The Janus Face of Gestalt in Decision-Making

Ascension Providence Rochester Hospital

13th Annual QI Research Day

April 23, 2024

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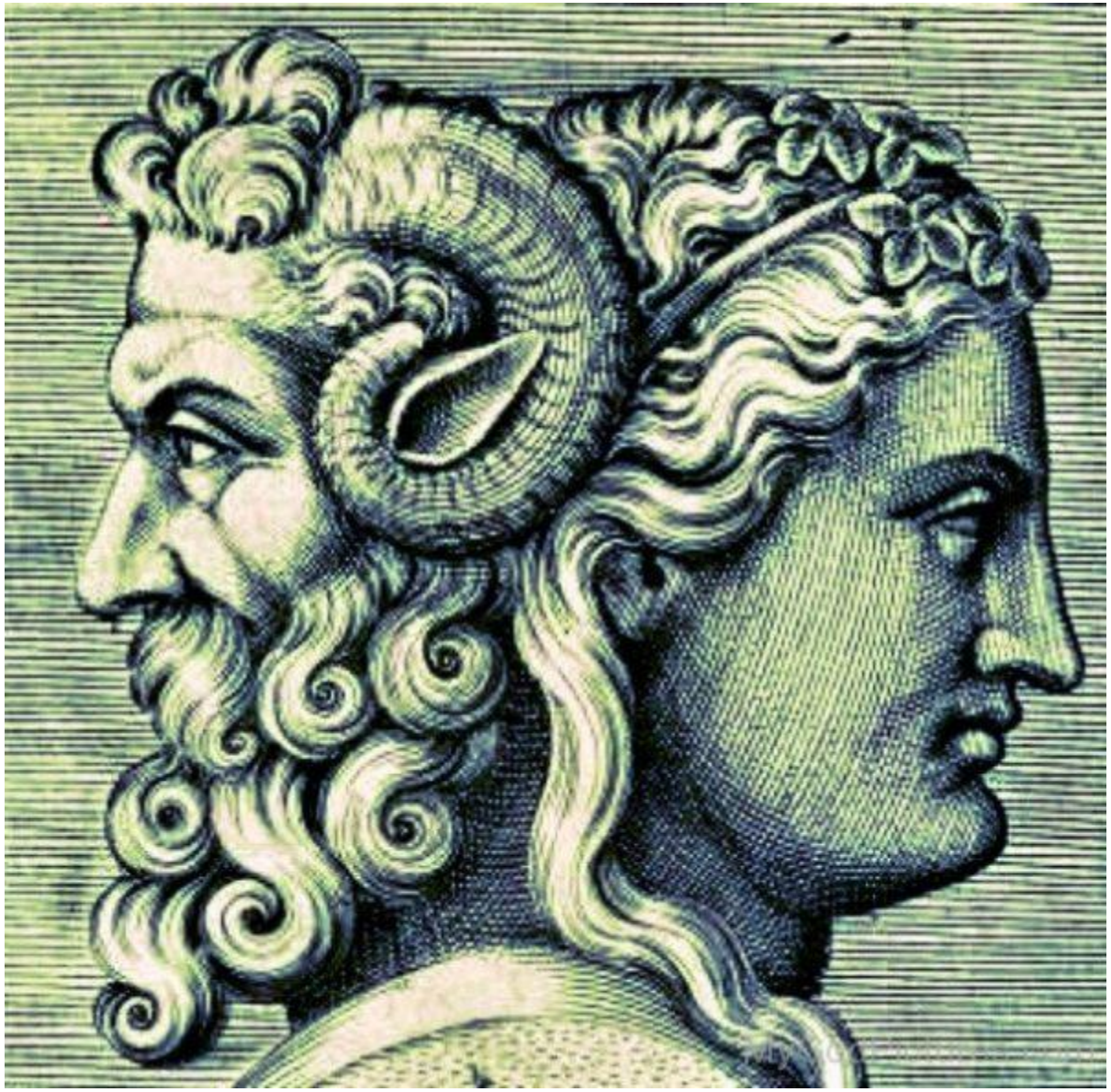
Cases

1. 62 year old investment banker, crutch dependent 2 weeks after achilles tendon repair, was at work and became short of breath. No past medical history, avid tennis player. Arrives with pulse 115, BP 109/61, RR 24, pulse oximetry 95% on 3LPM NC. CT shows bilateral lobar filling defects. PERT team decides for catheter based intervention, but interventionalist unavailable for uncertain time. The team decides to give 50 mg alteplase.

2. 59 year old man well known to ED, chronically short of breath, body mass index 42, history of HFpEF, COPD, current smoker was watching TV and became more short of breath. Arrives with pulse 110, BP 115/79, RR 22, pulse oximetry 95% on 5LPM NRB. CT shows bilateral lobar filling defects. PERT team decides risks of reperfusion therapy exceed the benefits.



