

# DETECCIÓN PRECOZ DE LA ENCEFALOPATÍA HEPÁTICA MÍNIMA EN LA PRÁCTICA CLÍNICA

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# AGENDA

- CIRROSIS

- ENCEFALOPATIA HEPATICA

  - ENCEFALOPATIA HEPATICA MINIMA

    - Definición de la entidad
    - Espectro de la encefalopatía hepática

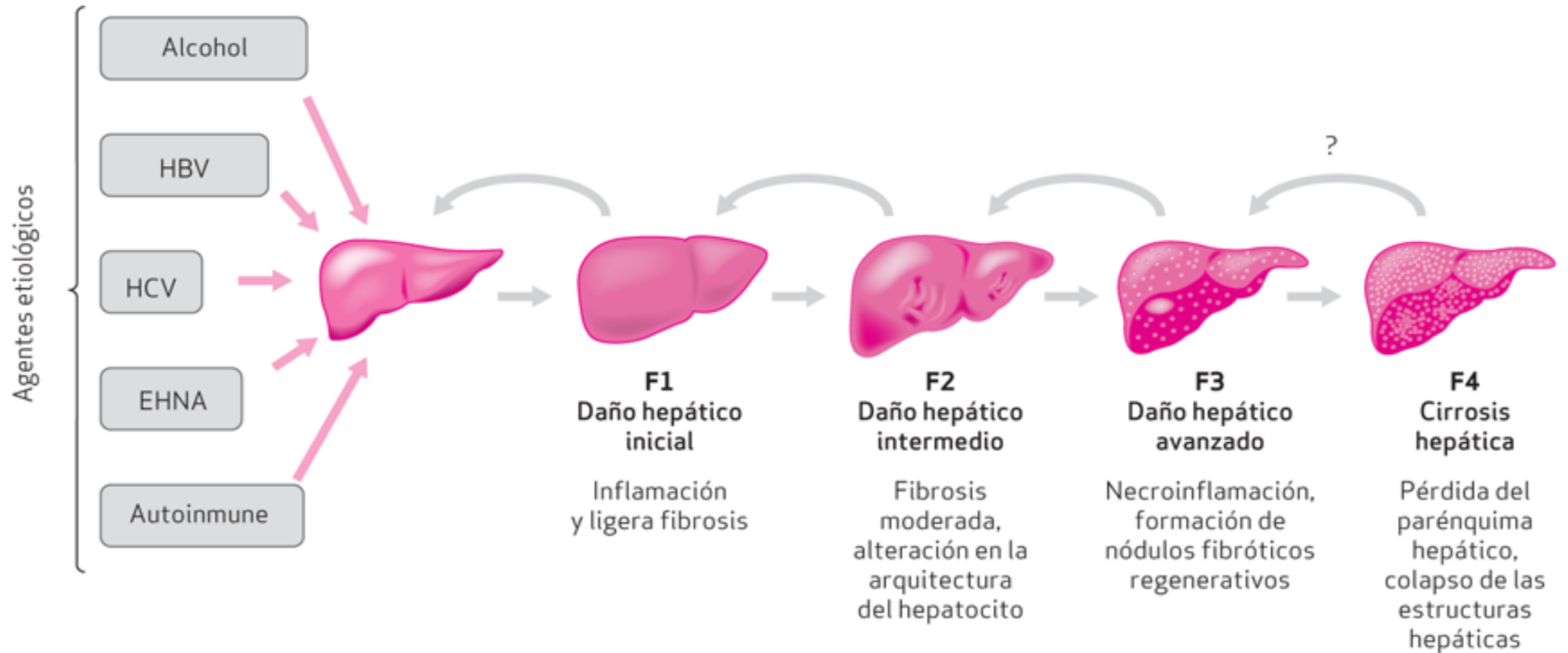
  - IMPACTO EN LA CALIDAD DE VIDA

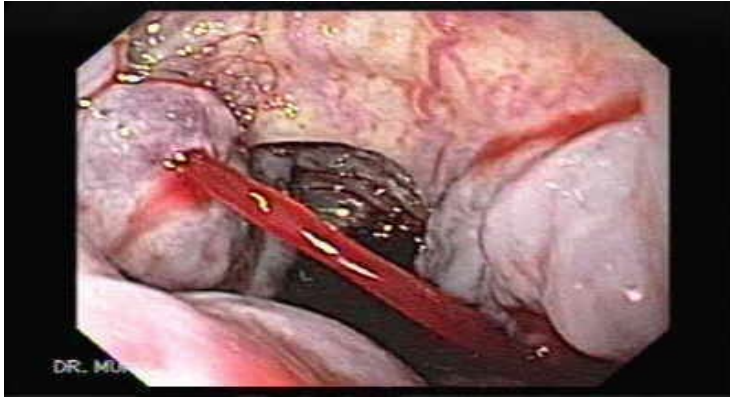
    - Alteración en la calidad del sueño
    - Caídas accidentales
    - Accidentes de tráfico

