Diagnosis of musculoskeletal pain syndromes/science-based medicine

Why therapies fail to cure 'back pain' in most research studies Part I

Those without a discernible "agenda" regarding a 'therapeutic-intervention' for back pain consistently find "no, or little value" when producing systematic reviews of relevant studies. Studies which have allegedly positive outcomes are often "flawed' with unacceptable bias. These (positive) studies' biases exclude them from improving SRs. Additionally most "initial" studies on a specific "new-therapy" create (knowingly or unknowingly) flawed and overly optimistic outcomes. Subsequent well-controlled research typically show equivocal or even negative results. This is now referred to as the Prometeus effect. Most "flawed" research produces negative results but due to inherent problems with P-factors, data expression ("noise") and other biasing, the research often concludes: "equivocal results/encouraging results....more research is warranted". Of course IF negative results were demonstrated, generally "more research" is unlikely warranted. And this is the present stance of the NIH in regards most CAM research. The "positive" outcomes are of such limited real effect that they obviate future spending. It is also interesting to note that the Nat'l association of integrative & complimentary medicine apparently concludes no research is warranted on AK (based on improbability and lack of scientific merit (?)) even though a recent survey found

40% of Chiropractors rely on AK (muscle challenge tests) to determine treatment.

This "no value" Indictment of back-treatments, manipulation being a most pertinent example....includes at least (5) SR's over the last 10 years (Cochrane evaluations) with conclusions such as: "these data fail to show spinal manipulation has value for any known condition", or "manipulation offers the same outcome as any other intervention or advice". Bogduk has also weighed in: "spinal manipulation for neck pain does **not** work.....reduce pain it might, eradicate pain it does not".
Or from the 1984 conference on manipulation: "though manipulation may be the most impressive to the therapist and patient it is nothing more than a placebo to placate while the body heals itself". Neither Ultrasound, TENs, manual therapy or exercise fair much better i.e. nothing apparently and/or definitively has been demonstrated through well-controlled and deliberative research to work better than anything else....or most disturbingly, ***nothing*** else. Encouragingly this may reinforce our belief in "innate" (or the power of placebo) healing (the body heals itself....and typically in its own time) however when "it" can't heal and eradicate pain 'coincidental' with our treatment (or doesn't seem to want to) there appears little we can actually do to change its course via an "applied modality"....as much as we may genuinely want to. However not surprisingly Doctor confidence and 'rhetoric' does seem to support healing and some sense of wellbeing unavailable to the exclusive 'self-healer' in some circumstances...or so it seems. Recent definitive research on the Placebo-effect now calls into question whether it can

actually do or heal anything....other than temporarily quite pain and nausea.

Part II

It is apparent that SR's on every possible therapy failing to show real, substantial benefits (recently on kenesio-tape, directional-preference and LLLT) leads the critical rationalist to an inevitable conclusion: (perhaps) back pain can not be "fixed" by external means e.g. therapy(s). The instructive, though ominous conclusion of **Biomechanics** of **BackPain** (2006) puts a fine point on it: "no single treatment has ever been shown to improve on the natural history of back pain".
When it (LBP) appears-to-be "fixed" by a treatment it is typically shown to be hyperbole, misinterpretation or purposeful biasing of data....and/or only short-term benefits not demonstrating substantial improvement over "standard-of-care", placebo or natural attrition. It's always important to keep in mind the infinite variability in morphology and anatomy etc person-to-person and that very few of us, as "imperfect" as we are according to innumerable techniques & functional-screening tests, is ever disabled by back pain for more than a few weeks or at most a few months. And symptoms invariably fluctuate leading 'average' people to make biased or inaccurate assumptions as to 'causative vs. correlation'. Thus 'healing' invariably occurs without extensive (or most times ANY) anatomical or functional "improvements" (and as studies show ANY such changes are lost soon after the therapy ends). Thus most

itinerant pains are probably accurately ascribed to a type of sprain of soft tissue (or temporary "reorganization" of movement activation apparatus)....perhaps unknowable with our present diagnostic limitations but none the less a plausible hypothesis. If NOT, what are the other MORE plausible explanations? Since they are innumerable and fraught with personal opinions & testimony it's unlikely the "real truth" lives among them...

Interestingly as well is the typical finding that both 'function' and 'pain' are rarely improved substantially. Either pain**or** function gain short-term advantage but are invariably nullified as time elapses. The major problem of research was and continues to be the patient-population(s)...."heterogeneity and discreet sub-grouping". The problem here becomes "how discreet" a population can be uncovered....and how substantial would the benefit be if applied to 'just them'(?). Defining "back pain" so explicitly as to find exact matched-sub-groups is likely impossible. And why through 50 years of research and ever increasing back-pain disability do "they" remain so obscure & results generally 'equivocal'(?) It is unlikely that there is a large sub-group of people (after 70 years of structured research and +2000 years of 'treatments') dramatically benefited by manipulation, Massage, mobilization, traction or hot/cold modalities beyond the benefit of natural, temporal/secular healing and the "generalized" (cutaneous nerves, mechanoreceptors etc) pain mitigation effects.
To again quote Bogduk: "relieve pain it might....eradicate pain it certainly does not".

This has led many authors to conclude: "everything in general **works**...but nothing in particular works ***better***". We all strive to affix an a priori determination (clinical prediction rule) on patient signs & symptoms before-we-treat however no such ad hoc analysis has ever proven true in the arena of objective research. There is still a dearth of valid or reliable tests that improve the odds ratio of knowing a tissue source of pain. And even IF a test might prove a tissue source could anyone actually deliver a "targeted" treatment to address it? This led Claire Johnson (editor of JMPT) to opine: "Is it time to put to rest the sacred cow of specificity?".

