DNA testing won’t beat the Coronavirus, but can prevent at least as many deaths

It feels more than ever like we're at the turnstile of the future: the ways we live and work are being radically rewritten in the interests of the individual. One such rewrite is our access to at-home cutting edge science, giving us more affordable insight into our body's coding: mainstream DNA testing is no longer the realm of science fiction. Maddyness writer Ella Bowman caught up with Avi Lasarow, the CEO of DNA Fit, to discuss destiny, data, DNA's ethnic bias and the Coronavirus (for good measure).

We’re at a fork in the hospital corridor, if you will. One turn takes us down to a wing we recognise (one we’ve long-since visited): of treating ailments and their symptoms. This is the healthcare we’ve come to see as normal in the UK. The healthcare that now, more than ever, we’re grateful for.

Taking a turn for the better

The other corridor takes us to the future wing. Preventative healthcare. Rather than treating, for example, cancer, as discovered by a tangible lump, healthcare is looking to anticipate susceptibility to cancer, and so help prevent it early. There are interesting things happening in diagnostics, such as studies into screening cells as they become cancerous. By catching this earlier on in the diagnosis, the NHS have calculated that they can save 55,000 more lives each year.

Another preventative measure, one that captures risks before they start to play out on a cellular level, even, and one discussed on Instagram more than the average diagnostics discussion, is DNA testing. Matt Hancock recently spoke out about the need for routine DNA testing, and in 2019 the NHS embarked upon the 100,000 genomes project, which screens the full genetic profile of their participants in order to better inform healthcare providers of risks tied to any individual, so as to prevent them before they even take hold. They are looking to become the first mainstream health service in the world to offer genomic medicine as part of routine care for their patients.

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Behind the future

One company that is making impressive headway in DNA testing is DNA Fit. I spoke with the company founder Avi Lasarow having experienced their Circle Premium offering: 'The World's most advanced DNA test', as their site explains.

Lasarow, as a person that has spent much of his career working in life sciences, using his commercially-minded *nous* to make science relevant to the consumer, has an impressive track record.

'I started off in the world of DNA relationship testing – paternity testing and relationship testing generally – and then moved into hair drug and alcohol testing. I brought to market the first-ever commercial hair alcohol test.' This enabled social services and driving licence agencies to determine whether alcohol levels in related cases were at dangerous levels.

From there, Lasarow created an app looking at moles and melanoma. He cites this as unsuccessful. ‘I didn’t understand the regulatory environment around that.’ Clearly bent on taking a microscope to individuals so as to provide constructive insight, Lasarow’s next endeavour was an ‘early form of biohacking using your DNA’ motivated as he was by his own weight gain and slowing energy levels as he got older: DNA Fit was born.

The company’s sole purpose was to provide its users with the knowledge to improve their training and performance: I, for one, should be doing more strength-based training (over, say, endurance or power training. Marathons, begone, hello HIIT and dumbells). And the diet that I should be following in order to train at my optimum? Low carb, lean protein, fruits and vegetables (‘not crisps’ as the dietary consultant, Dierdre, affirmed. Sorry, Dierdre, *but crisps are vegetables*. Nice try though. *Etc.*).

At full pelt

Following consumer fitness the company then progressed to helping Olympic organisations, Olympians and other high-level athletes – their site includes ‘ChangeMakers’ Rio Ferdinand, Eilish McColan, Brian Habana and Greg Rutherford amongst others. ‘We evolved, working with insurance companies helping with preventative healthcare, clinics – we’re in 19 different countries now.’

That’s not all: Lasarow published the first-ever genetic exercise intervention study outlining how effective this cutting-edge science was. And it’s the science that underpins their whole offering, and which ensured the company won two Queen’s Awards (one for innovation, one for export) and a Board of Trade Award by Theresa May.

Lasarow convinces me that his driving force isn’t just accolades and good business. In fact, he has the first-hand experience of the difference his testing can make.

‘My wife has rheumatoid arthritis and she gets prescribed a drug called sulfasalazine. She said they didn’t really work, that she didn’t feel good. She took them for over six months — still was until recently. After she did our latest Circle DNA test we found out she’s actually got a pharmacogenomic reaction to that particular drug.’ His wife has now moved onto an effective medication, as a result.

GB MOT

So, if the NHS's Long Term Plan calculates that early cancer diagnosis could save 55,000 lives each year, then imagine the lives saved mapping genetic cancer risks across the board, as well as a wider spectrum of disease, the predispositions of which genetic screening can flag.

Lasarow is keen to debunk the myth, though, that because your DNA suggests you have a mutation, it means it will play out: 'People think that genetics is always just your destiny and genetics is everything but it's not. It's only part of the picture… Lifestyle is the other part. And what we try and do with all of our customers is for them to realise that they've got to look at both of them together.'

Not only can patients know if they have a predisposition to a disease, but they can gain awareness to help lead healthier lives, or avoid the things that could be doing their bodies harm. So I know, for example, that I have a predisposition to respiratory disease and can let my doctor know for my health records, but with the extra energy I now have from the additional B12 my genotype needs I can exercise more (and more effectively). The healthy spiral continues apace.

