Conceptualizing Cooties:
Exploring the Impact of Expert Versus Intuitive Models of Contagion in Daily Life

Carol J. Nemeroff, Ph.D.
Professor and Program Liaison
Social and Behavioral Sciences, USM LAC

Faculty Commons USM Dec 92013
In the beginning was disgust...
The basic paradigm:
Sympathetic Magic

- Originally identified and named by anthropologist Sir James Frazer

- The Golden Bough (1890): compilation of magical beliefs, practices, and rituals collected from cultures worldwide

- Two fundamental principles underlying them:
  - Magical law of similarity
  - Magical law of contagion
How Magical Similarity works:

“Imitative magic”: Like equals like / like attracts like / the image equals the object
How Magical Contagion works:

Contagious magic: Once in contact, always in contact / the part equals the whole

"You possess yourself of his hair, his nail, anything that he has discarded or even part of his clothing and do something hostile to these things. This is just as effective as if you had possessed the person himself, and anything that you do to these things that belong to him must happen to him too."
Freud
Totem and Taboo Pg 335
New York: Moffat Yard and Company (1918)
How Magical Contagion works:

Direct contact:

Source: Quality X → Recipient: Quality X

Indirect contact:

Source: Quality X → Medium: Object, Vehicle for transmission of quality X → Recipient: Quality X
Magical contagion is broader than its scientific counterpart, germ theory:

Transmissable qualities may be

- Physical, mental/behavioral, or moral
- Negative or positive in valence (e.g., Nelson Mandela cooties)
Examples of contagion are everywhere:

Jackie Kennedy’s 3 Strand Faux Pearl Necklace sold by Sotheby’s for $211,500
Early findings:
Similarity
(Rozin, Millman, & Nemeroff, 1986)
Contagion
(Rozin, Millman, & Nemeroff, 1986; Rozin, Nemeroff, Wane, & Sherrod, 1989; Nemeroff & Rozin, 1989)
Similarity and contagion principles are pervasive

- In modern, industrialized cultural contexts, they operate at an implicit, unconscious level.

- In traditional societies, they may operate at an explicit level, consciously articulated and taught.
Magical contagion and similarity as universals of the human mind?

- Cognitive heuristics or “rules of thumb” (Nemeroff & Rozin, 2000; Rozin & Nemeroff, 2002)
  - Time and effort-saving devices
  - Preprogrammed (built in to the cognitive system as visual illusions are built in to the visual system)
  - Generally adaptive but lead us astray in some cases
Focus on contagion

1. Delimiting contagion (Nemeroff & Rozin, 1992)
   - Where are the limits of the law? What prevents us from all being obsessive-compulsive?

   - The “Kosher study”
Kosher Study

**Method:**
- Present examples of disgusting and kosher foods, and similar and contagious “extensions” of them, to observant and non-observant participants
  - Microcontamination (1/60th rule)
  - Kosher bacon bits (ma’urit eyin)
  - Contagion via similarity (stir chicken soup with fake plastic pork chop, or drop a fake cockroach in stew)

**Results:**
- More observant participants’ concerns were less re kashruth, more for disgust, in terms of magical extensions
Focus on contagion

2. Mapping mental models of contagion (Nemeroff & Rozin, 1994)

- What type of “stuff” is transmitted?
- Infer its nature based on what can undo it
- 36 participants, 3-5 hours, ratings and interviews
Method:

- Imagined scenarios of contact between participant and objects (wearing a sweater, eating ice cream)
- Objects are new or have contacted a contagious “source” – interpersonal/moral, physical illness, or disgust
- Difference in rating between new versus “contaged” object = basic contagion effect
- What is impact of different types of purifying action on the contagion effect?
5 models:

- **Germ (living microorganisms)** - Sterilization is most effective
- **Residue (traces of non-living material)** - Laundering, deodorizing are most effective
- **Symbolic interaction (meaning of action)** - Symbolic actions (gash, unravel) are most effective
- **Associative (reminding value)** - Change cues (unravel, reknit into scarf) is most effective
- **Spiritual (soul stuff, ‘vibes’)** – Cancel contagion through contact with opposite source’s ‘stuff’
Results:

