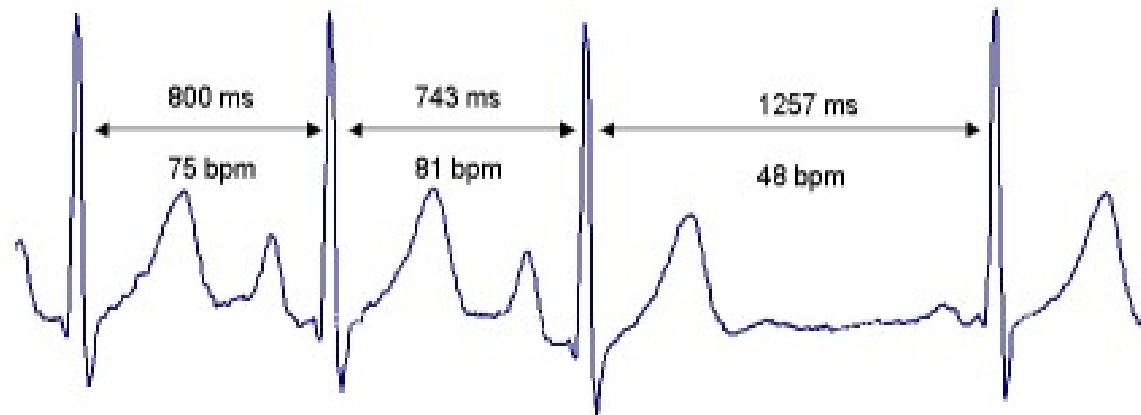
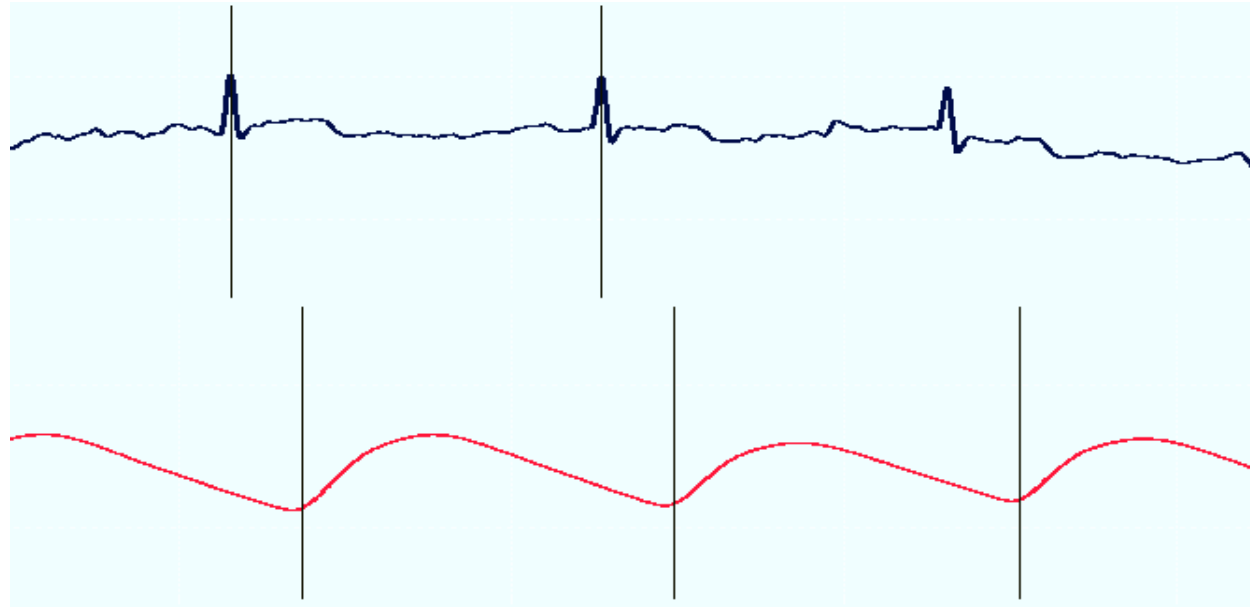


Herzratenvariabilität (HRV)



