

Best Articles in JOMES (K)

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Su-Min Jeong

Seoul National University, Korea

• Education

Period	Affiliation	Position
- 2022	Dept. of Family Medicine, Graduate School of Medicine, Seoul National University	Ph.D.
- 2017		M.S.
- 2011	Dept. of Clinical Medical Sciences, Graduate School of Medicine, Seoul National University	M.D.

• Affiliations / Experience

Period	Affiliation	Position
- 2022-Present	Department of Medicine, Seoul National University College of Medicine Department of Family Medicine, Seoul National University Health Service Center	Assistant Professor
- 2021-2022	Department of Family Medicine, Seoul National University Hospital Dept. of Family Medicine, Samsung Medical Center	Clinical Assistant Professor
- 2019-2021	Department of Family Medicine, Seoul Metropolitan Government-Seoul National University Boramae Medical Center	Clinical Assistant Professor
- 2018-2020	Dept. of Nutrition, Harvard T.H. Chan School of Public Health	Visiting Scientist

• Committee Memberships

- Secretary of Committee of Big Data

• Publications

- 2023 Obesity Fact Sheet: Prevalence of Obesity and Abdominal Obesity in Adults, Adolescents, and Children in Korea from 2012 to 2021
- Association between breakfast frequency and metabolic syndrome among young adults in South Korea
- Smoking behavior change and risk of cardiovascular disease incidence and mortality in patients with type 2 diabetes mellitus
- Different correlation of body mass index with body fatness and obesity-related biomarker according to age, sex and race-ethnicity
- Associations of reproductive factors with incidence of myocardial infarction and ischemic stroke in postmenopausal women: a cohort study

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2023 Obesity Fact Sheet: Prevalence of Obesity and Abdominal Obesity in Adults, Adolescents, and Children in Korea from 2012 to 2021

Su-Min Jeong (Seoul National University, Korea)

The Obesity Fact Sheet, published annually by the Korean Society for the Study of Obesity since 2015, aims to enhance understanding of the domestic obesity situation using the most up-to-date data, presented in infographic form. The 2023 Obesity Fact Sheet was published to present the trend of obesity prevalence across all age groups to date. Based on the 2023 Fact Sheet, the article titled "2023 Obesity Fact Sheet: Prevalence of Obesity and Abdominal Obesity in Adults, Adolescents, and Children in Korea from 2012 to 2021" was published in JOMES last year.

To determine the obesity prevalence among adults aged 20 and older, data from the National Health Insurance Service's national health examinations from 2012 to 2021 were included. For assessing obesity prevalence among children and adolescents aged 6-19, data from the Korea National Health and Nutrition Examination Survey (2012-2021) were used. Childhood and adolescent obesity were defined as having a body mass index (BMI) at or above the 95th percentile adjusted for sex and age based on the 2017 growth chart for children and adolescents.

In 2021, the overall obesity prevalence among adults was 38.4% (49.2% for men and 27.8% for women), an increase of 1.27 times from 30.2% in 2012. The prevalence of severe obesity (BMI ≥ 35 kg/m²) showed a notable increase, rising from 0.35% to 1.21% in men (3.46 times increase) and from 0.42% to 0.97% in women (2.31 times increase) between 2012 and 2021. Severe obesity prevalence increased sharply, particularly among young adults. Similarly, the obesity prevalence among children and adolescents rose from 9.7% in 2012 to 19.3% in 2021, with a marked increase especially among boys.

In this '2023 Obesity Fact Sheet: Prevalence of Obesity and Abdominal Obesity in Adults, Adolescents, and Children in Korea from 2012 to 2021, we will review the latest obesity trends based on the recently published 2023 Obesity Fact Sheet, discuss the causes of the increasing obesity prevalence, and explore potential ways to improve increasing obesity prevalence.



Jung Eun Lee

Seoul National University, Korea

• Education

Period	Affiliation	Position
– 2005	Harvard T. H. Chan School of Public Health Nutrition and Epidemiology	D.Sc.
– 2005	Harvard T. H. Chan School of Public Health Epidemiology	M.S
– 2000	Seoul National University Food and Nutrition	B.A.

• Affiliations / Experience

Period	Affiliation	Position
– 2021-Present	Seoul National University	Professor
– 2016-2020	Seoul National University	Associate Professor
– 2010-2016	Sookmyung Women's University	Assistant/ Associate Professor
– 2009-2010	Brigham and Women's Hospital	Associate Epidemiologist
– 2009-2010	Harvard Medical School	Instructor

• Committee Memberships

- Director of the Korean Cancer Association
- Director of Academic Nutrition, Korean Obesity Society