- Plenty of evidence of contagion concerns across all scenarios

- **On average**, participants used:
  - Symbolic models for interpersonal/moral (lover, good, enemy, evil) contagion
  - Residue models for physical (hepatitis, AIDS, dogdoo) sources of contagion
BUT at the Individual level of analysis:

- Some used a physical model for physical sources and a symbolic model for interpersonal/moral sources ("rational")
- Some used one model across all sources without making any physical/moral distinction
- Some used one model for positive sources and another model for negative sources
- Many used a germ or residue model for interpersonal/moral sources
- 25% used a non-physical model for physical sources (hepatitis, AIDS, dogdoo)
In short, a health educator’s nightmare.
Branching focus: 3 lines of research

- **Moral food, contagious bodies**: Role of magical contagion beliefs in food-related judgments and behaviors ("you are what you eat")

- **Moral germs**: effects of the intuitive contagion model on illness risk perceptions and prevention

- **Moral environments**: tainted water, sacred ground
I. Moral Food, Contagious Bodies: You Are What You Eat beliefs and food taboos in America
You are what you eat  (Nemeroff & Rozin, 1989).

- Chandorans V1:
  - Hunt wild boar
  - Hunt marine turtle
  - Eat only boar
  - Use turtle for shells

- Chandorans V2:
  - Hunt wild boar
  - Hunt marine turtle
  - Eat only turtle
  - Use boar for tusks

Differences are small but in the predicted direction on 11/13 items (p = .00032, exact binomial probability).

Replicated with the Hagi (vegetarian or elephant-eaters): differences in the predicted direction on 11/11 items (p=00049).
### SUMMARY OF HAGI RESULTS (ELEPHANT-EATERS VERSUS VEGETARIANS)

<table>
<thead>
<tr>
<th>Dimension*</th>
<th>Attribute check elephant mean scores</th>
<th>Culture-rating elephant-eaters vs. vegetarians mean difference</th>
<th>Concordance of two measuresb</th>
</tr>
</thead>
<tbody>
<tr>
<td>thin—heavy</td>
<td>1.65c</td>
<td>-.44</td>
<td>+</td>
</tr>
<tr>
<td>generous—ungenerous</td>
<td>4.95</td>
<td>.32</td>
<td></td>
</tr>
<tr>
<td>gentle-natured—macho</td>
<td>6.00</td>
<td>.19</td>
<td></td>
</tr>
<tr>
<td>delicate—strong</td>
<td>2.70d</td>
<td>-.28</td>
<td>+</td>
</tr>
<tr>
<td>frivolous—serious</td>
<td>3.83</td>
<td>-.08</td>
<td></td>
</tr>
<tr>
<td>tough (thick-skinned)—sensitive</td>
<td>5.85</td>
<td>.21</td>
<td></td>
</tr>
<tr>
<td>interesting—boring</td>
<td>5.45d*</td>
<td>.37</td>
<td>+</td>
</tr>
<tr>
<td>slight build—big build</td>
<td>1.35c</td>
<td>-.95**</td>
<td></td>
</tr>
<tr>
<td>loud—quiet</td>
<td>4.55d*</td>
<td>.09</td>
<td></td>
</tr>
<tr>
<td>smart—not too smart</td>
<td>5.10d*</td>
<td>.19</td>
<td></td>
</tr>
<tr>
<td>honest—dishonest</td>
<td>5.63</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>graceful—ponderous</td>
<td>2.90d*</td>
<td>-.31</td>
<td>+</td>
</tr>
<tr>
<td>wise—shrewed</td>
<td>5.25</td>
<td>.08</td>
<td></td>
</tr>
<tr>
<td>unsociable—sociable</td>
<td>3.00d*</td>
<td>-.13</td>
<td>+</td>
</tr>
<tr>
<td>restrained—wild</td>
<td>5.10</td>
<td>-.07</td>
<td></td>
</tr>
<tr>
<td>clean—smelly</td>
<td>4.29</td>
<td>-.17</td>
<td></td>
</tr>
<tr>
<td>contented—discontented</td>
<td>5.70</td>
<td>.13</td>
<td></td>
</tr>
<tr>
<td>lazy—industrious</td>
<td>4.50</td>
<td>.01</td>
<td></td>
</tr>
<tr>
<td>unreliable—reliable</td>
<td>3.75</td>
<td>.10</td>
<td></td>
</tr>
<tr>
<td>civilized—barbaric</td>
<td>4.90</td>
<td>.05</td>
<td></td>
</tr>
<tr>
<td>leathery skin—smooth skin</td>
<td>6.45c</td>
<td>.08</td>
<td>+</td>
</tr>
<tr>
<td>eat sparingly—hearty appetite</td>
<td>2.10d*</td>
<td>-.36</td>
<td>+</td>
</tr>
<tr>
<td>peaceful—aggressive</td>
<td>5.40d*</td>
<td>-.34</td>
<td>+</td>
</tr>
</tbody>
</table>