  - ABORDAJE DIAGNOSTICO

    - Frecuencia Crítica de Parpadeo
    - Encephalapp
    - TEST PHES

# CIRROSIS

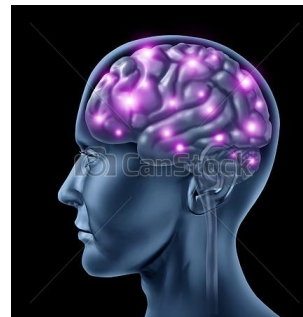




## Complicaciones de la Cirrosis



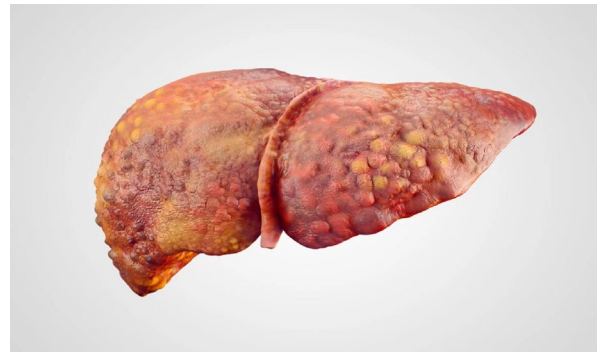
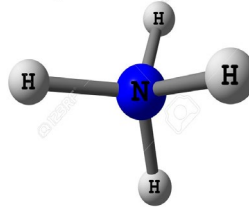
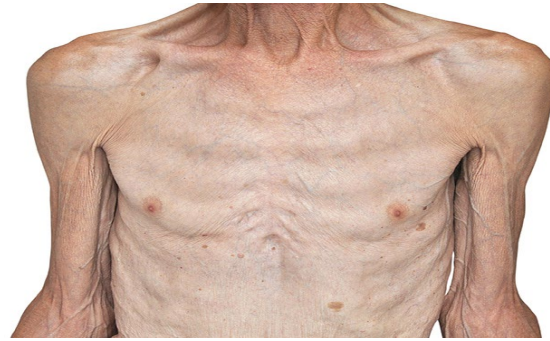
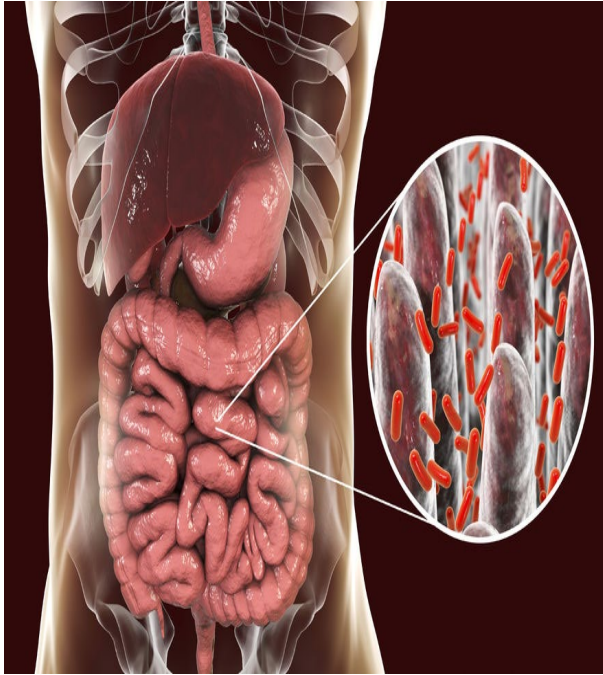
- Ascitis
- Hemorragia digestiva por varices
- Síndrome hepatorenal
- Peritonitis bacteriana espontánea
- Encefalopatía hepática