• Publications

- Provideo SMP, Abris GP, Lee H, Okekunle AP, Gironella GM, Capanzana MV, Chung GH, Hong S, Yu SH, Lee CB, Lee JE. Comparison of cardiovascular disease risk factors among FILWHEL (2014-2016), NNS (2013) and KNHANES (2013-2015) women. *BMC Womens Health*. 2023 Mar 30;23(1):149
- Jin T, Kang G, Song S, Lee H, Chen Y, Kim SE, Shin MS, Park YH, Lee JE. The effects of dietary self-monitoring intervention on anthropometric and metabolic changes via a mobile application or paper-based diary: a randomized trial. *Nutr Res Pract*. 2023 Dec;17(6):1238-1254
- Okekunle AP, Youn J, Song S, Chung GE, Yang SY, Kim YS, Lee JE. Predicted pro-inflammatory hs-CRP score and non-alcoholic fatty liver disease. *Gastroenterol Rep (Oxf)*. 2023 Oct 11;11:goad059
- Kim HS, Lee H, Provideo SMP, Chung GH, Hong S, Yu SH, Lee JE, Lee CB. Association between Sleep Duration and Metabolic Disorders among Filipino Immigrant Women: The Filipino Women's Diet and Health Study (FILWHEL). *J Obes Metab Syndr*. 2023 Sep 30;32(3):224-235
- Lee H, Kim H, Provideo SMP, Kang M, Chung GH, Lee JW, Hong S, Yu SH, Lee CB, Lee JE.
- Associations of Dietary Intakes of Total and Specific Types of Fat with Blood Lipid Levels in the Filipino Women's Diet and Health Study (FILWHEL). *Glob Heart*. 2023 Jun 12;18(1):29

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Association between Sleep Duration and Metabolic Disorders among Filipino Immigrant Women: The Filipino Women's Diet and Health Study (FiLWHEL)

Jung Eun Lee (Seoul National University, Korea)

Background Sleep plays a complex role in metabolic regulation, and the underlying linkage has not been clearly defined. We investigated the association between sleep duration and metabolic disorders in Filipino immigrants in Korea.

Methods We analyzed 410 participants from the 2014 to 2016 baseline population of the Filipino Women's Diet and Health Study. Usual sleep duration was self-reported, and anthropometric parameters were measured directly. Blood glucose, lipid, and insulin levels were examined from fasting serum samples. We used general linear models to acquire least squares (LS) means and logistic regression models to calculate odds ratios to test the cross-sectional association between sleep duration and metabolic markers with 95% confidence intervals (CIs).

Results We found a statistically significant linear association between increased sleep duration and elevated triglycerides, total cholesterol, and low-density lipoprotein cholesterol (LDL-C). LS means (95% CI) of <5, 5–6, 7–8, and >8 hours of sleep were 81.74 (71.43 to 93.54), 85.15 (76.65 to 94.59), 86.33 (77.84 to 95.75), and 105.22 (88.07 to 125.71), respectively, for triglycerides (P trend=0.049) and 174.52 (165.02 to 184.57), 180.50 (172.79 to 188.55), 182.51 (174.83 to 190.53), and 190.16 (176.61 to 204.74), respectively, for total cholesterol (P trend= 0.042). For LDL-C, the LS means (95% CI) were 97.34 (88.80 to 106.71), 100.69 (93.73 to 108.18), 104.47 (97.35 to 112.10), and 109.43 (96.94 to 123.54), respectively (P trend=0.047). Statistical significance persisted after additional adjustment for body mass index. The association with triglycerides was limited to current alcohol drinkers (P interaction=0.048).

Conclusion Longer sleep duration was associated with increased triglyceride, total cholesterol, and LDL-C levels. The association with triglycerides was more pronounced among moderate alcohol drinkers.



Yun-A Shin

Dankook University, Korea

• Education

Period	Affiliation	Position
– 2003-2008	Seoul National University, Graduate School of Physical Education, Exercise Physiology major	Doctorate
– 1990-1996	Ewha Womans University, Department of Sports Science	B.A., M.A.

• Affiliations / Experience

Period	Affiliation	Position
– 2020-Present	NSCA-Korea / Korea Coaching Association Chungnam Center	President
– 2020-Present	Korean Society for The Study of Obesity/ Korean Academy of Kinesiology	Vice President
– 2008-Present	Dankook University, Department of Exercise Prescription and Rehabilitation	Professor

• Committee Memberships

- National Research Foundation of Korea

• Publications

- Physical Activity Time is the most important of Mortality Risk Reduction in Middle Aged. Yun-A Shin *et al.*(2022). The Society for Transdisciplinary Studies
- The Effects of Obesity and Physical Activity on Dyslipidemia in Persons with Type 2 Diabetes. Yun-A Shin *et al.* (2022). Korean Academy of Kinesiology
- Moderate-Intensity Exercise Preserves Bone Mineral Density and Improves Femoral Trabecular Bone Microarchitecture in Middle-Aged Mice. SY Lee, YA Shin *et al.* (2022). Korean Society for Bone and Mineral Research
- Grip Strength Measurement in the Right Hand Better Predicts Mortality Regardless of Dominant Hand. YA Shin *et al.* (2021). Exercise Science
- Trabecular bone microarchitecture improvement is associated with skeletal nerve increase following aerobic exercise training in middle-aged mice. SY Lee, YA Shin *et al.* (2021). Frontiers

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Effects of Cardiorespiratory Fitness on Cardiovascular Disease Risk Factors and Telomere Length by Age and Obesity

Yun-A Shin (Dankook University, Korea)

Background: This study investigates differences in telomere length according to obesity, cardiovascular disease (CVD) risk factors, and fitness level in South Korean males.