*aAll attribute dimensions are listed with the attribute scored 8 at the left and the attribute scored 1 at the right.

*bConcordance (same direction of effect) for attribute check and culture rating data is indicated as + (concordant), 0 (equal), = (discordant) for the attribute scores <3 or >6 for items judged by experimenters to be characteristic of animals as opposed to plants.

*cMeets criterion of being <3 or >6 rating, and hence a "critical" attribute.

*dItems selected by experimenters as characteristic of animals as opposed to plants.
“You are what you eat” at home: Moral overtones of food: Judgments of others based on what they eat (Stein & Nemeroff, 1995)

- 21 year old student
- Active, physically fit
- Enjoys tennis and running
- 5’ 4” tall, 125 pounds
- Regularly eats: fruit (especially oranges), salad, homemade whole wheat bread, chicken, and potatoes.

- 21 year old student
- Active, physically fit
- Enjoys tennis and running
- 5’ 4” tall, 125 pounds
- Regularly eats: steak, hamburgers, French fries, doughnuts, and double-fudge ice cream sundaes.
Mean differences between ‘good’ and ‘bad’ food eaters on adjective checklists

<table>
<thead>
<tr>
<th>Trait Dimension</th>
<th>Good-Food List</th>
<th>Bad-Food List</th>
<th>Significance Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Morality scale</td>
<td>3.50</td>
<td>4.12</td>
<td>( p &lt; .001 )</td>
</tr>
<tr>
<td>Fitness and weight</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fit/Out of shape</td>
<td>2.01</td>
<td>3.28</td>
<td>( p &lt; .001 )</td>
</tr>
<tr>
<td>Active/Inactive</td>
<td>2.12</td>
<td>2.69</td>
<td>( p &lt; .001 )</td>
</tr>
<tr>
<td>Not fat/Fat</td>
<td>2.01</td>
<td>3.22</td>
<td>( p &lt; .001 )</td>
</tr>
<tr>
<td>Thin/Not thin</td>
<td>3.49</td>
<td>3.92</td>
<td>( p = .052 )</td>
</tr>
<tr>
<td>Sex-role appropriateness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Composite attractiveness</td>
<td>3.21</td>
<td>3.69</td>
<td>( p &lt; .001 )</td>
</tr>
<tr>
<td>Feminine/Not feminine</td>
<td>4.66</td>
<td>5.08</td>
<td>( p = .018 )</td>
</tr>
<tr>
<td>Not masculine/Masculine</td>
<td>4.56</td>
<td>4.95</td>
<td>( p = .045 )</td>
</tr>
<tr>
<td>Likable/Unlikable</td>
<td>2.81</td>
<td>3.11</td>
<td>( p = .050 )</td>
</tr>
</tbody>
</table>

**Morality items were:** tolerant of others/intolerant, monogamous/promiscuous, considerate/inconsiderate, concerned/unconcerned, ethical/unethical, kind-hearted/cruel, virtuous/immoral.
Subsequent studies on moral bodies:

- **Magical contagion in bulimia and anorexia**, with Erika Schupak-Neuberg and Gina Graci
  - Heightened magical contagion concerns among anorexics and bulimics, linked to inability to regulate self-other boundaries