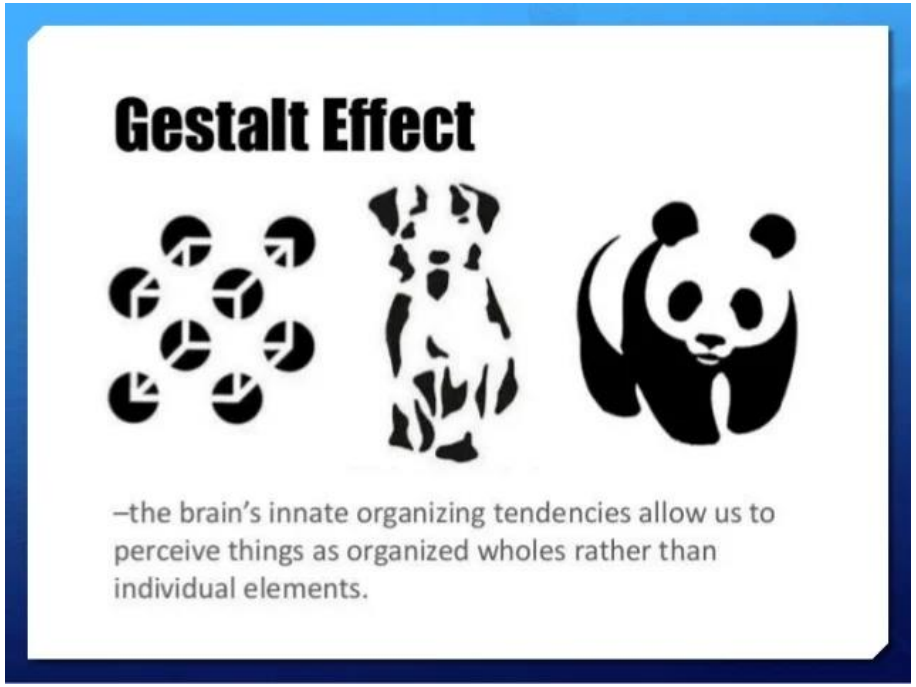
What is gestalt?

Classically: “The whole is more than the sum of its parts”

Natural, implicit, hidden processing of information

Advantages: Fast; System I and System II compatible, always available; flexible

Disadvantages: “Black Box”; experience dependent; subjective



Emerg Med J. 2014 Nov;31(11):870-1

Gestalt is accurate in PE exclusion and diagnosis

Received: 27 January 2023 | Revised: 4 May 2023 | Accepted: 23 May 2023

https://doi.org/10.1016/j.jtha.2023.05.023

jth

ORIGINAL ARTICLE

Accuracy of physicians' intuitive risk estimation in the diagnostic management of pulmonary embolism: an individual patient data meta-analysis

Rosanne van Maanen[1] | Emily S. L. Martens[2] | Toshihiko Takada[3] | Pierre-Marie Roy[4] | Kerstin de Wit[5,6] | Sameer Parpia[5,7] | Noémie Kraaijpoel[8] | Menno V. Huisman[2] | Philip S. Wells[9] | Grégoire Le Gal[9] | Marc Righini[10] | Yonathan Freund[11] | Javier Galipienzo[12] | Nick van Es[13,14] | Jeanet W. Blom[15] | Karel G. M. Moons[16] | Frans H. Rutten[1] | Maarten van Smeden[16] | Frederikus A. Klok[2] | Geert-Jan Geersing[1] | Kim Luijken[16]

CLINICAL INVESTIGATIONS

Comparison of the Unstructured Clinician Estimate of Pretest Probability for Pulmonary Embolism to the Canadian Score and the Charlotte Rule: A Prospective Observational Study

Michael S. Runyon, MD, William B. Webb, BSPH, Alan E. Jones, MD, Jeffrey A. Kline, MD

