

SNA INTEGRATIVO



Interocepción

El octavo sentido

Prof. Luis Gonzaga de Moura Junior

BE YOUR OWNSELF
YOU ARE THE ONLY YOU
THERE IS



Interocepción

Self-regulation depends on having a friendly relationship with your body. Without it you have to rely on external regulation – from medication, drugs like alcohol, constant reassurance, or compulsive compliance with the wishes of others.

Bessel A. van der Kolk

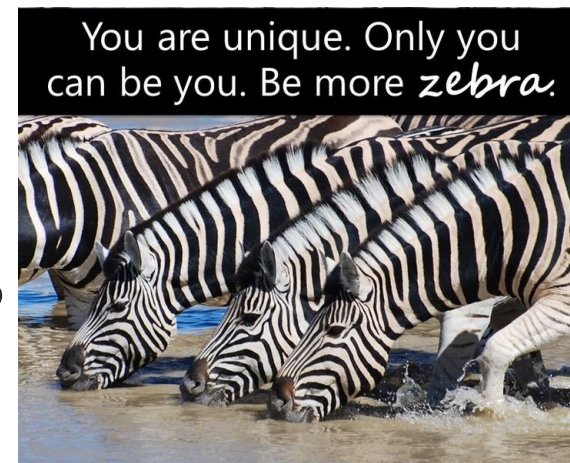
"La autorregulación depende de tener una relación amistosa con tu cuerpo. Sin ella tienes que depender de la regulación externa: de la medicación, de las drogas como el alcohol, del consuelo constante o del cumplimiento compulsivo de los deseos de los demás."

- Bessel A. van der Kolk



Interocepción

You are unique. Only you can be you. Be more *zebra*.





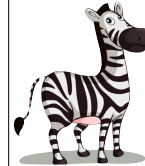
Interocepción

¿Qué es?



Interocepción

La interocepción es la percepción de sensaciones desde el interior del cuerpo e incluye la percepción de sensaciones físicas relacionadas con la función de los órganos internos, como los latidos del corazón, la respiración, la saciedad, así como la actividad del sistema nervioso autónomo relacionada con las emociones. Gran parte de estas percepciones permanecen inconscientes; lo que se vuelve consciente, es decir, la conciencia interoceptiva, implica el procesamiento de las sensaciones internas para que estén disponibles para la conciencia



Interocepción

Zoom Out
Big Picture



La **regulación** emocional implica una **relación coherente** con uno mismo, específicamente una **comunicación efectiva** entre cuerpo, mente y sentimientos. La regulación emocional efectiva implica la capacidad de **detectar** y **evaluar** con precisión las **señales** relacionadas con las reacciones **fisiológicas** a los eventos estresantes, acompañada de estrategias de regulación apropiadas que moderan e influyen en la respuesta emocional.



¿Es importante para la regulación del SNA?



Zoom Out
Big Picture

Interocepción

Osteópata

Odontólogo

Entrenador
Personal

Fisioterapeuta

Nutricionista

Médico

Quiropráctico

Psicólogo

¿Es importante para la regulación del SNA?



Zoom Out



Big Picture

Interocepción



Interocepción

Interocepción



Habilidad

Evento emocional

→ **Percibir**

→ **Interpretar**

Interocepción



Habilidad

Evento emocional

→ **Percibir**

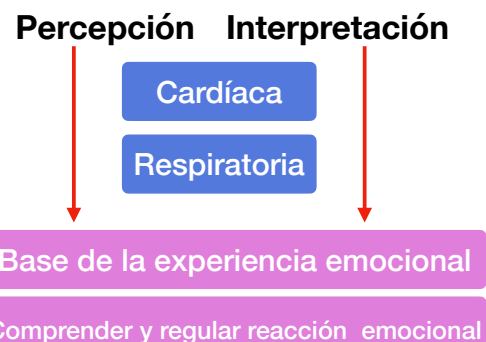
→ **Interpretar**

Cardíaca

Respiratoria

Interocepción

Evento emocional



Interocepción

Comprensión

Emocional

Regulación

Salud
Mental

Alteraciones

Percepción Interpretación

Cambios autonómicos

Riesgo de
enfermedades
mentales

Interocepción

frontiers
in Neuroscience

Heart Rate Variability Modulates Interoceptive Accuracy

Alexander Lischke^{1*}, Rike Pahnke², Anett Mau-Moeller² and Matthias Weippert^{2*}

