

Institute for Biomedicine of Aging

Chair of Internal Medicine (Geriatrics)

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Research focus

- Clinical nutrition in older persons
- Mobility and function
- Clinical care for geriatric patients

Structure of the Institute

Professorships: 2
Personnel: 30
• Doctors (of Medicine): 2
• Scientists: 22 (thereof funded externally: 20)
• Graduate students: 15

Special structural feature

Prof. Dr. C.C. Sieber is head of the Internal Medicine of the Kantonsspital Winterthur (Switzerland).

Research

The demographic change poses a challenge for the public health care systems. In the future, the approach of diagnose-specific action in older persons will not be enough for the main goal of preservation of independence, mobility, and quality of life in the older population, and for prevention and treatment of age-related diseases. The two lifestyle factors, physical activity and nutrition, play a major role – next to medical intervention – to conquer the above-mentioned challenge.

Hence, research at the Institute for Biomedicine of Aging (IBA) is focusing on the areas nutrition and physical activity in older persons and the improvement of medical care for geriatric patients in a highly interdisciplinary manner. The research of is conducted in Nuremberg as well as at the St. John of God Hospital in Regensburg.

Clinical nutrition in older persons

PI: Prof. Dr. D. Volkert

The section clinical nutrition in older persons at IBA examines aspects of nutrition in relation to the maintenance of health and physical perfor-

mance throughout old age and is involved in several national and international research projects in this field.

Together with Prof Dr. M. Visser (University of Amsterdam), IBA coordinated the MaNUEL (Malnutrition in the Elderly) Knowledge Hub within the European Joint Programming Initiative (JPI) "A healthy diet for a healthy life". In five work packages, systematic reviews were performed about etiology, screening, prevention, and therapy of malnutrition in old age. Determinants of malnutrition were examined in an international harmonized multicohort meta-analysis. Overarching aims of the project to build a sustainable international expert network and to harmonize research methodology and clinical practice.

Additionally, in cooperation with the European Society for Clinical Nutrition and Metabolism (ESPEN), evidence-based guidelines on clinical nutrition and hydration in geriatrics were developed and published.

Analyses of the worldwide "nutritionDay" project were focused on the topic of dysphagia in nursing homes and the nutritional situation of affected residents. On behalf of the German Nutrition Society (DGE) and in cooperation with the German Society for Clinical Nutrition (DGEM) a nationwide "nutritionDay" initiative was launched in 2018 to assess and evaluate the nutritional situation of hospital patients and nursing home residents in Germany.

At the national level, IBA is involved in the Bavarian competence cluster of nutrition research "enable healthy food choices in all stages of life", funded by the BMBF, and represents one of the two "enable" human study centers. It is the aim of this interdisciplinary joint project to characterize nutrition during the whole life span and to develop innovative strategies and nutritional products to support a healthy diet in cooperation of the participating research institutions and food companies. Besides recruitment and comprehensive phenotyping of a cohort of healthy older persons, IBA developed and tested an age-specific protein-rich drink to prevent sarcopenia in cooperation with Fraunhofer Institute for Process Engineering and Packaging (IVV) (Freising). Further, the effects of a newly developed visually appealing, fortified and texture modified diet on energy and nutrient intake of nursing home residents with chewing and swallowing disorders were examined together with Hochschule Weihenstephan-Triesdorf and a nursing home in Nürnberg. Another sub-project to improve drinking behavior of nursing home residents by using technical aids specifically developed for this target group by computer scientists at Technical University of Munich.

Mobility and function

PI: PD Dr. E. Freiberger

The mobility and function section of IBA is active in the fields of physical activity/exercise promotion and maintenance of function and independence in older persons by participating in several national as well as international projects. At the international level, IBA is partner in the European project SPRINTT (Sarcopenia and Physical fRailty IN older people: multi-component Treatment strategies, a randomized controlled intervention trial in older persons with sarcopenia. After an extensive recruitment and screening process in the years 2017/18, a total of 123 participants were included into this study and followed in two intervention arms with and without physical activity. Related to the SPRINTT project, two sub-studies are dedicated to the analysis of risk factors of falls and gait changes in functionally impaired older persons.

Another international activity is active involvement in the steering committee of the European Network for Action on Ageing and Physical Activity (EUNAAPA) that intends to improve networking between organizations in the field of physical activity, health, and social welfare. Through its engagement in EUNAAPA, IBA is also taking part in the EU horizon 2020 research project „PROMISS“ ("Prevention of Malnutrition in Senior Subjects in the EU"), supporting its dissemination.

