SUMMARY OF 2016 FACT SHEET

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Source of Data
The percentages and the total number of people over the age of 20 were determined using the National Health Checkup Database from 2006 through to 2015 made by National Health Insurance Service (NHIS).

Data presentation
• Data was presented by age and sex standardization using the 2010 Census Korean population.
• Obesity prevalence = [(Patients who were obese based on body mass index $\geq 25\text{kg/m}^2$)/ (total subjects with National Health Checkup)] X 100 [%].

Definition of Obesity, Abdominal obesity, and Morbid obesity
• Obesity was defined as body mass index (BMI, weight in kilograms divided by the square of height in meters) $\geq 25.0 \text{kg/m}^2$ in adults in accordance with the Asia-Pacific criteria of the WHO guidelines (WHO, 2000).
• Abdominal obesity was defined as waist circumference (WC) $\geq 90 \text{cm}$ in men and $\geq 85 \text{cm}$ in women, according to the definition by the Korea Society for the Study of Obesity.
• Class II obesity was defined as BMI $\geq 30.0 \text{kg/m}^2$. 
Summary

- The prevalence of obesity has steadily increased from 28.7% in 2006 to 32.4% in 2015 and the prevalence of abdominal obesity has also steadily increased from 18.3% in 2009 to 20.8% in 2015.
- The prevalence of class II obesity has steadily increased from 2009, and total prevalence was 4.8%; men (5.6%) and women (4.0%) in 2015.
- The prevalence of obesity & abdominal obesity has increased, especially in aged 20, 30, and 40 years.
- The highest obesity prevalence was found in Jeju island and the lowest prevalence was found in Daegu City.
- The highest abdominal obesity prevalence was found in Jeju island and the lowest prevalence was found in Gwangju City.
- In obese subjects, the prevalence of type 2 diabetes mellitus, hypertension, and hypercholesterolemia was 1.8, 1.8, and 1.6 times higher than that in the subjects without obesity respectively in 2015.
- In abdominal obese subjects, the prevalence of type 2 diabetes mellitus, hypertension, and hypercholesterolemia was 2.0, 1.8, and 1.6 times higher than that in the subjects without abdominal obesity respectively in 2015.
- In obese subjects, the new onset myocardial infarction and ischemic stroke was 1.4 and 1.3 times more developed than in the subjects without obesity in 2015.
- In abdominal obese subjects, new onset myocardial infarction and ischemic stroke was 1.9 and 1.9 times more developed than in the subjects without abdominal obesity in 2015.
The trend of prevalence of obesity and abdominal obesity 2006~2015

The prevalence of obesity has steadily increased from 28.7% in 2006 to 32.4% in 2015 and the prevalence of abdominal obesity has also steadily increased from 18.3% in 2009 to 20.8% in 2015.
The trend of prevalence of obesity 2006~2015 by sex

Men
The prevalence of obesity in men has steadily increased from 34.4% in 2006 to 40.7% in 2015.

Women
The prevalence of obesity in women has slightly increased from 23.3% in 2006 to 24.5% in 2015.
The trend of prevalence of abdominal obesity 2009~2015 by sex

Men
The prevalence of abdominal obesity also has steadily increased from 20.6% in 2009 to 24.6% in 2015.

Women
The prevalence of abdominal obesity also has slightly increased from 16.2% in 2009 to 17.3% in 2015.
The prevalence of obesity and abdominal obesity in 2015 by sex

The prevalence of obesity is 40.7% in men and 24.5% in women in 2015.

The prevalence of abdominal obesity is 24.6% in men and 17.3% in women in 2015.
The trend of prevalence of class II obesity 2006~2015

The prevalence of class II obesity has steadily increased from 2009, and total prevalence was 4.8%; men (5.6%) and women (4.0%) in 2015.