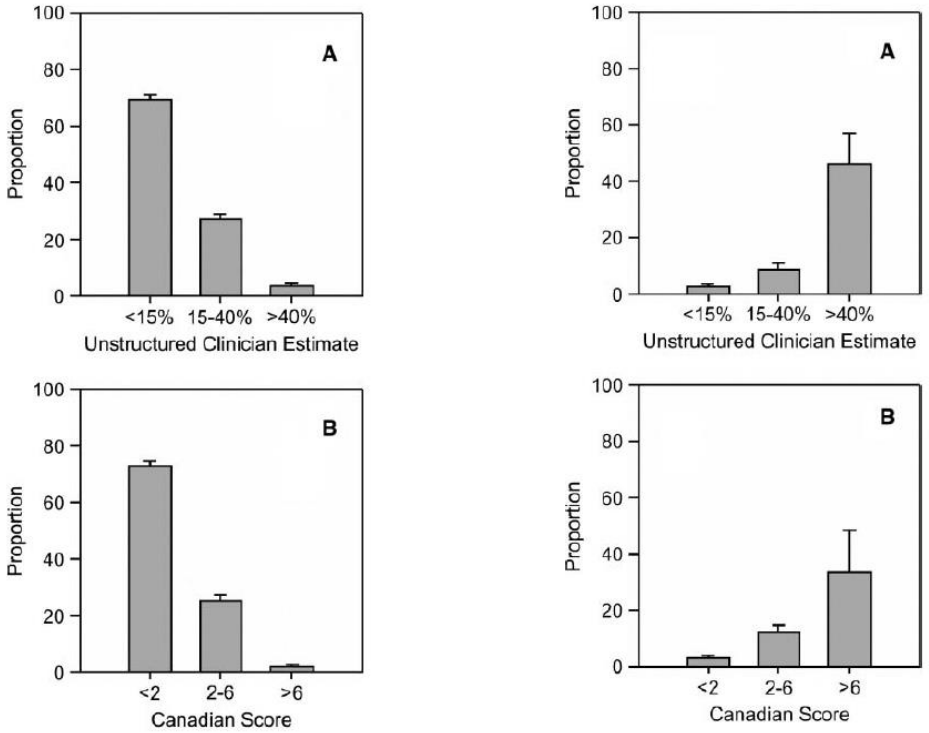


TABLE 2. Prevalence of PE by Unstructured Clinician Estimate and Training Level

	Unstructured Clinician Estimate of the Pretest Probability for PE No. of PE$^+$/Total (%)		
Training Level	Low (<15%)	Moderate (15%–40%)	High (>40%)
Level 1 (n = 183)	0/44 (0%) 95% CI = 0% to 8%	3/107 (2.8%) 95% CI = 0.6% to 8%	17/32 (53.1%) 95% CI = 34.7% to 70.9%
Level 2 (n = 679)	4/476 (0.8%) 95% CI = 0.2% to 2.1%	16/184 (8.7%) 95% CI = 5.1% to 13.7%	8/19 (42.1%) 95% CI = 20.3% to 66.5%
Level 3 (n = 834)	16/636 (2.5%) 95% CI = 1.5% to 4.1%	18/179 (10.1%) 95% CI = 6.1% to 15.4%	10/19 (52.6%) 95% CI = 28.9% to 75.6%
Level 4 (n = 852)	27/620 (4.4%) 95% CI = 2.9% to 6.3%	20/213 (9.4%) 95% CI = 5.8% to 14.1%	6/19 (31.6%) 95% CI = 12.6% to 56.6%
All (n = 2,548)	47/1,776 (2.7%) 95% CI = 2.0% to 3.5%	57/683 (8.4%) 95% CI = 6.4% to 10.7%	41/89 (46.1%) 95% CI = 35.4% to 57%

PE = pulmonary embolism.

The PERC rule

Gestalt low suspicion and:

1. Age < 50
2. Heart rate < 100
3. No hemoptysis
4. No estrogen use
5. No recent surgery
6. No prior PE or DVT
7. No unilateral leg swelling
8. Room air pulse oximetry ≥ 95%

PULMONARY/ORIGINAL RESEARCH

Clinician Gestalt Estimate of Pretest Probability for Acute Coronary Syndrome and Pulmonary Embolism in Patients With Chest Pain and Dyspnea

Jeffrey A. Kline, MD; William B. Stubblefield, BS

"For acute coronary syndrome, the area under the receiver operating characteristic curve (AUC) for gestalt pretest probability estimates was 0.78 (95% CI 0.71 to 0.85). For pulmonary embolism the AUC= 0.84 (95% CI 0.76 to 0.93)"

ORIGINAL CONTRIBUTION

Can Emergency Physician Gestalt "Rule In" or "Rule Out" Acute Coronary Syndrome: Validation in a Multicenter Prospective Diagnostic Cohort Study

Govind Oliver[1,2], Charlie Reynard, MBChB[1,2], Niall Morris, MBChB, PhD[1,2], and Richard Body, MBChB, PhD[1,2]

A related article appears on page 80.

Supervising Editor: Deborah B. Diercks, MD.

"Overall, gestalt had fair diagnostic accuracy with a C-statistic of 0.75 (95% confidence interval = 0.72 to 0.79)."

"Clinician gestalt is not sufficiently accurate or safe to either rule in or rule out ACS as a decision-making strategy."

Origin of gestalt: cognition and context

THE PRACTICE OF EMERGENCY MEDICINE/ORIGINAL RESEARCH

How and When Do Expert Emergency Physicians Generate and Evaluate Diagnostic Hypotheses? A Qualitative Study Using Head-Mounted Video Cued-Recall Interviews

Thierry Pelaccia, MD, PhD*; Jacques Tardif, PhD; Emmanuel Triby, PhD; Christine Ammirati, MD, PhD; Catherine Bertrand, MD; Valérie Dory, MD, PhD; Bernard Charlin, MD, PhD

