5th Annual Convention of the
Gerontology Nurses Association of the Philippines (GNAP)
Promoting Healthy Mind, Body and Spirit Among Older Persons
09 August 2013, Bayleaf Hotel, Manila, Philippines

Promoting Physical Mobility of Older Persons

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Chronobiology, Shift work and Health: Studying the Filipino Chronotype
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Outline

I. Theories that explain decline of human mobility
II. Pre-clinical Mobility Limitation
III. Mobility decline predictors among older persons
IV. Nurses preventing decline and promoting mobility among older persons

- **MOBILITY:** a person's ability to move independently and safely from one place to another; walking is an indicator
- Assessment through
  - Performance-based measures, e.g. gait speed, distance walked
  - Self-reports of perception of mobility
- ***Mobility limitations*** are performance deficits shown in tests
  - increases with age
  - a sign of further functional decline

Rantakokko M, Mänty M and Rantanen T. Mobility Decline in Old Age. Exerc Sport Sci Rev. 2013;41(1):19-25.

Explaining Mobility Decline: Theories (1)

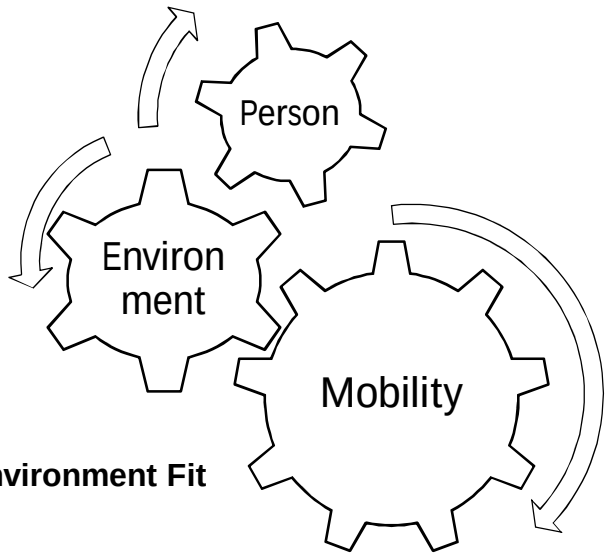
Nagi Model of Disablement Process

- *Physiologic problems*
  - *Injury*
  - *Disease*
  - *Aging*
- *Decreased muscle strength*
- *Balance issues*
- *Sensory problems*
- Mobility limitations

INTRAINDIVIDUAL FACTORS: lifestyle and behavior, psychosocial characteristics, coping, etc.
EXTRAINDIVIDUAL FACTORS: built environments, social environment

Explaining Mobility Decline: Theories (2)

Ecological Model of Aging (Person-Environment)



Person-Environment Fit

Pre-clinical Mobility Limitation

- Signs of declining mobility are typically observed for more demanding mobility tasks (e.g. walking longer distances)
- Compensations are first seen; maintaining function without perception of difficulty
- Intermediate stage before limitations manifest

Rantanen T. Promoting Mobility in Older People. J Prev Med Public Health 2013;46:S50-S54

Mobility Change During Old Age: Predictors

- Pain
  - Musculoskeletal pain is commonest
  - Different “pathways” to pain
  - It is possible that while the underlying cause of pain has been treated, pain continues
- Obesity
  - Excessive weight and increased mechanical load on the body means increased aerobic demand
  - More difficult/disinclined to move

Various studies

Mobility Change During Old Age: Predictors

- Genetics
  - Studies of monozygotic twins highlight environmental causes
  - Among dizygotic twins, the causes may either be inherent environmental
- Physical Inactivity
  - Sarcopenia and disuse
  - Organ reserve decline

Various studies

Mobility Change During Old Age: Predictors

- Sensory Factors
  - Adjustment to gradual decline of sensation
  - Monosensory issues: compensation allows for mobility
  - Multisensory issues: more likely that mobility becomes unsafe or affected
- Environment
  - Institutionalized vs. Community-dwelling

Various studies

Preventing Decline and Promoting Mobility

- Promoting mobility at the community level as well as at individual level
- Minimize environmental and social barriers
- Ensure equal opportunities for mobility
- Opportunities to participate in physical activities-physical exercise classes
- Avoid stereotypic images and negative messages-be conscious about advising on physical activity

Rantanen T. Promoting Mobility in Older People. J Prev Med Public Health 2013;46:S50-S54

Falls Risk & Mobility: Documenting Factors (Clinical or Pre-clinical Decline)

1. **Intrinsic–physiologic factors**
•Age
•Sensory/Musculoskeletal/ Neurologic/CV changes
•Drug intake
2. **Intrinsic–psychosocial factors**
•Mental status
•Depression
•Denial of aging
•Fear of falling
•Relocation

3. **Extrinsic–environmental factors**
- Institutionalized or community-dwelling?
- Surfaces and lighting
- Bedroom and bathroom

4. **Activity-related factors**
- Normal daily activities associated with falls
- Improper assistive device use

Environmental facilitators

- 261 community-dwelling older persons (75-81 y/o) followed up for 3.5 years
- Baseline: no difficulties in walking 500m
- Follow-up: ½ developed walking difficulty
- Environmental facilitators may protect from difficulty

Outdoor recreational facilities

Pleasant environment-parks

Green areas

Walking routes near homes

Eronen J, von Bonsdorff M, Rantakokko M, Rantanen T. Environmental facilitators for outdoor walking and development of walking difficulty in community-dwelling older adults. European Journal of Aging 2013.

