

一般演題（ポスター） | 一般演題（ポスター発表）：International Session

2025年6月28日(土) 12:50 ~ 13:20 ④ ポスター発表1（幕張メッセ展示ホール8）

International Session

[I-01]

Exploring the Effectiveness of Oral Exercise Programs in Enhancing Oral Functions Among Community-Dwelling Older Adults

○Tsai Fa-Tzu¹、Romalee Worachate²、Hsu Ming-Lun³ (1. Department of oral hygiene, Mei-Ho University, Pingtung, Taiwan、2. Department of Community Dentistry & Gerodontology, Faculty of Dentistry, Thammasat University, Pathum Thani, Thailand、3. College of Dentistry, National Yang Ming Chiao Tung University, Taipei, Taiwan)

[I-02]

Myeloid dendritic-cells (mDC), monocytes/macrophages (Mo/Mf), and osteoclasts (OC) axial progressions and inflammation-induced arthritic bone loss: The classical vs. alternative theme-pathways proposed

Liu Yen Chun G.¹、○原田 和昭^{2,3}、Teng Andy Yen-Tung^{4,5} (1. Lab. of Adv. Dental Medicine & Hygiene vs. Overall Health; School of Dentistry, & Dept. of Dental Hygiene, School of Oral Health and Nursing, Kanagawa Dental University, Yokosuka, Kanagawa, Japan;、2. Harada Dental Clinic, Kitakyushu City、3. Kyushu Dental University, Kitakyushu City Fukuoka, Japan;、4. Center for Osteo-immunology and Biotechnology Research (COBR), College of Dental Medicine, Kaohsiung Medical University (KMU) & KMU-Hospital, Kaohsiung, Taiwan、5. The Eastman Institute for Oral Health (EIOH), School of Medicine & Dentistry, University of Rochester, Rochester, NY, USA.)

[I-03]

Case Report: Adaptive Dental Management for Huntington's Disease Without Sedation

○Shih Chien-Chih、Hsu Hsiu-Ming、Bai Ming-Qi、Shih Wen-Chih

[I-04]

Effects of Augmented Reality Training for Indonesian Caregivers on GOHAI-T in Older Individuals: Preliminary Analysis

○Kuo-Hsun Lu¹、Hsiao-Ling Huang² (1. School of Dentistry, Kaohsiung Medical University、2. Department of Oral Hygiene, Kaohsiung Medical University)

[I-05]

Preliminary Data Analysis of an Augmented Reality Training System on Periodontal Health in Diabetes Patients

○Chih-Chang Chen¹、Wei-Fu Huang²、Yu-Ching Li³、Chia-Hsiu Wu³、Chun-Jung Chen³、Hsiao-Ling Huang⁴ (1. School of Dentistry, Kaohsiung Medical University、2. Department of Metabolism & Endocrinology, Chi Mei Medical Center、3. Department of Periodontics, Chi Mei Medical Center、4. Department of Oral Hygiene, Kaohsiung Medical University)

[I-06]

Impact of Oral Functions and Food textures on Perceived Swallowing Ability in Older Adults

○Pei-Chen Lin^{1,2}、Ju-Hui Wu^{1,2} (1. Department of Oral Hygiene, Kaohsiung Medical University、2. Department of Dentistry, Kaohsiung Medical University Hospital)

[I-07]

Oral Health Knowledge, Attitudes, and Behaviors with Gingival Health and Quality of Life in Patients

Oral Health Knowledge, Attitudes, and Behaviors Connected to Gingival Health and Oral Quality of Life in Dental Patients

○Yu-Jo Ciou¹、Chih-Chang Chen²、Hsiao-Ling Huang¹ (1. Department of Oral Hygiene, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan、2. School of Dentistry, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan)

[I-08]

AI intervention on protection motivation, behaviors, and quality of life in patients with periodontitis

○You-Jie Hu¹、Hsiao-Ling Huang¹ (1. Department of Oral Hygiene, Kaohsiung Medical University)

一般演題（ポスター） | 一般演題（ポスター発表）：International Session

📅 2025年6月28日(土) 12:50 ~ 13:20 🏢 ポスター発表1（幕張メッセ展示ホール8）

International Session

[I-01] Exploring the Effectiveness of Oral Exercise Programs in Enhancing Oral Functions Among Community-Dwelling Older Adults