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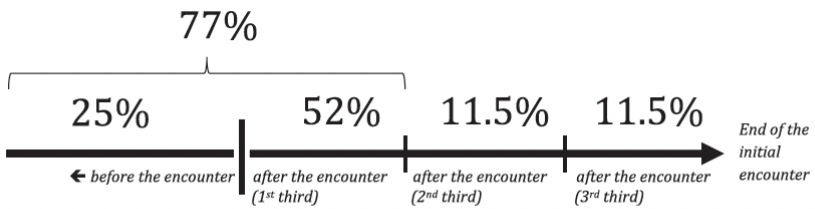
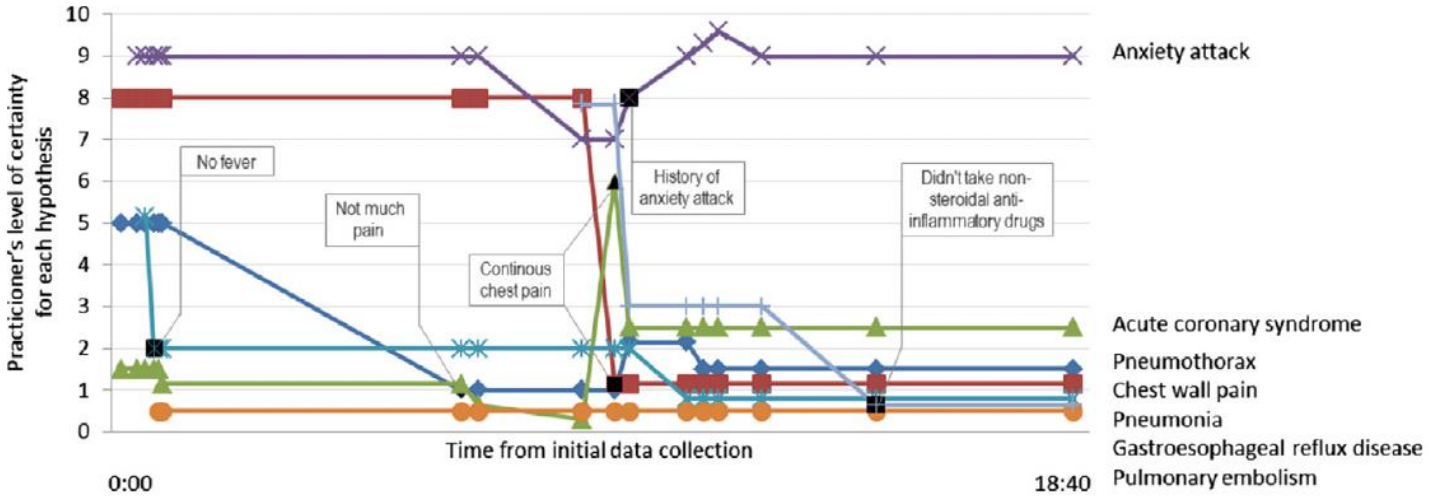
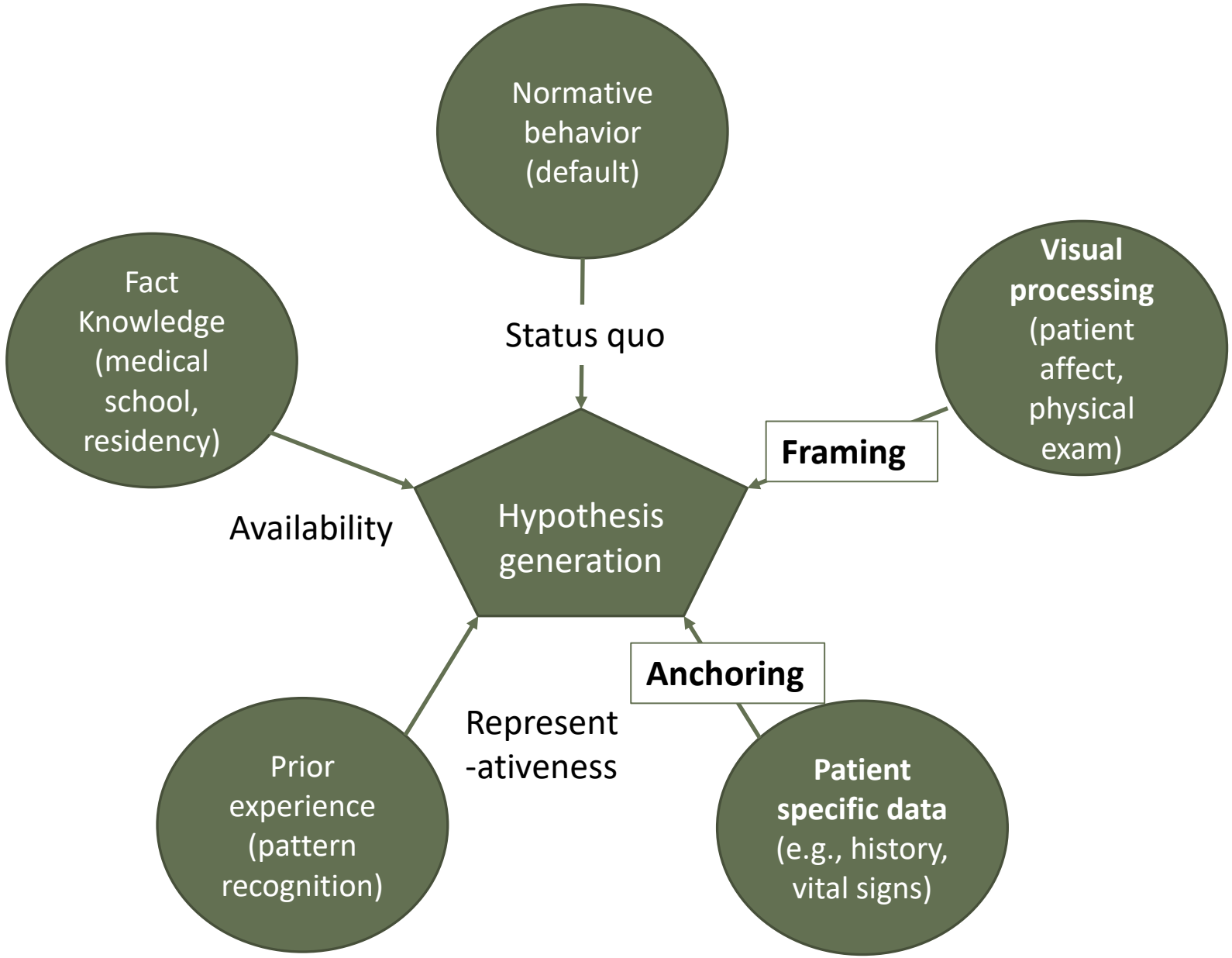