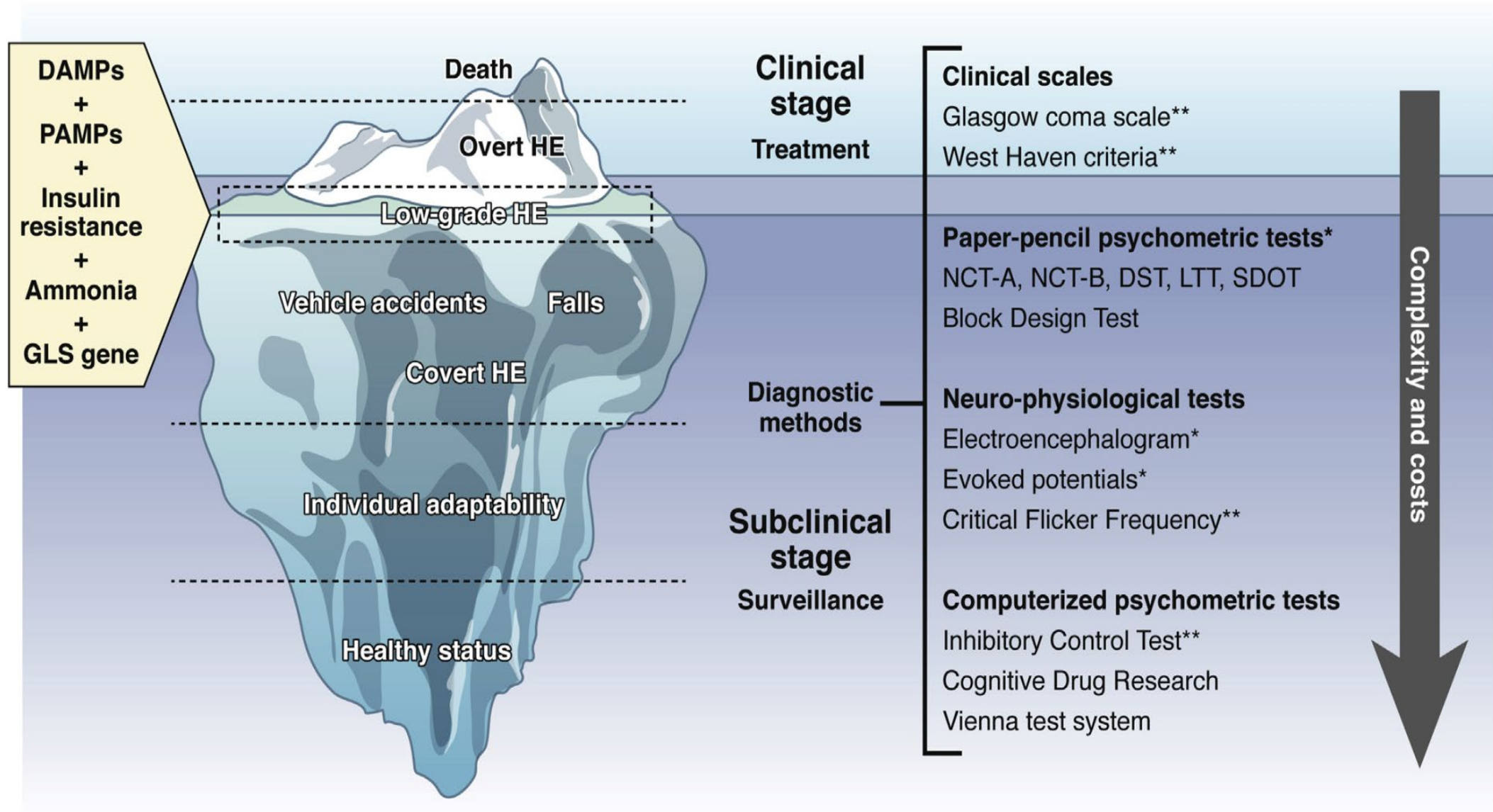
© Can Stock Photo - csp8670714



# Encefalopatía Hepática



# El Iceberg de la EH



# Encefalopatía Hepática Mínima

## The Four Axes

Type	Grade		Time course	Spontaneous/precipitated
A	Minimal	Covert	Episodic	Spontaneous
	I			
B	II	Overt	Recurrent	Precipitated (specify)
C	III			
	IV			
			Persistent	

## Criterios de West Haven

	Nivel de conciencia	Síntomas neuropsiquiátricos	Síntomas neurológicos
Grado 0 (EHM)	Normal	Alteración sólo advertida por tests psicométricos	Ninguno
Grado 1	Lentitud mental	Disforia, irritabilidad, ansiedad	Alteración de la destreza manual
Grado 2	Fatiga, apatía, letargia	Trastorno de personalidad, leve desorientación temporo-espacial	Flapping, ataxia, bradilalia
Grado 3	Somnolencia	Agresividad, marcada desorientación temporo-espacial	Clonus, asterixis
Grado 4	Coma	No valorable	Signos de hipertensión craneal