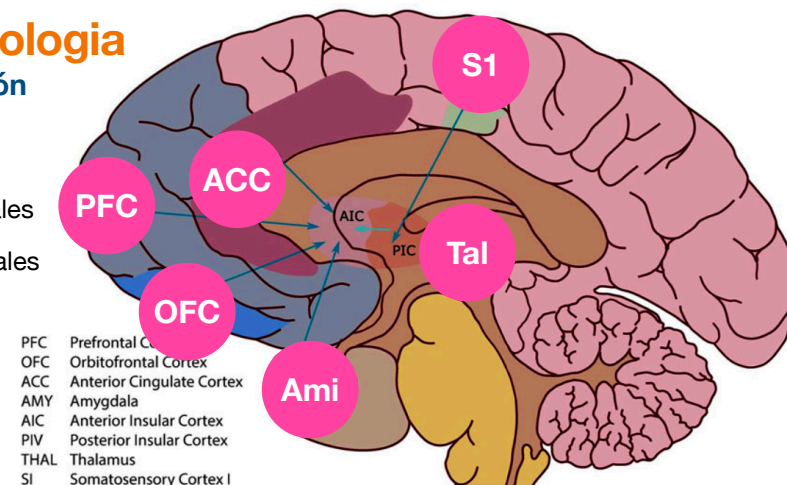
¹ Department of Psychology, University of Greifswald, Greifswald, Germany, ² Department of Sport Science, University of Rostock, Rostock, Germany