Herzratenvariabilität

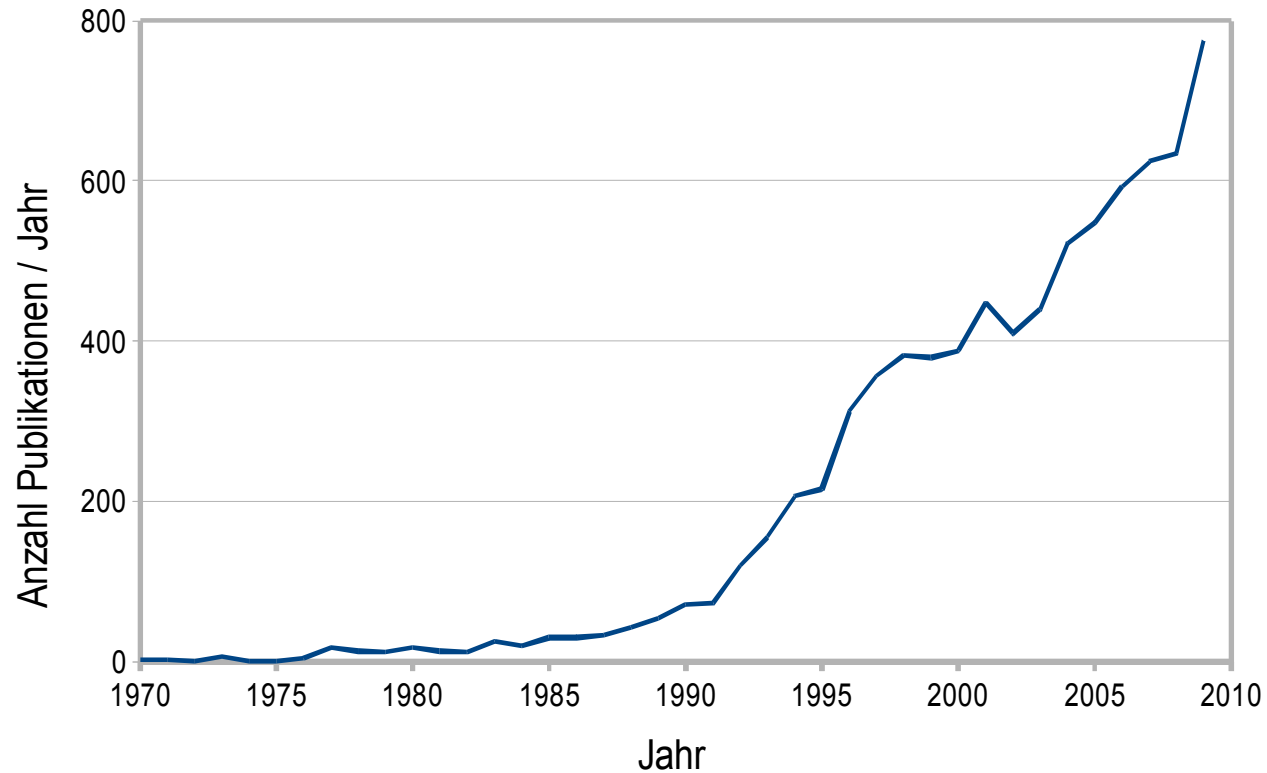
eine neue Erkenntnis?



Wang Shuhe, 300 J. n. Christus

"Wenn der Herzschlag so regelmäßig wie das Klopfen des Spechts oder das Tröpfeln des Regens auf dem Dach wird, wird der Patient innerhalb von vier Tagen sterben."

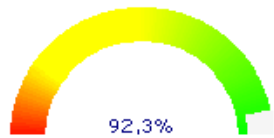
Herzratenvariabilität (HRV)



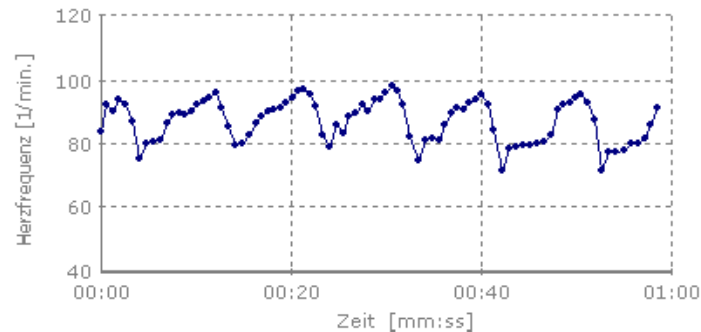
HRV in der wissenschaftlichen Literatur
1970 - 2010

Herzratenvariabilität

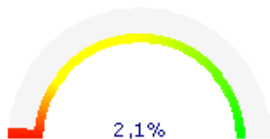
Beispiel 1)