○Tsai Fa-Tzu¹、Romalee Worachate²、Hsu Ming-Lun³ (1. Department of oral hygiene, Mei-Ho University, Pingtung, Taiwan、2. Department of Community Dentistry & Gerodontology, Faculty of Dentistry, Thammasat University, Pathum Thani, Thailand、3. College of Dentistry, National Yang Ming Chiao Tung University, Taipei, Taiwan)

★ [研究]/[調]の紹介

[目的]

Among the elderly, the mortality rate significantly increases for those who, in addition to having systemic diseases, also experience functional disabilities. Besides systemic conditions, oral dysfunction can contribute to both oral and systemic diseases. With the rising number of elderly individuals experiencing oral dysfunction, it is crucial to find effective interventions to prevent further decline in oral function. This study aims to evaluate whether oral exercise training can improve oral function in the elderly and prevent issues such as oral function decline and chewing/swallowing disorders.

[方法]

This study involved 50 community-dwelling elderly individuals aged 65 and older, who participated in a six-week oral exercise program. The exercises were performed before each meal (three times daily), and the effects on oral function were assessed to determine whether the training yielded any improvements. Pre- and post-intervention differences were evaluated using paired *t*-tests.

【結果與討論】

The study found that after six weeks of oral exercise intervention, there were improvements in saliva secretion, the Repetitive Swallowing Test (RSST), phonation rate, bite force, and the Oral Health Impact Profile (OHIP-14) for quality of life. Notably, improvements in bite force showed a statistically significant difference ($p=0.01$) following the oral exercise training. Daily oral exercises performed before each meal appeared to improve oral function in elderly individuals. Regular engagement in such exercises can enhance oral function and potentially prevent the onset of chewing and swallowing difficulties.

The authors have no conflicts of interest relevant to this article.

The study was approved by the Ethics Committee of National Yang Ming Chiao Tung University, Taiwan (NYCU113040A).

📅 2025年6月28日(土) 12:50 ~ 13:20 🏢 ポスター発表1（幕張メッセ展示ホール8）

International Session

[I-02] Myeloid dendritic-cells (mDC), monocytes/macrophages (Mo/Mf), and osteoclasts (OC) axial progressions and inflammation-induced arthritic bone loss: The classical vs. alternative theme-pathways proposed

Liu Yen Chun G.¹、○原田 和昭^{2,3}、Teng Andy Yen-Tung^{4,5} (1. Lab. of Adv. Dental Medicine & Hygiene vs. Overall Health; School of Dentistry, & Dept. of Dental Hygiene, School of Oral Health and Nursing, Kanagawa Dental University, Yokosuka, Kanagawa, Japan;、 2. Harada Dental Clinic, Kitakyushu City、 3. Kyushu Dental University, Kitakyushu City Fukuoka, Japan;、 4. Center for Osteo-immunology and Biotechnology Research (COBR), College of Dental Medicine, Kaohsiung Medical University (KMU) & KMU-Hospital, Kaohsiung, Taiwan、 5. The Eastman Institute for Oral Health (EIOH), School of Medicine & Dentistry, University of Rochester, Rochester, NY, USA.)

