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The impassioned voice of Dr David Reilly, who in 1986 was one of the first scientists to publish credible, well-regarded clinical studies of homeopathy. While the battle still rages about how effective it and other complementary medicines are, some scientists are attempting to unravel a deeper mystery about how they work and ultimately about what's underlying the healing process. In this programme we'll find out if such answers exist.

ACTUALITY - THOMAS MARSHALL MANIFOLD'S CLINIC

What we're looking at there are 12 pathways on either side of the body and we're going to measure the end point of each of the lines. So the supposition is that if the activity of the point is high then the activity in the pathway is high.

Right well I'll give you my hand to start with.

Raise the hand - so the first thing we do is we need a reference electrode ...

FORD

Tom Marshall Manifold runs the Wimbledon Clinic of Natural Medicine. Over 20 years, he's become a one-stop treatment centre offering chiropractic, acupuncture, herbal medicine and other therapies as well. Unusually for a practitioner of natural medicine, he's an avid enthusiast of modern technology, including a device developed by the Russian space programme, called the Prognos - a diagnostic test based on electronically measuring acupuncture points on the fingers and toes.

ACTUALITY - THOMAS MARSHALL MANIFOLD'S CLINIC

If we take the first line, which is the lung line, so it's ears, nose and throat and lungs.

And that's on my thumb.

That's on the thumb. Then we move to the index finger, which is the colon line. Then the next line is circulation on the next finger. And the hormone line is the ring finger.

Do you offer treatments to your patients or cures? Do you ever talk about a cure?

No I don't think I would ever - I wouldn't turn round and say that because I can't because none of us, no matter what field of medicine you're in, can offer a curbout Tj-0.15624 Tc (ITj-0.2241

LEWITH

I believe that the homeopathic process works because I've used homeopathy and been amazed by its effects. I'm not actually certain that it's the remedy that's working.

FORD

But you still use it, you're happy to give it to your patients?

LEWITH

I'm happy to give homeopathy to my patients, yes because I think the process of coming to see me and having a homeopathic remedy prescribed is really beneficial.

FORD

But you might as well give them a cup of tea.

LEWITH

No I don't think so because that's where the thinking model comes in. Because when I see a person and I want to prescribe a homeopathic remedy for them I want to take a very careful homeopathic history, I want to find out what the whole process is that's going on with them and it may be the process of taking the history which is effective.

FORD

So why go through the process - you could still ask them all those questions and give them a cup of tea at the end, why do you have to give them the homeopathic medicine?

LEWITH

My personal view is that I like to prescribe, I feel it's important to prescribe, I think it's perhaps a symbolic act that's part of the process.

FORD

So when you're treating people as a homeopath you don't believe that it's working according to the principles of homeopathy, you just believe in the process - you with the patient?

LEWITH

Well that's not quite true, I believe that homeopathy is effective. And effective contains a specific effect and a non-specific effect that you might call placebo. And I don't know how much of that effect is specific. Very often in medicine, even in

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exists on how placebos might work, but the growing interest in so-called mind-body medicine points to our innate immune system being activated or deactivated in some way.

EVANS

We have two arms, if you like, of our immune system - the innate immune system and the acquired immune system. The acquired immune system is the part of the immune system that is most complex and which we've probably all heard about, which involves things like antibodies, B cells and T cells. The innate immune system is much simpler, it's much more primitive, it's evolutionarily much older than the acquired immune system. A lot of attention has been refocused on the importance of the innate immune system since it seems that it does play a very important role in the initial phases of fighting infection and dealing with injury. So the innate system - what the innate immune system does is to provide a very rough and ready first line of defence against infection and it does that through a number of mechanisms, such as making the sight of infection or injury more painful so that we tend to guard it and protect it against further damage, it does it by raising our body temperature in the form of fever. The innate immune system also causes local inflammation - swelling, redness, heat and local pain. And so it has a wide range of systemic effects - local effects - and they all - all of those signs, the typical signs of infection, having a cold for example, all of those symptoms are in fact not the direct result of the infectious agent, if you like, but rather defences that are produced by the body itself to fight the infection. Now my theory is that sometimes this period of acute response to infection produced by the innate immune system can get out of hand, it can become chronic, and then it's a very good idea to be able to suppress it and that's exactly what placebos do - placebos work by suppressing some of the body's own natural defences to infection and sometimes that's a bad thing and sometimes it's a good thing.

FORD

The body healing itself? When put like that, it doesn't sound too far off the notion trumpeted by many CAM practitioners. David Reilly confirms this reevaluation of the role of the placebo which is now being seen in the lab, though he's still not keen on the word.

REILLY

What had been buried in the placebo literature was not as irrelevant as we thought. That actually all along it had been desperately trying to tell us that these drugs were interacting with the innate healing systems of the body. Medicine hasn't even woken up to this, that the individual that sits down in front of us in pain and distress and sadness can be helped to begin to spark these changes within themselves without medicalising them and making them dependent on orthodox or complementary therapies.

FORD

Placebo aside, what about the treatments themselves? Patients go to practitioners for a specific therapy. So has science

Well, science has barely begun to explore these questions yet. Acupuncture is probably closest. It's thought that the needles activate the body's own painkiller - endorphin. This at least gives scientists a site of action and a plausible theory to build on.

