Exercise as medicine
Getting cancer patients fit for surgery

In this issue
- Mediterranean diet could help prevent arthritis
- Omega-3 helps fight obesity-related disease
- New pregnancy vaccine to combat virus in infants
In this edition...

...we’re looking at how our research could help you stay motivated for your New Year’s resolutions.

New Year is the perfect time to make positive lifestyle changes and form new habits. This year, why not make it your New Year’s resolution to get healthier?

We’ve got some great ideas for things you could change – from quitting smoking, to eating better and doing more exercise – with motivational examples from some of our latest research showing the lifelong benefits to help spur you on.

Eating better
After the excess of Christmas, eating better is a popular New Year’s resolution, and even simple changes to your diet can make a huge difference to your health.

Read how healthier choices can prevent you developing arthritis and help you stay fit and healthy in later life (pages three and nine).

On page eight, find out about the potential benefits of omega-3 and how it can lower the risk of developing diseases linked to obesity.

Helping you quit
Our research suggests alcohol (even when drunk in moderation) can make our bones more prone to fractures as we age. Read on page four how changing your drinking habits could reduce your risk of injury.

Have you considered giving up smoking but think it’s too late? Think again. Even after being diagnosed with the lung condition COPD, new research shows quitting smoking still gives patients a much needed boost of health (see page five).

Exercise to beat cancer
We all know upping our exercise is good for our overall health, but did you know it can improve wellbeing and outcomes for cancer patients after surgery?

Read more on page six, where we discuss how getting patients fit for surgery has seen outstanding results – so good, in fact, that gyms and cancer support centres across the Wessex region are now getting involved.

We also interview Dr Sandy Jack, the lead researcher for the project, to find out what it meant to her.

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Mediterranean diet could help prevent arthritis

Southampton researchers have found a link between eating a Mediterranean diet and having a lower risk of knee osteoarthritis in later life.

The native diet of people in the Mediterranean is widely considered to be healthy, and has been shown to help prevent a range of conditions, including type 2 diabetes and heart disease.

A new study by Southampton researchers, published in the journal Clinical Nutrition, indicates it is also likely to be beneficial for preventing knee osteoarthritis - the more ‘Mediterranean’ a person’s diet, the less likely they were to develop the condition.

It’s a condition where the joints become damaged, thinning the protective cartilage layer and causing swelling and stiffness. This can lead to pain and difficulty moving around.

Knees are particularly prone to the condition – affecting over half of people seeking treatment – as they take the most stress and strain during the course of a person’s life.

Large scale research
A survey was carried out looking at the diets of over 4,300 people with osteoarthritis in the USA.

The participants were asked to state how often they ate typical components of a Mediterranean diet - on a scale ranging from ‘never’ to ‘every day’ - including cereals, fruits, vegetables, potatoes, legumes, olive oil, fish, red meat, poultry, full fat dairy products and alcohol.

Then, the researchers scored the answers and looked at the extent to which each person’s diet could be considered Mediterranean.

Even after accounting for other factors that can contribute towards the condition, such as whether a person was overweight, they found participants who ate a more Mediterranean-style diet had a significantly reduced probability of knee osteoarthritis.
Drinkers face weak bones in old age

New research from the NIHR Southampton Biomedical Research Centre (BRC) suggests that drinking alcohol, even in moderation, makes us more prone to fractures later in life.

As we age, our bones gradually get weaker, increasing the likelihood of osteoporosis and fractures. However, our lifestyle can also significantly impact this.

We already know that excessive alcohol consumption causes weak bones - alcoholics are at much greater risk of developing osteoporosis.

What’s less clear is whether more moderate drinking habits could also give us brittle bones, or if there is a ‘safe’ level of drinking that has no effect.

Studying drinking habits

Research led by Professor Cyrus Cooper, published in the journal Bone, has demonstrated that regularly drinking even a small amount of alcohol can affect our bone structure and strength.

The bone structure of 376 participants in their seventies and eighties was analysed and compared to their drinking habits.

Overall, the study found that the more alcohol people drank each week, the more likely they were to have weak bones (with this trend particularly clear for men).

Less is more

Even those who tended to drink a low to moderate amount of alcohol (of 11 units or less a week) - which is below the current government guideline limit of 14 - had a weaker bone structure in old age than those who drank less than a single unit or didn’t drink at all.

