

# Gerontechnology for successful aging: From compensation to enhancement

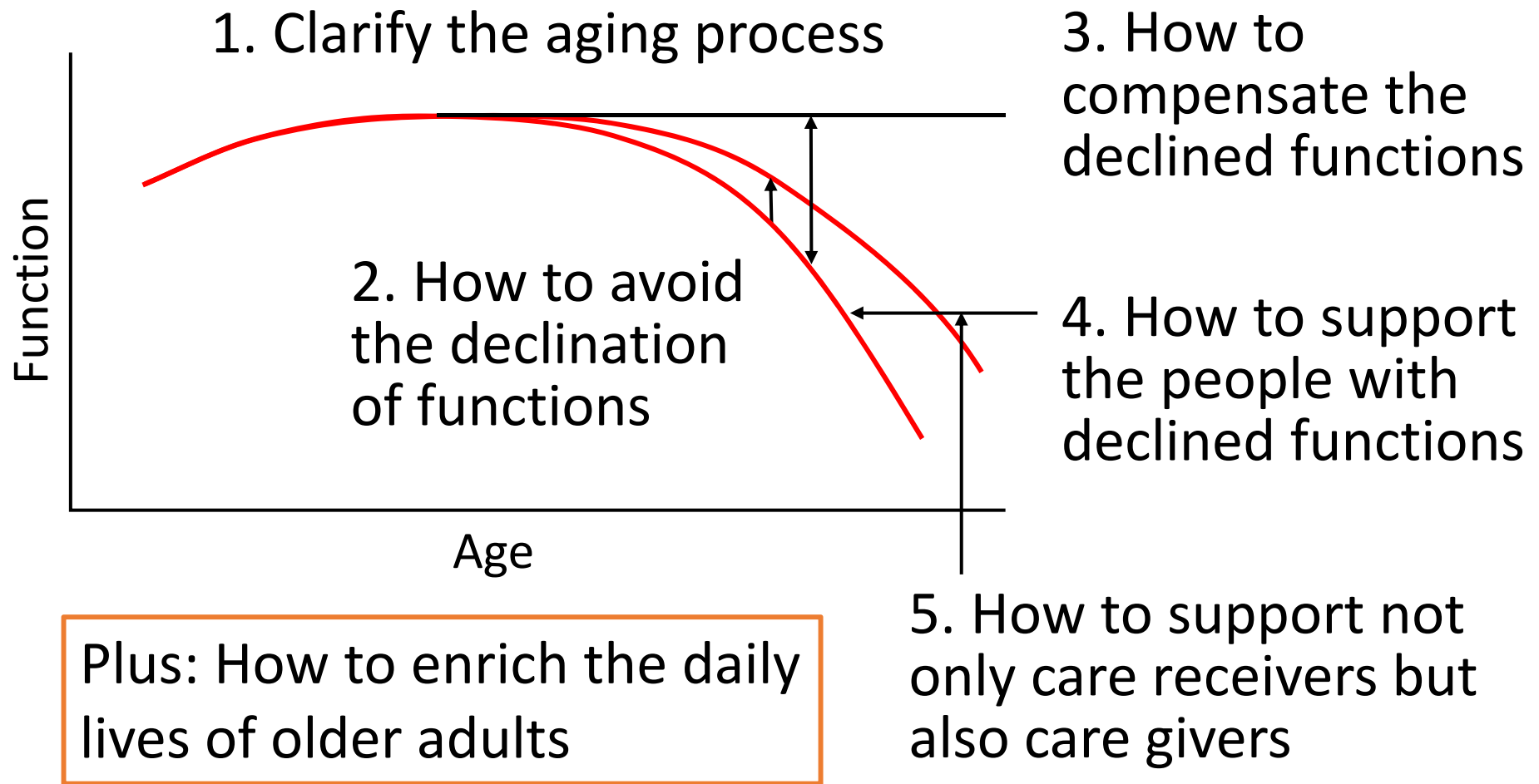
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# What is “Gerontechnology”?

