Clinical utility of the concept of intrinsic capacity

An Introduction

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"Healthy Ageing - the process of developing and maintaining the functional ability that enables wellbeing in older age."
Traditional way to address functional decline in older age

- Intrinsic Capacity
- Diseases
- Frailty, UI, Care dependence

Increasing age group
Limitations of traditional models on driving public health responses in older age

• Disease based

• Frailty: limited to certain domains

• Absence of approaches directed to the transitions between diseases (high stable capacity) to care dependence (severe loss of capacity)
Intrinsic capacity concept: Is there clinical and public health utility?

- To shift the focus from disease to capacity
- From diagnosing diseases on a point in time to monitoring trajectories across the life course
- Interventions delivered at community, within a primary health setting, multidisciplinary approach
- Person centered and integrated care approach
We already monitor diet, sleeping patterns, physical exercise.
Monitoring intrinsic capacity using self management

- Using mobile applications every day
- This plan is shared with the patient to involve their needs
Voice emotion recognition and voice analysis for determining mental states

Stress and brain nerve damage can be monitored.

Daily, in real time.

MIMOSYS enables this.
What could we be looking in the trajectory?

A longitudinal approach
Rate and time of physiologic and functional declines are highly specific to the individual.

Age-associated changes in skeletal muscles and their effect on mobility: an operational diagnosis of sarcopenia

Fulvio Laurenzi, Cosimo Roberto Russo, Stefania Bandinelli, Benedetta Bartali, Chiara Cavazzini, Angelo Di Iorio, Anna Maria Corsi, Taina Rantanen, Jack M. Guralnik, Luigi Ferrucci

Baltimore Longitudinal Study on Ageing
InCHIANTI Study: annual rates of change of walking

Whether should start monitoring earlier?
InChianti Study: annual rates of change of walking
Baseline, and 3-, 6-, 9-, and 14-year follow-up

There is growing evidence that a faster rate of decline in walking speed is also associated with worse outcomes.

The peak of functional capacity in early adulthood and mid life influences the timing and the rate of the decline.

A life-course perspective on physical functioning in women, Geeske Peeters a, Annette J Dobson b, Dorly JH Deeg c & Wendy J Brown d

Need for better understanding of the trajectories

- Peak of intrinsic capacity during the life course
- What influences the timing and rate of the decline
- Compensatory physiologic mechanisms and behaviors that influence them
IC monitoring:
- Low gate speed
- Low grip strength
- Cognitive decline
- Depressive symptoms

Clinical Assessment:
- Nutritional assessment
- Medication review
- Chronic disease evaluation
- Environment assessment
- Laboratory tests and radiological survey

Comprehensive Health Assessment and Care Plan

IC Multidimensional Programmes

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Treatment of underlying diseases

Intrinsic Capacity
Healthy Longevity
From Functional Check up to Service Plan

Objective input + consensus on subjective goals

Algorithm developed by multidisciplinary team of experts

Checkup + Assessment → Goal-setting → Care Plan → Service → Evaluation

Self or assisted

- Health monitoring
- Physical exercises
- Cognitive & speech therapies
- Prevention of function loss

- Psychological support
- Nursing care
- Health education
- Special notes

Care Plan & Service Providers

Personal Trainers
Restorative Caregivers
Health Coaches

Revise Plan → Keep Plan → Service Complete
What is necessary for the operationalization of the concept of intrinsic capacity in clinical settings?

- Understand better the trajectory, the timing and rate of decline, and its determinants (is there a natural history?)

- Whether there are pre-clinical manifestations, problems, ‘complains’ linked to the different periods of the trajectories?

- What are the early markers of declines in intrinsic capacity?

- How to monitor and measure them in younger older adults, mid-life? New performance tests?
Conclusions:

- Shift from focus on clinical diseases end points to multifaceted traits and longitudinal trajectories of intrinsic capacity.

- That would allow to consider health from the perspective of an older person’s trajectory of functioning rather than disease or co-morbidity they are experiencing at a single point in time.

- It means that IC should be monitored and assessed before any clinical threshold is reached.

- This will require a composite marker or markers, that can be assessed at different points across the life course.
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http://www.who.int/ageing