



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF MAY-AUGUST 2024 TRIMESTER EXAMINATIONS**

**UNIT CODE: PHT 324 UNIT NAME: EVIDENCE BASED PRACTICE (Upgrading)
(MAIN PAPER)**

**DATE: TUESDAY/ 13th / AUGUST
TIME: TWO HOURS
START: 6PM STOP : 8PM**

INSTRUCTIONS (physical exams)

- 1. Do not write on this question paper**
(Marks and questions distribution as per program curriculum.)

INSTRUCTIONS (Online examinations)

1. This exam is marked out of 70 marks
2. This Examination comprises MSQs
3. This online exam shall take 2 Hours
4. Late submission of the answers will not be accepted
5. Ensure your web-camera is on at all times during the examination period
6. No movement is allowed during the examination
7. Idling of your machine for 5 min or more will lead to lock out from the exam
8. The Learning Management System (LMS) has inbuilt integrity checks to detect cheating
9. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam
10. In case you have any questions call the invigilator for this exam on Tel. 0705833434 and or the Head of Department on Tel 0720491032
11. For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

1. Evidence-based practice includes all of the following, EXCEPT?
 - a. Patient values
 - b. Clinical circumstances
 - c. General internet searching
 - d. Clinical expertise

2. What is the primary goal of evidence-based practice (EBP) in physiotherapy?
 - a. To rely solely on clinical experience.
 - b. To base decisions on patient values only.
 - c. To integrate clinical expertise, patient values, and best available evidence.
 - d. To disregard patient values in favor of research evidence.

3. Which step of the EBP process involves converting clinical information into a focused question?
 - a. Appraisal of evidence.
 - b. Application of evidence.
 - c. Formulating a clinical question.
 - d. Evaluation of outcomes.

4. What does the "PICO" framework help with in EBP?
 - a. Analyzing statistical data.
 - b. Developing clinical expertise.
 - c. Formulating focused clinical questions.
 - d. Reporting research findings.

5. What is the purpose of a systematic review in EBP?
 - a. To summarize individual patient cases.
 - b. To present expert opinions.
 - c. To provide a comprehensive overview of research on a specific topic.
 - d. To compare different treatment techniques.

6. Which type of study design is considered the gold standard for assessing treatment effectiveness?
 - a. Case series.
 - b. Cross-sectional study.
 - c. Randomized controlled trial (RCT).
 - d. Cohort study.

7. What is the role of a control group in an RCT?
 - a. To receive the experimental treatment.
 - b. To provide a baseline for comparison with the treatment group.
 - c. To conduct preliminary data analysis.
 - d. To serve as the placebo group.

8. Which level of evidence indicates evidence obtained from a single high-quality RCT?
- Level I.
 - Level II.
 - Level III.
 - Level IV.
9. In EBP, what does "blinding" refer to in a research study?
- Hiding research findings.
 - Concealing the study's purpose.
 - Keeping the participants unaware of their group assignment.
 - Avoiding data collection.
10. Which of the following statements defines "bias" in research?
- A neutral perspective in data analysis.
 - The presence of random variation in results.
 - A systematic error that distorts study findings.
 - The use of qualitative research methods.
11. What is the purpose of a forest plot in a systematic review?
- To illustrate the distribution of participant demographics.
 - To display the study's funding sources.
 - To visualize the effect sizes of individual studies and the overall effect.
 - To present qualitative data.
12. Which type of research design is best suited for exploring cause-and-effect relationships?
- Cross-sectional study.
 - Case report.
 - Qualitative study.
 - Cohort study.
13. Which type of evidence is considered the least reliable in the hierarchy of evidence?
- Expert opinion.
 - Systematic reviews.
 - Randomized controlled trials.
 - Cohort studies.
14. What does the term "effect size" indicate in research?
- The statistical significance of the findings.
 - The probability of type II error.
 - The magnitude of the observed effect.
 - The validity of the research design.