A word about physical activity advise given to older persons...

How do health care professionals give advice to older persons with chronic conditions regarding physical exercises?

- 580 non-institutionalized older adults, 73-92 y/old
- At least one health care contact within previous year

Hirvensalo M, Heikkinen E, Lintunen T, Rantanen T. Prev Med. 2005 Jul;41(1):342-7.

- 23%: recommendations for exercise only
  - Musculoskeletal disease and impaired mobility
- 5%: warnings against exercise only
  - Heart conditions
- 34%: both
  - Physically active despite conditions
- 34%: no advise recalled
  - Sedentary, older, fewer chronic conditions

What Physical Activity advise do I give to older persons? (1)

- Reduce risk for chronic disease
- Improve life expectancy
- Maintain/Restore functional ability

COVER THE FOLLOWING
Endurance
Flexibility
Strength
Balance

HOW to EXERCISE*

- Intensity
  - Moderate aerobic, 30 mins x 5 days/week
  - Vigorous aerobic, 20 mins x 3 days/week
- Structure: home or fitness center?
- Adherence
- Physical therapy, others: co-manage

**According to American College of Sports Medicine and American Heart Association, in Advance for Nursing "Helping Older Adults Maintain Mobility". Accessed 07 Aug 13.*

What Physical Activity advise do I give to older persons? (2)

Many forms of exercise to choose from!

Tai chi

Qi Gong

Yoga

Aqua Exercise

Walking

HOW to MOTIVATE*

- Incorporate into routines-interesting and saves time
- Incorporate technology, e.g. Wii Sports
- Keep activity journals
  - BP readings
  - Cholesterol levels
  - Weight record
- Join the exercise!

**According to American College of Sports Medicine and American Heart Association, in Advance for Nursing "Helping Older Adults Maintain Mobility". Accessed 07 Aug 13.*

How do we schedule Physical Activity pursuits?

Chronotype (biological clock)

Daily physical performance characteristics

Sleep

- Type of body clock or **chronotype** varies between individuals and changes throughout life
- **Chronotype** influences performance of activity throughout the day
  - Best coordination, muscle strength and reaction time in afternoon in most
- Sleep duration varies among individuals (not all need 8 hours of sleep)
  - How motivated we are to do physical activity depends on how well-rested we are

A collaboration of researchers from the University of the Philippines Manila and Ludwig Maximilian University Munich

- Chronobiology, chronotype and Filipinos
- Chronotype of shift workers (call center industry)
- Field studies on shift work and chronotype: human ability and performance during shift work

PhilSHIFT Research Group

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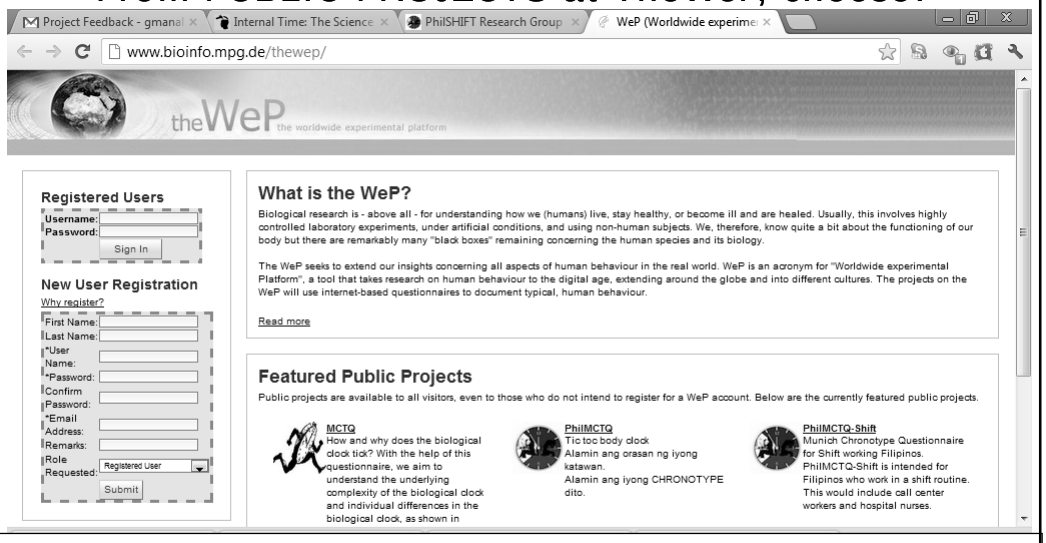
From PUBLIC PROJECTS at TheWeP, choose:



Find out your chronotype by answering the
Philippine Munich Chronotype Questionnaire (PhilMCTQ)
For day workers: PhilMCTQ
For shift workers: PhilMCTQ-Shift

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