- Gerontechnology = Gerontology + Technology
- The study of technology and aging for the improvement of the daily functioning of the elderly
- Similar to “universal design”, “barrier-free design” etc., but especially aiming to older adults

# Five perspectives of Gerontechnology



# Technologies which is used to avoid the declination of functions



Physical training machine



Video game for training of physical and cognitive function



Care facility with barrier

# Technologies which compensate the declined functions



Glasses



Hearing aids



Sticks



Wheel chairs

シートカラー：オレンジ



# Technologies to support the people with declined functions



Electric plug which is easy to unplug



Kitchen shelf with lift



Wash machine with tilted drum  
Easy to take laundry in and out



Toilet lift

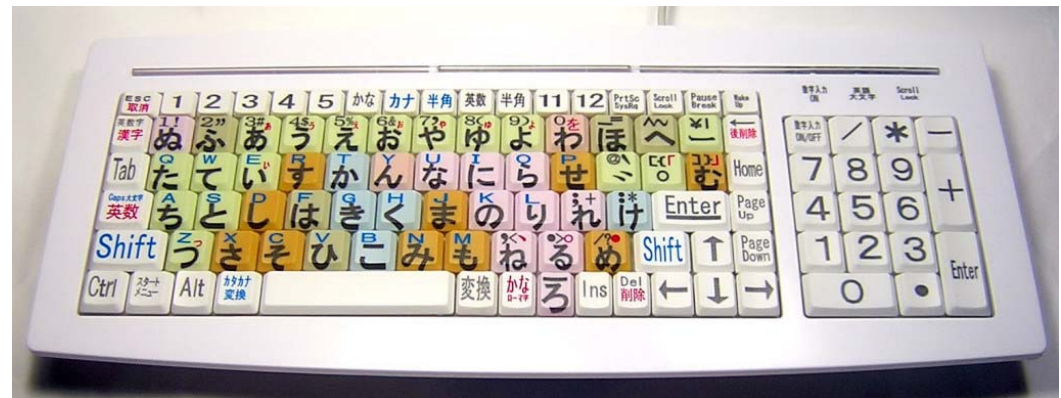
# Technologies to support the people with declined functions



Remote control unit with larger buttons



Radio with larger display, dials and buttons  
Listening of last 10 sec or listening with slower speech rate is possible



Keyboard with larger labels



# Technologies to support care receivers and care givers: Robots



Robot for moving



Robot suits



Toilet robot detects excretion and immediately vacuums it into the tank



Therapy robots communicate with the elderly with help of AI



Home assistant robot does cleaning and other house keeping



# Technologies to support care receivers and care givers: Watch-over system



## Mobile phone with pedometer

Sensor installed in charge station detects movement of the user

Amount of activity is mailed to family members



- 1 04/26 08:00現在  
象印とみえ様の  
ポット未使用時間は  
約 1 時間です。
- 2
- 3 最新使用状況 5件  
04/26 06:45 給湯  
04/26 06:26 電源  
04/25 20:43 給湯  
04/25 19:45 帰宅  
04/25 12:15 外出
- 4 メールリクエスト  
<http://www.ipot-p.com/req/req.asp?u=XXXXX>  
↑ こちらから最新の  
メールを呼び出せます。



## Electric kettle with internet connection

Usage history is mailed to family members and also available on the special Website

# Technologies to enrich the daily lives: ICT

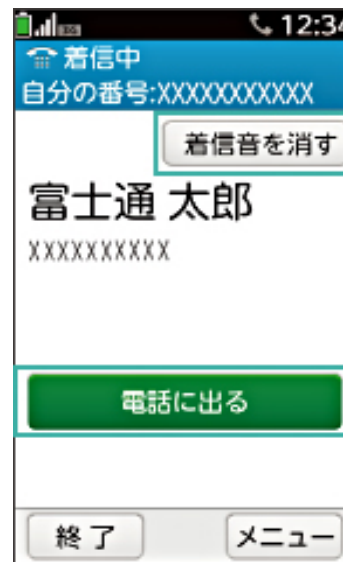


Simple mobile phone without mail and any other functions

Smart phone with simple menu, guidance function, larger fonts, higher display luminance and contrast, and haptic feedback



Mobile phone with simple menu, guidance function, larger fonts, higher display luminance and contrast



Visual feedback



Haptic feedback

+

# Technologies to enrich the daily lives: ICT



Older workers use tablet to get an order of leaves for food decoration

Use of ICT realizes...

