

King Saud University
College of Applied Medical Sciences
Rehabilitation Health Science Department
Physical Therapy Master Program
Course Syllabus for
Tests and Measurements
(RHS503)

Course syllabus

Tests and Measurements (RHS503)

Program in which the course is offered:	Physical therapy program
Course title and code:	Test and measurement (RHS503)
Department :	Rehabilitation Health Sciences/ Master in physical therapy
Credit hours:	2hours (1 Theory+ 2Practical)
Total contact hours per semester	45
Level at which this course is offered:	1 st level
Course prerequisites:	None
Time:	
Location:	College of Applied Medical Sciences
College member responsible for the course	Dr. Mohammed TA Omar Ph.D. PT
Contact information:	
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Course Description	
This course concerned with principles of psychological measurement, use, evaluation, and implementation of outcome measurements (OMs) in different clinical practices and research (e.g. orthopedic, neurology, pediatric, geriatric).	
Course Objectives	
By the end of this course, students should be able to: <ul style="list-style-type: none"> ❖ Describe the importance and benefits of using outcome measures in rehabilitation setting ❖ Select and implement appropriate standardized measures in different clinical setting and research ❖ Identify strategies to facilitate and overcome barriers to use outcome measures in clinical practice ❖ Understanding measurement properties including validity, reliability, and responsiveness, ❖ Critically appraisal outcome research evaluate assessment instruments, 	
Teaching strategies	
Interactive Lectures including: <ul style="list-style-type: none"> • Lectures, class discussions, seminars and student presentations • Problem solving with case scenario, Scientific videos , • laboratory sessions (Demonstration, scientific video and role player) 	

Course syllabus
 Tests and Measurements (RHS503)
Section A: Introduction for Test and Measurements

Course Contents (RHS-503)

Module I		Week
1	Introduction Terminology in Practice <ul style="list-style-type: none"> • Assessment / Evaluation/Examination • Measurements /Outcome Measurements • Generic/ specific measures • Patient reported outcome measures • Performance based outcome measurements • Observational based outcome measurements • Health related quality of measurement 	1
2	Implementation and uses of outcome measurements (OMs) in physical therapy <ul style="list-style-type: none"> ❖ Introduction to outcome measurements ❖ Classification of outcome measurements ❖ Importance and benefits of using outcome measurements ❖ Barriers and facilitators to use outcome measurements in field of physical therapy ❖ Implementation and uses of OMs in Saudi Arabia ❖ Selecting and choosing an OMs ❖ Implement uses of ICF in the context of OMs. ❖ Integrating OMs into clinical practice Study Questions	2
3	Types of Data and Levels of Measurement What are levels of Measurement? <ul style="list-style-type: none"> • Nominal Scales • Ordinal Scales • Interval Scales • Ratio Scales 	3

Module II: Measurement Properties of Selecting OMs

N	topics	Weeks
1	Reliability <ul style="list-style-type: none"> • Introducing the Concept of Reliability 	4

	<ul style="list-style-type: none"> • Reliability Coefficients and Standard Error of Measurement • Introduction to Types of Reliability <ul style="list-style-type: none"> • Test–retest Reliability • Inter-rater Reliability • Intra-rater Reliability • Parallel Form Reliability • Internal Consistency • Reliability Statistics: Comparing Statistical Methods for Evaluating Reliability • Applying Concepts of Reliability to Your Own Practice 	
2	Validity <ul style="list-style-type: none"> • Definition of Validity • Face Validity • Content Validity • Construct Validity • Criterion-related Validity • Clinical Utility • Examining Validity and Clinical Utility Issues: Test Examples • Applying Concepts of Validity to Your Own Practice 	5
3	Measuring changes : responsiveness or sensitivity	7
4	Critical appraisal of outcome measures Research <ul style="list-style-type: none"> • Appraising Evidence of OMS using COSMIN checklist 	
5	Guidelines for the process of cross-cultural adaptation of self-report measures.	

Module III: Cardiopulmonary Outcome Measurement

Outcome measures		Classification
I	Dyspnea index Dyspnea scale Borg Scale	Dyspnea
II	Walking Test <ul style="list-style-type: none"> • 6MWT, 12MWT, 2MWT • Endurance shuttle walk test (ESWT) • Incremental/ modified shuttle walk test Five Times Sit to Stand Test Tim up and go test Short Physical Performance Battery	Functional and exercise capacity Outcome Measures
III	Nottingham Health Profile COPD-assessment tool (CAT) Saint George's Respiratory Questionnaire Minnesota Living with Heart Failure Questionnaire Chronic Respiratory Disease Questionnaire 36-short form health questionnaire Seattle Angina Questionnaire (SAQ)	Quality of Life Outcome Measures
IV	Patient-reported outcome measures for sleep disorders Measurement of pulmonary function and oxygen consumption (VO_{2max})	

Module III: Pediatric Rehabilitation Outcome Measurement

Outcome measures		Classification
I	Modified Ashworth Scale (MAS) Modified Tardieu Test	Spasticity
	<ul style="list-style-type: none"> • Gross Motor Function Measure (GMFM) • Gross Motor Performance Measure • High Level Mobility Assessment Tool (HIMAT) • Peabody Developmental Motor • Jebsen Taylor Test of Hand Function • Nine-Hole Peg Test • Peabody Developmental Motor Scales Second Edition (PDMS-2) 	Gross/fine motor outcome measures
II	Walking /gait 6-Minute Walk Test Dynamic Gait Index Timed Up and Down Stairs Test Functional Mobility Assessment Functional Independence Measure for Children (WeeFIM) Pediatric Evaluation of Disability Inventory (PED) Pediatric Reach Test (Pediatric Functional Reach Test)	Functional activity/performance/ balance outcome measures
IV	Pediatric Quality of Life Inventory (PEDS QL) Child Health Questionnaire (CHQ)	Health related quality of life
V	Faces Pain Scale ³ Pediatric pain profile	Pain assessment