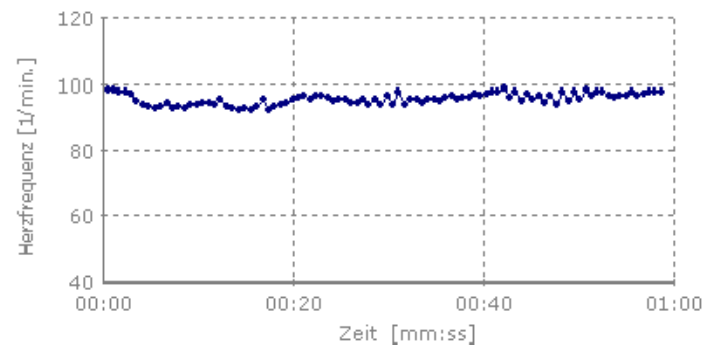
92,3 % Ihrer Altersgruppe haben eine niedrigere RSA.



gesunder Proband



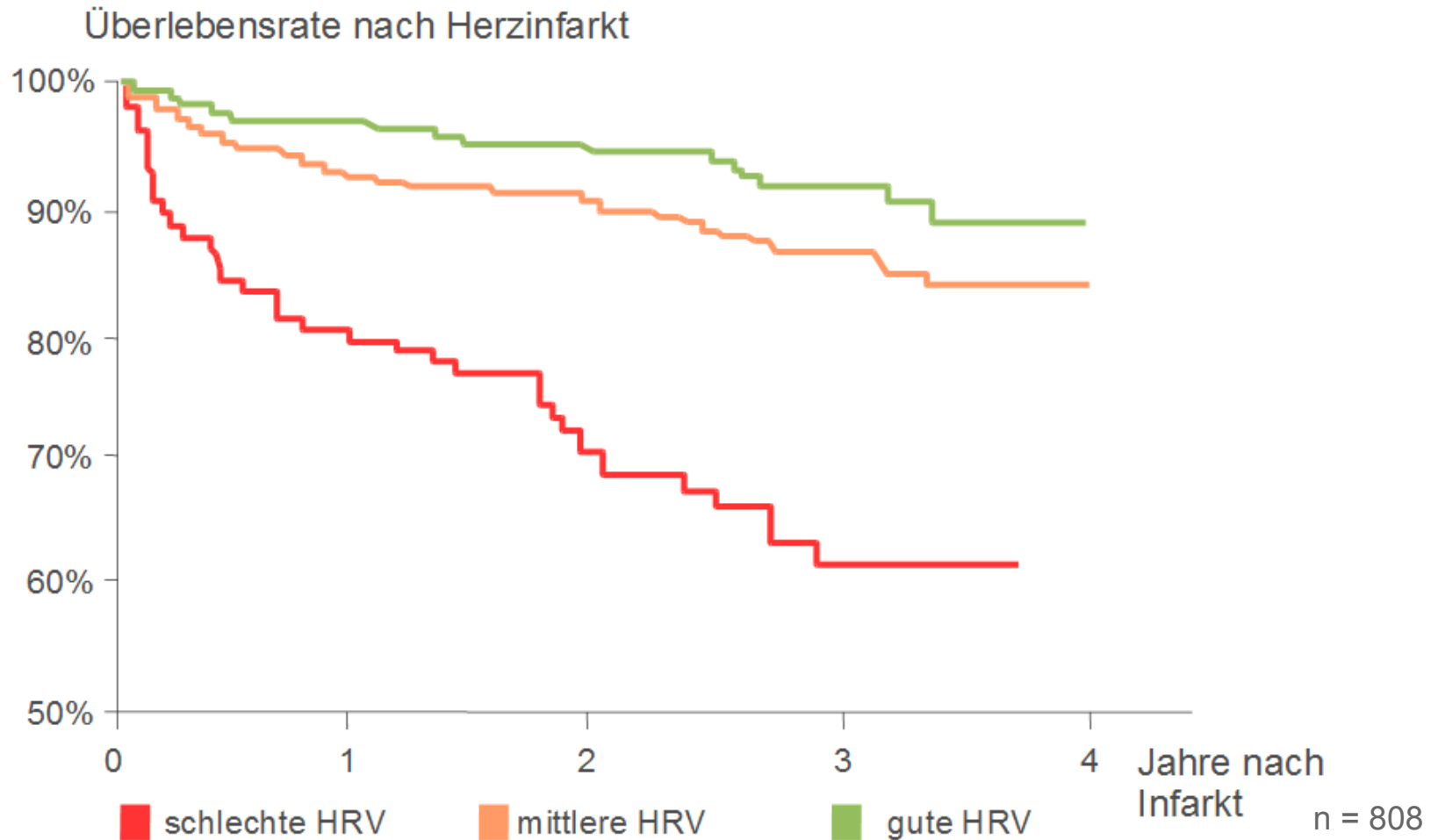
2,1 % Ihrer Altersgruppe haben eine niedrigere RSA.