- **Ethics of Emaciation**, with Carolyn Cavanaugh:
  - Interaction of sociocultural ideals & pressures, and intuitive thinking about food, bodies, and contagion

- **Pregnant Bodies**, with Lisa Rubin
Empowering Foods: Eat the Rib-Eye, Ladies!
Nemeroff, Rubin, Stein, Trompeter, Tannenbaum, Noyles & Turesky, in prep

- Shifting societal ideals of beauty and gender roles:
More shifting trends: muscles for everyone; chocolate as health food
Feminist theory: Body as battleground
Eat the Rib-Eye, Ladies?

- Impression management through food: people can intentionally manage social impressions through their public eating behavior - ‘you eat what you are.’


- If true, would represent a significant shift in role expectations around food, from ideal of delicacy and self-denial to strength and self-assertion. (Also carnal passions?)
Step 1: The Pilot Study (or so we thought)

- Need to determine the appropriate ‘empowering foods’ and appropriate adjectives for dependent measure of ‘empowerment’

- Online survey of ‘Factors affecting food choices’ (SurveyGizmo):
  - Can food be empowering?
  - Free list up to 10 foods you consider to be empowering
  - Why are they empowering?
  - What do you mean by ‘empowering?’
Top-mentioned ‘Empowering Foods’ (n = 246, 46 male)
Emergent Categories (coding) of Empowering Food:

- Preparation
- Origins
- Protein
- Fruit
- Vegetables
- Grains
- Junk carbs
- Supplements/nutraceuticals
Illustrative Subcodes

- Preparation
  - Raw
  - Fried/fast-food
  - Meticulous (gourmet, slow, self-prepared)

- Origins
  - Organic/local
  - Mass-produced/conventional
  - Culture/ethnicity
Illustrative Subcodes, continued

- Supplements/nutriceuticals
  - Superfoods (e.g. berries & extracts)
  - Sports drinks & caffeine (energizers)
  - Nutriceuticals
  - Natural beverages (e.g., green tea, water)
  - Chocolate?
What makes foods empowering?

- Time spent preparing/eating
- Health impact
- Ethics
- Symbolism
- The specifics differ by gender
Illustrative quotes: male

- “In terms of literally how much physical power you need to eat the food. But also how much power the food gives you.”
- “Hearty, meaty, juicy. You need to take control over the food (referring to steak).”
- “A good piece of meat makes a man feel good about himself.”
- “They’re so manly. They make you punch walls.” (re T-bone steak)
- (re salmon) “Energy rich. Less robust than beef but pretty good fuel. More effeminate. Salmon is pink and all that.”
Illustrative quotes: female

- “These are foods that, when I have them, I feel virtuous and healthy... When I have ‘empowering foods’ I feel like I have an active hand in improving my health.”

- “My definition of empowering... was foods that made me feel better for choosing them.”

- “Enabling me to function throughout the day without feeling too bad about myself.”
II. Moral germs: Intuitive contagion in illness risk perception and prevention
Mapping key features of magical contagion

- Where intuitive and expert models of contagion clash: systematic over-reactions and under-reactions to HIV.
  - Rozin, Markwith, & Nemeroff, 1992; Nemeroff, Brinkman, & Woodward, 1994
Four features of magical contagion contrast with biomedical contagion:

1. Permanence of effects
2. Holographic essence
3. Backwards action
4. Moral-germ conflation
Results: All four features are prominent in everyday thinking about HIV/AIDS:

1. **Permanence**
   - Reluctance to eat off of cutlery even after washed, disinfected, melted down (other objects too)

2. **Holographic essence**
   - Failure to distinguish between a single virus and 10,000 viruses entering blood system (“they breed, you know!” - dose insensitivity)
   - Failure to distinguish between different types of contact (route insensitivity)
3. **Backwards action**  
   - Discomfort at an AIDS patient being admitted to the hospital bed you just left

4. **Moral-germ conflation**  
   - Feelings of guilt (moral concern) better predict degree of worry about contracting HIV than do actual risk behaviors and knowledge that they are risky
My loved one’s germs won’t hurt me
Conceptions of germs from ‘safe’ vs ‘dangerous’ others (Nemeroff 1995)

STUDY 1: “Imagine that (person X) has the flu. Draw how their flu germs look to you.”

