The Association Between Lifestyle Trajectories and Cognitive Function in Middle-Aged and Older Adults in Korea

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Introduction : This study examines the association between health lifestyle score trajectories(HLST) and cognitive function.

Methods : The Korean Longitudinal Study of Aging (2006–2020) was used to construct separate HLST models for males and females. HLST was based on smoking, drinking, physical activity, and BMI, each scored 0–2. Cognitive function was assessed using the Korean version of the Mini-Mental State Examination(K-MMSE), with scores <24 indicating decline. After excluding missing data, 5,452 participants(2,414 males; 3,038 females) were analyzed. HLST (2006–2014) was estimated via group-based trajectory modeling, and associations with cognitive function (2014–2020) were analyzed using generalized estimating equations.

Results : HLST analysis identified six patterns among males—Improving(10.0%), Healthy(22.5%), Mild(23.3%), Moderate(27.6%), Deteriorating(6.1%), and Severe(10.4%)—and four among females—Healthy(6.9%), Mild(46.6%), Moderate(40.6%), and Severe(5.8%). A Deteriorating group was found only in males. Compared to the Improving group, all other male trajectories were significantly associated with lower cognitive scores: Healthy(B=-0.66, p=0.011), Mild(B=-0.74, p=0.006), Moderate(B=-1.00, p=0.009), Deteriorating (B=-0.60, p=0.033), and Severe(B=-0.68, p=0.04). In females, the Severe(B=-0.93, p=0.031), Moderate(B=-0.72, p=0.003), and Mild(B=-0.59, p=0.013) groups also showed significant associations with cognitive decline. In age-stratified analysis, no significant associations were observed among individuals aged <65, whereas significant associations were found in both genders aged ≥65.

Conclusion : This study found that males had poorer HLST than females, and that cognitive decline was associated with lifestyle trajectories in individuals aged 65 and older. These results highlight the need for gender-sensitive interventions and trajectory-based strategies to address cognitive decline in older adults.

Toward Practical Dietary Guidelines in Japan: Insights from International Approaches

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Objective : To address diet-related public health issues, it is essential to develop practical and implementable dietary guidelines through a systematic approach involving nutrients, foods, and dishes. This study aimed to support Japan's guideline development by examining the scientific rationale and revision processes adopted in other countries.

Methods : The investigation was conducted by collecting and organizing information on the scientific rationale and development processes of dietary guidelines through the official websites of governments or equivalent institutions in selected countries. The countries included in the analysis were the United States, the United Kingdom, Germany, Italy, Denmark, China, South Korea, and Australia.

Results : In most countries, dietary guidelines appropriately integrated recommendations for food and nutrient intake based on dietary reference values, while also reflecting local dietary habits and cultural values. Recent revisions demonstrated a proactive effort to address increasingly diverse eating patterns and to incorporate environmentally sustainable practices. Food intake patterns were effectively visualized through graphics aligned with national guidelines, using food group classifications characteristic of each country's dietary culture. These visual tools were grounded in mathematical models optimized using current intake data and nutritional requirements. The designs varied—from consumer-informed graphics that clearly conveyed what and how much to eat, to intentionally simplified formats that enhanced accessibility and usability.

Conclusion : The information systematically compiled in this study is expected to contribute to the development of future dietary guidelines in Japan. To introduce practical dietary guidelines, it will be essential to provide comprehensive insights that incorporate dietary culture and eating habits, while aligning with existing guideline frameworks.

Association between physique at age 20 and prevalence of metabolic syndrome

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Background : The relationship between physique at age 20 (physique_20yr) and the risks of metabolic syndrome (MetS) and metabolic phenotypes [MetP: metabolically healthy normal weight(MHNW), metabolically unhealthy normal weight (MUNW), metabolically healthy obesity (MHO) and metabolically unhealthy obesity (MUHO)], remains unveiled.

Objectives: The purpose of this study was to examine the association of physique_20yr (i.e., muscular or chubby) with MetS and MetP.

