

## Editorial—aging and physical activity in the focus of science

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The worldwide increase in life expectancy and particularly the increase in centenarians in our societies are the characteristics of a situation of which there is no parallel in human history. But this aging of our populations does not mean a catastrophe at all—as is sometimes thought. It is the logical consequence of our socio-cultural success story in the last centuries. This development poses many questions and many challenges for our societies. Adequate rational answers and solutions to these questions coming up in such a situation must and can be found. These answers and solutions must be rationally and empirically supported—this is the primary challenge for researchers in our field.

The wide field of gerontology, of which aging and physical activity are an important part, distinguishes itself by interdisciplinarity. From the point of view of aging and physical activity, three perspectives are central: The biomedical one, the behavioral/social one, and the technological one. The biomedical perspective should focus on basic research. It should integrate new results from basic research to support ways of solutions for pressing age-dependent limitations or diseases and for the improvement of interventions. Despite the great achievements that the biomedical and technological sciences have to their credit, the main point must be the human behavior and the behavioral change that must not be delayed any longer. By our behavior and behavioral change, we can

influence the key elements of an autonomous and successful aging—immediately and directly. New solutions should also come from technologically oriented basic and applied research (bionics, robotics, prosthetics, and ergonomic aids) to compensate age-related limitations and deficits—but technology should only be used if absolutely unavoidable.

These three paths of research have to be combined to arrive at a successful gerontological support for the individual and the society. Behavior and behavioral change in the form of physical activity, nutrition, and social activity are closely related to the health situation in our societies. In view of the socio-demographic development, it is necessary that for preventive and therapeutical reasons, adequate behavior and behavioral changes should be implemented from childhood to old age. We need to know which environmental and behavioral conditions have a detrimental effect in the course of aging and which behavior will have a positive influence on the development of good health and successful aging. To show the protective influence that physical activity, nutrition, and social activity have on healthy aging, it is necessary that these variables should be considered from the point of view of genetics (cf. Sagiv's preceding editorial [1]), individual behavior, as well as the social and material environment.

The responsibility of the European Review of Aging and Physical Activity lies in offering topical information on the state of the art in each of these fields. From the behavioral point of view and from the point of view of the coeditor for behavioral sciences, this is a plea for more scientific and tutorial reviews on the relationship between physical activities and different disciplinary as well as interdisciplinary subjects. These reviews would enable researchers and practitioners to put their future activities on a firm foundation. They should even go beyond those subjects

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already mentioned in the first editorial my preceding editorial [2]. Those should include:

- Protective and therapeutical factors of physical activity. (This is not only to consider single variables but the effort to identify risk—and protection—clusters)
- Reviews and evaluation of exercise programs
- Specific programs on fall prevention focusing on key effects such as
  - Perceptual training
  - Perceptual–motor training
  - Environmental stimuli and avoidance of falls
  - Self-help after falls
- Therapeutical physical activity related to
  - Pain reduction
  - Osteoporosis
  - Gait exercise
- Quality management of preventive and therapeutical programs
- Quantitative and qualitative criteria
- Process-oriented quality management (negotiation between leaders and participants)
- Structural and result orientation
- Dwelling and residential area (cf. Demirkan in this issue)
- Construction

- Physical activity at home
- Physical activity outside
- Social networks
- Critical life events
  - Family related
  - Diseases related

To give an impression of at least some of the various perspectives, the abstracts of selected contributions to the 2006 European Group for Research into Elderly and Physical Activity conference in Cologne are published in this issue. This goes together with a short report on the conference (Ehram, in this issue).

We hope and wish, that this issue will again be a stimulus for many to contribute reviews to our field of knowledge on aging and physical activity. We already have stimulated and in the future will continue to stimulate discussions on contributions and on open questions in the field. This will make our field, which is of high scientific, social, economic, and political relevance, contribute to age-related competence scenarios in favor of our aging fellow citizens and ourselves.

## References

1. Sagiv M (2006) Editorial. *Eur Rev Aging Phys Act* 3(2):43
2. Mechling H (2006) Editorial. *Eur Rev Aging Phys Act* 3(1):1–2