Purpose/Hypothesis: Patients with end stage liver disease (ESLD) present with fatigue, a reduction in aerobic capacity1-4 and a reduction in strength.5-7 Recent evidence suggests that pre-transplant aerobic capacity may be predicative of mortality while awaiting liver transplantation8 and outcomes after transplantation.1,4,9 The purpose of this study was to describe the functional status of a group of subjects with ESLD using objective outcome measures.

Number of Subjects : 49

Materials/Methods: Forty-nine subjects who were being evaluated for a liver transplant were enrolled in this study. Upon consent the following assessments were performed to assess aerobic capacity, balance and strength: Six Minute Walk Test (6MWT), Timed Up and Go Test (TUG), Modified Dynamic Gait Index (ModDGI), Five Times Sit to Stand (5xSTS), and the 10 meter Walk Test. The St. Louis University Mental Status Examinations (SLUMS) was used to assess cognition and the International Physical Activity Questionnaire (IPAQ) was used to provide a self-reported objective measure of physical activity.

Results: The mean age of the subjects was 56.8+9.2 years and 67.3% were male. The underlying liver disease was Cirrhosis (53.1%), Hepatocellular Carcinoma (HCC) (28.6%), Nonalcoholic Steatohepatitis (12.2%), and other (6.1%). The mean Model for End-Stage Liver Disease (MELD) score was 16.2+7.6 with 24.5% having a MELD score greater than 20. Although 30.6% reported falling in the past year, 85.7% did not use an assistive device and 77.6% reported ambulating community distances. The mean 6MWT was 350.1+164 meters, TUG 12.9+13 sec, Mod DGI 10+3.8, 5xSTS 16.3+8 sec, and gait speed was 1.12+0.4 m/sec. The results of the SLUMS cognitive test demonstrated 18.8% with no impairment, 62.5% with mild impairment and 18.8% with dementia. The IPAQ results demonstrated that 52.1% reported low, 18.8% had moderate and 29.2% had a high level of physical activity. Subjects with a higher MELD score showed a trend of lower scores on the functional tests and an increase incidence of falling. The
results also showed that subjects with a diagnosis of HCC scored higher on the functional tests, had higher physical activity levels and rarely fell when compared to subjects with the other diagnoses.

**Conclusions:** This study provides objective data of the physical limitations that are present in patients with ESLD who are being evaluated for liver transplantation at our facility. These impairments consist of a decreased 6MWT, ModDGI and gait speed, and an increase in TUG and 5xSTS. The data supports previous reports of impaired strength and aerobic capacity along with providing evidence that this population maybe at an increased risk for falls along with possible impairments in cognition.

**Clinical Relevance:** Patients with ESLD can exhibit impairments in aerobic capacity, balance, strength and cognition. This population may benefit from a formal exercise program to maximize their functional mobility prior to transplantation. Further studies evaluating the effect of a prehabilitation program are needed.