# Encefalopatía Hepática Mínima

HEPATOLOGY

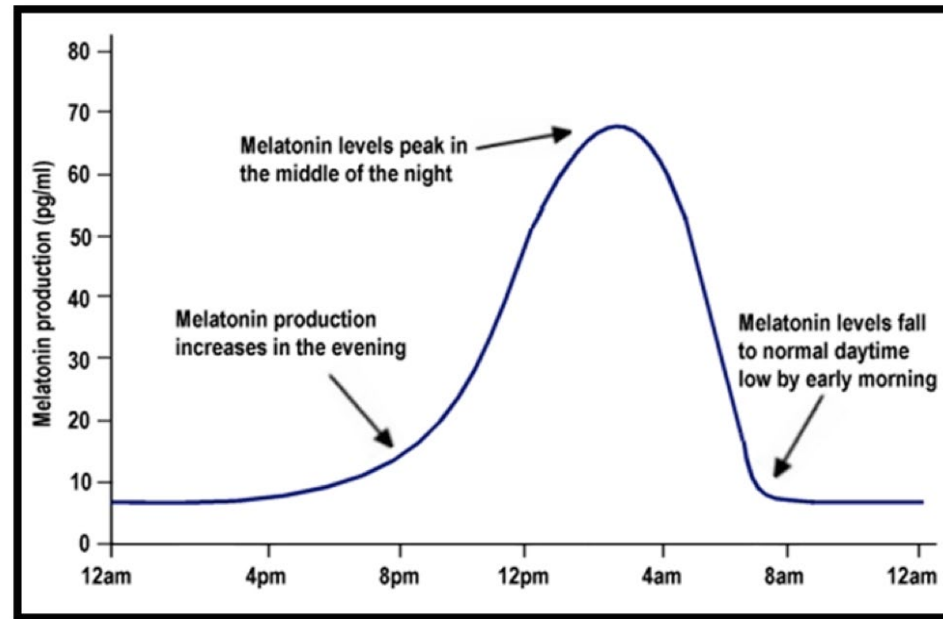
## Minimal hepatic encephalopathy identifies patients at risk of faster cirrhosis progression

Javier Ampuero,<sup>\*,†</sup> Carmina Montoliú,<sup>‡</sup> Macarena Simón-Talero,<sup>§</sup> Virginia Aguilera,<sup>\*</sup> Raquel Millán,<sup>\*,†</sup> Celina Márquez,<sup>¶</sup> Rodrigo Jover,<sup>\*\*</sup> María Carmen Rico,<sup>\*,†</sup> Carmen Sendra,<sup>\*</sup> Miguel Ángel Serra<sup>††</sup> and Manuel Romero-Gómez<sup>\*,†</sup>





