Integrating Complementary and Alternative Medicine into Treatment Interventions

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Overview

- Content
- Definitions
- Resources*
- Mechanisms (outcome measures)
- Research
- Other Considerations*
- Implementation

What ARE Complementary & Alternative Medicine (CAM)

- Allopathic
  - Conventional of mainstream medicine
- Complementary medicine
  - Medical practices outside of mainstream medicine used in conjunction with conventional medicine
- Alternative medicine
  - Medical practices outside of mainstream medicine used without any additional conventional medicine
- Integrative medicine
  - The blending of conventional and complementary medicine

https://nccih.nih.gov/health/integrative-health
National Center for Complementary and Alternative Medicine (NCCAM)

- Five (5) Domains
  - Alternative Medical Systems
  - Mind-body interventions or techniques (facilitates mind’s effect on bodily functions and symptoms)
  - Biologically-based systems (such as herbalism)
  - Manipulative and body based methods (chiropractic, massage therapy)
  - Energy Therapies


Mind Body Practices

- Yoga
- Chiropractic
- Osteopathic manipulation
- Meditation
- Massage therapy
- Tai chi
- Qigong; Qi gong; Chi Kung/Gung
- Healing touch
- Hypnotherapy
- Relaxation Techniques
- Breathing exercises
- Guided imagery
- Progressive muscle relaxation
- Movement Therapies
- Feldenkrais method
- Alexander techniques
- Pilates
- Rolfing Structural Integration
- Trager psychophysical integration

Resources

- Institutes
- Interdisciplinary Scholar’s Hub
- Journals
- News Letters
Institutes
SCIENCE BASED

http://www.chi.is/indexhome

CONSCIOUSNESS AND HEALING INITIATIVE

http://www.chi.is/indexhome

MIRAGLOfoundation
THE INSTITUTE FOR INTEGRATIVE HEALTH

http://hiih.org/
Katherine A. Gallagher
Integrative Therapies Program
Acupuncture
Art Therapy
Massage Therapy
Music Therapy
Chigong
Tai Chi

http://www.massgeneral.org/cancer/supportservices/integrative.aspx

http://www.massgeneral.org/bhi

http://isharonline.org/

Integrative Studies Historical Archive & Repository

Interdisciplinary Scholar’s Hub

JOURNALS
JOURNALS

- The Journal of Alternative and Complementary Medicine
  - http://www.liebertpub.com/acm
- Evidence Based Complimentary and Alternative Medicine (2015 Impact Factor 1.931)
  - https://www.hindawi.com/journals/ecam/
- Complimentary Therapies in Medicine
  - http://www.journals.elsevier.com/complementary-therapies-in-medicine
- Journal of Traditional and Complementary Medicine

Journals ~ cont.

- Asian Journal of Complementary and Alternative Medicine
- BioMed Central Complementary and Alternative Medicine
  - https://bmccomplementalternmed.biomedcentral.com/
  - [Impact factor 1.375]
- Global Advances in Health and Medicine
  - http://www.gahnij.com/
“Unlike resistive touch screens, capacitive screens do not use the pressure of your finger to create a change in the flow of electricity... they work with anything that holds an electrical charge - including human skin (...we are comprised of atoms with positive and negative charges)... when a finger hits the screen a tiny electrical charge is transferred to the finger to complete the circuit, creating a voltage drop on that point of the screen... capacitive screens don't work when you wear gloves; cloth does not conduct electricity...”
Energy Medicine

Mechanism(s)

- Information Delivery
  - Electrical
  - Hormonal
- Information Delivery System
  - Nervous system (sympathetic, parasympathetic, enteric)
- Information Receivers
  - Receptors

The Body’s Communication

- Nervous system
  - Autonomic
    - Sympathetic & parasympathetic & enteric
  - Communicate through receptors
    - Eyes, ears, nose, tongue, skin
    - Receptors communicate
      - Mechanically
      - Chemically
      - All of which create or redistribute energy....
- Transportation systems – microtubules....
Electrical: Neuron Depolarization

Salutatory Conduction in Myelinated Axons
Myelin sheathing has bare patches of axon called nodes of Ranvier
Action potentials jump from node to node:

https://www.youtube.com/watch?v=qDUjVzVq7xE

http://www.slideshare.net/andymartin/annervensystemcolstons

https://www.unm.edu/~lkravitz/Exercise%20Phys/actionpotentialNEW.html

Nervous System Communication

Hormonal Communication

The activation of the stress system
Overview of sites of thyroid hormone regulation of metabolism.