Figure 4. Proportion of hypotheses generated during the different stages of initial patient management.



Biases in gestalt processing

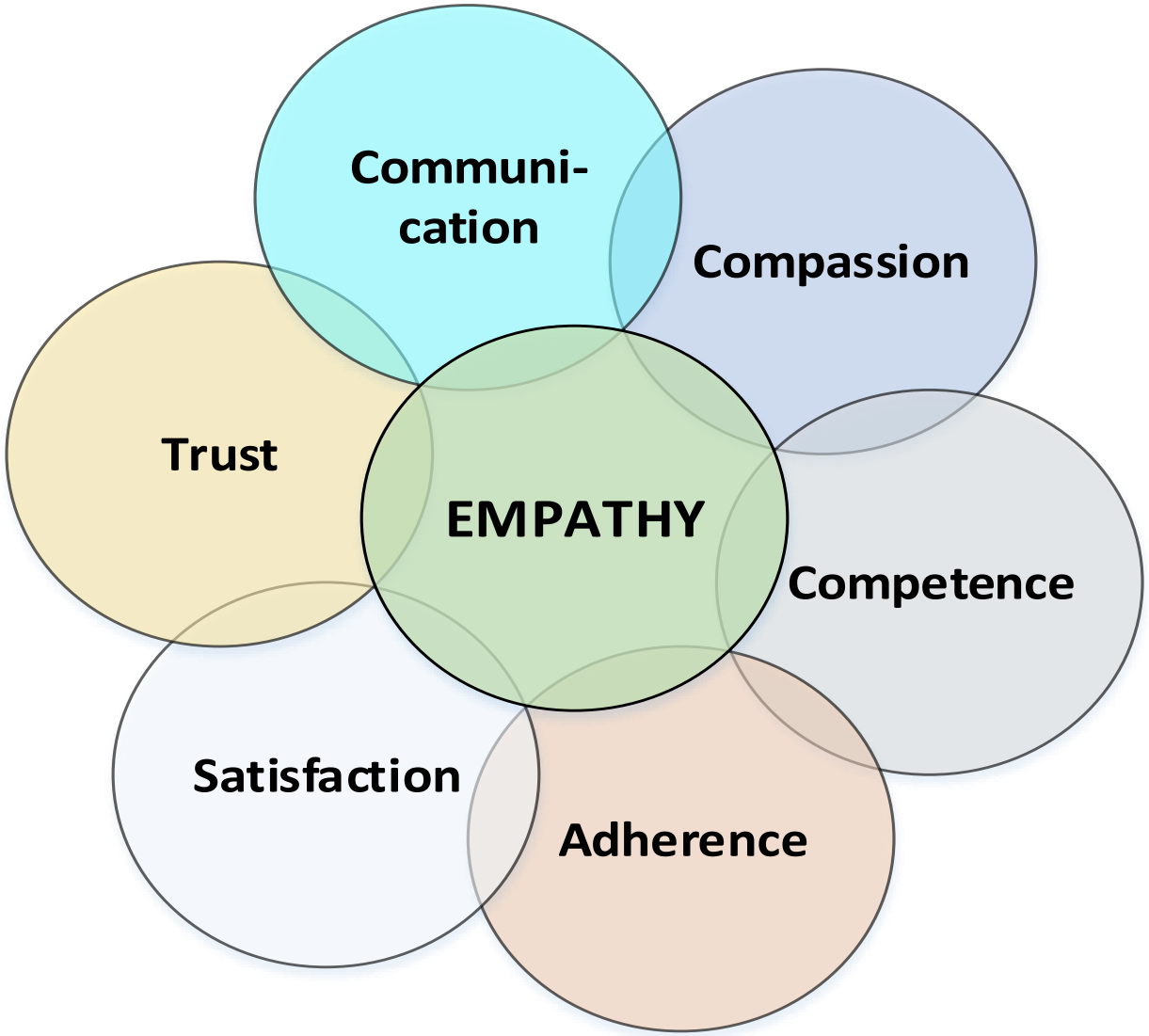


Patient Educ Couns . 2020 Aug;103(8):1650-1656

Where do physicians go right and wrong in estimating sick/not sick?

