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## Healia Clinical Trials Information Database

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## Can Exercise be an Effective Intervention for Treating Hepatic Encephalopathy?

Experimental models have shown that skeletal muscle is able to remove blood-borne [ammonia](#), presumably by induction of an enzyme called [glutamine synthetase](#). It is therefore conceivable that exercise can increase the metabolism of ammonia via glutamine synthetase, and therefore, improve hepatic encephalopathy.

Our hypothesis is that a regular exercise program can achieve improvement on [hepatic encephalopathy](#) on patients with [liver failure](#) and minimal or stage 1 (West-Haven) hepatic encephalopathy.

### Description

[Hepatic encephalopathy](#) relies mostly on ammonia-induced toxicity upon the [central nervous system](#). Patients with advanced [liver failure](#) have a diminished capacity for [ammonia](#) removal within the liver, and it has been shown on experimental models that [skeletal muscle](#) is able to remove blood-borne ammonia, presumably by induction of an enzyme called [glutamine synthetase](#). It is therefore conceivable that exercise can increase the metabolism of ammonia via glutamine synthetase.

Our hypothesis is that a regular exercise program can achieve improvement on hepatic encephalopathy on patients with liver failure and minimal or stage 1 (West-Haven) hepatic encephalopathy.

Patients will be randomized to a muscular and movement coordination [rehabilitation](#) program, to improve muscle mass and movement, as to increase ammonia metabolism.

### Eligibility

Inclusion Criteria:

- Clinical diagnosis of cirrhosis
- Able to perform exercise

Exclusion Criteria:

- Cardiovascular complications ([pulmonary hypertension](#), heart failure)
- Diabetes mellitus and microangiopathic complications
- Diabetes mellitus under insulin treatment
- Renal failure

Status: Recruiting (Phase 2).  
Started on February 1st, 2007.  
Ended on February 1st, 2009.

Enrollment: 30 subjects

Study Type: Interventional

Study Design:

- Treatment
- Randomized
- Open Label
- Placebo Control
- Parallel Assignment
- Safety/Efficacy Study

Conditions:

- [Cirrhosis](#)
- [Hepatic Encephalopathy Stage 1](#)
- [Minimal Hepatic Encephalopathy](#)

Interventions:

- Other: Exercise rehabilitation program
- Dietary Supplement: Nutritional therapy

**Gender**

Both

**Minimum Age**

18 Years

**Maximum Age**

70 Years

**Healthy Volunteers**

No

- Portal hypertension with high risk for bleeding

## Resources

Source: Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran

Authority: Mexico: Universidad Nacional Autonoma de Mexico

## Locations

### Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran

Mexico  
D.F.  
14000  
Mexico

## Officials

- Sergio Ponce de Leon-Rosales, M.D. (Study Chair, Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran / Universidad Nacional Autonoma de Mexico)

## Sponsors

- Instituto Nacional de Ciencias Medicas y Nutricion Salvador Zubiran (Lead Sponsor)
- Instituto Nacional de Cardiologia Ignacio Chavez (Collaborator)

## References

None.

## Links

None.

## Date Verified

August 1st, 2007

## First Received

August 16th, 2007

## Last Changed

August 16th, 2007

Information obtained from ClinicalTrials.gov on July 15, 2008. [Link to the current ClinicalTrials.gov record.](#)

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