9 Jahre Diabetes Typ 2 in der Vorgeschichte => Verdacht auf diabetische autonome Neuropathie

Cardiac denervation in diabetes
Wheeler T, Watkins PJ., Br Med J 1973; 4:584–586.

Herzratenvariabilität als Risikoparameter



Decreased heart rate variability and its association with increased mortality after acute myocardial infarction

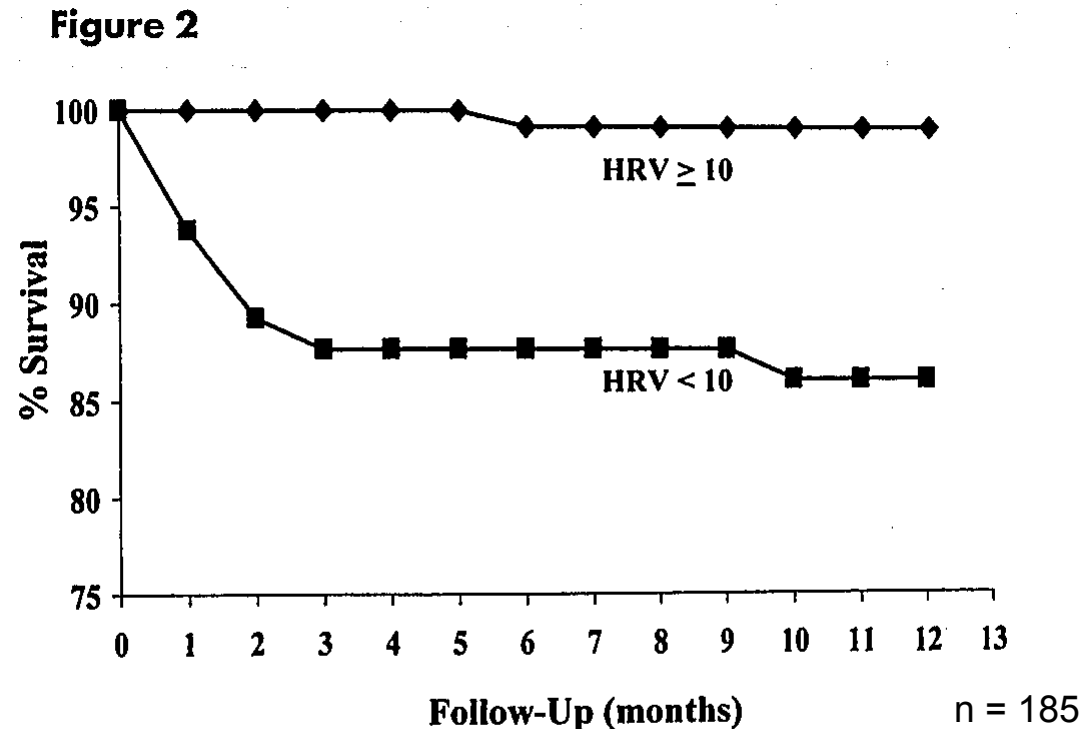
Kleiger RE, Miller JP, Bigger JT Jr, Moss AJ.

Am J Cardiol. 1987 Feb 1;59(4):256-62.

Herzratenvariabilität als Risikoparameter

A simple bedside test of 1-minute heart rate variability during deep breathing as a prognostic index after myocardial infarction.

