

Misunderstanding of Physics and Chemistry in a Health Care Context

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Dear Editors,

Re: Energy Medicine: Current Status and Future Perspectives. Christina L Ross. *Glob Adv Health Med*. 2019; 8: 2164956119831221.

We have read the above paper in detail, and have concerns about the validity of much of its content. Within the limits of a letter to the journal, we can only summarise here a few of the errors. Readers with moderate search skills will be able to find a more detailed critique online. Statements from the paper are identified by section head, paragraph, and line as appropriate, followed in each case by our comments.

Short Abstract, first sentence: “Current practices in allopathic medicine . . .”

This is factually incorrect in almost all respects.

- Most medical diagnostic procedures do not measure “different types of energy” in the human body. They use electromagnetic energy and/or nuclear energy to create images of bodily structures and functions. The only type of bodily energy measured for diagnostic purposes is thermal energy, i.e. a patient’s temperature.
- Most diagnostic procedures do not involve quantum field dynamics in any direct sense. Only MRI involves a quantum effect, i.e. the spin of the hydrogen nucleus. However, this is only used as a means for observing the locations of hydrogen atoms in different types of chemical bonds, in order to make biological structures visible. These chemical bonds of hydrogen atoms and the structures in which they are observed may be related to an ailment. Nuclear spin, however, is not.

Note that “allopathic” is a pejorative term coined by Samuel Hahnemann, to label anything other than homeopathy. It is meaningless.

Short Abstract, second sentence: “Once diagnosed . . .”

This “subtle energy” is not defined in any scientifically rigorous way, and neither are the “disturbances” that

are mentioned. The scientific consensus is that said energy is a wholly fictitious concept, adopted from ancient spiritual world views.

Short Abstract, third sentence: “Quantum physics teaches us . . .”

This is factually incorrect. Matter is not even remotely similar to energy.¹ Moreover, quantum physics applies to phenomena on a subatomic scale—which is not the scale at which organisms, organs and cells function at all.

Short Abstract, line 7: “Energy medicine (EM), whether human touch or device-based . . .”

This definition of Energy Medicine has no basis in reality.

- These “subtle energy fields” are not defined in any scientifically valid sense; they cannot be objectively observed let alone measured.
- The term “balanced” is meaningless. What is it that is balanced? How is this assessed? In what way can an imbalance occur? And how can this imbalance be objectively observed?
- The suggestion is made that both diagnosis and treatment of any condition can be achieved through identical means, which is generally untrue. Diagnosis is the observation of certain signs or symptoms that may identify the condition. Treatment, on the other hand, is an intervention that is aimed at removing the cause of the condition, and resolving symptoms.

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Changing the observation does not change or treat the condition or its causes.

Short Abstract, line 10: “Biophoton emissions as well as signal . . .”

The phenomena mentioned are indeed observed. However, biophotons appear to be a mere byproduct of biochemical reactions, without any further function. Cell signalling² is something completely different, and takes place almost exclusively through biochemistry.

Current Status, para 3, line 6: “Cerebral spinal fluid carries information . . .”

Cerebral spinal fluid does not convey information in any significant way.³

Energy Medicine (EM) Defined, para 1, line 14: “Human energy vibrations were recorded . . .”

This is not acceptable science. Literature references point to books, not to peer-reviewed research.

Modalities of EM, para 1, line 1: “There are several modalities of EM that interact . . .”

With the exception of PEMF therapy, all modalities mentioned have no scientific evidence of efficacy. Therapeutic Touch was even discredited in 1996 by Emily Rosa, nine years old at the time.⁴ Note that this seminal paper was not cited by Ross.

Acupuncture, line 1: “Acupuncture can be considered an electromagnetic phenomenon . . .”

This is factually incorrect. Acupuncture needles do not generate any electric and/or magnetic effects in the body.

This paper demonstrates a clear failure of peer review. The title uses a term from physics (energy), and begins

with a statement about quantum field dynamics. It would therefore have been essential for the manuscript to be reviewed by a qualified physicist. Obviously it was not, as almost everything Ross says about physics is wrong. We urge the editors to retract this paper.

Yours sincerely

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