“This fascinating study reports on a much under-emphasised risk factor for osteoporosis - alcohol consumption."

Dr Mike Thomas from our NIHR Southampton Biomedical Research Centre has carried out a study showing that quitting smoking could see COPD patients visit hospital less and survive longer.

Quitting calms symptoms

The study looked at lung-related unplanned hospital admissions, emergency department visits and deaths in the medical records of over 15,000 COPD patients over the course of three years, from 2011 to 2013.

After considering factors such as age, the researchers showed that ex-smokers had a lower risk of hospital admission due to the condition and were less likely to die than those still smoking.

They also estimated that if all smokers in the study had been ex-smokers, around 15% more would have survived over the three years.

Helping patients quit

Patients are four times as likely to quit with help from NHS support services and medication, but many COPD patients may feel that it’s too late and won’t help once they’ve been diagnosed.

These results could aid doctors in convincing COPD patients of the benefits of quitting smoking, even after diagnosis or at the later stages of the condition.

“Our research shows that it’s never too early nor too late to give up smoking if you have a lung problem like COPD,” says Dr Thomas.

“Outcomes such as death and hospital admission are significantly reduced in those who manage to quit, when compared to those with similar levels of lung damage who continue to smoke.”

Death and hospital admission are significantly reduced in those who manage to quit.”
Exercise as medicine

Cancer patients are taking part in a pioneering new study, run in local gyms and cancer support centres, that’s using exercise to improve wellbeing and outcomes after surgery.

Our critical care research team has been awarded £2.3 million for a new scheme providing pre-surgery exercise sessions in the local community to help cancer patients recover from surgery.

Improving outcomes

With a decade’s worth of research in this area, the team’s exercise programme has already benefitted smaller groups of cancer patients, including Morag Cottrell, a previous patient:

“By the time I reached the point of surgery, I was in the best state I could be. I knew I was, and that was marvellous.”

Following this success, the team is now looking to roll out the scheme on a larger scale, from a hospital setting into the wider community.

“We know that patients who are physically fitter recover better from surgery,” says Prof Grocott, who leads our critical care research.

“It’s now important we try to increase access to the pioneering practices we’ve developed.”

All-round support

The scheme will assess overall quality of life, rather than solely focussing on survival and clinical outcomes.

It will take place between patients’ diagnosis and surgery, including in some cases during chemotherapy, to prepare them for the operation.

Participants will either have exercise training with a specially qualified personal trainer on a bike two to three times a week, psychological support or a combination of both.

The researchers are expecting the combination to be the most effective at improving overall health and wellbeing.

Beyond hospital

So far, the majority of their research has been with small groups of cancer patients who’ve attended supervised exercise sessions at the hospital.

Now the team are collaborating with the Wessex Cancer Alliance, the Wessex Cancer Trust and the council to deliver the scheme in gyms and cancer support centres across the Wessex region.

“We know we can improve quality of life, that we can reverse or ameliorate the effects of cancer treatment,” said Dr Sandy Jack, who’s leading the project.

“We’re hoping that after two years, if successful, this will become a service in Wessex that we can then roll out nationally.”

Interview with Dr Sandy Jack

We met up with Dr Sandy Jack, who leads the study and the wider Fit4Surgery exercise programme, to find out what she does and why.

Why did you decide to do this research?

People said to me when I started saying chemotherapy might reduce your physical fitness, ‘don’t be silly, they just feel a bit fatigued’. But we not only showed it does reduce physical fitness, but also that exercise training can reverse it.

What’s the most rewarding part of your job?

The patients. That’s what gets me out of bed in the morning. Even just talking to them after they’ve completed our studies - they come back in and we give them a medal and a cup, and they’re just so grateful. I feel very humbled, as all I’ve done is give them the mechanism to be able to improve their chances of survival after surgery.

How has the programme gone so far?

I’ve been really blown away by the patient engagement – they just get it. The patients always thought they were letting us down if they didn’t turn up. If they missed a session, they’d make it up.

What’s been your biggest challenge?

I guess the biggest challenge was making the decision to move 250 miles away and start again. I was working at Aintree in my own silo, when I met Mike Grocott and he said he had the funding for me to move here. That’s been my biggest challenge.

What’s next?