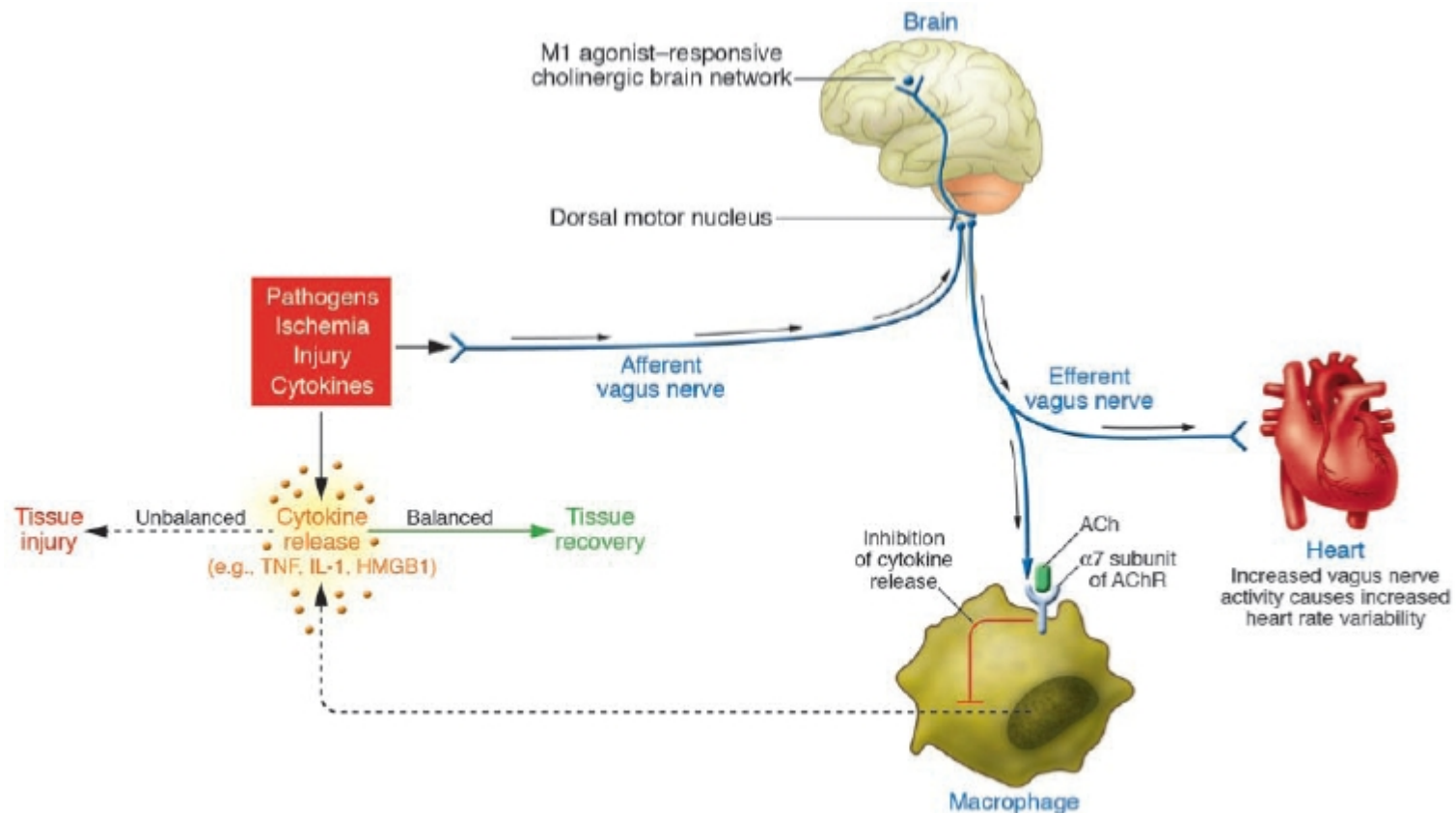
Katz A, Liberty IF, Porath A, Ovsyshcher I, Prystowsky EN.,
Am Heart J. 1999 Jul;138(1 Pt 1):32-8.



Survival curves for patients with heart rate variability ≥ 10 beats/min and < 10 beats/min. Long-term survival was significantly worse in patients with variability < 10 beats/min ($P = .005$).

Herzratenvariabilität

“Dynamische Gesundheit”: Vagus: the missing link?



The anti-inflammatory reflex

Tracey, K.J. Nature. 2002, 420:853–859

Herzratenvariabilität

“Dynamische Gesundheit”: Vagus: the missing link?

Increased heart rate and reduced heart-rate variability are associated with subclinical inflammation in middle-aged and elderly subjects with no apparent heart disease

Ahmad Sajadieh^{a,*}, Olav Wendelboe Nielsena, Verner Rasmussen^b, Hans Ole Heinc, Sadollah Abedinia, Jørgen Fischer Hansen