Table 3. Rankings of potential cognitive influencers on the Sick/Not sick estimate						
		+Adverse outcome				
Cognitive influencer	Frequency of rank in top 3	**False negative**		**True positive**		Significant difference*
History of present illness	69%	57%	34-81%	82%	69-96%	**Yes**
Overall Appearance, Sick/ Not Sick)	66%	75%	63-87%	65%	47-82%	No
Physical exam findings	53%	21%	8-35%	41%	21-61%	No
Vital signs	53%	54%	39-68%	24%	7-41%	**Yes**
Past medical history	43%	57%	43-72%	65%	47-82%	No
Similar visits by patient	9%	21%	8-35%	24%	5-42%	No
Patient speech pattern	3%	7%	0-16%	0%	0-0%	No
Patient eye contact	2%	7%	0-16%	0%	0-0%	No
*|(True positive - False negative)|						

Wipprecht et al, in review


Communi-
cation
Compassion
Trust
EMPATHY
Competence
Satisfaction
Adherence

Empathy improves diagnosis and reduces risk

Patient Education and Counseling 103 (2020) 1650–1656

Contents lists available at ScienceDirect

REVIEW ARTICLE

LESS IS MORE

Reassurance After Diagnostic Testing With a Low Pretest Probability of Serious Disease

Systematic Review and Meta-analysis

Alexandra Rolfe, MBChB; Christopher Burton, MD

JAMA INTERN MED/VOL 173 (NO. 6), MAR 25, 2013

Check for updates

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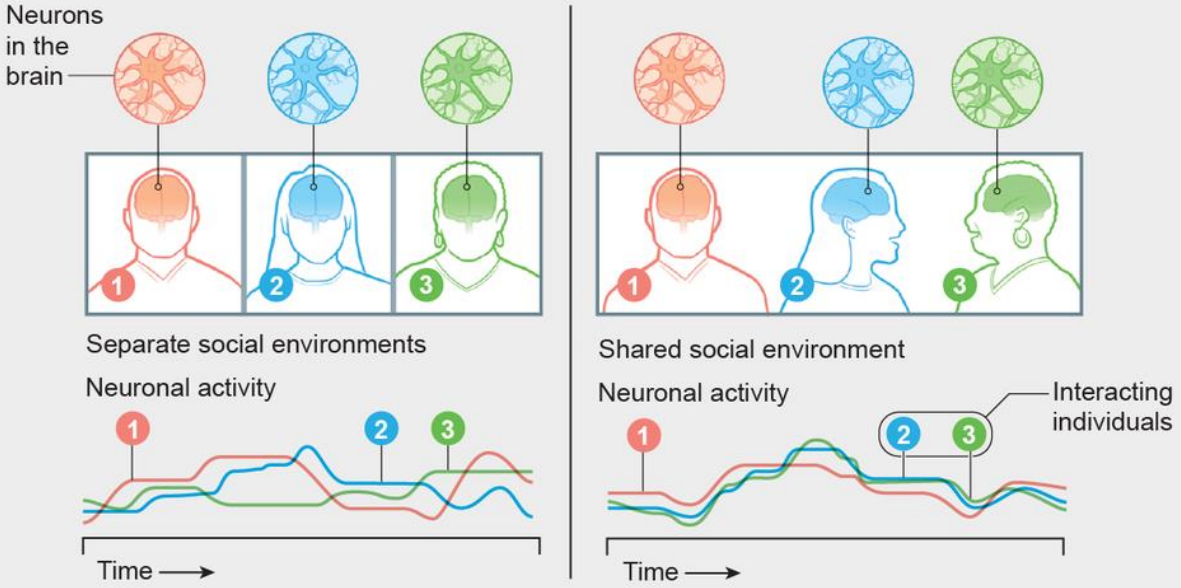
What Is Brain Synchrony?

When people are not interacting socially, their individual brain waves are quite different (*left*). But when they think, feel and act in response to others, patterns of activity in their brains align (*right*). Scientists call this phenomenon interbrain synchrony. Neurons in the different brains fire simultaneously—and as the interaction continues, the timing and location of brain activity become more and more alike. The extent of synchrony indicates the strength of a relationship, with brainwave patterns matching particularly well between close friends or an effective teacher and their students.