- Communication with other people
- Telemedicine
- Personal healthcare
- Online shopping
- Getting informed about various things
- Maintaining (and improving) cognitive function

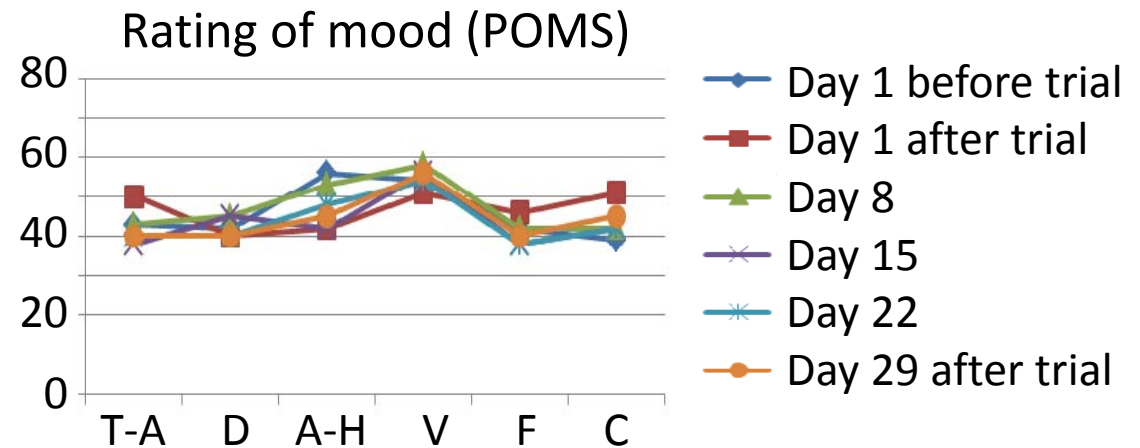
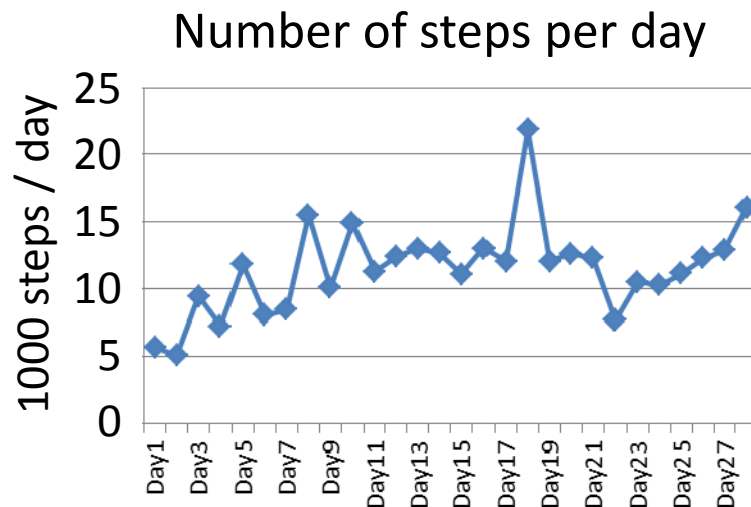
# Difficulties for older adults and solutions in use of ICT

Difficulties	Solutions
Too small and closely-arranged devices/elements to see and operate	Make devices/elements larger and distinguishable
Less experience with “high-technologies”	Make ICT devices easy to operate (in an intuitive way) Provide help function
Not know how they can utilize ICT and what is good for themselves	Give information about use of ICT (if possible, with consideration for personal needs and interests)



# Influence of technology on the daily lives of older adults

- Used Nintendo DSi XL “Personal Trainer Walking” and “Brain Age Express” for 4 weeks
- Some participants played it over half an hour daily.
- As results, some participants walked more than before.
- Mood was also influenced; half of the participants were more vigorous than 4 weeks before.



T-A: tension-anxiety, D: depression-dejection,  
A-H: anger-hostility, V: vigor-activity,  
F: fatigue-inertia, C: confusion-bewilderment

# Summary and points for discussion

- Technologies to compensate the declined functions and support the people with declined functions or caregivers are already developed and implemented
- Difficulties with use of high-technologies are going to be overcome, which have potential to enrich daily lives of older adults



- How can high-technologies enrich daily lives of older adults?
- How such technologies can be implemented?