European Heart Journal (2004) 25, 363–370

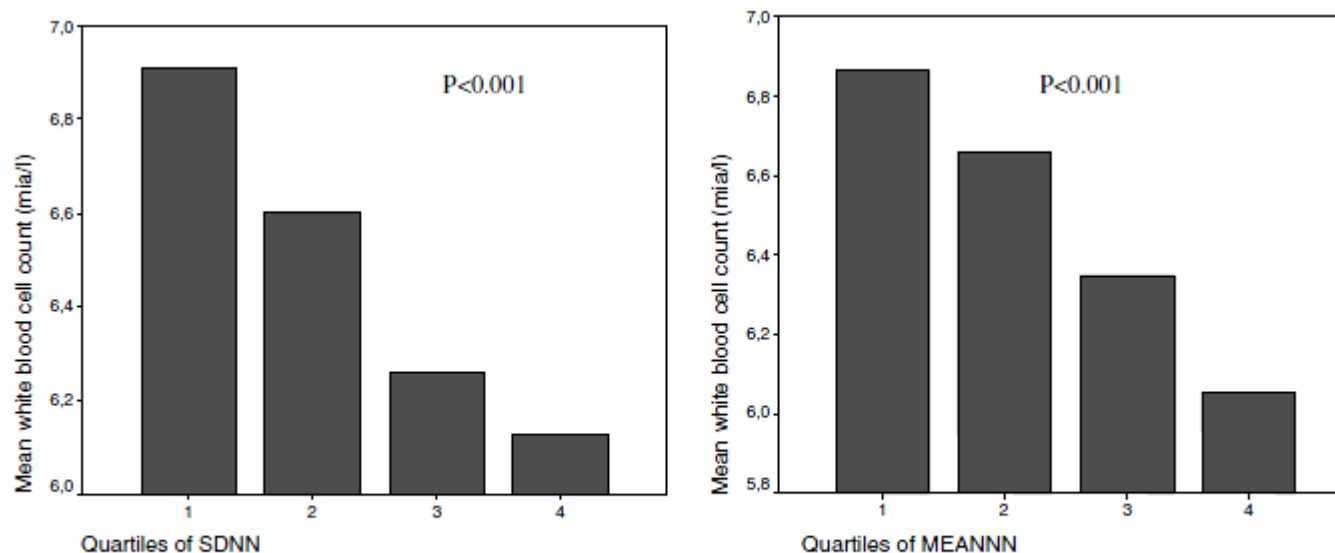


Fig. 1 White blood cell count in relation to heart rate and heart-rate variability. SDNN, standard deviation for the mean value of time between normal complexes (lowest quartile as 1 and highest as 4); MEANNN, mean value for the time between normal complexes (Quartile 1, average heart rate ≥ 82 ; Quartile 2, average heart rate = 75.82; Quartile 3, average heart rate = 70.74; Quartile 4: average heart rate < 70).

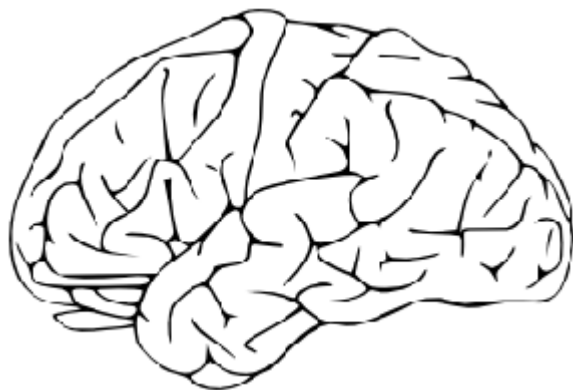
Psyche und Herz

. . .when the heart is affected it reacts on the brain;
and the state of the brain again reacts through the
pneumo-gastric [vagus] nerve on the heart; so that
under any excitement there will be much mutual
action and reaction between these, the two most
important organs of the body.

Charles Darwin: The Expression
of Emotions in Man and Animals. New
York, NY: D Appleton; 1872.



Charles Darwin



Psyche und Herz

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Gesundheit | Umwelt | Geschichte

PSYCHOLOGIE

Professor Teddybär

Dacher Keltner ist ein Optimist. Der Psychologe ist davon überzeugt, dass Menschen von Natur aus freundlich sind. In seinem Labor in Berkeley erforscht er, wie das Gute im Körper verwurzelt ist – und sucht nach den wahren Superstars unter uns.

Vagal Superstars

"They respond to stress with calmness and resilience, they build networks, break up conflicts, they're more cooperative, they handle bereavement better." He says being around these people makes other people feel good. "I would guarantee Barack Obama is off the charts. Just bring him to my lab."



Resting respiratory sinus arrhythmia is associated with tonic positive emotionality.

Oveis C, Cohen AB, Gruber J, Shiota MN, Haidt J, Keltner D.
Emotion. 2009 Apr;9(2):265-70.