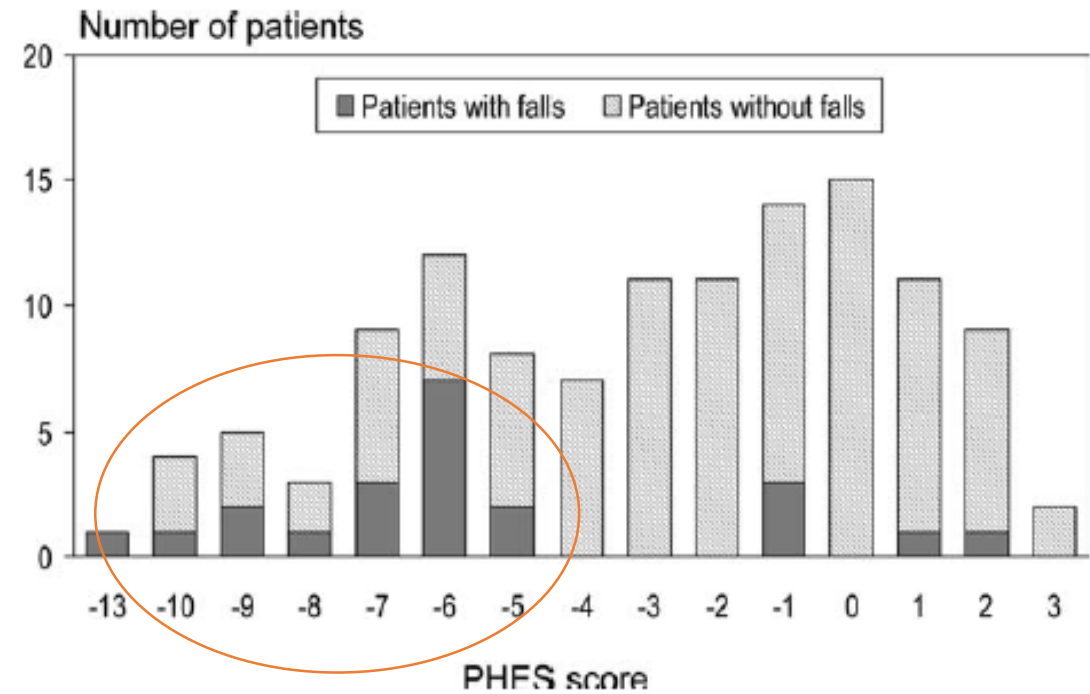
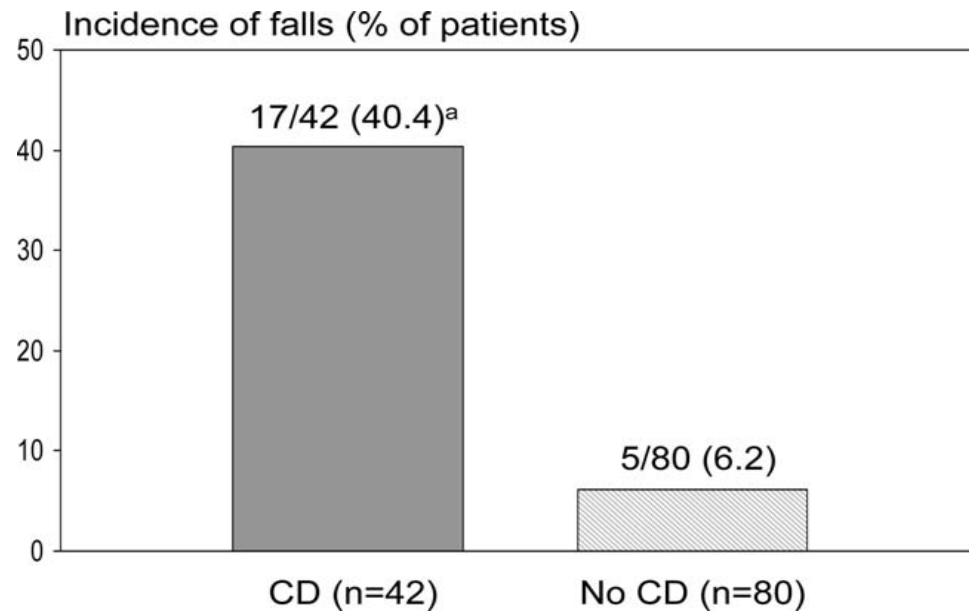
# Alteración en la calidad del Sueño



Producción de Melatonina (imagen de [Luke Mastin](#))



# Caídas Accidentales



# Accidentes de Tráfico

## EDITORIAL

### Driving With Minimal Hepatic Encephalopathy: Real World Consequences?



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  - ABORDAJE DIAGNOSTICO

    - Frecuencia Crítica de Parpadeo
    - Encephalapp
    - TEST PHES

# Frecuencia crítica de parpadeo



CONSULTA DE ENFERMERÍA DE ENCEFALOPATÍA HEPÁTICA.

ETIQUETA

- Frecuencia crítica de parpadeo

	Resultados
Prueba 1	
Prueba 2	
Prueba 3	
Prueba 4	
Prueba 5	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
Media	



# Encephalapp. STROOP TEST

## Stroop Off and On State Indicators

AZUL	VERDE	AMARILLO
ROSA	ROJO	NARANJA
MARRÓN	NEGRO	AZUL
ROJO	AMARILLO	VERDE

What color  
is the text?



Start

STROOP EFFECT

OFF

What color  
is the text?



Start

STROOP EFFECT

ON

AZUL	VERDE	AMARILLO
ROSA	ROJO	NARANJA
MARRÓN	NEGRO	AZUL
ROJO	AMARILLO	VERDE

# Encephalapp. STROOP TEST

Stroop "Off" State: no words, just symbols

- The task is to correctly and rapidly press the color corresponding to the color of the symbols presented