Class II obesity was defined as BMI $\geq$ 30.0 kg/m$^2$. 
The trend of prevalence of obesity 2006~2015 by age

The prevalence of obesity has increased, especially in aged 20, 30, and 40 years.
The trend of prevalence of abdominal obesity 2009~2015 by age

The prevalence of abdominal obesity has increased, especially in aged 20, 30, and 40 years.
New onset cardiovascular events in the subjects with or without obesity in 2015

Definition of Cardiovascular Events:
- ICD-10 code and events-related hospitalization
- Ischemic Stroke: I63, I64 and events-related hospitalization
- Myocardial Infarction: I21, I22 events-related hospitalization

Events/10,000 persons

<table>
<thead>
<tr>
<th></th>
<th>Obesities</th>
<th>Non-obesities</th>
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</thead>
<tbody>
<tr>
<td>Ischemic Stroke</td>
<td>21.0</td>
<td>16.4</td>
</tr>
<tr>
<td>Abdominal Obesity</td>
<td>28.5</td>
<td>15.2</td>
</tr>
<tr>
<td>Myocardial Infarction</td>
<td>13.6</td>
<td>9.6</td>
</tr>
<tr>
<td>Non-abdominal obesity</td>
<td>9.2</td>
<td>9.6</td>
</tr>
</tbody>
</table>
Regional prevalence of obesity in 2015

The highest obesity prevalence was found in Jeju island and the lowest prevalence was found in Daegu City.

Age and sex standardized prevalence was calculated using the 2010 Census Korean population.

- Jeju island: 41.1%
- Gangwon: 36.8%
- Incheon: 34.3%
- Jeonnam: 33.8%
- Chungnam: 33.6%
- Jeonbuk: 33.3%
- Gyeonggi: 33.2%
- Chungbuk: 33.1%
- Sejong: 32.1%
- Daejeon: 32.0%
- Gwangju: 31.8%
- Gyeongbuk: 31.8%
- Seoul: 31.6%
- Busan: 31.6%
- Ulsan: 31.4%
- Gyeongnam: 30.8%
- Daegu: 30.3%
Regional prevalence of abdominal obesity in 2015

The highest abdominal obesity prevalence was found in Jeju island and the lowest prevalence was found in Gwangju City.

Age and sex standardized prevalence was calculated using the 2010 Census Korean population.

- Jeju island: 30.0%
- Chungnam: 23.1%
- Incheon: 22.4%
- Gyeonggi: 22.0%
- Seoul: 21.6%
- Gangwon: 21.4%
- Chungbuk: 20.8%
- Gyeongbuk: 20.6%
- Jeonnam: 20.4%
- Daejeon: 20.3%
- Sejong: 20.2%
- Jeonbuk: 20.1%
- Ulsan: 19.5%
- Busan: 18.9%
- Daegu: 18.9%
- Gyeongnam: 18.6%
- Gwangju: 18.4%
The prevalence of chronic diseases in the subjects with or without obesity in 2015

**Type 2 diabetes mellitus**
1) ICD-code: E11–E14 &
2) DM medication Or
   Fasting glucose ≥ 126 mg/dL

**Hypertension**
1) ICD-code: I10–I15 &
2) Hypertension medication Or
   SBP/DBP ≥ 140/90 mmHg

**Hypercholesterolemia**
1) ICD-code: E78 &
2) Hypercholesterolemia medication Or
   Total cholesterol ≥ 240 mg/dL
The prevalence of chronic diseases in the subjects with or without abdominal obesity in 2015

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<table>
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<tr>
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<th>Non-abdominal obesity</th>
<th>Abdominal obesity</th>
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</thead>
<tbody>
<tr>
<td><strong>Type 2 diabetes mellitus</strong></td>
<td>7.2%</td>
<td>14.5%</td>
</tr>
<tr>
<td></td>
<td>X 2.0</td>
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<tr>
<td><strong>Hypertension</strong></td>
<td>19.1%</td>
<td>34.5%</td>
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<tr>
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<td>X 1.8</td>
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<tr>
<td><strong>Hypercholesterolemia</strong></td>
<td>19.0%</td>
<td>30.3%</td>
</tr>
<tr>
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<td>X 1.6</td>
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</tr>
</tbody>
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2.0 fold higher compared with those without abdominal obesity in 2015.
1.8 fold higher compared with those without abdominal obesity in 2015.
1.6 fold higher compared with those without abdominal obesity in 2015.
This fact sheet was made by mutual cooperation and research between NHIS and KSSO based on MOU.