At national level, the mobility and function section is taking part in two BMBF projects. The first one, POWER ("Prevention by Outdoor-walking in the Elderly at Risk") is investigating if regular outdoor walking with the help of volunteers can restore function in older persons at risk in the nursing home or residential care setting. In the project PRO PRICARE ("PREventing Overtreatment in PRImary CARE"; compare own report) IBA is contributing to a systematic review and expert interviews to develop an International Classification of Functioning, Disability and Health (ICF) core set for the description of functional health in the general practitioner setting.

In a collaboration the Institute for Psychogerontology at FAU, the effect of aging images on physical activities in older persons was investigated.

Clinical care for geriatric patients

PI: Prof. Dr. C.C. Sieber

The improvement of the clinical care for geriatric patients is investigated in collaboration with the Hospital of St. John of God in Regensburg.

The project SCOPE (Screening for Chronic Kidney Disease among Older People across Europe) is financed by the Horizon 2020 program of the

EU and includes eight European centers. Older persons were recruited and examined in Regensburg as well as Nuremberg to improve screening and care of chronic renal diseases in older persons.

The group of the oldest old persons are the one with the highest comorbidity rates and hospitalizations. This will increase the burden on the health care systems. On individual level, research has shown that hospitalization fuel a negative downhill spiral with further loss of function, quality of life, and independent status in the older person. Despite the disproportionate prevalence of hospitalized patients who are in the older age range, hospitalist programs often do not emphasize the need for geriatric skills. Especially, the transfer from hospital to home is a process often marked with loss of information between hospital and ambulatory health service and followed by unwanted rehospitalization. The national project TIGER (Transsektorales Interventionsprogramm zur Verbesserung der Geriatrischen Versorgung in Regensburg) is funded under the Inofond by the Federal Joint Committee (G-BA) and investigates the effectiveness of the transitional care between the stationary and the ambulant setting in a hospital in Regensburg with the aim to reduce readmission rate in persons 70 years and older.

Teaching

The practical geriatric training (Q 7) of the Chair of Internal Medicine provides students with the requirements of medicine in old age. The compulsory elective subjects of the IBA are interdisciplinary with focuses on nutritional issues of hospital patients as well as physical activity and falls. Several lectures and courses of the master degree program gerontology (Faculty of Humanities, Social Sciences, and Theology) are organized by the IBA.

IBA supervises Bachelor's and Master's theses as well as MD and PhD theses.

Selected publications

Gingrich A, Spiegel A, Kob R, Schoene D, Skurk T, Hauner H, Sieber CC, Volkert D, Kiesswetter E. Amount, Distribution, and Quality of Protein Intake Are Not Associated with Muscle Mass, Strength, and Power in Healthy Older Adults without Functional Limitations-An enable Study. *Nutrients*. 2017 Dec 14;9(12). pii: E1358

Streicher M et al. Determinants of Incident Malnutrition in Community-Dwelling Older Adults: A MaNuEL Multicohort Meta-Analysis. *J Am Geriatr Soc*. 2018 Dec;66(12):2335-2343

Freiberger E, Rydwick E, Chorus A, Tak E, Delecluse C, Schena F, Waaler N, Laventure B, van Meeteren N. Enhancing Physical Activity as Lifestyle Behavior in Older Persons: The Rome Statement. *J Aging Phys Act*. 2018 Apr 1;26(2):345-351

Volkert D, Beck AM, Cederholm T, Cruz-Jentoft A, Goisser S, Hooper L, Kiesswetter E, Maggio M, Raynaud-Simon A, Sieber CC, Sobotka L, van Asselt D, Wirth R, Bischoff SC. ESPEN guideline on clinical nutrition and hydration in geriatrics. *Clin Nutr*. 2018 Jun 18. pii: S0261-5614(18)30210-3

Dent E et al. International Clinical Practice Guidelines for Sarcopenia (ICFSR): Screening, Diagnosis and Management. *J Nutr Health Aging*. 2018;22(10):1148-1161

Marzetti E et al. The „Sarcopenia and Physical fRailty IN older people: multi-componenT Treatment strategies“ (SPRINTT) randomized controlled trial: Case finding, screening and characteristics of eligible participants. *Exp Gerontol*. 2018 Nov;113:48-57

International cooperations

Prof. Dr. M. Visser, Stichting VU-VUMC, Amsterdam: The Netherlands

Prof. Dr. R. Bernabei, Università Cattolica del Sacro Cuore, Rom: Italy

Prof. Dr. M. Hiesmayr, Medizinische Universität Wien, Wien: Austria

Prof. Dr. F. Lattanzio, Istituto Nazionale Di Riposo E Cura Per Anziani INRCA, Ancona: Italy