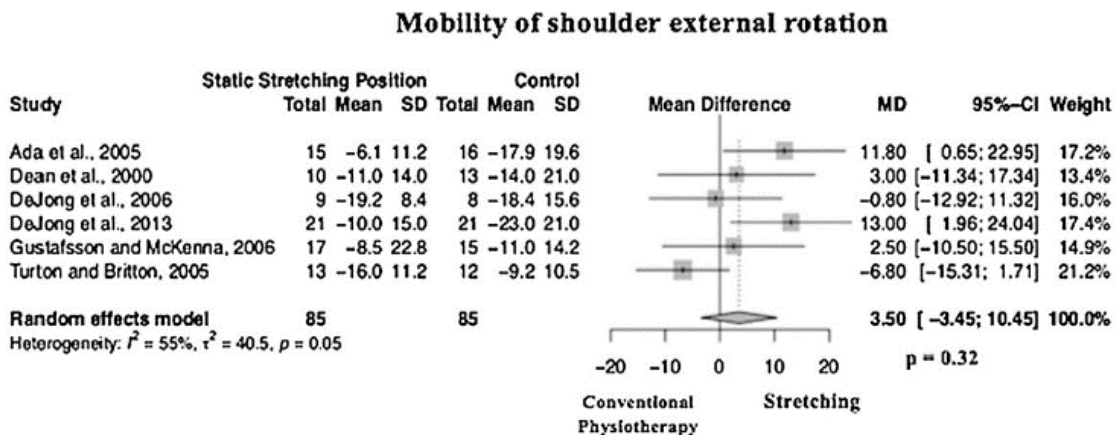
15. Which database is often used to search for physiotherapy-related literature?
- PubMed.
 - Google Scholar.
 - Web of Science.
 - JSTOR.
16. What is the primary purpose of a case-control study?
- To identify risk factors for a specific condition.
 - To establish causality between variables.
 - To explore the prevalence of a disease in a population.
 - To compare treatment outcomes in different groups.
17. Which type of bias occurs when participants' knowledge of their treatment affects their behavior or reporting?
- Selection bias.
 - Observer bias.
 - Recall bias.
 - Performance bias.
18. Which statement accurately describes a cross-over study design?
- Participants are randomly assigned to different treatment groups.
 - The study is conducted in multiple centers.
 - Participants receive all treatments in a random sequence.
 - The study examines long-term treatment outcomes.
19. Which factor is critical for ensuring the generalizability of research findings?
- Using a convenience sample.
 - Conducting a single-case study.
 - Enrolling only healthy participants.
 - Including diverse and representative participants.
20. What is the purpose of the "Introduction" section in a research article?
- To present the statistical analysis plan.
 - To describe the study's findings.
 - To provide an overview of the study's rationale and objectives.
 - To list the references used in the study.
21. Which of the following is a key characteristic of qualitative research?
- Emphasis on statistical significance.
 - Use of numerical data.
 - Focus on exploring subjective experiences.
 - Relying solely on expert opinions.

22. What is the primary goal of the "Discussion" section in a research article?
- To summarize the methodology.
 - To list potential limitations of the study.
 - To present the study's raw data.
 - To interpret the study's findings and their implications.
23. What does the term "heterogeneity" refer to in the context of meta-analysis?
- The presence of bias in individual studies.
 - The use of diverse statistical methods.
 - Variation in study characteristics or results across studies.
 - The inclusion of both qualitative and quantitative data.
24. Which statistical measure indicates the spread of data around the mean?
- Mean.
 - Median.
 - Range.
 - Standard deviation.
25. In EBP, what is the primary purpose of critically appraising evidence?
- To find the most recent research articles.
 - To identify the strongest available evidence.
 - To collect data for meta-analysis.
 - To perform qualitative data analysis.
26. What does the term "confounding" refer to in research studies?
- A variable that is measured on a continuous scale.
 - A variable that is used as an outcome measure.
 - An extraneous variable that distorts the relationship between the independent and dependent variables.
 - A variable that is manipulated by the researcher.
27. Which of the following is a key component of the "Methods" section in a research article?
- Interpreting the results.
 - Describing the study's theoretical framework.
 - Presenting the study's limitations.
 - Detailing the study's design and data collection methods.
28. Which study design is most appropriate for exploring the prevalence of a specific condition in a population?
- Randomized controlled trial.
 - Cross-sectional study.
 - Case-control study.
 - Cohort study.