Scientific American
July/August 2023

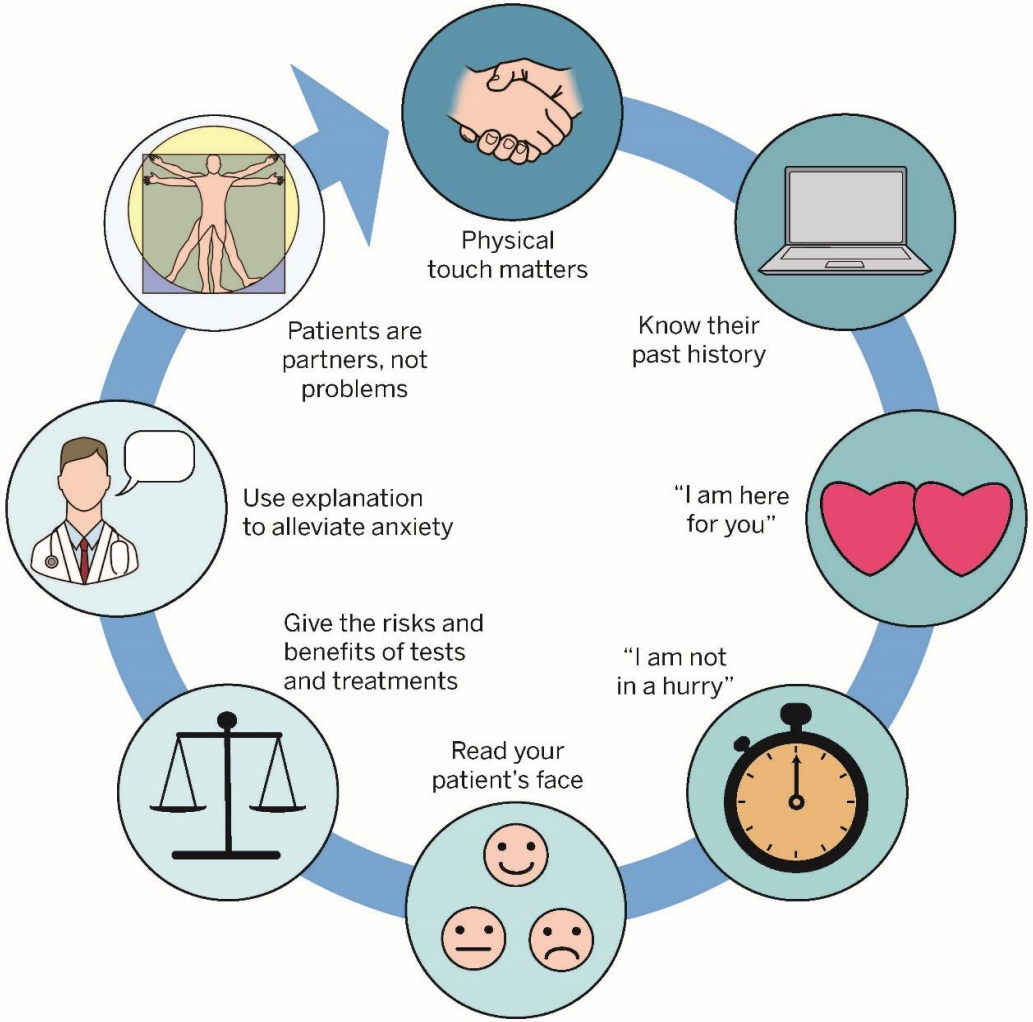
What do patients say they want

Multicenter survey of 305 ED patients undergoing low value CT scanning

"Overall, respondents across all groups expressed a preference for phrases emphasizing cognitive reassurance and careful consideration of **what had brought them into the ED**, followed by phrases referring to medical knowledge and evaluation, specifically that ED clinicians had assessed their presenting condition in the context of past medical history, vital signs and physical examination, as well as prior research."

