published in Reader's Digest,
21 May 2023

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We shine a light on the groundbreaking—yet little known—clinical trials that could revolutionise how we treat conditions like asthma, diabetes and dementia.

“What we know is a drop; what we don’t know is an ocean,” said Sir Isaac Newton. More than 300 years have passed since this remark, and great strides have been made in science, including the discovery of an Ebola vaccine, the naming of new species (including the Myanmar snub-nosed monkey) and the creation of two cloned macaques. More discoveries are expected in the next decade: some will hit the headlines but most will be known only to experts – and the patients who benefit from the breakthroughs. Let’s look at some research which, until now, has remained largely under the radar.

The ATTACK trial

Shorthand for “**a**spirin **t**o **t**arget **a**rterial events in **c**hronic **k**idney disease”, this study [6] is sponsored by the University of Southampton and due to complete in 2025. Asking whether a low dose of aspirin can reduce the chance of a first heart attack or stroke in patients with chronic kidney disease, this study builds on research which shows that aspirin is of proven benefit for people with chronic kidney disease who have already had a heart attack or stroke.

Chronic kidney disease [7] is a long-term condition in which the kidneys don’t work as well as they should, and it’s known to increase your risk of heart disease and stroke. Aspirin can reduce this risk by preventing blood clots forming in arteries; it does though increase your risk of bleeding, and researchers need to weigh up the relative risks and benefits of the drug for different types of people.

According to the lead researchers, the ATTACK trial is “of global significance given the rising burden of chronic kidney disease worldwide, driven by population ageing and epidemics of obesity and ageing”. Chronic kidney disease is also more common in people who are black or of South Asian origin.

As an aside, the trial will also test whether aspirin reduces the risk of certain cancers [8] – a hot topic in cancer

research today.

Stem cell strategies for the treatment of chronic asthma

Stem cells, derived from bone marrow, are unspecialised cells that have the potential to become any type of cell in the human body – and might be used as a source of renewed airway tissue for people with asthma.

In a small pilot study [9] at the Royal Stoke University Hospital, doctors will use a bronchoscope (a thin, flexible tube with a light and a camera at the end), light sedative and local anaesthetic to retrieve samples of airway cells from asthmatic patients. Whether stem cells can secrete a mixture which both relieves this inflamed airway tissue and repairs the remodelling/thickening/hardening associated with asthma attacks will be studied in the laboratory.

Asthma affects around 340 million people worldwide; stem cells are currently in clinical trial for over 350 diseases and disorders, for everything from stroke to Crohn's disease and type 1 diabetes – and now asthma.

Parks for dementia

Connecting with nature [10] can reap rewards for your physical, emotional and social wellbeing. In 2003, researchers at the University of Essex coined the term "Green Exercise [11]", recognising the remarkable impact of nature-based activities on health and wellbeing.

Working in collaboration with the Alzheimer's Association, researchers at the University of Calgary are hoping to understand the effects of participating in park visits [12] and nature-based activities for people living with dementia and their caregivers.

Ten pairs of people living with dementia and their caregivers will spend two hours each week, over an eight week period, visiting local parks and outdoor spaces, and the impact on mood, behaviour, cognition, stress and quality of life will be measured, before a larger-scale trial begins.

Principal Investigator Dr Dallas Seitz will investigate "some of the unique considerations that we have to think about for outdoor activities for people who have memory problems". Plans are already underway for Calgary's first 'dementia-inclusive park [13]', featuring perhaps some interactive pieces, sensory elements, walking groups and paint demonstrations –creating safe spaces where everyone is welcome, and ending stigma and isolation indoors.

Dragon fruit for diabetes

This has already hit the headlines, but remains debated. In 2022, the Express [14] ran the headline, "the anti-tumour fruit shown to slash blood sugar levels by more than 24%". Referencing a review [15] written by Dr Nalinee Poolsup from Silpakorn University in Thailand, the article described how dragon fruit has been shown to reduce blood sugar levels in people at risk of type 2 diabetes (but not in those already living with diabetes).

Dragon fruit derives its name from the green scales which commonly protrude from its bright red skin. Also known as strawberry pear, the fruit is native to southern Mexico and central America, but is now grown across the world. Alongside its suspected sugar-stabilising effects, the fruit is also rich in anti-oxidants and may alleviate inflammatory conditions such as gout and arthritis and improve gut health as a probiotic.

Dr Sangeetha Thondre, from Oxford Brookes University is re-testing [16]results for dragon fruit and diabetes, and also studying effects on blood pressure, using a dragon fruit based beverage. 32 people at risk of diabetes (since they are overweight, have a sedentary lifestyle, or a close relative with diabetes) are recruited, and two different treatments tested: dragon fruit, and a healthy diet, based on the highly-endorsed Eatwell Guide [17].

OptiPREG

Eating well is essential during pregnancy [18], and the basic principles of healthy eating apply, such as eating

plenty of fruit and vegetables, and a variety of different foods – with no need to “eat for two”.

Scientists at the University of Ulster are studying, however, whether a low dose supplement of vitamin B2 (known as riboflavin) may benefit some women in pregnancy, who are at risk of high blood pressure (which may harm mother and baby) due to a particular genetic make-up (known as the TT genotype). The study is named OptiPREG [19] (short for Optimal Nutrition for Prevention of Hypertension in Pregnancy) and is due to complete in 2024.

Rather beautifully, mother-child pairs participating in the original trial will be followed-up in the first year of the child’s life (OptiPREG Offspring study [20]) to test whether benefits of the B vitamin taken by the mother extend long-term to her baby, improving blood pressure, and even brain development.

BARCODE 2

A collaboration across 15 NHS Trusts, and sponsored by the Institute of Cancer Research, this study [21] is focussing on a particular type of prostate cancer – and whether a chemotherapy drug called carboplatin works better on prostate tumours with certain genetic changes.

This idea of tailoring treatments according to a person’s (or a tumour’s) genetic make-up (as if “reading their barcode”) is an approach known as personalised medicine and it’s gaining ground because we now know that a “one size fits all approach” doesn’t work for everyone, especially when it comes to cancer treatment.

In their report [22], clinicians at NHS England express excitement – and anticipation – at what lies ahead. “The concept of personalised medicine is not new. Clinicians have been working to personalise care, tailored to people’s individual health needs, throughout the history of medicine. But never before has it been possible to predict how each of our bodies will respond to specific interventions, or identify which of us is at risk of developing an illness….We are on a journey towards embedding a personalised medicine approach into mainstream healthcare”.

Let’s celebrate the scientists understanding our uniqueness in the fight against disease. Difference matters.



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