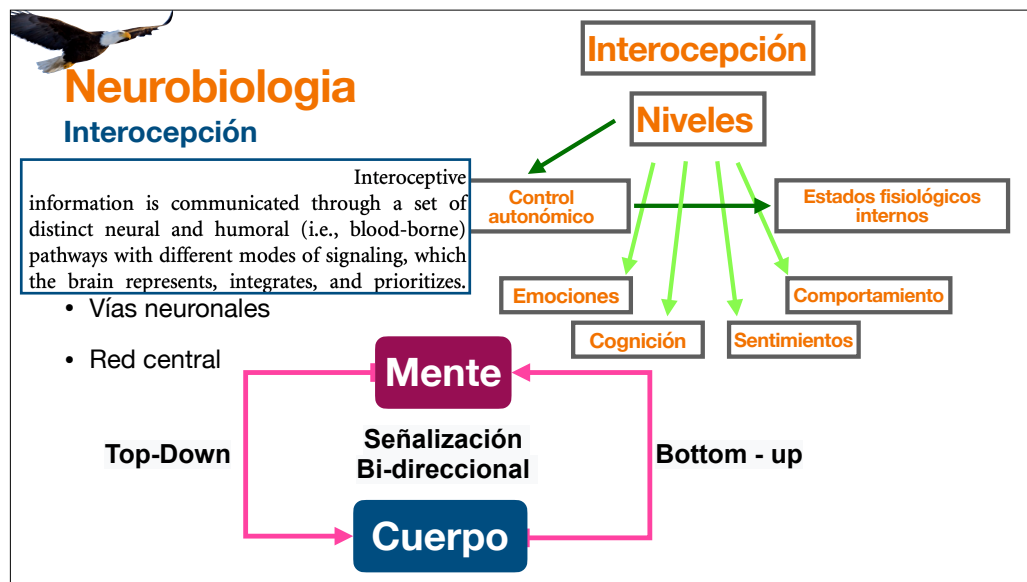
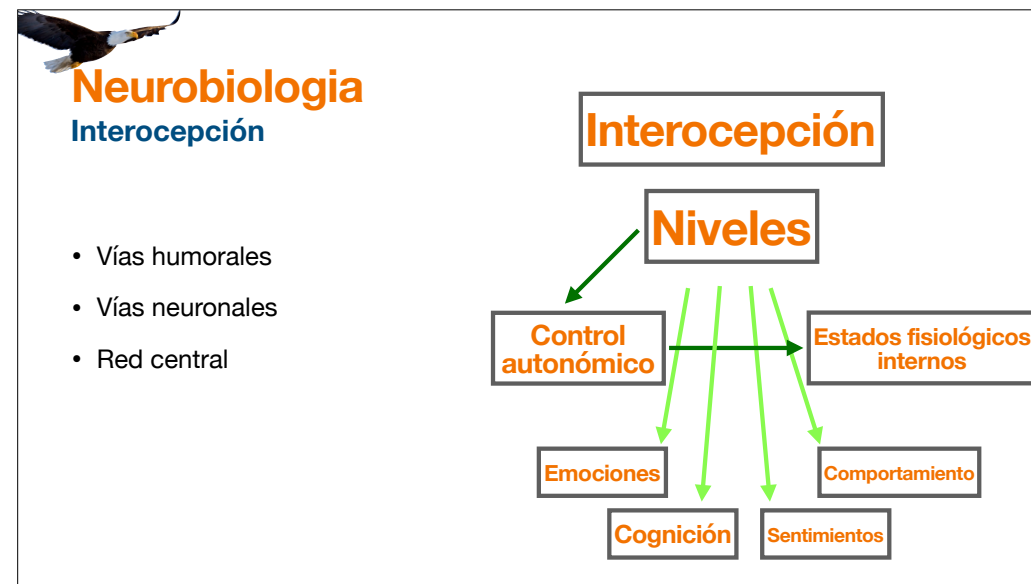
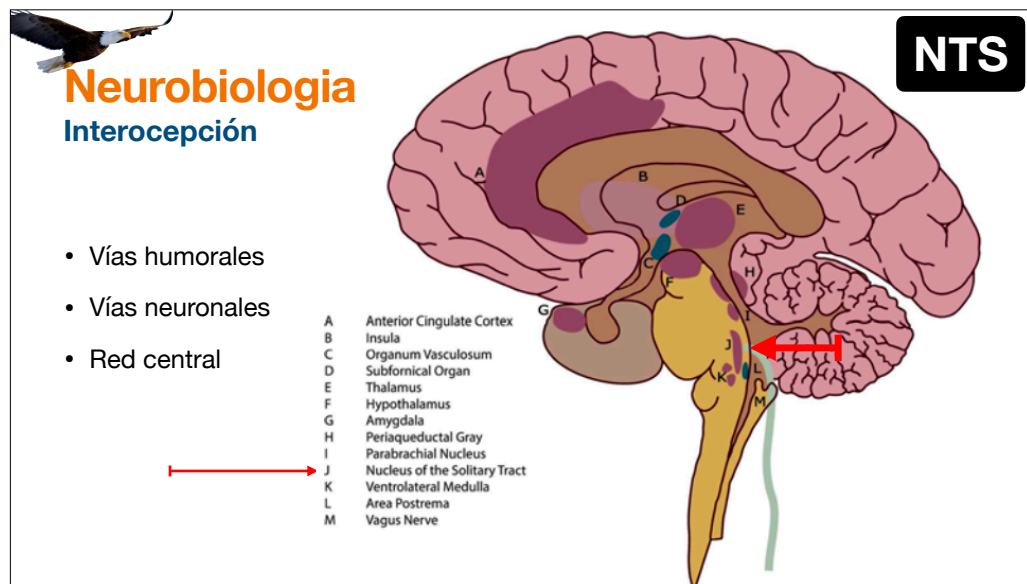
For instance, those of us whose cardiac sensitivity is in the abnormal range have more mental health problems than those of us whose cardiac sensitivity is in the normal range (Pollatos et al., 2007b, 2009; Herbert et al., 2011; Shah et al., 2016). The way we perceive and interpret autonomic changes, thus, appears to be of utmost importance for our mental health.