Patient Education and Counseling 101, 2018: 717-722

Empathy Circle



Acad Emerg Med E&T 3:136-143, 2019

Empathy in parts

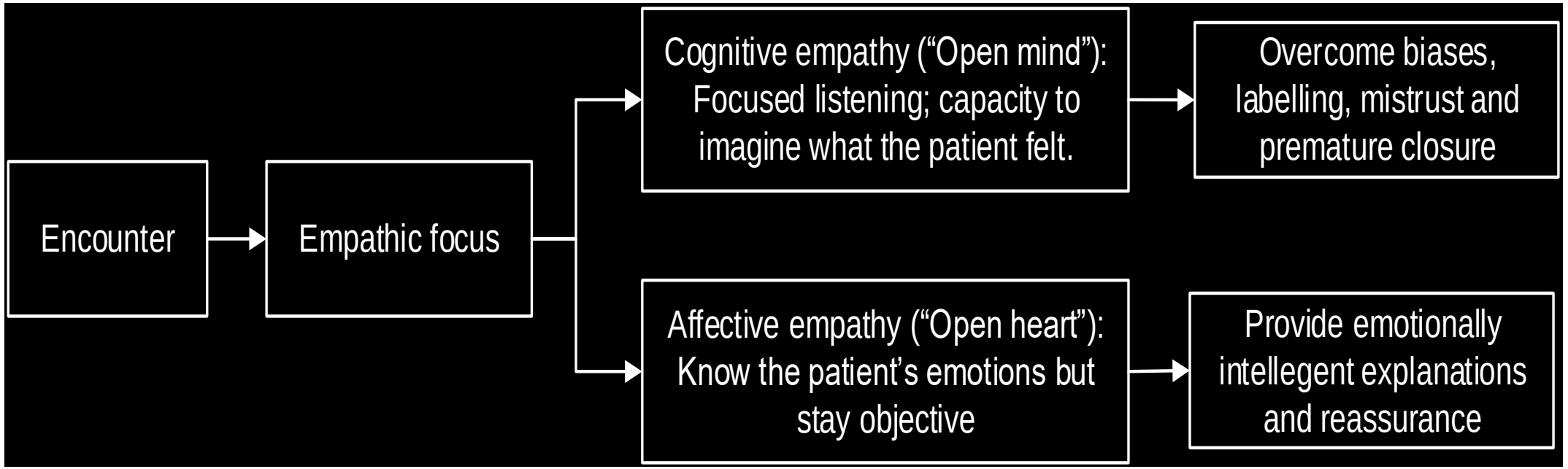
Cognitive empathy: Open mind; *life-saving*; capacity to understand what the patient experienced.

Affective empathy: Open heart; *soul-saving*; understanding what the patient feels.

Empathy is your individuality, it is not a competition; not an administrator's or researcher's metric. This is not patient satisfaction.

J Personal Soc Psychol 44(1): 113-126

DUAL EFFECT OF EMPATHY



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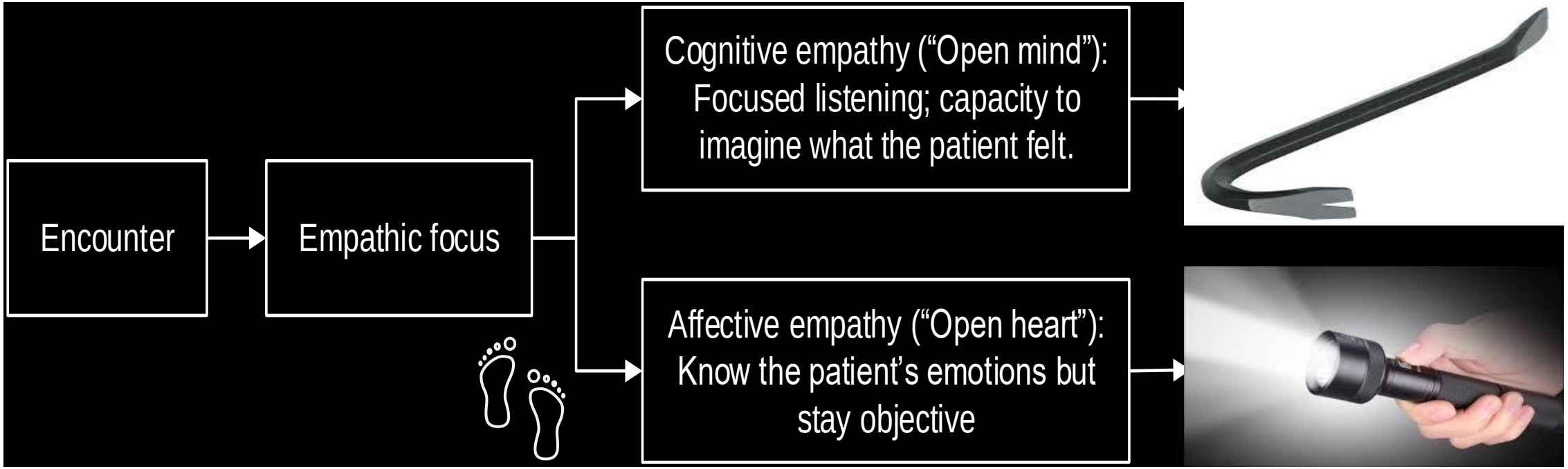

("Emotional footprint")

Synthesis: what you can do

- Accuracy of gestalt is likely disease and context dependent. (e.g. accurate for PE but less so for ACS)
- Memorialize in the record why you did not test for a problem on your differential diagnosis.
- Changing horses midstream is OK, but only occasionally
- In unscheduled care the first step to empathy: Look at your patient's face and ask yourself how does it make you feel? Second step is asking yourself if you understand what the patient was thinking, feeling and fearing when he or she wanted help.

During the presidential campaign of 1944, Jim Moran set out to disprove the political adage which cautions against "changing horses in mid-stream." Moran is shown doing just that in the middle of the shallow and narrow Truckee River near Reno, Nevada. Moran chose Reno for his experiment because, as he put it, "Isn't Reno where people go to change horses anyway?"