I do feel that we’re getting to a point where we should now be moving onto service evaluation, because we know it makes a difference. I’m really passionate, I get really emotional - if this can just change a few patient’s lives and the patients think it’s a good idea, it’s got to be a good idea.
Omega-3 helps fight obesity-related disease

Southampton researchers have shown that omega-3 supplements could help to lower the risk of diseases associated with obesity, like type 2 diabetes, liver disease and heart disease.

New research has shown taking daily omega-3 supplements has less effect on obese people compared to those of a healthy weight.

However, it was effective at reducing obesity-related inflammation, linked to disease, in women who combined the supplements with eating the recommended daily calorie allowance.

Changing on the inside
Obesity doesn't just change how a person looks, but also causes unseen changes to the inner workings of the body.

These changes put extra strain on organs such as the liver, pancreas and heart, increasing the risk of diseases like fatty liver disease, type 2 diabetes and heart disease.

Our researchers have looked into

"The combination of a weight-loss strategy through dietary restriction and omega-3s had some benefits in obese women."

whether the anti-inflammatory properties of omega-3, found in oily fish, could help to reduce the widespread inflammation associated with obesity.

Different responses
Results from one study, led by Prof Philip Calder, suggest obesity may reduce the body's ability to benefit from omega-3.

The study investigated if the way that obese and healthy weight people's bodies processed dietary fat was affected by taking omega-3 supplements for three months.

At the start and end of the study, participants had blood samples taken before and after eating a high-fat meal.

In healthy weight participants, taking omega-3 supplements altered the change in inflammatory signalling molecules after the meal, but this effect wasn't seen in those with obesity.

Fighting inflammation
However, another study found that when women with obesity took omega-3 supplements for three months and stuck to the recommended daily allowance of 2000 calories, it did help to lower inflammation.

In this study, they showed that while almost all women on the diet lost weight, only those who also took omega-3 supplements had less obesity-related inflammation. Paired with a healthy diet, this could help fight diseases associated with obesity.

"We know that omega-3 fats are generally healthy, but our research shows that obese people might benefit less from them than previously thought," said Prof Calder.

"However, we also found that the combination of a weight-loss strategy through dietary restriction and omega-3s had some benefits in obese women by reducing inflammation."

Eating better in adulthood improves health in old age

A new study by the NIHR Biomedical Research Centre's Prof Sian Robinson suggests those who have a healthier diet in adult life are fitter in older age.

New research by Prof Robinson has shown that cutting out processed foods and eating more fruit and vegetables as an adult may help improve physical health in later life.

Lifestyle and healthier ageing
As we age, our bodies gradually lose muscle and become weaker, but our lifestyle can influence how quickly this natural aging process occurs.

This study looked at the role of having a healthy diet in adult life on physical function in older age.

Better performance
The study examined the diet records of a group of 969 British men and women who were born in 1946.

Using information collected at different points from ages 36 to 64, it looked at links between diet quality and performance in three different tests of physical function - including chair rise, timed up-and-go speeds and a standing balance test - assessed when they were in their sixties.

Higher diet quality at each age was consistently linked to better physical performance in later life, with a better diet throughout adulthood associated with improved scores in the tests.
New pregnancy vaccine to combat virus in infants

Women in Southampton are helping researchers develop a vaccine to protect babies against a virus that can cause life-threatening infections.

A new vaccine, given during pregnancy, could protect babies and save lives. Women in Southampton can now take part in a study to introduce the vaccine.

Respiratory syncytial virus, or RSV, causes infections in the lungs and airways. While it often causes only mild cold-like symptoms among adults and older children, it affects almost all infants by the age of two and can lead to severe infections such as pneumonia.

Preventing infections

Long term, the virus can cause a persistent wheeze and asthma, and accounts for one in six hospital admissions in the winter months among children less than a year old.

Benefits to the baby

The aim is that the vaccine will create antibodies within the mother’s blood, which will then pass to the baby within the womb, protecting children for a minimum of three months after birth.

Immunising in pregnancy is already common, and is used to protect babies from diseases such as tetanus and flu. The researchers are optimistic that the RSV vaccine will be similarly effective.

The trial is looking to involve over 8,600 women worldwide and is being run at sites in Oxford, Bristol and London.