Module III: Neurorehabilitation Outcome Measurement

Outcome measures	
I	Outcome Measures for Inpatient Neurorehabilitation Settings
II	Outcome Measures in Stroke Rehabilitation
III	Outcome Measures for Parkinson's Disease Dementia
IV	Outcome Measures in Spinal Cord Injury
V	Health related quality of life (QoL) outcome measurement in neurorehabilitation settings

Module III: Outcome Measurement in Geriatric Rehabilitation

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: Cognition

- Mini-Mental State Examination (MMSE)
- Geriatric Depression Scale,

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: physical function : Balance and fall

- Berg Balance Scale
- Timed Up and Go Test
- Timed Walk Tests, Gait Speed, Balance Confidence Scales
- Single Leg Stance Test

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: physical function : Activities of Daily Living

- Instrumental Activities of Daily Living Scale (IADL)
- Activities of Daily Living Scale (IADL)
- Functional Independence Measure (FIM)

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: physical function : Mobility and Gait

- Short Physical Performance Battery (SPPB)
- Functional Reach Test
- Dynamic Gait Index
- Wisconsin Gait Scale (WGS)

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: Quality of Life

- SF-36questionnaire
- Missoula-VITAS Quality of Life Index (MVQOLI)
- Nottingham Health Profile (NHP)

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: Pain

- Visual Analog Scale
- Verbal Descriptor Scale (VDS)
- Numeric Rating Scale (NRS)

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: Pressure Ulcer

- Pressure Ulcer Scale for Healing (PUSH) PUSH Tool 3.0

Choose, Administer, and Interpret a Validated and Reliable Tool/Instrument to Assess: Incontinence

- Incontinence Impact Questionnaire (IIQ-7)
- American Urological Association (AUA) Symptom Index

Module III: Musculoskeletal and orthopedic Outcome measurement

I	<p>Pain intensity as an outcome measurement in musculoskeletal conditions</p> <ul style="list-style-type: none"> ➤ visual analogue scale ➤ Brief pain inventory questionnaire ➤ Pain self-efficacy questionnaire (PSEQ) ➤ Pressure Algometry
II	<p>Measuring outcomes in back and neck conditions</p> <ul style="list-style-type: none"> ➤ Neck disability index ➤ Neck pain and disability scale ➤ Roland–Morris disability questionnaire (RMDQ) ➤ Oswestry disability index (ODI) ➤ Quebec Back Pain Disability Scale
III	<p>Measuring outcome of upper extremity conditions</p> <ul style="list-style-type: none"> ➤ Disabilities of the Arm, Shoulder and Hand (DASH) ➤ Shoulder Pain and Disability Index ➤ Upper Extremity Function Scale ➤ The Michigan hand questionnaire (MHQ) ➤ Jebsen-Taylor hand Function TEST (JTHFT)
IV	<p>Measuring outcome of lower extremity conditions</p> <ul style="list-style-type: none"> ➤ Lower Extremity Functional Scale (LEFS) ➤ Foot and Ankle Ability Measure (FAAM) ➤ Western Ontario McMaster Osteoarthritis index (WOMAC) ➤ Knee injury and Osteoarthritis Outcome Score (KOOS) ➤ Short performance physical battery (SPPB)
V	<p>Quality of life outcome measurement in patients with musculoskeletal conditions</p> <ul style="list-style-type: none"> ➤ 36-short form questionnaire ➤ 12-short form questionnaire ➤ Arthritis impact measurement scale
	<p>Muscles strength and performance outcome measurement</p> <ul style="list-style-type: none"> ➤ Isokinetic ➤ Hand held dynamometer ➤ Grip and pinch strength

Schedule of Assessment Tasks for Students During the Semester		
No	Assessment task	Proportion of Final Assessment
	Class participation/collaboration/attendance	10%
2	Midterm	15%
3	Research assignments	25%
	Case study and data collection from clinical field	25%
4	Final theoretical exam	25%

E. Learning Resources

<p>Required Text(s)</p> <ol style="list-style-type: none"> 1. Finch E, Brooks D, Straford PW, Mayo N. Physical rehabilitation outcome measures; A guide to enhanced clinical decision making. 2nd. Ed., Lippincott, Williams & Wilkins, 2002 2. Emma K. Stokes. Rehabilitation Outcome Measures, Edinburgh ; New York : Churchill Livingstone,2009 3. Pynsent P, Fairbank J, Carr , outcome measures in orthopedics and orthopedics trauma, 2nd ed 2004
<p>3- Recommended Books and Reference Material (Journals, Reports, etc) (Attach List)</p> <ol style="list-style-type: none"> 1. Browne, J E and O'Hare, N J. Review of the different methods for assessing standing balance', Physiotherapy, 2001;87, 9, 489-495. 2. Jette DU, Halbert J, Iverson C, et al. Use of standardized outcome measures in physical therapist practice: perceptions and applications. Phys Ther. 2009;89: 125–135.
<p>4-.Electronic Materials, Web Sites etc.</p> <ul style="list-style-type: none"> ❖ https://journals.lww.com/cptj/pages/default.aspx ❖ https://www.sralab.org/rehabilitation-measures