Methods: The subjects of this study were males in their 10s to 50s (n=249). We measured obesity indices, CVD risk factors, leukocyte telomere length (LTL), and cardiorespiratory fitness (CRF). Correlation and regression analyses were performed to analyze the data.

Results: Measurement of participants' obesity indices, CVD risk factors, and maximum oxygen intake and analysis of their correlations with LTL revealed that LTL and CRF decreased with age and the levels and numbers of obesity indices and CVD risk factors increased. The LTL showed differences in whether subjects exhibited obesity or dyslipidemia and by CRF level. When all the variables that influence the LTL were adjusted, the LTL became shorter as the age and low-density lipoprotein cholesterol (LDL-C) level increased, and it became longer as the maximum rate of oxygen utilization (VO₂ max) increased. When the age and CVD risk factors influencing the LTL were adjusted according to obesity and CRF for the obese group, the LTL became shorter as the age and LDL-C level increased (P<0.01).

Conclusion: We found that obesity influenced the LTL by increasing the levels of CVD risk factors and decreasing CRF, whereas maintaining high CRF could alleviate the effects of obesity and CVD risk factors according to age while maintaining and influencing the elongation of LTL.

Keywords: Obesity, Cardiovascular disease risk factors, Cardiorespiratory fitness, Male, Telomere length, Age, Disease



Jieun Lee

Inje University, Korea

• Education

Period	Affiliation	Position
– 2018-Present	Seoul National University College of Medicine	Ph.D.
– 2011-2013	Seoul National University College of Medicine	M.A.
– 1999-2005	Seoul National University College of Medicine	M.D.

• Affiliations / Experience

Period	Affiliation	Position
– 2017-Present	Inje University Ilsan Paik Hospital	Assistant professor
– 2012-2013	Seoul National University Children's Hospital	Clinical Fellow
– 2008-2012	Seoul National University Children's Hospital	Resident
– 2005-2006	Seoul National University Hospital	Intern

• Committee Memberships

- Korean Pediatric Society
- Korean Society of Pediatric Endocrinology
- Asia Pacific Paediatric Endocrine Society
- Korean Diabetes Association
- International Society for Pediatric and Adolescent Diabetes

• Publications

- Temporal trends of the prevalence of abdominal obesity and metabolic syndrome in Korean children and adolescents between 2007-2020. *J Obes Metab Syndr* 2023;32(2):170-178
- Comparison of Lipid-Derived Markers for Metabolic Syndrome in Youth: Triglyceride/HDL Cholesterol Ratio, Triglyceride-Glucose Index, and non-HDL Cholesterol. *Tohoku J Exp Med*. 2022 Jan;256(1):53-62
- Endocrine comorbidities of pediatric obesity. *Clin Exp Pediatr*. 2021 Dec;64(12):619-627
- Diabetes in Adolescence, Appropriate Transition to Adult Clinic. *J Korean Diabetes* 2021;22(2):77-84

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Temporal Trends of the Prevalence of Abdominal Obesity and Metabolic Syndrome in Korean Children and Adolescents between 2007 and 2020

Jieun Lee (Inje University, Korea)

Introduction

Background

- Increasing prevalence of obesity in children and adolescents worldwide
- Obesity can lead to complications such as metabolic syndrome (MS), a risk factor for adult obesity and cardiovascular diseases
- Waist circumference (WC) and waist-height ratio (WHtR) are better indicators of abdominal obesity and MS compared to body mass index (BMI)

Objectives

- Investigate trends in the prevalence of abdominal obesity and MS in Korean children and adolescents
- Compare prevalence rates using two references:
 - REF2007: 2007 Korean National Growth Chart
 - REF2022: Newly published WC and WHtR reference values (2022)

Methods

- Data source: Korea National Health and Nutrition Examination Survey (KNHANES) from 2007 to 2020
- Participants:
 - 21,652 children aged 2 to 18 years for abdominal obesity analysis
 - 9,592 adolescents aged 10 to 18 years for MS analysis
- Measurements:
 - WC: measured at the midpoint between the lowest rib and the iliac crest
 - WHtR: calculated as WC divided by height
 - MS components: central obesity, hyperglycemia, hypertriglyceridemia, low HDL-C, elevated blood pressure

Key Results

- Trends in WC and WHtR
 - Both WC and WHtR showed an increasing trend over the years
 - Higher WC z-scores in girls; no significant sex difference in WHtR z-scores
- Prevalence of Abdominal obesity
 - Increased from 8.86% (REF2007) to 14.71% (REF2022)
- Prevalence of MS
 - National cholesterol education program (NCEP) definition: increased from 3.39% (REF2007) to 4.78% (REF2022)
 - International diabetes federation (IDF) definition: increased from 2.29% (REF2007) to 3.10% (REF2022)

Conclusion

- Increased in prevalence: both abdominal obesity and MS prevalence increased from 2007 to 2020
- Underestimation in previous reports: higher prevalence rates using REF2022 indicate that previous reports underestimated the true prevalence
- Future recommendations: ongoing monitoring and follow-up using REF2022 for accurate assessment and intervention