Neurobiología

Interocepción

- Vías humorales
- Vías neuronales
- Red central





Interocepción

SNA

- Ansiedad**
- Trastornos Alimentarios**

Trends in Neurosciences

REVIEW SPECIAL ISSUE: THE NEUROSCIENCE OF INTEROCEPTION | VOLUME 44, ISSUE 1, P39-51, JANUARY 01, 2021

Diseases, Disorders, and Comorbidities of Interoception

Bruno Bonaz • Richard D. Lane • Michael L. Oshinsky • ... Rajita Sinha • Emeran A. Mayer • Hugo D. Critchley • Show all authors

DOI: <https://doi.org/10.1016/j.tins.2020.09.009> • Check for updates

originating in the brain and/or the periphery, can perturb the whole system. Interoceptive abnormalities are implicated in the pathophysiology of psychiatric disorders and in the symptomatic expression of developmental, neurodegenerative, and neurological disorders. Moreover, interoceptive mechanisms appear central to somatic disorders of brain-body interactions, including functional digestive disorders, chronic pain, and comorbid conditions. The present article provides an overview of disorders of interoception and suggests future directions for better understanding, diagnosis, and management of these disorders.

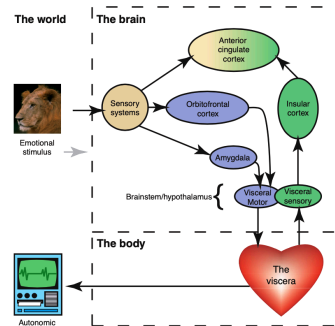
9. Wightman, B., Ha, I. & Rowkun, G. *Cell* **75**, 855–862 (1993).
10. Ambros, V., Lee, R.C., Lavanway, A., Williams, P.T. &

Jewell, D. *Curr. Biol.* **13**, 807–818 (2003).
11. Giedd, Y. et al. *Mol. Cell* **11**, 1253–1263 (2003).
12. Lim, L.P. et al. *Genes Dev.* **17**, 991–1008 (2003).

13. Lin, S.Y. et al. *Dev. Cell* **4**, 639–650 (2003).
14. Albrecht, J.E. et al. *Dev. Cell* **4**, 625–637 (2003).
15. Rhoades, M.W. et al. *Cell* **110**, 513–520 (2002).

Listening to your heart: interoceptive awareness as a gateway to feeling

Antoine Bechara & Nasir Naqvi



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Front. Neurosci., 2020; 14: 612445.

Published online 2021 Jan 11. doi: [10.3389/fnins.2020.612445](https://doi.org/10.3389/fnins.2020.612445)

PMCID: PMC7849500

PMID: 33536870

Heart Rate Variability Modulates Interoceptive Accuracy

Alexander Lischke,^{1,*} Rike Pahnke,² Anett Mau-Moeller,² and Matthias Weippert^{2,*}

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determined on basis of a heart rate variability recording. We found a positive association between heartbeat detection and heart rate variability, implying that individuals with higher heart rate variability were more accurate in heartbeat detection than individuals with lower heart rate variability. These findings suggest that our interoceptive accuracy depends on our prefrontal-(para-)limbic engagement during the perception and interpretation of cardiac changes. Our findings also show that cardiac measures may be useful to investigate the association between interoceptive accuracy and prefrontal-(para-)limbic engagement in a time- and cost-efficient manner.

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Front. Psychol., 2020; 11: 1792.

Published online 2020 Aug 5. doi: [10.3389/fpsyg.2020.01792](https://doi.org/10.3389/fpsyg.2020.01792)

PMCID: PMC7419655

PMID: 32849058

A Systematic Review of Associations Between Interoception, Vagal Tone, and Emotional Regulation: Potential Applications for Mental Health, Wellbeing, Psychological Flexibility, and Chronic Conditions

Conclusions: Awareness of one's own bodily feelings and vagal activation seem to be of central importance for the effective regulation of emotional responses. However, one limitation is the small sample of studies found, thus more studies in this area are needed in the future.