Hypothalamic-Pituitary-Thyroid Axis

RECEPTORS

Cell Membrane ~ Protein Functions

http://www.proteinatlas.org/humanproteome/secretome
Body Activity Taken for Granted

DOWN STREAM EFFECT.....

EYE RECEPTORS

TOUCH RECEPTORS

https://askabiologist.asu.edu/rods-and-cones

https://www.mhhe.com/cgi-bin/netquiz_get.pl?qfooter=/usr/web/home/mhhe/biosci/genbio/maderbiology7/studen
t/olc/art_quizzes/0675fq.htm&afooter=/usr/web/home/mhhe/biosci/genbio/maderbiology7/student/olc/art_quizzes/0675fa.htm&test=/usr/we
b/home/mhhe/biosci/genbio/maderbiology7/student/olc/art_quizzes/0675q.txt&answers=/usr/web/home/mhhe/biosci/genbio/maderbiology7/student/olc/art_quizzes/0675a.txt
EAR RECEPTORS

SMELL RECEPTORS

TASTE RECEPTORS
Nervous System

VOLUNTARY

INVOLUNTARY – AUTONOMIC

AUTONOMIC NERVOUS SYSTEMS

PARASYMPATHETIC NERVES

[Diagram]

SYMPATHETIC NERVES

[Diagram]

TWO CONTROL SYSTEMS

- Brain
- GUT (ENS)

[Diagram]
Woo ~ Woo??

Electrical Energy
Chemical/Hormonal Energy
Autonomic Nervous System (3)
Receptors

What to use for Outcome Measures??

Complimentary and Alternative Medicine in Out-Patient Orthopedic Patient Care

- Not a lot of evidence out there....
- Pain Management
- Anxiety Management
- Cancer Care

Possible Modalities

- Acupuncture
- Cupping
- Gua sha
- Fascial
  - Tensility
- Mindfulness & Meditation
- Breathing
- Yoga
- Feldenkrais & Alexander Techniques
  - Motor Learning
Selected Outcome Measures

- Pain
- ROM
- Functional movement
- Performance
- Balance
- Whole person health
- Performance of the overall system
- Quality of life
- Easier to sleep
- Feels less tension
- Hurts less

Measurement and Clinical “Importance” of Posture….

Acupuncture vs Dry Needling

Acupuncture
- Balance the energy flow within the body
- Open up the channels of the body meridians (5)
- Needle inserted into a meridian point
- The body will heal itself
- Medical Acupuncture (MD, DO)

Dry Needling
- Orthopedic in Nature
- Focuses on Trigger Points
- Needle inserted into the trigger point of the muscle

Dry Needling Technique

http://www.painremedialclinic.ie/
Dry Needling Mechanism

Mechanism of Acupuncture

- No Consensus
- Animal Models
- Release of endogenous opiates
- Release of serotonin
- Influence on receptors to excitatory amino acids at the spinal cord level
- Regulation of the immune system through the autonomic nervous system

Mechanisms of Acupuncture

- **Local**
  - Pain relief through neuropeptides

- **Spinal**
  - Gate control
  - Supraspinal mechanisms
    - Descending pain inhibitory system through the sympathetic nervous system

- **Cortical**
  - Possibly placebo


Mechanism of Acupuncture

- Vagus Nerve (autonomic nervous system)
  - Anti-inflammatory: regulation of the inflammatory response
  - Protein regulation
  - Positively influences splenic tumor necrosis factor [alpha]


Transport Mechanism: Microtubule

[Image of microtubules with a link: https://online.science.psu.edu/biol011_active002/node/4184]
CUPPING

- Heat the air inside the cup
- Cooling of the air creates suction
- Blood vessels expand – redness


Olympic Pseudo-Science

http://www.blackchiropractic.org/ba-guan-ancient-chinese-therapy/

Efficacy ~ Multiple Applications....

- Pain ~ no consensus
- Neck Pain ~ no consensus
- Potential Benefits
Gua Sha

- An instrument-assisted unidirectional press-stroking of a lubricated area of the body surface to intentionally create transitory therapeutic petechiae called ‘sha’ representing extravasation of blood in the subcutis.


