



NIH Toolbox
Assessment of Neurological and Behavioral Function

EMOTION Sensation
Cognition MOTOR

SOMATOSENSATION

Winnie Dunn PhD OTR FAOTA
Professor & Chair
Department of Occupational Therapy Education
University of Kansas


For more information, please visit: www.nihtoolbox.org
Richard C. Gershon, PhD, PI gershon@northwestern.edu

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Somatosensory Team

- ◆ Winnie Dunn, University of Kansas
- ◆ Tracy Morrison, University of Kansas
- ◆ Leeanne Carey, LaTrobe University
- ◆ Yuri Danilov, University of Wisconsin
- ◆ Vania Apkarian, Northwestern
- ◆ Linda LeResche, University of Washington
- ◆ Jamie Griffith, CORE Staff
- ◆ Steve Hsaio, Johns Hopkins
- ◆ Catherine Lang, Washington University
- ◆ Randall Nelson, University of Tennessee
- ◆ Fay Horak, Oregon Health & Sciences University
- ◆ Ralph Marino, Thomas Jefferson



Sensory Function

Olfaction <i>Odor Identification</i> <i>Olfactory Sensitivity</i>	Taste <i>Preference Intensity</i> <i>Bitter Perception</i> <i>PROP Sensitivity</i>	Vestibular Balance <i>Vestibuloocular reflex</i> <i>Vestibulospinal function</i> <i>Central involvement</i>
Audition <i>Auditory Processing</i> <i>Hearing Loss</i> <i>Hearing Threshold</i> <i>Middle Ear Function</i>	Somatosensation <i>Pain</i> <i>Proprioception</i> <i>Temperature</i> <i>Texture</i> <i>Touch</i> <i>Stereognosis</i>	Vision <i>Visual Acuity Function</i> <i>Visual Function HRQL</i> <i>Peripheral Vision</i>

For Toolbox, 'somatosensation' =

all touch and proprioception



awareness of body parts

direct interface with objects and the environment.

Issues in SOMATOSENSATION



MEASURES are clinical tools for populations who have disorders

Issues in SOMATOSENSATION



measures were designed for adults; we need to make them child friendly


Tryouts



- Oversample young [3-15 years]
- Oversample old [above 70 years]
- Find out what instructions/ procedures are sensitive to age and background

Current list of Measures

- **PAIN**
 - PROMIS short: Visual Analog Scale for Pain
 - Body Part for Pain
- **TEMPERATURE**
 - Heat Perception
- **TOUCH**
 - Bottom of Foot touch
 - Two point discrimination
- **TOUCH DISCRIMINATION**
 - Texture Discrimination
 - Stereognosis
- **PROPRIOCEPTION**
 - Wrist Position Sense
 - Reaching Test



PROMIS Short Form for Pain

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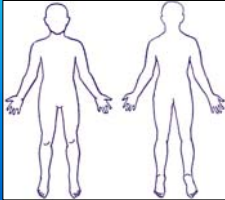
Please respond to each item by marking one box per row. In the past 7 days... [5 pt Likert scale]

- How much did pain interfere with your enjoyment of life?
- How much did pain interfere with your ability to concentrate?
- How much did pain interfere with your day to day activities?
- How much did pain interfere with your enjoyment of recreational activities?
- How much did pain interfere with doing your tasks away from home (e.g., getting groceries, running errands)?
- How often did pain keep you from socializing with others?

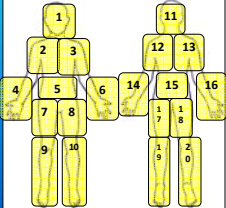
Body Part for Pain

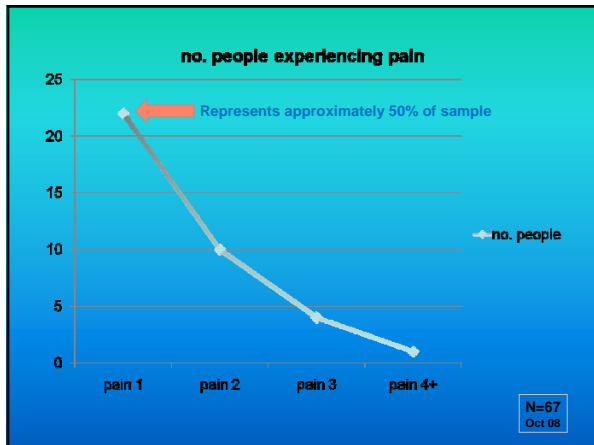
In the last week, have you had any pain?
 no.....STOP
 yes>>>
 Show me where on this picture.
 Show me how much pain.