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Bugs and Brain: How Infection Makes You Feel Blue

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<http://dx.doi.org/10.1016/j.immuni.2016.03.010>

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www.neuropsychopharmacologyreviews.org

REVIEW

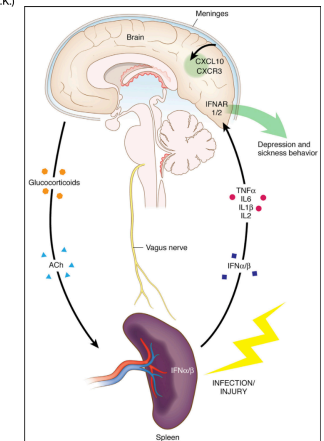
In Sickness and in Health: The Co-Regulation of Inflammation and Social Behavior

Altered social behavior:
Increased sensitivity
to social threat
Increased sensitivity
to social connection

Threats to social connection:
Rejection
Isolation
Bereavement
Social evaluation
Social conflict

Vagus nerve
BBB
SNS
HPA
Proinflammatory
cytokines

SNA



¿Y cómo medirla?

Interocepción



¿Y cómo medirla?

Interocepción



¿Y cómo medirla?

Interocepción



Interocepción 3 dimensiones

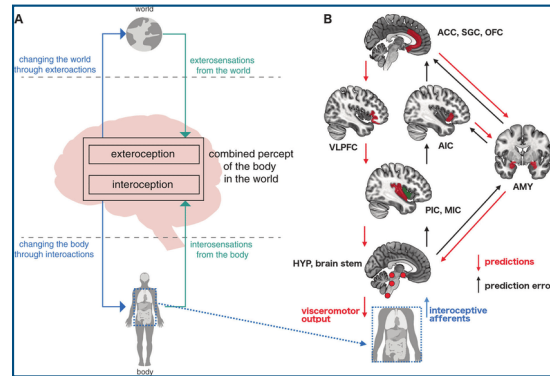
- 1 - Señal aferente interoceptivo que es comunicado al cerebro por múltiples estructuras.
- 2 - Refleja el impacto de la información de las señales aferentes en otras funciones del procesamiento sensorial y cognitivo centrales y también en el comportamiento. No consciente.
- 3 - Dimensión psicológica: Se refiere directamente a la percepción de las señales interoceptivas: precisión, sensibilidad y awareness.



Interocepción

Prueba

- Lo hacemos por la percepción de la frecuencia cardíaca.
- Dos etapas
 - 1 - Sentirlo sin tomar el pulso
 - 2 - Sentirlo al tomar el pulso



Interocepción

Prueba

- Sentado
- Tumbado

$$1 - ((\text{Average heart rate} - \text{estimated heart rate}) / \text{average heart rate}) = \text{_____}$$

How to interpret your results:

A result of .80 or higher indicates that your interoceptive ability is very good.

A result of .60-.79 reflects a moderately good sense of self.

A result of below .59 indicates poor interoception.

Arnold, C. (2012). Inside the Wrong Body. Scientific American Mind. 23, 36 – 41.

Interocepción

Prueba

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²Department of Sport Science, University of Rostock, Rostock, Germany

Interocepción

Prueba

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variability may also be associated with these executive control processes. Vagally mediated heart rate variability is, in fact, associated with executive control processes (Zahn et al., 2016; Holzman and Bridgett, 2017), including attention shifting, attention shielding and attention focusing (Hansen et al., 2003; Williams et al., 2016; Siennicka et al., 2019; Sorensen et al., 2019). The association between vagally mediated heart rate variability and heartbeat detection may, thus, be mediated by executive control processes that are driven by activity changes in prefrontal and (para-)limbic brain regions.



Interocepción

Prueba SNA

Heart Rate Variability Modulates Interoceptive Accuracy

Alexander Lischke¹, Rike Pahnke², Anett Mau-Moeller² and Matthias Weippert^{2*}

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²Department of Sport Science, University of Rostock, Rostock, Germany

to take a look at some of the most common mental disorders (Paulus and Stein, 2010). Mood and anxiety disorders are characterized by alterations in vagally mediated heart rate variability (Licht et al., 2008, 2009), heartbeat detection (Pollatos et al., 2009; Dunn et al., 2010) and executive control processes (Mogg et al., 1992, 1995; Lim and Kim, 2005). The alterations in vagally mediated heart rate variability and heartbeat detection are related to alterations in anterior cingulate cortex and insula activity during the perception and interpretation of cardiac changes (Caseras et al., 2013; Avery et al., 2014; Wiebking et al., 2015; Cui et al., 2020; DeVille et al., 2020), presumably via alterations in executive control processes (Mitterschiffthaler et al., 2008; Etkin et al., 2010). The alterations in anterior cingulate cortex and insula activity account for severe alterations in emotion, cognition and behavior (Caseras et al., 2013; Avery et al., 2014; Wiebking et al., 2015; Cui et al., 2020; DeVille et al., 2020), indicating that interoceptive deficits play an important role in the etiology and pathogenesis of mood and anxiety disorders (Paulus and Stein, 2010).

