

Appendix One: Example of Functional Resistance Exercises

A



B



C



D



E



F



G

An illustration of functional resistance exercises in shown, demonstrated by investigator AF: (A) Sit to Stand, (B) Bear Crawl, (C) Bench Press, (D) Frog Squat, (E) Body Drop, (F) Cobra, (G) Kick Sit.

Appendix Two: Secondary Outcomes Under Assessment

The Chronic Liver Disease Questionnaire

QoL is a complex and broad subject but often can be influenced by physical, social, mental and presence of disease factors. Both generic and disease specific questionnaires are often encouraged as they measure different aspects of QoL and consequently provide substantial information. The Chronic Liver Disease Questionnaire has been validated within the study of those with liver disease specifically, providing a unique insight into common health related QoL issues in liver disease irrespective of aetiology.⁽²⁰⁾

Epworth Sleepiness Scale

The ESS is a self-administered objective marker, used as a general measure of daytime somnolence.⁽²²⁾ The purpose of this is to identify within the chosen population if they have a perceived level of sleepiness related to fatigue, which is reduced by the chosen intervention.

Hospital and Depression Scale

The HADS is to a validated tool for assessing anxiety and depression in medical patients. All participants involved within the study will be advised verbally and through the patient information sheet that the purpose of the study is not to provide psychological support, but identify if formal intervention is required for future studies. If it is identified that support is required, participants will be directed to their general practitioner.⁽²¹⁾

Fatigue scales

A systematic review of the validity and reliability of fatigue scales found that the FIS and FSS are two measures readily used in chronic disease more broadly, as well as liver disease specifically.⁽¹⁹⁾

Duke Activity Status Index

The DASI measures functional capacity through a self-administered questionnaire. This can then be used as a guide to estimate peak oxygen uptake.⁽²⁵⁾ It is considered a reliable tool when comparing to retrospective cardiopulmonary exercise testing (CPET). This meaning a quickly administered self-reported questionnaire provides an accurate and reliable metabolic equivalent and VO₂ Peak compared to that of the more costly and time consuming CPET.

Incremental Shuttle Walk Test (ISWT)

The ISWT is a standardised, progressive field test that is externally paced with its primary outcome being maximal exercise capacity.⁽²³⁾ The ISWT is deemed a reliable and valid tool that has seen to consistently have a test re-test reliability of >0.95 in chronic disease.⁽²⁴⁾ In this study, a field test is required to provide the researcher with an objective measure of physical performance and status to guide the intensity of home based exercise intervention.

Short Performance Battery Test

The Short Performance Battery Test is a functional tool that can identify disability and predict mortality through assessment of gait speed, balance and repeated chair stands. It has been validated in patients with liver cirrhosis, wherein a score of less than 9 is associated with a 45% increase in transplant wait-list mortality, independent of the Model for End-Stage Liver Disease (MELD) score.⁽⁹⁾ Although the population in questionnaire have stable

synthetic liver function, they can present with similar levels of fatigue and frailty from consistent reduction in physical activity. This test will help guide the physiotherapist with provision of the graded HBEP.