Autonomy vs. heteronomy

What about health and health data, though? A recent article by Yuval Noah Harari in the *Financial Times* explores how biometrics can help us halt the advancement of viruses – how, in the future, we could track whether an individual is symptomatic, as well as their location and so, their crowd contact. Promising, but not the kind of surveillance it's easy for governments to retract when in place, when this kind of data is attendant with large financial gains for its 'owners'.

Lasarow is the first to bring up the industry's responsibilities: 'We're in a big industry that hasn't really been regulated as such and, in 2013, we actually put out an internal and external code of conduct. This covered what we do and what we don't do: how we choose the genes; how we evaluate the science; what are the parameters of who we test (under 18s, for example); what's our duty of care; and what are our data policies?' – data security, I am informed, is stringent, both digitally and physically, and with the high-level policies in place to make us feel reassured that our data's being put to good, anonymous use.

Lasarow continues, 'Recently I was privileged to give evidence at the UK Office of Science and Technology on commercial genomes in the UK and how it impacts frontline services and what commercial companies are doing about it

and we, in fact, call for regulation around all those areas: duty of care; data protection and technology.'

Issues exist, too, around ethnic bias in genetic testing. He explains that around 97% of genetic tests have been carried out on caucasians. Something he plans to change with the help of his role as South Africa's Honorary Consul to the UK for the Midlands to which he was appointed in 2011. The aim being to build a biobank in collaboration with African countries: something we look forward to hearing more about in due course.

Circle Premium, then?

At this point, it's worth outlining what you get with the test, besides complicated data explained in an easy-to-understand report and via the app. The user journey is as simple as posting a swab taken from the inside of your cheek ('Will all of the gins I had last night ruin my sample?'), before then getting the full downloadable report in the app.

The report covers a broad range of topics relating to your given sample. That's 500+ health reports, including your ancestry, your disease risk, your sexual proclivity, your nutritional needs, your appearance, your success traits, your behavioural traits… the list goes on. Lots of these are pegged as likelihoods ('likely to have blue eyes', 'elevated risk of ADHD'): these findings relate to particular markers that they look for in any one gene.

The fertility section of your report – not fertility in the obvious sense, but whether you carry genetic conditions you could pass on to your children – is based on their reading the respective genes end-to-end. You categorically carry these genes if detected, but of course, there's more to it. I, for example, carry a deafness gene that is recessive, so if my partner also had this gene (of which 1 in 18 caucasians do, as I was told), then there would be a 1 in 4 chance we would have a deaf child. Again, genetics aren't destiny.

Alongside your report, you get genetic counselling and wellbeing advice. I was pleasantly surprised at how useful I found contextualising what I'd read to be, having been unsure it would add to the eureka-like enjoyment of seeing 'Me' mapped out in a dossier. My genetic counsellor, Anna, and my wellbeing counsellor, Dierdre, gave me gentle GCSE science refreshers on genes, health, fitness and nutrition as well as listened empathetically as I talked at length about myself (worth the £499 cost alone, some might say). They cleared up my questions and made some well-couched recommendations about how to live to improve my health, physicality and wellbeing.

Like talking about your own horoscope, though, or telling innocent colleagues

about last night's dream, it doesn't shape up to be fascinating reading for anyone but me, so I'll simply add that my genetic profile didn't come as a surprise, but that I *have* made changes to how I exercise, eat and understand myself and my behaviour. What's more, there are conversations I'd like to have with my GP to help guide my healthcare in the future. If I can stave off decrepitude for a few more years, then I venture that's definitely worth the price tag.

With this comprehensive – and ever-expanding – screening the possibilities are endless. If, as Lasarow suggests, it's about 'understanding what scientists are doing where they are and what the journey is, so we can bring it to market to help consumers', then it feels like our current concern of COVID-19 should really be a test of this. How can Lasarow's team help?

Testing expertise

Unsurprisingly, he tells me, the markets are being flooded with people selling Coronavirus tests. These are lateral flow devices (like pregnancy tests), taking away the need for specialist and costly equipment — you can ship them for use wherever. As with different pregnancy tests, sensitivity and specificity can vary.

Lasarow, via DNA Fit's parent company, Prenetics – where he is also CEO – is leading a consortium building a digital solution around tracking the tests and figuring out what's in the market, 'but also making sure that we can deliver high-quality and authority testing.'

That testing is Project Screen, 'a non-profit initiative providing a WHO-recommended solution to get tested and diagnosed for COVID-19 from home', which launched in Hong Kong this week. They are hoping to get the green light in the UK soon.

Future-gazing

It's hard to imagine beyond tomorrow when under lockdown, but for cutting edge science to be already in the hands of the consumer like this, and with the government advocating for its wide implementation, it makes you wonder where to, then, for genetics and preventative healthcare? 'Globally we're going to move from one pill per condition to one pill per person.' And lead more integrated lifestyles, too, where biometrics and our DNA profiles will work together. 'Everything from how you eat, how you shop, how you sleep, how you dress, how you travel, etc. will be based on your DNA.'

It can feel overwhelming, genetic advancements such as this feeding into the cogs of the Fourth Industrial Revolution, I know. I sometimes feel like the future is leaving me and my Roberts radio behind. On the one hand, we need to embrace the inevitable change and enlightenment it brings. On the other hand, you'll still find me in the crisps aisle, buying vegetables.

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