Interocepción

SNA

Review > Neurosci Biobehav Rev. 2016 Dec;71:328-341. doi: 10.1016/j.neubiorev.2016.09.015.
Epub 2016 Sep 18.

Pain in the body. Altered interoception in chronic pain conditions: A systematic review

Daniele Di Lerna¹, Silvia Serino², Giuseppe Riva³

Abstract

Interoception is the sense of the physiological condition of the body. Modern definitions differentiated three separated sub-constructs: accuracy (IAc), i.e., the ability to detect physiological states, sensibility (IAs), i.e., a self-evaluated measure of interoception, and awareness (IAw) i.e., a metacognitive awareness of the accuracy. Preliminary researches correlated pain with alterations in the interoceptive matrix albeit, to the best of our knowledge, interoceptive alterations in chronic pain conditions have never been studied systematically. We searched for studies that assessed interoception in subjects with chronic pain and compared it to healthy population. Eleven studies were included among different chronic pain conditions. Results suggested that chronic pain subjects might present low IAc and, allegedly, that IAc negatively correlates with symptoms severity in specific disorders. Data were inconclusive for IAs and IAw. The high risk of bias across multiple dimensions suggests to consider these conclusions with cautions. Nonetheless, deficits in interoceptive processes indicate a promising path for new form of therapies, and they require further attention and a more defined line of research.

¿Qué hacemos cazadores?

Paciente



Ansioso
Miedoso
Depresión
Hipertenso
Diabético
Parkinson
Esclerosis múltiple
Colon irritable
Dolor pélvico crónico
Dispareunia
Alergias
Intolerancias
Insomnio
Dolor crónico
Recidivas
GERD
ACV

ATM
No responde bien a la medicación
No avanza en el entrenamiento
Bruxismo
Obesidad
Sobrepeso
Bloating
Cefalea / migraña
Niñ@
Ancian@
Estrés crónico
No cumple las pautas
TDAH
Problemas sociales
Baja resiliencia
...

¿Qué hacemos cazadores?

Paciente

SNA HRV



Ansioso
Miedoso
Depresión
Hipertenso
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...



¿Qué hacemos cazadores?

Razonamiento del águila

SNA

HRV





ATM

No responde bien a la medicación

No avanza en el entrenamiento

Bruxismo

Obesidad

Sobrepeso

Bloating

Cefalea / migraña

Niñ@

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...

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Dolor pélvico crónico

Dispareunia

Alergias

Intolerancias

Insomnio

Dolor crónico

Recidivas

GERD

ACV



Zoom Out



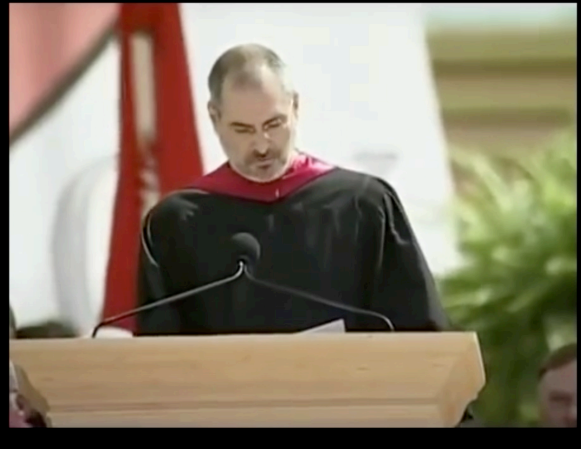


Big Picture

Razonamiento del águila

Hay que conectar los puntos...

Mira un cazador





¿Qué hacemos cazadores?

Paciente

Razonamiento del águila





ATM

No responde bien a la medicación

No avanza en el entrenamiento

Bruxismo

Obesidad

Sobrepeso

Bloating

Cefalea / migraña

Niñ@

Ancian@

Estrés crónico

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Problemas sociales

Baja resiliencia

...