29. What is the purpose of the "Results" section in a research article?
- To interpret the study's findings.
 - To discuss the implications of the results.
 - To present the study's raw data and statistical analyses.
 - To describe the study's rationale and objectives.
30. In the hierarchy of evidence, which level represents evidence obtained from expert opinions?
- Level I.
 - Level II.
 - Level III.
 - Level V.
31. What is the primary purpose of the "Abstract" section in a research article?
- To provide a summary of the study's findings.
 - To list all the references used in the study.
 - To present the study's methodology.
 - To discuss the limitations of the study.
32. What is the primary goal of the "Methods" section in a research article?
- To interpret the study's findings.
 - To discuss potential implications of the results.
 - To present the study's rationale and objectives.
 - To provide a detailed description of the study's design and procedures.
33. Which type of research design involves observing and recording behavior without manipulating variables?
- Experimental study.
 - Cross-sectional study.
 - Observational study.
 - Case-control study.
34. In EBP, what is the primary purpose of the "Introduction" section in a research article?
- To present the study's raw data.
 - To discuss potential limitations of the study.
 - To provide an overview of the study's rationale and objectives.
 - To interpret the study's findings.
35. What is the purpose of randomization in a randomized controlled trial?
- To ensure that all participants receive the same treatment.
 - To eliminate the need for a control group.
 - To control for confounding variables and distribute them evenly across groups.
 - To increase the sample size of the study.

36. What is the primary goal of a case report study design?
- To establish causality between variables.
 - To explore the prevalence of a specific condition in a population.
 - To describe unique patient cases for clinical learning.
 - To compare treatment outcomes in different groups.
37. Which type of bias can occur if researchers are aware of participants' group assignments during data collection?
- Selection bias.
 - Observer bias.
 - Recall bias.
 - Performance bias.
38. In EBP, what is the purpose of the "Conclusion" section in a research article?
- To present the study's raw data.
 - To list the references used in the study.
 - To interpret the study's findings and discuss their implications.
 - To provide an overview of the study's rationale and objectives.
39. What is the primary purpose of a case series study design?
- To establish causality between variables.
 - To explore the prevalence of a specific condition in a population.
 - To describe a series of unique patient cases for clinical learning.
 - To compare treatment outcomes in different groups.

Please use this figure for questions 40, 41, and 42.



40. Analyzing the results of a meta-analysis, which study of the forest plot below has the largest population?
- DeJong et al. 2006.
 - Ada et al. 2005.
 - DeJong et al. 2013.
 - Turton and Britton 2005.

41. Which study shows the best efficacy for stretching when compared with conventional exercise (“control”)?

- a. DeJong et al. 2013.
- b. Ada et al. 2005.
- c. Turton and Britoon 2005.
- d. Dean et al. 2000.

42. Which study shows that conventional therapy (“Control”) is more efficient than stretching?

- a. Gustafsson and McKenna 2006
- b. Ada et al. 2005.
- c. Dean et al. 2000.
- d. Turton and Britton 2005.

Please use this figure for questions 43, 44, 45, and 46.

Study	PEDro scale item number											Total score /10
	1 ^a	2	3	4	5	6	7	8	9	10	11	
Bang and Deyle 2000	■	■	■	■	■	■	■	■	■	■	■	6
Bergman et al. 2004	■	■	■	■	■	■	■	■	■	■	■	8
Binder et al. 1984	■	■	■	■	■	■	■	■	■	■	■	3
Bulgen et al. 1984	■	■	■	■	■	■	■	■	■	■	■	3
Citaker et al. 2005	■	■	■	■	■	■	■	■	■	■	■	4
Conroy and Hayes 1998	■	■	■	■	■	■	■	■	■	■	■	7
Guler-Uysal and Kozanoglu 2004	■	■	■	■	■	■	■	■	■	■	■	6
Maricar and Chok 1999	■	■	■	■	■	■	■	■	■	■	■	4
Nicholason 1985	■	■	■	■	■	■	■	■	■	■	■	6
Teys et al. 2008	■	■	■	■	■	■	■	■	■	■	■	8
van den Dolder and Roberts 2003	■	■	■	■	■	■	■	■	■	■	■	7
Vermeulen et al. 2006	■	■	■	■	■	■	■	■	■	■	■	7
Winters et al. 1997	■	■	■	■	■	■	■	■	■	■	■	5
Winters et al. 1999	■	■	■	■	■	■	■	■	■	■	■	3

Fig. 2. Pedro score table. ^aCriteria 1 was not used to calculate the PEDro score. □ = criteria not met. ■ = criteria met. Pedro Scale item. 1. Eligibility criteria were specified. 2. Subjects were randomly allocated to groups. 3. Allocation was concealed. 4. The groups were similar at baseline regarding the most important prognostic indicators. 5. There was blinding of all subjects. 6. There was blinding of all therapists who administered the therapy. 7. There was blinding of all assessors who measured at least one key outcome. 8. Measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups. 9. All subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analyzed by “intention to treat”. 10. The results of between-group statistical comparisons are reported for at least one key outcome. 11. The study provides both point measures and measures of variability for at least one key outcome.