Background: Inflammation-induced arthritic bone loss in the elders involves the critical RANKL/RANK-OPG-triad via the TRAF6/ adaptor-complex leading to regulatory homeostasis vs. pathogenic sequelae at the osteo-immune interface, which remains unclear at present. And how and why do the multiple lineages (i.e., myeloid dendritic-cells-monocytes/ macrophages-osteoclasts: mDC-Mo/Mf-OC) develop and then interact during its pathogenesis awaits further study for an in-depth and better understanding.**Methods:** Our lab has employed various *in-vitro* and *in-vivo* approaches (e.g., gene knockout/siRNA-knockdown, Ab-neutralization, adoptive-transfer vs. reconstituted bone-marrow (BM) chimeras, etc.) to address and analyze: **i)** the classical Mo/Mf subset vs. myeloid-DCs/mDCs, as OC precursors/OCp, that develop osteoclastogenic activity; **ii)** the developmental potential and step-wise features of immature CD11c⁺mDCs, as compared to those of the classical Mo/Mf subsets, towards an alternative osteoclastogenesis for arthritic bone loss, **iii)** how signaling interactions of osteotropic cytokines (i.e., TGF- β , IL-17, etc.) with & without TRAF6/adaptor-complex in the local environmental-milieu may affect the osteoclastogenic progression under inflammation for analyses (by student-t-test & ANOVA).**Results:** The results have showed that: **i)** knock-out TGF- β RII-signaling robustly reduced mDDOCp/OCp-mediated osteoclastogenesis *in-vitro* & *in-vivo* ($p < 0.03$); **ii)** though TRAF6-adaptor signaling was essential for RANKL/RANK-mediated osteoclastogenesis, adding exogenous TGF- β vs. IL-17 individually or synergistically rescued TRAF6-defect in the classical Mo-Mf/OCp-absentee/mediated bone resorption *in-vitro* ($p = 0.02$); **iii)** such defective TRAF6-deficient phenotype without the endogenous Mo-Mf/OCp subsets analyzed, were more significantly rescued in the IL-17- treated chicken-type-II collagen immunized TRAF6^(-/-)-BM chimeras, compared to those of TGF- β -treated alone ($p < 0.05$), suggesting IL-17-signaling towards mDDOCp effector function required TGF- β in the local arthritic environment, regardless the presence or absence of TRAF6-signaling and endogenous Mo-Mf/OCpexisted *in-situ*.**Conclusion:** Collectively, it is suggested that immature-CD11c⁺DCs/mDDOCp are involved in inflammation-induced bone loss, independent of the classical Mo/Mf-derived-OCs in TRAF6-deficient hosts, and IL-17 can engage a distinct

cross-talk with CD11c⁺mDDOCp before rendering CD11c⁺TRAF6^(-/-)mDCs/OCp via TGF- β -mediated step-wise progression to alternative osteoclastogenic pathway. Such twist-in-turns osteoclastogenesis involving the classical-vs.-alternative pathways leading to arthritic bone loss and other osteoporotic conditions or disorders are to be theme-proposed-and-highlighted in this poster presentation as well. **COI: The authors declare no conflict of interest (COI) regarding the contents of this abstract for scientific/poster presentation; where the present research project was conducted according to the guidelines of the Institution Animal Care & Use Committee (IACUC), approved via the IACUC-protocol #98017 & #98183. The project was supported in-parts by the National Health Research Institute of Taiwan, # NHRI-EX101-9946SI, and partly from the operating funds made available at COBR via AY TT and YCGL.**

一般演題（ポスター） | 一般演題（ポスター発表）：International Session

📅 2025年6月28日(土) 12:50 ~ 13:20 🏢 ポスター発表1（幕張メッセ展示ホール8）

International Session

[I-03] Case Report: Adaptive Dental Management for Huntington's Disease Without Sedation

○Shih Chien-Chih、Hsu Hsiu-Ming、Bai Ming-Qi、Shih Wen-Chih

Abstract:

Introduction and Purpose

Huntington's disease (HD) presents unique challenges in dental treatment due to involuntary movements, cognitive impairments, and limited cooperation. This case report describes the prosthetic rehabilitation of a 73-year-old female HD patient, focusing on overcoming obstacles associated with tooth extractions and removable partial denture (RPD) fabrication in a non-hospital setting.

Case Details and Progress

The patient exhibited choreic movements and mild cognitive decline. She required multiple tooth extractions and RPD fabrication but preferred to avoid general anesthesia or sedation. Extractions were successfully performed in a general dental clinic using tailored stabilization techniques and stepwise communication strategies. During prosthetic treatment, procedures such as impression-taking, bite registration, and trial fittings were modified to accommodate involuntary movements, ensuring precision and functionality of the RPD.

Post-treatment, the patient reported significant improvements in mastication, transitioning from a soft or pureed diet to regular meals. Systemic health improvements, including slight weight gain, were observed. Enhanced oral function also contributed to increased social participation and self-confidence.

Discussion

This case demonstrates that HD patients can be effectively managed in a general dental clinic without sedation by implementing adaptive techniques. Addressing behavioral, physiological, and social factors is critical for successful outcomes. The case highlights the importance of individualized care to enhance the quality of life for patients with neurodegenerative conditions.