Ansioso

Miedoso

Depresión

Hipertenso

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Esclerosis múltiple

Colon irritable

Dolor pélvico crónico

Dispareunia

Alergias

Intolerancias

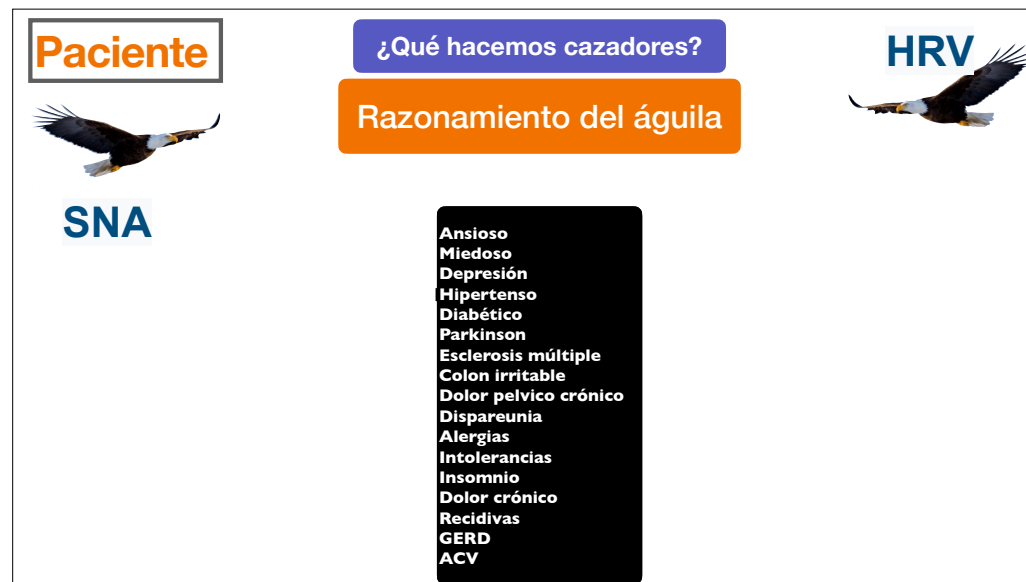
Insomnio

Dolor crónico

Recidivas

GERD

ACV



Paciente

Razonamiento del águila

HRV



SNA



Paciente

Razonamiento del águila

HRV



SNA



Hola cazador



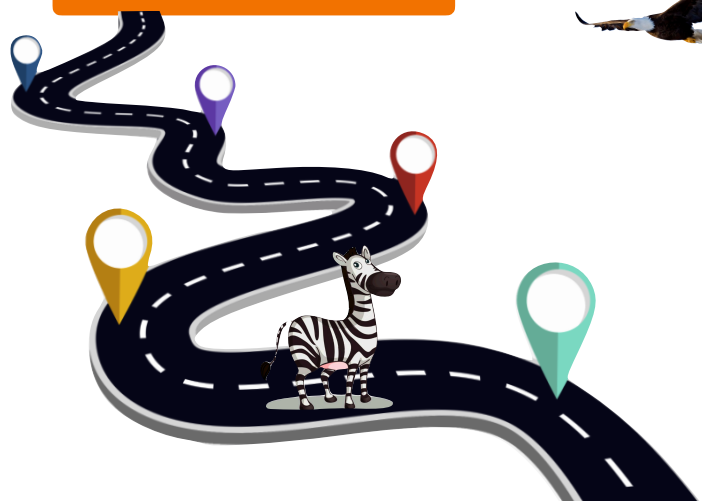
Paciente

Razonamiento del águila

HRV



SNA



SNA

HRV



¿Empiezas a ver las rayas cazador?



SNA
HRV



"He aquí mi secreto,
que no puede ser más
simple: sólo con el
corazón se puede ver
bien; lo esencial es
invisible para los ojos."

El Principito
(Antoine de Saint-Exupéry)



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INTEGRATIVO

SNA
INTEGRATIVO

"Encontraremos un camino,
y si no, lo crearemos."