43. Among the 14 studies included in the systematic review, which of the following had the poorest design quality?

- a. Teys et al. (2008)
- b. Conroy and Hayes (1998)
- c. Bergmann et al (2004)
- d. Winters et al (1999)

44. Among the 14 studies included in the systematic review, how many failed to blind study assessors?

- a. 6
- b. 8
- c. 14
- d. 0

45. Among the 14 studies included in the systematic review, how many reported central tendency (e.g., mean) and dispersion, or variability (e.g., standard deviation) for at least one dependent variable?

- a. 11
- b. 12
- c. 6
- d. 2

46. Among the 14 studies included in the systematic review, how many informed the inclusion/exclusion criteria?

- a. 2
- b. 14
- c. 6
- d. 10

Please use this figure for questions 47, 48, 49, and 50.

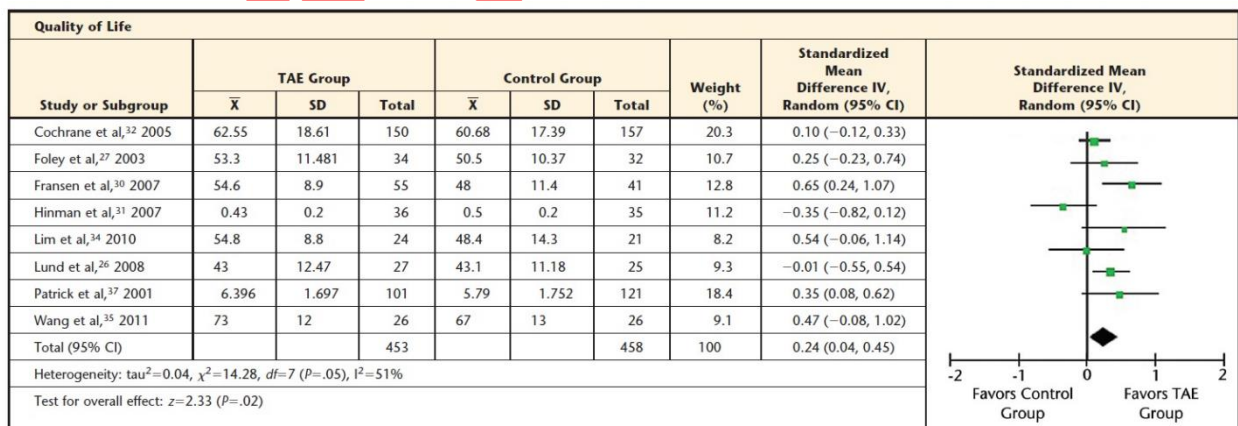


Figure 4. Forest plots showing the effect of therapeutic aquatic exercise (TAE) on quality of life. 95% CI=95% confidence interval.

47. Figure 4 compares effect of therapeutic aquatic exercise (TAE) on quality of life of individuals with lower limb osteoarthritis. What is the conclusion of the forest plot?

- Therapeutic aquatic exercise does NOT have significant effect on quality of life.
- Therapeutic aquatic exercise had a small and NOT significant effect on quality of life.
- Therapeutic aquatic exercise does NOT have significant effect
- Therapeutic aquatic exercise had a small but significant effect on quality of life.

48. How many studies found statistically significant result that favored therapeutic aquatic exercise (TAE) on quality of life in patients with lower limb osteoarthritis?

- One
- Six
- Seven
- Two

48. Among the studies depicted in Figure 4, which had the largest sample size?

- Wang et al, 2011
- Cochrane et al, 2005
- Lim et al, 2010
- Patrick et al, 2001

50. For a patient with lower limb osteoarthritis, which study would be most worth reading to learn about a therapeutic aquatic exercise (TAE) program that was more effective for quality of life?

- Fransen et al, 2007
- Hinman et al, 2007
- Lim et al, 2010
- Patrick et al, 2001