(COI Disclosure: None)

(Ethics Approval: Not subject to ethical review, patient consent obtained for publication)

📅 2025年6月28日(土) 12:50 ~ 13:20 🏢 ポスター発表1（幕張メッセ展示ホール8）

International Session**[I-04] Effects of Augmented Reality Training for Indonesian Caregivers on GOHAI-T in Older Individuals: Preliminary Analysis**

○Kuo-Hsun Lu¹、Hsiao-Ling Huang² (1. School of Dentistry, Kaohsiung Medical University, 2. Department of Oral Hygiene, Kaohsiung Medical University)

Purpose

As Taiwan became a super-aged society, the 65+ population exceeded 20%, increasing the demand for foreign caregivers, with Indonesians comprising 77.12%. Oral function decline and poor hygiene highlighted the need for better care training. This study investigated the effects of training Indonesian caregivers using an augmented reality (AR) toothbrushing system on the oral health-related quality of life, oral hygiene, oral function, and physical function of the older adults they cared for.

Methods

This study recruited 24 Indonesian caregivers and older adults from a long-term care center, randomly assigning them to AR + video, video, and control groups. All caregivers received an oral health leaflet; the AR + video group additionally used the AR toothbrushing system and video training, while the video group received only video training. Trained oral health professionals conducted face-to-face interviews to assess oral health-related quality of life, oral hygiene, oral function, and physical function before and three months after the intervention. The Kruskal-Wallis test analyzed continuous variables, Fisher's exact test compared categorical variables, and the Wilcoxon signed-rank test assessed pre- and post-test differences.

Results and Discussion

The older adults in the AR + video and video groups showed moderate improvements in oral health-related quality of life (GOHAI-T) (ES=0.34), whereas the control group experienced a decline. Regarding oral hygiene, the tongue coating index (TCI) significantly decreased in the AR + video group (ES=0.75, strong effect) and decreased in the video group (ES=0.34), while it increased in the control group. For oral function, saliva secretion increased in the AR + video group (ES=0.89, strong effect), whereas no notable changes occurred in the other two groups. Regarding physical function, the risk of sarcopenia (SARC-F) significantly decreased in the AR + video group (ES=0.58, strong effect) and decreased in the video group (ES=0.48), with no changes in the control group. This study confirmed that training Indonesian caregivers with an AR toothbrushing system effectively improved the oral health-related quality of life, oral hygiene, oral function, and physical function of older adults they cared for.

(COI Disclosure: None.)

(Ethics Review: Institutional Review Board of Kaohsiung Medical University Hospital, Approval Number: KMUHIRB-SV(II)-20230019)

📅 2025年6月28日(土) 12:50 ~ 13:20 🏢 ポスター発表1（幕張メッセ展示ホール8）

International Session

[I-05] Preliminary Data Analysis of an Augmented Reality Training System on Periodontal Health in Diabetes Patients

○Chih-Chang Chen¹、Wei-Fu Huang²、Yu-Ching Li³、Chia-Hsiu Wu³、Chun-Jung Chen³、Hsiao-Ling Huang⁴ (1. School of Dentistry, Kaohsiung Medical University、2. Department of Metabolism & Endocrinology, Chi Mei Medical Center、3. Department of Periodontics, Chi Mei Medical Center、4. Department of Oral Hygiene, Kaohsiung Medical University)

Purpose

Type 2 diabetes (T2DM) is prevalent among middle-aged and older adults and is often accompanied by periodontal problem, affecting their quality of life. To effectively equip patients with self-care skills for better oral health, this study aimed to assess the effectiveness of an Augmented Reality (AR) training system in improving periodontal health in diabetic patients.

Methods

A randomized clinical trial was conducted to recruit patients with T2DM from the Department of Endocrinology and Metabolism at a medical center in southern Taiwan. Participants were randomly assigned to three groups: AR group (n=2), AR with health counseling (ARHC) group (n=2), and control group (n=2). All participants received non-surgical periodontal treatment (NSPT) and general oral hygiene introduction (OHI). The AR group and ARHC group underwent AR training system intervention to learn the Bass brushing and interdental cleaning techniques. The ARHC group also received additional health counseling. Baseline data and follow-up assessments at 1, 3, and 6 months were collected through oral examinations, including plaque control record (PCR), plaque index (PI), gingival index (GI), probing pocket depth (PPD), clinical attachment loss (CAL), and bleeding on probing (BOP). Kruskal-Wallis test were used to compare differences between baseline and follow-up results within each group.