No pain-----severe pain



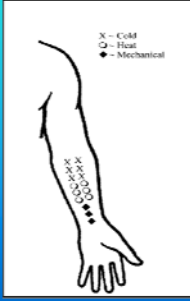
Score sheet



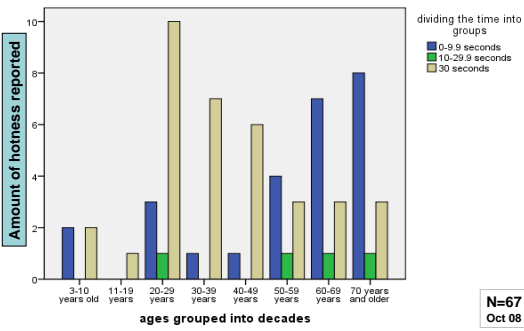




Heat Perception Test

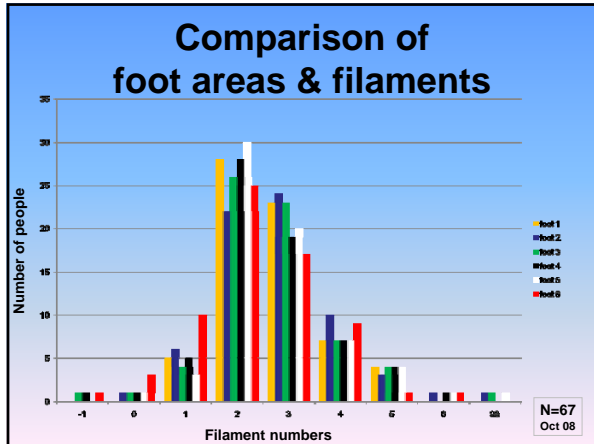


Comparison of Temperature ratings and time across ages



Bottom of Foot Test





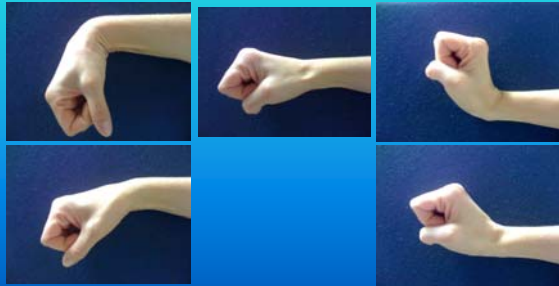




Stereognosis



Wrist Position Test



Wrist Position Test



- 85% are correct
- People 50+ years old most likely to make errors
- Young children cannot perform



- 80% are correct
- People 50+ years old most likely to make errors
- Young children cannot perform

N=67
Oct 08

Wrist Position Sense Test



Carey et al., 1996.

Reaching



MISS



Partial HIT




HIT

VALIDATION



Somatosensory test	Anticipated correlations with somatosensory tests [40-80]	Anticipated correlations with other TOOLBOX measures [25-40]
PROMIS short	Body Part for Pain	Emotional Health
Body Part for Pain	PROMIS short	Emotional Health
Bottom of Foot touch	Biothesiometer?	Vestibular and Motor
Two point discrimination	Biothesiometer?	Vestibular and Motor
Wrist Position Test	Long Form of test	Vestibular and Motor
Reaching	Wrist Position Long form	Vestibular and Motor
Heat Perception	TSA-II NeuroSensory Analyzer or Tip Temp device	
Texture Discrimination	Long Form of test	Cognition and Motor
Stereognosis	Common shapes/ objects	Cognition






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