Part III

The real back pain 'train wrecks' either end up in surgery (which often fail), have deep psychological issues or become so degraded by addiction and muscle-loss to be impossible to help at any typical Chiropractic or PT office (let alone reflexologist, acupuncturist or Reiki devotees).
Those who eventually improve from a long-term disabling problem develop a renewed functional-self-reliance and often reach a personal crisis and re-dedicate themselves to "self-help", life-style modifications and a re-gaining of control of their pain. These patients are unlikely to invoke 'spinal adjusting' as the causa sui of their relief.... Most all credit exercise or deliberate "force-of-will" or a Sarnoesq "mind-over-back-pain" revelation. Many just "get over it" without any changes.

Either way many millions suffering with true discogenic cLBP can tie up 'all-the-loose-ends' and the pain still persists....because that appears to be the essence of a degraded-disc e.g. Modic changes, end-plate damage etc. and most frustratingly disc breakdown appears to have a strong genetic characteristic (or its foundations laid in childhood trauma)....neither yet "fixable".

MacKenzie admonished therapists for decades to avoid 'therapy or manipulation "addiction" (telling a patient the therapy is the primary source of their relief and discontinuing will be detrimental). He also was famously quoted as saying: "why dispense manipulation to the whole population in order to find the very few who actually need it?". And: "at least 70% of PT and Chiropractic treatments are unnecessary or detrimental". Some of his research suggested that many PT interventions prolonged pain episodes and in agreement Maitland said: it may best to let sleeping dogs lie i.e. Let the body heal itself in its own time.
Given the sedulous healing-potential of all living tissue it's impossible to rule-out natural attrition vs particular 'interventional' or lifestyle alterations as the true "cause" of relief in even recalcitrant cases. It's certainly not clinically unusual to see certain patients notice pain cessation 9-12 months after it began....or 2-3 years, this after trying innumerable interventions. This led MacKenzie to suggest a therapist can have a 90% success rate IF they can keep a patient under care long enough that natural attrition eventually collides with treatments. And up to 90% will generally achieve discernible relief within a year (and those getting repetitive

'treatments' tend not to be significantly better over non-treated groups).
Matching control groups to treatment groups typically shows no differences over time. Initially pain relief or slight functional improvements are noted in treatment (ANY treatment) group, but that disappears.

Part IV

As discs degrade, load-transfer alters and pain nerves can 'grow' into the inner disc (as well as usher-in infections such as P.Acnes) It is very unlikely anything external can truly alter such phenomena. Disc replacement, stem-cell or fusion possibly....external "treatments" probably not. Dramatic life-style modification maybe. New research is showing chemical inflammatory mediators e.g. cytokines are likely causes of the physiological source of pain. Motivating complex neuro-chemical processes via external "treatment" has thus far not proven itself effective in true disc pathologies...nor has regular injections of steroids. IF NSAIDs work the patient should count their blessings that something is inexpensively available with relatively few side-effects.
Back pain is notoriously mercurial & fluctuating. Often even those calling themselves "chronic back pain sufferers" go days, weeks or months with no or minimal pain.....or notice trends of "symptom-switching". Often, as I have learned a slight "twinge" of pain, going no further than a second, can usher in hours of

trepidation and heightened awareness that 'passes' for a pain episode. The fear of an exacerbation is often as debilitating as a real re-injury. Gaining cognitive stability regarding such events and learning (via ergonomics and core control etc) to minimize them is of unquestioned benefit.
As noted before even well done research showing 'statistically significant effects' from therapy tend to disappear at 6 months or 1 year, some sooner (or the results due to Hawthorne effect or some other confounder). This suggests the underlying mechanisms e.g. Internal disc disruption etc cannot be militated, BUT may be modified and "handled" by as of yet unknown CNS resources. It is substantiated by the finding only 15% of the population is actually disabled by back pain....so the rest of use tend to heal, modify inciting actions or learn to live with it thru conscious or subconscious adaptations.

Part V

Clearly prior to world-wide physical medicine vocations human back pain waxed & waned, disabled then re-abled billions. And IF lack of serious physical labor (starting in childhood) was a large part of our ancestors less disabling back-pain status it begs two questions:
1. How could ANY therapy substantially change THAT scenario and

2. Why do we persist in suggesting "manual labor" (and sedentary occupations) constitutes co-founders in lack of response to 'therapy' today? (If such has actually been proven).
The cliche: "more tools are ruined by rust than by overuse" may be more true than false but it isn't a hard-rule of humans spines I don't think.
Clearly too much sitting seems to be an issue as does obesity....however neither appears to be an absolute cause in a majority of back pain cases. And many 'episodes' of back pain tend to clear-up very completely WITHOUT dramatic work or leisure changes. And most empirically; how could physical medicine clinicians EVER have a results-based clinic if in fact only those losing substantial weight, eliminating bad life-style choices (excess sitting, too little exercise and improved diet) got better??
Regular, vigorous "use" of the back doesn't appear to be the reason for a chronic bad back....but sometimes it is ***IF*** substantive trauma is involved along the way.
After 50 years of structured LBP research 2 things come to light:
1. The symptoms are generally mercurial and random and do tend to "go away" for no reason, often for extended periods (though in my case never more than 6 months).
2. Relief is NEVER consistent from any treatment or modality (though in my case Ice is always my initial go-to pain modifying choice....not curative but absolutely helpful and appeasing, as are NSAIDs). However no particular treatment or therapy have I ever perceived as being a "fixer". Like a cold or the flu it (the pain, and

pain inducuced disability) appears to be 'handled' by innate and then slowly (or occasionally, rapidly...) subsides and function restores.