Presentation of the symbol in a particular color



Touch the correct color

Response Time

Stroop "On" State: Words in discordant colors

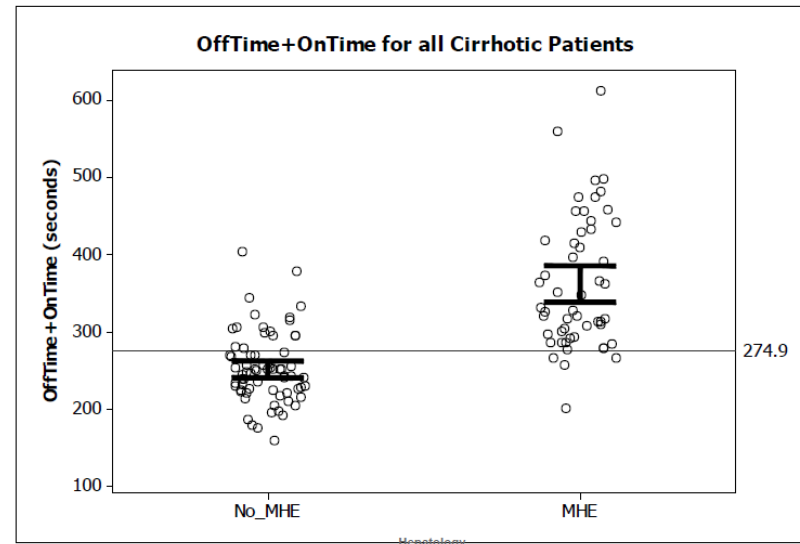
- The task is to correctly and rapidly press the color corresponding to the color of the word presented, not the color it means

Presentation of a word in a discordant color



Touch the correct color of the word, not what the word means

Response Time



# TEST PHES

## Cognitive and motor functions addressed by the different components of the PHES – delivering test batteries

Sub-test	Assessable functions
Number Connection Test A	Psychomotor speed; visual scanning efficiency, sequencing, attention, concentration
Number Connection Test B	Attention set shifting ability, psychomotor speed, visual scanning efficiency, sequencing, attention, concentration
Figure Connection Test [19]	Visual perception, visual search, visual scanning efficiency, psychomotor speed, attention, concentration, working memory
Digit Symbol Test	Associative learning; graphomotor speed, cognitive processing speed, visual perception, working memory
Serial Dotting Test	Motor speed
Line Tracing Test	Motor speed and accuracy

## Advantages and limitations of the psychometric test batteries that have been standardized for the assessment of minimal hepatic encephalopathy [6,15–18]

Advantages	Limitations
<ul style="list-style-type: none"><li>• High sensitivity</li><li>• High specificity</li><li>• High reliability</li><li>• High validity</li><li>• Simplicity</li><li>• Bedside tests</li><li>• Low cost</li></ul>	<ul style="list-style-type: none"><li>• Need for representative norm data for each sample studied considering effects of age, education, occupation, gender and socio-cultural background</li><li>• Non-applicability of the NCT B in illiterate subjects</li><li>• Need for the control of practice effects</li></ul>



# TEST PHES



# TEST PHES

## CLAVE DE NÚMEROS

1	2	3	4	5	6	7	8	9
A	C	V	O	F	2	-	1	

2	1	3	1	4	2	1	3	5	3	2	1	4	2	1	3	1	2	4	1	
C	A	-	A	V																

---

1	2	3	4	5	6	7	8	9
A	C	V	O	F	2	-	1	

2	1	3	1	2	1	3	1	4	2	4	2	5	1	4	3	5	3	6	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

1	6	5	2	4	7	3	5	1	7	6	3	8	5	3	6	4	2	1	8
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

9	2	7	6	3	5	8	3	6	5	4	9	7	1	8	5	3	6	8	2
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

7	1	9	3	8	2	5	7	4	1	6	7	4	5	8	2	9	6	4	3
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

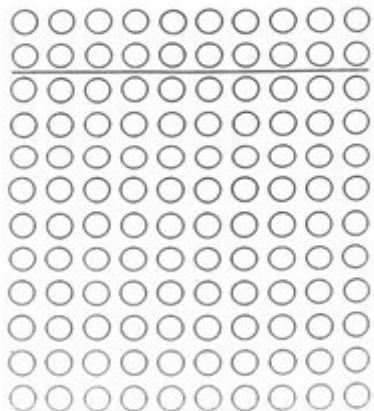
## TCN A

TCN A: A dot matrix puzzle with 25 numbered points. The points are arranged in a roughly circular pattern. The word "Beginn" is written in the center, and "Ende" is written at the top right. The points are numbered 1 through 25.

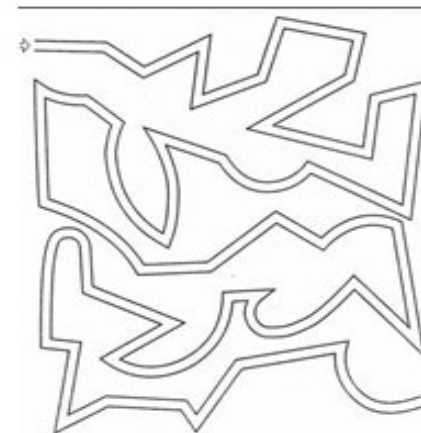
## TCN B

TCN B: A dot matrix puzzle with 13 lettered points. The points are arranged in a roughly circular pattern. The word "Beginn" is written in the center, and "Ende" is written at the top right. The points are labeled with letters A through L.