Person X = self, lover, stranger, disliked.
Two raters ‘blind’ to germ source rated the drawings on dimensions including threat, intensity, colors.

Self, lover, and stranger germs do not differ from each other

But all differ from disliked/enemy germs, which are portrayed as more threatening.

Are participants simply wishing worse germs on those they disliked?
Study 2

- New participants read descriptions of brief contact with lover, stranger, or disliked.

- “Given only this amount of contact…
  - How likely are his or her germs to make you sick?”
  - If you think you might get sick, how sick do you think you would get?”
Results

- Linear trend for severity estimates
  - Lover < Stranger < Disliked

- No differences for likelihood estimates
  - Suggests (as we find in other studies) a head versus heart distinction.
Blurring emotional safety with physical safety: the casual-regular partner distinction (Comer & Nemeroff, 2000)

- Young adults use condoms more with regular than with casual partners. Is the basis for this realistic, or a result of moral-germ conflation?
Between-group design:

- **Scenario 1:** Regular partner, emotionally safe (trust, caring, future plans)

- **Scenario 2:** Regular partner, objectively and emotionally safe (trust, caring, future plans, knowledge of past relationships, explicit monogamy, HIV-tested)

- **Scenario 3:** Casual partner, neither emotionally nor objectively safe (meet at a bar, go home together)

- **DVs:** How safe would you feel emotionally? How risky would it be to have unprotected sex in terms of infection risk?
Results:

- Physical risk assessments follow perceptions of emotional safety, disregarding differential objective risk information.

- This was NOT due to participants’ failure to notice information, or their making additional assumptions about monogamy or other objectively important conditions for regular emotionally safe condition (as per multiple checks).
Interpersonal perceptions and the placebo/nocebo effect.

Nemeroff, Hoyt, & DeAngelo, funded by NIH/NCCAM.
The question:

- Do the biased expectancies characteristic of magical (intuitive) thinking about contagion translate into *actual* illness perceptions in the real world?
Overview of design

• **Bogus viral cold challenge**
  – Participants are told they will receive rhinovirus
  – They actually receive sterile saline

• **Three conditions of magical contagion manipulation (varies morality of source):**
  – Good source (firefighter/nice guy)
  – Neutral source (virus bank/impersonal)
  – Bad source (creepy ex-convict)
Negative = Prisoner (PR)

Neutral = Viral Bank (VB)

Positive = Firefighter (FF)
Outcome measures included:

- **Checklist of physical symptoms**
  - completed at baseline, post manipulation, and 3 times daily for 3 days

- **Salivary secretory immunoglobulin A (slgA)**
  - a non-specific marker of immune activation

- **Salivary cortisol**
  - the “stress hormone”

*Saliva was collected at baseline, post manipulation, and once daily for three days*
Results
Symptom perceptions by source condition:

- Prisoner
- Viral Bank
- Firefighter

[Graph showing mean number of symptoms over days of experiment]
sIgA and Cortisol

• Data were log-transformed (sIgA and cortisol are highly positively skewed).

• For both variables
  – no significant group differences at baseline
  – no significant differences immediately post-manipulation, or on days 2 and 3 at home
  – however on day 1 at home - the point of peak expectation of cold onset - there was a statistical trend on each
  – These were followed up with specific contrasts
sIgA

- sIgA was lower for the firefighter condition than the prisoner condition (effect of contrast = -.09, p = .03).

- The firefighter and virus bank conditions did not differ from each other.

- More immune activation occurred (temporarily) in response to “bad germs” than in response to “good germs.”
Log sIgA by source condition
Cortisol

- Cortisol levels in the prisoner condition were significantly higher than in the neutral (virus bank) condition (effect of contrast = -.12, p=.027)

- The firefighter condition was in-between, but was not significantly different from the neutral condition mean

- This again suggests a negative contagion effect for cortisol, with more “stress hormone” response to the prisoner’s germs.
Log cortisol by source condition

Day 1
Cathy knew it all along
What do we make of all this?