Methods : This cross-sectional study was conducted as a part of the Shizuoka-Sakuragaoka J-MICC Study. This study included 3,412 men and 2,494 women aged 35 to 79 years. The National Cholesterol Education Program Adult Treatment Panel III and the Joint Interim Statement criteria were used to determine MetS and MetP. Physique_20yr were asked to select one of five levels from “strongly disagree” to “strongly agree” for either muscular or chubby using a self-report questionnaire. The trends in the odds ratios of MetS and MetP were calculated using multivariable and multinominal logistic regression analyses, with the “neither” of muscular group as reference.

Results : Only in male muscular and chubby groups, a significant interaction was observed between the positive trends for MetS. Likewise, significant positive risk trends and significantly higher risks were found for both MHO and MUHO in each male and female chubby group. In the muscular group, however, a significant positive risk trend was observed for MUHO in men, while significantly higher risks were shown for MHO and MUNW in women.

Conclusion : Similar to the risk of MetS in men, we showed that a higher risk of MetP related to obesity was common in each gender chubby group. On the other hand, the higher risks of MetP were not observed consistently between male and female muscular groups.

Salt-Reduced Meal Intervention and Salt Excretion in Local Residents: A Quasi-Experimental Study

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In recent years, the consumption of vegetables and other sources of potassium (K) to promote sodium (Na) excretion (salt excretion) has gained attention for the prevention of hypertension. The aim of this study was to examine the salt excretion effect of the consumption of K-rich, low-salt prepared foods, using the Na/K ratio as an indicator. The participants were 80 individuals (mean age: 45.8 years) employed in the automobile manufacturing industry. They were assigned to intervention and control groups based on an Na/K ratio of 4.0 calculated from urine samples collected at different times over four days. The intervention group consumed five types of side dishes provided by a local food company daily for one month, added to their lunch on a rotating basis (80 g; average Na/K ratio, 2.4), while the control group maintained their usual diet. The final analysis included 66 participants. Pre-intervention Na/K ratios were 4.4 for the intervention group and 2.9 for the control group; post-intervention ratios were 5.9 and 4.6, respectively. Using a regression discontinuity design with a cutoff of Na/K ratio 4.5, a non-significant trend toward improvement was observed (change: −0.851, 95% confidence interval: −1.976 to 0.274, p=0.135). Regarding behavioral change stages, 27.6% were in the precontemplation stage, 58.6% in the contemplation stage, and 0% in the preparation stage or beyond, suggesting low awareness of the need for improvement. An adjusted binary logistic regression analysis for gender and age revealed that groups with a higher seasoning use, a lower natto consumption frequency, and a higher body mass index were significantly less likely to have a Na/K ratio below 4.0. Although the short-term intervention had a limited effect, participants with high Na/K ratios seemed to benefit. The effectiveness of long-term interventions of low-Na/K ratio foods and individualized support should be determined.

Feasibility of ICT material support on genome study: Applying Instrument to Assess Children's Assent

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It is the duty of medical researchers to try to obtain appropriate assent from children, but it is not easy to explain and receive affirmative agreement. In order to improve children's genomic literacy and to respect children's human rights, we developed ICT materials, Monochrome-Genome®, that assist in explaining genome and support children's decision making. To evaluate usefulness of the materials, we used Instrument to Assess Children's Assent (IACA) under development, which is semi-structured interview scale. The purpose of this study is to use IACA to evaluate the feasibility of ICT material developed for first-to-third grade elementary school children. We conducted double-blind randomized controlled trials toward healthy first grade elementary school children from July 2024 to August 2025. The children were divided into two groups: those who used Monochrome-Genome® during assent process in hypothetical situation, and those who did not use. Children who did not use the content during the process also used it afterwards. The assent process was evaluated using IACA. As quantitative analyses, t-tests and $\chi 2$ tests were conducted using IACA scores. 81 children participated in the studies. The average time of semi-structured interviews was 10.0±2.8 minutes, and the average score of IACA was 15.2±3.7 points (range: 0-22). A t-test showed a significant difference in "Understanding and Appreciation" section scores of IACA between the two groups, indicating the Monochrome-Genome® used group understood the research plan and objectives better. A $\chi 2$ test showed a significant difference in "Passible Withdraw" section, indicating the used group understood more on voluntary participation. Further, the used group tended to express their choice on participation clearly in their own words. It appears that Monochrome-Genome® supported children's appreciation and decision making on genome research. In addition, the validity of the IACA was also suggested.