For more information, please contact the NIHR Southampton Clinical Research Facility on 023 8120 6856 or email UHS.recruitmentCRF@nhs.net

Help shape our research

We want to improve our research process, our participants’ experiences and make sure that our research provides maximum benefit to people’s health. We can only do this by involving people like you.

Our patient and public involvement (PPI) officer, Caroline Barker, works with patients and the public to help us deliver better clinical research, improving healthcare services to benefit patients and save lives.

From meeting up to discuss study ideas, to reviewing participant information and feeding back ideas on how to promote trials and their outcomes, PPI is key to developing future treatments and health technologies.

For details on our PPI and how to get involved, please contact 023 8120 4989 or CRF-PPI@uhs.nhs.uk.

Young patient born with ‘half a heart’ trials new drug

A young girl born with a serious heart condition has taken part in a trial at our NIHR Southampton Clinical Research Facility to test a drug to prevent the formation of potentially fatal blood clots.

Her condition, known as hypoplastic left heart syndrome, effectively renders half her heart ineffective.

However, after five major operations to re-plumb her heart, she now leads a relatively normal life. Other than avoiding strenuous exercise, she is just like any other 11-year-old child.

Together with her parents, she feels that she owes her survival to the previous children who trialled the drugs she now depends on.

This is why she decided to take part in a new trial being run in Southampton, aiming to test a possible alternative to warfarin that could have fewer side effects.

“We thought if children didn’t need to have warfarin it would be better for them,” said her mum. “I’m really proud of her for going ahead and trialling the drug.”

The trial involved taking the new drug and having blood taken for tests to monitor the effects.

If successful, the hope is that the drug will provide a new option for other children with a heart condition.

For more information on the study, please call Ruth Ensom or Lisa Fairhead on 023 8120 4989.
Trials and studies recruiting now

**Exercise in asthma**

We’re looking for asthma patients to take part in a trial into whether a 12 week exercise programme can help reduce lung inflammation and improve asthma symptoms. To find out more, please email Dr Anna Freeman at a.freeman@soton.ac.uk or call 02381 204824.

**LACE**

We’re looking for healthy volunteers over the age of 70 to take part in a trial to see if the combination of a heart pill (Perindopril) and food supplement (Leucine) can help maintain muscle strength in older age. To find out more, please visit www.lacetrial.org.uk, email Sanchia.Triggs@uhs.nhs.uk or call 023 8120 3805.

**Lactamica**

We are looking for healthy adult volunteers for a research study. This study is part of a project that aims to develop a new vaccine to prevent meningitis and meningococcal sepsis. If you are interested in taking part in this study, please contact the study team at uhs.recruitmentCRF@nhs.net or call 023 8120 3853.

**MICA II**

Those with chronic respiratory diseases such as COPD are more at risk of contracting chest infections, which can make their condition worse. This study aims to compare healthy volunteers with those who have COPD to help us understand what changes occur in people who have COPD. We particularly need patients with mild and moderate COPD who have frequent exacerbations, as well as ex-smokers for this study. Please contact the COPD Research team on 023 8120 4479 or email us at COPDResearch@uhs.nhs.uk for more information.

**RASP**

We’re looking for severe asthmatics to join this study, investigating how regular steroid doses can be adjusted for individual patients, so the dose is sufficient to manage their symptoms but minimises side effects. To find out more, please contact Gabriela on gabrielagrumazescu@uhs.nhs.uk or 023 8120 4479.

**SoMOSA**

We’re looking for severe asthmatics to take part in this study, aiming to understand more about how the drug Xolair (omalizumab) works, and to collect data to predict which patients are most likely to benefit from it. For more information, please email RespiratoryResearchTeam1@uhs.nhs.uk or call 023 8120 4479.

**Bronch UK**

Bronchiectasis is a chest problem that has repeated infections or ‘flare ups’ as part of the condition. We’re looking for patients diagnosed with bronchiectasis to take part, to research how many patients there are in the UK with bronchiectasis and how it is treated. For more information, please email Matthew.Harvey@uhs.nhs.uk or call 023 8120 4479.

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**Let us know**

We want to hear your views and experiences of clinical research in Southampton, as well as answer any questions you have. To let us know what you think, find out more about our work or to register interest in any of our research activities, email uhs.southamptoncrf@nhs.net or call 023 8120 4989.