Effects were small but consistent, and it may be considered remarkable to have found anything at all given that:

- the entire MC manipulation consisted of a single scripted sentence that differed, within a 45 minute lab session followed by three days at home.

- the results of interest were not direct placebos or nocebos, but rather, possible moderating influences on a nocebo manipulation, making effects both conceptually and pragmatically complex.
Assuming the effects replicate:

- Would suggest that not only health beliefs and behaviors but also *health outcomes* may routinely be influenced by subtle factors related to magical contagion and the moral-germ conflation, e.g.:
  - Beliefs about how or from whom an illness or condition was contracted
  - Perceptions of how morally good or bad, or how powerful, a health care provider is
  - Perceptions of the “essence” of a treatment (e.g., chemotherapy as deadly poison versus healing elixir)
III. Tainted Water, Sacred Ground

Public Acceptability of Recycled Water
Population growth + Climate Change = Water Shortage

The wars of the near future will be fought not over oil, but over water. Mark Lapping
Water conservation measures help, but not enough:

- Xeriscaping (desert landscaping)
- Public education campaigns (don’t let the tap run)
- Low-flow toilets, shower heads
- Highly targeted irrigation
Water Reuse and Recycling (WRR)

3-phase processing system yields ultra-pure, good tasting water

From http://www.lacsd.org/about/wastewater_facilities/default.asp
NEWater flagship plant in Singapore
Los Angeles Water District

- Has WRR technology

- Tertiary processed water is potable (and good tasting!) but it is not currently used for drinking

- Why? Because promising initiatives are easily stymied by opponents
TOILET TO TAP...

Toilet To Tap
But Crap Is Still Crap!

FROM TOILET TO TAP

Matthew 15:1-20
WateReuse Foundation

• A nonprofit organization whose mission is to:
  – “conduct and promote applied research on the reclamation, recycling, reuse, and desalination of water.”
The Team:

- **Brent Haddad**, Environmental Sciences, University of California Santa Cruz (lead)

- **Paul Rozin**, Psychology Department, University of Pennsylvania

- **Paul Slovic**, Decision Research and Psychology Department, University of Oregon:

- **Carol Nemeroff**, Portable Ethics, Inc. and Social and Behavioral Sciences, University of Southern Maine.
• The problem:

– Recycled water’s proximal history as sewage elicits disgust and contamination concerns

– Intuitive thinking about contagion is activated and is difficult to override

– How can we get the cognitive sewage out after the physical sewage is gone?
Framing our world:

- We constantly frame things out of awareness (Tversky & Kahneman, 1981)
- But the right cues can heighten awareness
  - Hurliman & McKay (2006)
    - Color, odor, salt raise concerns
    - Turbidity
  - And obviously, advertising and slogans
Methods:

- Surveys administered surveys in 5 U.S. cities:
  - Eugene, OR; Philadelphia, PA; Phoenix, AZ; San Diego and San Jose, CA
  - Participants approached in public places.
- N = 2695
  - 51.5% male
  - Average age 37.9 yrs (s.d. 15.5)
  - Average education 14.8 yrs (s.d. 2.8)
  - Few geographic differences
“Recycled” water is water that is separated from wastewater and highly treated so it can be used again. It is also called “reclaimed water” and “water reuse.” Would you be willing to drink certified safe recycled water? (Yes, Uncertain, No)

- 38% willing
- 49% uncertain
- 13% refuse
What sort of purifications make recycled water acceptable?

• What is most effective psychologically may not be the same as what is most effective physically

• Method followed Nemeroff & Rozin, 1994
  – Imagine a series of purifications
  – Rate acceptability of water after each one
• “Now we are going to ask you about your reaction to a set of different kinds of water. In each case, assume you are thirsty and that an 8-oz glass of the water described is available for you to drink. Assume all the waters below, except raw sewage water and boiled sewage water, look and taste the SAME.