Results and Discussion

Following 6 months after the intervention, all groups showed a reduction in dental plaque levels ($-20.7 \pm -24.8\%$ in the AR group, $-4.6 \pm -44.3\%$ in the ARHC group, and $-40.7 \pm -33.9\%$ in the control group). And the AR group showed reductions in PI, GI, PPD, CAL, and BOP. The ARHC group only showed a reduction in BOP. The control group showed reductions in GI, PPD, CAL, and BOP. Although the results indicate that the AR training system can effectively improve periodontal health, the current sample size is small and may not accurately represent the actual effects. Further studies with a larger sample size are needed to confirm the impact of using high-tech tools on periodontal disease prevention and quality of life among middle-aged and older adults with diabetes. (COI Disclosure: None.)

(Ethics Review: Institutional Review Board of Human Study Committee of Chi-Mei Medical Center, Approval Number: 11111-011)

一般演題（ポスター） | 一般演題（ポスター発表）：International Session

📅 2025年6月28日(土) 12:50 ~ 13:20 🏢 ポスター発表1（幕張メッセ展示ホール8）

International Session**[I-06] Impact of Oral Functions and Food textures on Perceived Swallowing Ability in Older Adults**

○Pei-Chen Lin^{1,2}、Ju-Hui Wu^{1,2} (1. Department of Oral Hygiene, Kaohsiung Medical University、 2. Department of Dentistry, Kaohsiung Medical University Hospital)

Purpose

Having an adequate number of teeth, sufficient saliva, and strong muscle groups is essential for effectively chewing and forming a bolus for swallowing. Appropriate food textures can enhance the efficiency of chewing and swallowing. Therefore, the purpose of this study is to investigate the relationship between dentition, swallowing assessments, and perceived swallowing ability with different food textures among community-dwelling older adults.

Methods

This cross-sectional study utilized convenience sampling at a senior citizen activity center in Kaohsiung City to recruit independent senior adults. Each participant underwent a dental check-up. Saliva samples were collected, and participants consumed various textures of chicken breast in a blinded manner. The standard chicken breast samples were of the same weight and size, categorized as regular and soft-moist textures. The perceived swallowing ability was rated on a scale from 1 to 10 after testing. Statistical analyses were performed, and group comparisons were made using paired T-tests and Wilcoxon signed-rank tests.

Results and Discussion

A total of 65 participants were included in this study, with a mean age of 72.5 years (SD = 6.82). Among them, 35.4% lacked posterior occlusal contact, and 20% had a repetitive saliva swallowing test (RSST) result of fewer than 3 times within 30 seconds. No significant differences were found in perceived swallowing ability between participants with varying oral conditions, including posterior occlusal contact, hand grips (good vs. poor) and RSST (≥ 3 vs. < 3 times in 30 seconds), regardless of whether the chicken breast textures were regular or soft-moist. However, significant differences in perceived swallowing ability were observed between the two food texture tests, particularly among those with posterior occlusal contact and an RSST of at least 3 times within 30 seconds. Overall, older adults generally perceived soft-moist chicken breast as easier to swallow than boiled chicken breast, regardless of their oral functions.

(COI Disclosure: None)

(Ethics Review: Institutional Review Board of Kaohsiung Medical University Hospital, Approval number: KMUHIRB-SV(II)-20200035)

一般演題（ポスター） | 一般演題（ポスター発表）：International Session

📅 2025年6月28日(土) 12:50 ~ 13:20 🏢 ポスター発表1（幕張メッセ展示ホール8）

International Session

[I-07] Oral Health Knowledge, Attitudes, and Behaviors with Gingival Health and Quality of Life in Patients

Oral Health Knowledge, Attitudes, and Behaviors Connected to Gingival Health and Oral Quality of Life in Dental Patients

○Yu-Jo Ciou¹、Chih-Chang Chen²、Hsiao-Ling Huang¹ (1. Department of Oral Hygiene, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan、2. School of Dentistry, College of Dental Medicine, Kaohsiung Medical University, Kaohsiung, Taiwan)

Purpose

We aimed to explore the oral health knowledge, attitudes, and behaviors related to gingival health and oral health-related quality of life in dental patients.