Homeopathy is another matter. Whilst clinical trials show patients improving, attempts to repeat the results in the lab have become notorious, and have led to some widely publicised, though bogus results.

Homeopathy is based on the principle "similia similibus curentur" meaning "let like be treated by like". Its inventor was Samuel Hahnemann, an 18th Century orthodox doctor, horrified at the ever-more barbaric practices of his profession. He created a gentler form of medicine which takes as its basis for treatment, the presenting complaint.

ARMITAGE

I'm Katherine Armitage, I work as a homeopath from Health Foods, Fulham Road. I use flower essences and homeopathy as my main therapies. I also work as a healer. A lady from up the road was getting very bad hot flushes and last week she came in and I suggested a remedy to her - apis mel - which is honey bee sting in potency. She's a very busy lady, always rushing around, not very much time for herself and busy like a busy bee flying around. And apis has helped her enormously with her hot flushes, it's also a very good remedy for water retention and she's now going to try and take it for a further week - morning and evening - and she's going to come back and report her results.

People think that homeopathic remedies, because they have less matter in them, are less strong than something like an orthodox medicine, let's say Imodium for diarrhoea, Imodium will literally immobilise the system. We might as a homeopathic remedy give arsenicum, which is arsenic in potency, which actually causes diarrhoea but it's diluted and shaken, diluted and shaken to such a degree that you're just getting the energy of the arsenic and as homeopathy works with the law of similars you're giving - you're matching the energy of the body and you're giving it a stimulus to say something needs rebalancing here, something needs correcting.

FISHER

My own interest in complementary medicine goes back a long way when I was still a medical student and we went to China, and this was in the summer of 1972, and I can tell you the precise moment at which the scales fell from my eyes - we were standing in the operating theatre of a small Chinese provincial town, there was a woman on the operating table, entire abdomen open, conscious, talking to the anaesthetist with three needles attached to a little electrical box - three needles in her left ear. And I thought this doesn't happen, they certainly didn't tell us about this in medical school. So that was I think what opened my eyes to the fact that there is

of homeopathic remedies could nevertheless have a direct effect on cells in culture. This is, Fisher argues, objective, repeatable evidence that something which science says shouldn't work, does. And it begs the question: how?

FISHER

There is a surprisingly large number of clinical trials of homeopathy, over 200 clinical trials of homeopathy and everybody who's looked at them, everybody you can do something called meta-analysis where you get all the results and pool them using a statistical technique called meta-analysis. Everybody who's done that concludes that the evidence says homeopathy really does work compared to placebo, it is not a placebo effect. And the question is well how on earth, people are sceptical about that because they cannot understand how these very high dilutions could possibly have an effect that isn't a placebo effect. But again I think even in that area we're starting to make progress, there are now test tube laboratory research that says these very high dilutions do something, in a model of allergic response in the test tube you can show that very consistently - that there really is an effect. So the next question is - well how is that effect mediated? And I think we don't have the answers to that, we certainly don't have all the answers to that. It may be that what we're talking about is a structural effect in water, that's the water is carrying or the water alcohol mixture that homeopathic medicines are made up in is carrying a message. We talk about floppy disks, if you take a homeopathic medicine to an analytical chemist and say what's in here, they'll say well water, alcohol and sugar, the medicine's made up in water and alcohol and then put on sugar pills. But of course if you took that same chemist a floppy disk and said what's in here, he'll say vinyl ferric oxide. For all he knows it could have a Shakespeare play or a virus or it might be a blank disk, you simply don't know what the information content is from the chemical point of view, it's a physical phenomenon, there is some physical structuring phenomenon going on in the water and that is how it works.

BALL

You can find throughout history the idea that water has miraculous properties and miraculous properties that will somehow be to our benefit, that will somehow act as a saviour, that it will provide a fuel or that it will provide a marvellous medicine or that it will purify and cleanse - this is a cultural - a very strong cultural myth.

FORD

Phillip Ball is a science writer by profession, but was educated as a chemist and later as a physicist. He's taken a keen interest in efforts by others to discover a mechanism for homeopathy. In his book, *H₂O: a Biography* (1992) he examined the most commonly held belief, that homeopathic dilutions, with no active molecules of the medicine left in them, might be working through something called "the memory of water".

BALL

It's an idea that is supposed to convey the suggestion that water can retain, if you like, an imprint of molecules that have been in it and then have been effectively taken out by diluting the water. S

whether it's something else, that's never really specified. Water - liquid water is a bit like a crowd of people who are holding hands, okay, because the molecules are bound to each other by these weak bonds between molecules, called hydrogen bonds, and those are constantly forming and reforming all the time, so this crowd they're holding hands but they're always letting go and then joining up with a new partner. And that happens, on average, a hydrogen bond lasts for about 10⁻¹² seconds.

has been guilty of in the last 30, 40 years is to assume that it's always best to aggressively intervene and treat things and in fact the body turns out to be a lot wiser than we were previously aware of.

LEWITH

I think it will ask questions about the way we practise medicine, as both practitioners and patients and I think those questions are very important. There's a very big spirit to human beings and it overcomes lots of difficulties and lots of things. I mean people survived terrible hardships on the D-Day beaches in the war in Central Europe, in the camps, in all sorts of situations and they survived when they really shouldn't have survived because of what was going on in the head.

MUSIC