• Rate on a scale of 0-10 how willing you are to drink each type of water described (0=totally unwilling/uncomfortable; 10=totally willing/comfortable)?
Two types of item:

- Delivery methods
  
  - How willing are you to drink commercial bottled water (from a spring)?
  
  - How willing are you to drink commercial bottled water (filtered tap water)?
  
  - How willing are you to drink tap water?
• Processes (boil, skim, filter, etc.)

- How willing are you to drink sewage water that has been kept still so lighter things float to the surface and heavier things sink to the bottom, after which all these things are removed?

- How willing are you to drink sewage water that is filtered through soil to remove remaining living microbes?

- How willing are you to drink sewage water that is passed through tightly meshed filters to remove any microbes and unwanted chemicals?

- Most extreme: How willing are you to drink 1 part tertiary treated sewage water mixed with 1000 parts pure mountain spring water?
Conclusions:

- Responses to recycled water follow pattern of magical contagion for many participants

- For those individuals, the process of purification is less important than delivery method

- Need to break the perceived connection between water and its history as sewage
  - E.g., time, distance, in natural setting/process

- Note: we did NOT try counteracting via “soul-stuff”
Excerpt from an interview with Dr. Emoto:

- **REIKO**: Once a certain vibration is introduced to the water, how long does the water "remember" that crystalline structure?

- **DR. EMOTO**: This will be different depending on the original structure of the water itself. Tap water will lose its memory quickly. We refer to the crystalline structure of water as "clusters." The smaller the clusters, the longer the water will retain its memory......A tight bonding structure is best for maintaining the integrity of information.

[http://www.enwaterment.com/page/Masaru_Emoto](http://www.enwaterment.com/page/Masaru_Emoto)
<table>
<thead>
<tr>
<th>Image</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1" alt="Sanbu-ichi Yusui Spring water" /></td>
<td>Sanbu-ichi Yusui Spring water, Japan Shimanto River, referred to as the last clean stream in Japan</td>
</tr>
<tr>
<td><img src="image2" alt="Fountain in Lourdes, France" /></td>
<td>Fountain in Lourdes, France</td>
</tr>
<tr>
<td><img src="image3" alt="Biwako Lake, the largest lake at the center of Japan and the water pool of the Kinki Region. Pollution is getting worse." /></td>
<td>Biwako Lake, the largest lake at the center of Japan and the water pool of the Kinki Region. Pollution is getting worse.</td>
</tr>
<tr>
<td><img src="image4" alt="Yodo River, Japan, pours into the Bay of Osaka. The river passes through most of the major cities in Kasai." /></td>
<td>Yodo River, Japan, pours into the Bay of Osaka. The river passes through most of the major cities in Kasai.</td>
</tr>
<tr>
<td><img src="image5" alt="Untreated Distilled Water" /></td>
<td>Untreated Distilled Water</td>
</tr>
<tr>
<td><img src="image6" alt="Fujiwara Dam, before offering a prayer" /></td>
<td>Fujiwara Dam, before offering a prayer</td>
</tr>
<tr>
<td><img src="image7" alt="Fujiwara Dam, after offering a prayer" /></td>
<td>Fujiwara Dam, after offering a prayer</td>
</tr>
</tbody>
</table>
“Transform Energy with Tachyon Products

Water Crystals, before and after being exposed to a mobile telephone and the microwave.


(from: http://www.energybalancing.net/pages/products.html)
Energized water has had its molecules returned to their original life-giving, super moisturizing state.... a major key to healing, and the maintenance of health and vitality.

Pure, natural, unpolluted spring water is naturally structured water. Since most of us have the mediocre water quality from commercial water producers or municipal services, we need to return tap water to its original, hydrating, life-giving state. Pure, energized, (living, restructured or cluster size reduced) water allows maximum moisture absorption into the cells of our bodies, pets and plants.

http://www.enwaterment.com/page/Water_for_Bathing
In sum:

- Magical contagion based thinking is pervasive in contemporary American culture and we have only begun to understand its nature and the extent of its impact on health.

- Negative aspects of it may be inadequately addressed, and positive aspects underutilized, in the modern health care context and beyond.