).
- Food, fortified with vitamins and microelements (**fortified flour, iodized salt, etc.**).
- **Multivitamin-mineral complexes**



**Thank you for attention!**



**healthy food**  
**сапалы азық**