## PUNTOS SERIADOS



## LÍNEA QUEBRADA



# TEST PHES

## CLAVE DE NÚMEROS

1	2	3	4	5	6	7	8	9
A	C	-	V	O	Γ	2	-	7

2	1	3	1	4	2	1	3	5	3	2	1	4	2	1	3	1	2	4	1
C	A	-	A	V															

---

1	2	3	4	5	6	7	8	9
A	C	-	V	O	Γ	2	-	7

2	1	3	1	2	1	3	1	4	2	4	2	5	1	4	3	5	3	6	2

1	6	5	2	4	7	3	5	1	7	6	3	8	5	3	6	4	2	1	8

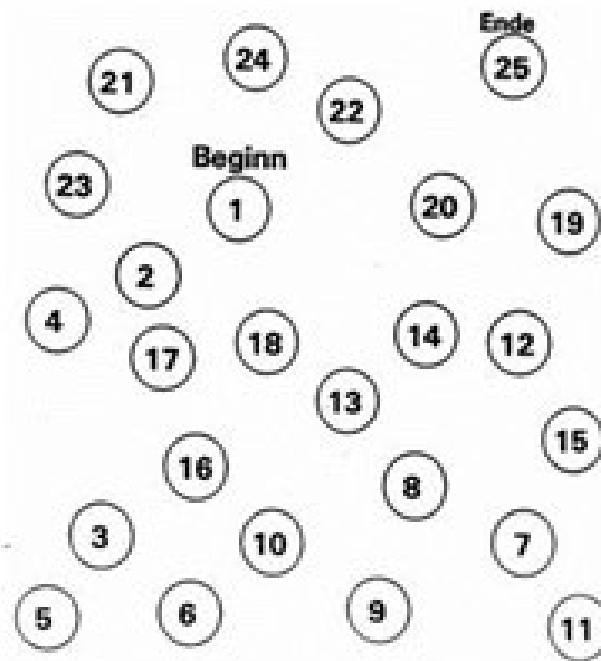
  

9	2	7	6	3	5	8	3	6	5	4	9	7	1	8	5	3	6	8	2

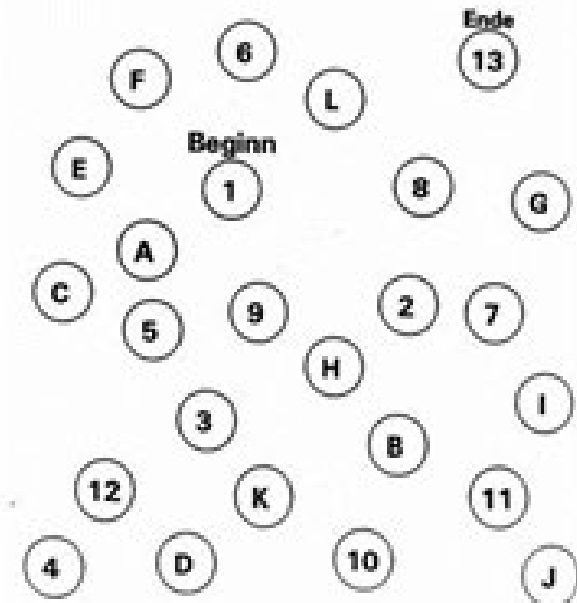
  

7	1	9	3	8	2	5	7	4	1	6	7	4	5	8	2	9	6	4	3

## TCN A

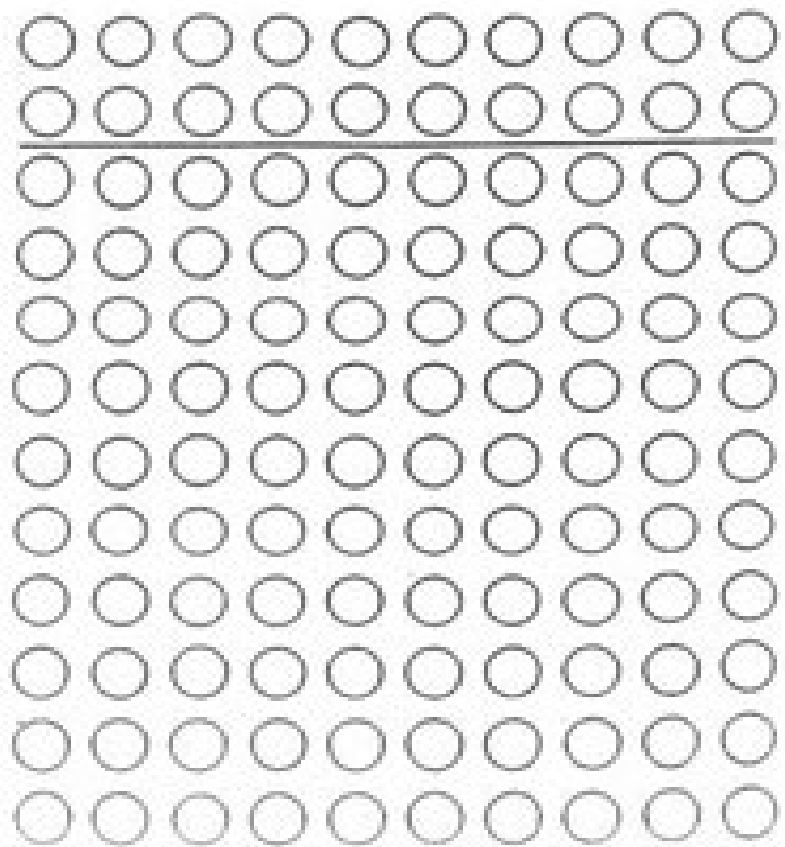


## TCN B

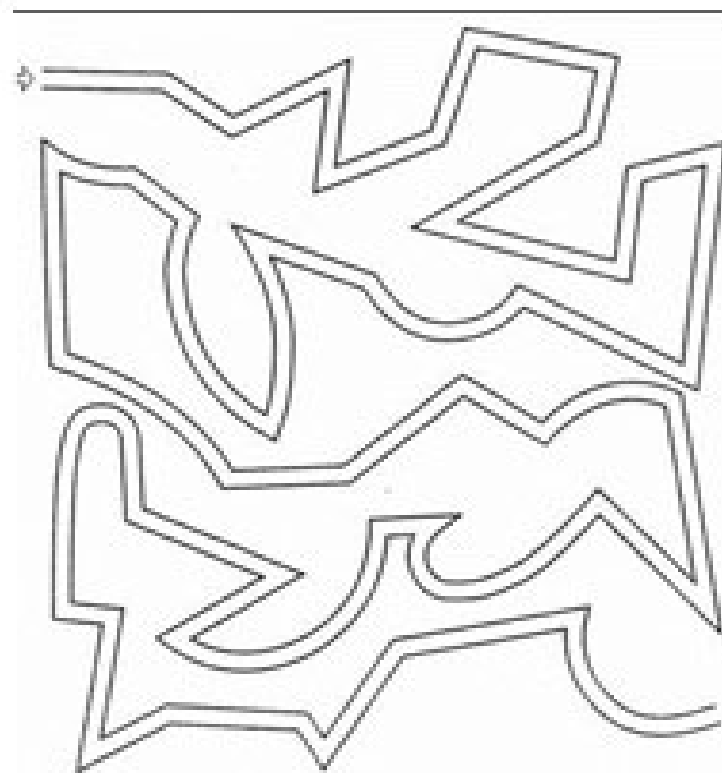


# TEST PHES


## PUNTOS SERIADOS





## LÍNEA QUEBRADA



# TEST PHES




## DIAGNÓSTICO DE ENCEFALOPATÍA HEPÁTICA MÍNIMA MEDIANTE TEST PSICOMÉTRICOS (PHES)


Español  English 

PSYCHOMETRIC HEPATIC ENCEPHALOPATHY SCORE	
Datos de Paciente	Resultados de los Test
Edad <input type="text"/>	Test de la clave de números (2) <input type="text"/>
Estudios (1) <input type="text"/>	Test de conexión numérica-A (3) <input type="text"/>
	Test de conexión numérica-B (3) <input type="text"/>
	Test de puntos seriados (3) <input type="text"/>
	Test de la línea quebrada (4) <input type="text"/>


**TCN A**




**PUNTOS SERIADOS**




**TCN B**




**LÍNEA QUEBRADA**



**CLAVE DE NÚMEROS**



[Instrucciones para cumplimentar los tests](#) 

- (1) -> Se introducirán los años de escolarización del paciente
- (2) -> Se introducirá el número de aciertos
- (3) -> Se introducirá el número de segundos empleados en el test
- (4) -> Se introducirá el número de errores mas los segundos empleados

# The animal naming Test



*¡Muchísimas*  

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*Gracias!*