Science of Gua Sha

- Outcome
  - Increase in micro-perfusion
  - Anti-inflammatory
  - Heme-oxygenase-1
  - Immune effect
  - Effects pain, stiffness, fever, chill, cough, wheeze, nausea, etc.
  - Effects acute and chronic internal organ disorders


TENSEGRITY

Add strain to the system and the deformation gets distributed across the structure

In the body – pain & disease – break down at the weakest link

Structural Basis of Life

https://www.anatomytrains.com/fascia/tensegrity/
RESOURCES (soft tissue)

- Tensegrity
- Strolling Under the Skin
  - https://www.youtube.com/watch?v=eW0lvOVXDeE&feature=youtu.be

Mindfulness / Meditation

- Alterations in Brain Function (cognition)
  - Brain Changes = NEUROPLASTICITY
  - Changes Neurobiology
- Alterations in Brain and Immune Function
  - doi: 10.1097/01.PSY.0000077505.67574.E3
  - Jon Kabat-Zinn ~ http://www.umassmed.edu/cfm/

Mindfulness: Brain & Immune Changes

- N = 48; two groups
- Measures: Baseline – 8 weeks
- Meditation: 1 hr 6d/wk
  - Mindfulness-Based Stress Reduction Training (UMass)
  - Increase in L sided anterior brain activity [EEG]
  - Associated with decrease in anxiety
  - Increase in positive affect (more adaptive response to negative/stressful response)
  - Increase in antibody titers upon exposure to vaccination (blood draw - hemagglutination inhibition assay)
  - Positive correlation between increase in brain activity & immune response [n=41]
  - DOI: 10.1097/01.PSY.0000077505.67574.E3
Neuroplasticity – long time meditators

Increase in frontal region reflects increase in focusing attention and concentration

Decrease in Orientation to Space & Time

Respond vs React

Meditation & Telomeres

Alteration in Gene Expression
- 6 day residential program
- Measures taken post

Increased Telomerase Activity
doi:10.1038/tp.2016.164

Telomeres

- Telomeres protect the ends of the DNA
- When telomeres are lost, it leaves the DNA unprotected against change
- Broken DNA is dangerous (changes gene expression)


Mindfulness & Meditation

- Meditation vs Vacation Effect
- Improvements in Cellular Health (identified by blood markers)
- Improved regulation of stress response
- Improved regulation of immune function
- Improved regulation of amyloid beta metabolism (amino acid involved with Alzheimer's; amyloid plaques)
- doi:10.1038/tp.2016.144

Mindfulness ~ Meditation

- Increase in Grey Matter
- Increase in Learning & Memory Processes
- Improved Emotional Processing
- doi:10.1016/j.pscychresns.2010.08.006
- Results in Functional and Structural Plasticity
- doi:10.1093/scan/nss056

Hay house web site

Chopra Center
- http://www.chopra.com/online-library/0000094wmdzbycsgonp0ed5k4a54
Other Considerations

- Breathing
- Yoga
- Imagery (Motor Learning Literature)
- Systemic effect of Emotional Chemistry
- Role of Micro-Biomes [environments]
- Autism and Autism Spectrum
  - http://dx.doi.org/10.1016/j.cell.2013.11.035
- Obesity
- Cancer
- Role of the western diet......environment......electronics......life style

Other Considerations

- Epigenetics vs Genetics [5%]
- Role of Inflammation
  - Heart Disease
  - Cancer
  - Obesity
  - Alzheimer's
- Whole Body Interventions
Identifying the Mechanisms…

The Challenge…

Practice Integration ~ Be Creative!!

- Patient Education
  - Waiting room
  - Treatment rooms
  - Patient Handouts/Newsletters
- Available Web Sites
- Additional Support Services ~ Create a Team
  - Work with Primary Care MD's & Local Hospital
  - Local Acupuncturist
  - Local Nutritionist
  - Local Services (ex) Tai Chi/Chi Gong classes at Senior Center or Yoga classes at YMCA
  - Local Massage Therapist (treatment cost vs co-pay)

Whole Person Health ~ Mission Impossible??

- Less about providing the service
- More about providing the information to round out patient care…
- Open communication across health care practitioners
- Treatment intervention as a TEAM

Treat the Patient ~ not just the Diagnosis