Methods

A cross-sectional study was conducted to recruit dental patients from February to November 2024 (n=163) at the Southern Taiwan Dental Clinic. We employed questionnaires to assess oral health knowledge, attitudes, behaviors, and oral health-related quality of life, along with a Salivary Testing Instrument (SillHa LH-4912) to evaluate gingival health. Descriptive statistics, including percentages, means, and standard deviations, were used to summarize the basic demographics, oral health knowledge, attitudes, behaviors, oral health-related quality of life, and gingival health. A regression model was utilized to analyze the correlations between dental patients' oral health knowledge, attitudes, behaviors, and gingival health, as well as oral health-related quality of life.

Results and Discussion

Attitudes [$\beta=-1.03$, 95% CI (-1.94 to -0.11)] and dental visits [$\beta=-9.90$, 95% CI (-18.92 to -0.87)] were significantly negatively correlated with blood values in gingival health indicators. Brushing time showed a significant negative correlation with leukocyte count [$\beta=-9.12$, 95% CI (-17.78 to -0.47)]. Additionally, dental visits were significantly negatively correlated with protein levels [$\beta=-9.75$, 95% CI (-18.20 to -1.30)].

Oral health attitudes, dental visiting behaviors, and brushing time were negatively correlated with gum health, suggesting that improving dental patients' oral health attitudes and behaviors may positively influence gingival health outcomes.

(COI Disclosure: None.)

(Ethics Review: Institutional Review Board of Human Study Committee of Kaohsiung Medical University, Approval Number: KMUHIRB-E(I)-20240004)

一般演題（ポスター） | 一般演題（ポスター発表）：International Session

2025年6月28日(土) 12:50 ~ 13:20 ④ ポスター発表1（幕張メッセ展示ホール8）

International Session**[I-08] AI intervention on protection motivation, behaviors, and quality of life in patients with periodontitis**

○You-Jie Hu¹、Hsiao-Ling Huang¹ (1. Department of Oral Hygiene, Kaohsiung Medical University)

Purpose

Periodontitis has mutual interactions with various systemic diseases. Therefore, the impact of periodontal disease on the elderly should not be underestimated, and early prevention remains the most effective approach. In our previous research, we had evaluated the positive effects of AI monitoring at home on plaque index (PI), periodontal treatment outcomes and oral health-related quality of life (OHRoL) in patients with periodontitis. However, motivation is also important for patients with periodontitis to enhance their oral hygiene. We therefore utilized an AI platform to monitor and deliver health warning messages, stimulating the two appraisals of the protection motivation theory (threat appraisal and coping appraisal). This approach aimed to evoke intrinsic motivation in patients, enabling them to make informed decisions about preventive behaviors and actions, thereby promoting changes in self-care behavior.

Methods

Patients with periodontitis were randomly assigned to either an AI group (AI group, n = 32), an AI and health counseling group (AIHC group, n = 33), or a control group (n = 33). All patients underwent nonsurgical periodontal treatment. Patients in the AI and AIHC groups underwent additional AI-assisted DM and AI-assisted DM with oral health counseling, respectively, for 3 months. Data on OHRQoL, self-care behavior, PI, and PM were collected at baseline and follow-ups.

Result and Discussion

At 6 months of follow-up, the AIHC groups exhibited a significantly greater improvement in OHRQoL (mean diff: -6.5) compared with control group. At 6 months of follow-up, the AI and AIHC groups exhibited a significantly greater improvement in self-care behavior (mean diff: 1.1 and 0.9) and coping appraisal of PM (mean diff: 0.1 and 0.2), and they also had greater reduction in PI (mean diff: -14.6 and -24.0) compared with control group. These results indicate PMT-based AI-assisted DM can be used to remind patients with periodontitis of their oral hygiene at home and effectively improve their periodontal measures, self-care behavior, PI, PM, and long-term OHRQoL. It also demonstrates that this method can enable early prevention, effectively reducing the impact of periodontal disease on the elderly.

(COI Disclosure: None)

(Ethics Review: Institutional Review Board of Kaohsiung Medical University Hospital, Approval Number: KMUHIRB-F(II)-20200059)