ABC COMMERCIAL

CATALYST SEASON 22

AUSTRALIA'S FLAGSHIP SCIENCE DOCUMENTARY SERIES IS BACK

with a fresh hour-long format to inspire audiences and showcase high impact stories

HD 10 x 60'
Australian Broadcasting Corporation | Catalyst

CATALYST

MARS: OUR SECOND HOME & THE HUNT FOR LIFE

Exploring the lure of the red planet

Humans are explorers, and our insatiable determination to push further afield has led to great advances in science and technology. Having spread to every corner of the planet, the time has come to spread out into the galaxy – almost.

In the first of a two-part Mars special, astrophysicist Professor Tamara Davis and astronomer Greg Quicke meet the scientists on a mission to solve the many challenges of putting people on the red planet. From mitigating the effects of microgravity on the body and growing nutritious food in space, to autonomous robots working together to map and search for survivors, the barriers are many – but it's a journey to eclipse all other journeys. Could Mars be our second home?

The second special tackles one of humanity's biggest questions...is there life on Mars? As an ambitious new quest to find life on the red surface kicks off, Tamara and Greg set out on a Martian adventure like no other, exploring the clues around our blue planet that inspire the search for life on the red planet.

HD 2 x 60'

DOCTOR AT THE DOOR

Could a doctor change your life if they saw first-hand how you lived?

How much could a doctor change your life if they saw how you lived? In this two-part series GP Dr Preeya Alexander leaves her surgery and meets two families in their homes – up close and personal to see how they eat, sleep and exercise, and what impacts their mental health. Over 8 weeks she reshapes their lives – not with medication but with lifestyle medicine.

In the first episode, Preeya prescribes lifestyle interventions for the McClelland family – a couple (John and Katy) who struggle with excess weight and their son (Liam) who is a fussy eater. By spending time with the McClellands, Preeya aims to help then take back control of their health and wellbeing. John battles with his weight, Katy believes she's headed towards chronic disease, and Liam's fussy eating makes meal times a nightmare. Preeya discovers that the McClelland's have underlying health problems; she's worried by John's high blood pressure, and she diagnoses Katy with polycystic ovary syndrome. She also finds they are both on the path to developing type 2 diabetes. Armed with the latest science, can Preeya help the McClelland's get back on track?

In the second episode, Dr Preeya meets the Kulkarnis, Anu and Narendra, who struggle with health problems that affect many. Anu's a Zumba teacher but she worries her chronic arthritic pain will prevent her from doing what she Loves most– dancing.

And although she's confident and full of life, she struggles with anxiety. Her husband Narendra has type 2 diabetes. He's let his health take second place to busy work demands, and as a result he was recently told he could lose his eyesight.

Dr Preeya has a tough road ahead – managing a chronic illness and finding a lasting way to cope with stress is a huge challenge. She needs to think outside the box to help Anu with her pain and anxiety, and to offer Narendra lifestyle treatments he hasn't already tried.

Preeya explores how simple changes to when and what we eat and how we exercise can have dramatic health benefits, especially for type 2 diabetics. She also looks at the latest science on how to rewire the brain to feel less pain, and turns to the past, to ancient practices such as Tai Chi, to explore their scientific benefits. This family will have a tailored lifestyle treatment like no other. And Dr Preeya's intervention pays off. After only 8 weeks Narendra brings his blood sugars down from high risk to healthy. And Anu is on the road to conquering her anxiety and her fears. For Anu and Narendra, having a doctor come into their lives has made all the difference.

HD 2 x 60'

THE GRID: POWERING THE FUTURE

Leading the way in the energy revolution

Energy scientist Dr. Niraj Lal meets the those leading the biggest change to the electricity grid in a century: the rise of renewable energy. Along the way he explores work is being done to harness green energy, and the new technologies that are keeping the power on now – and in the future.

Although the continent is rich in renewable resources – bathed in sunlight, plenty of wind and there's no shortage of waves – 75% of electricity is still produced by burning coal and gas. More than a third of greenhouse gas emissions come from electricity – with a devastating impact on the climate. But right now, we're in the middle of an energy revolution. As renewables grow rapidly the grid is evolving, bringing new challenges – and opportunities.

Nij visits a power station to see how gas turbines derived from aircraft are supporting renewable technologies as they enter the grid.

In a remote location, Nij climbs to the top of a wind turbine and learns how it can contribute to the grid even when the wind isn't blowing, thanks to the country's largest battery.

He also travels to see how a microgrid – an independent energy system that can use multiple sources of renewable energy combined with a battery – is drastically reducing dependence on fossil fuels and risk of blackouts. And researcher Dr. Bjorn Sturmberg shows how electric vehicles and rooftop solar panels are paving the way towards a more distributed and localised grid we can all have more control over.

HD 1 x 60'

ARE WE KILLING THE KOALAS?

Saving the legendary icon from extinction

Bushfires, climate change, habitat destruction – popular belief is that koalas are headed for extinction by 2050. Everyone has read the harrowing headlines – but this intriguing one-hour special investigates the much more complex situation that faces this beloved national icon.

Explorer and Conservationist Professor Tim Flannery meets scientists, veterinarians and researchers all working to understand the real threats koalas face, and how they can be avoided.

Tim ventures thirty years into the future, witnessing first-hand the effects of climate change, tracking down one of the world's most elusive and endangered mammals, and revealing a koala vaccine developed with plans to also prevent human disease. He also looks at how Bluetooth is saving urban koalas from extinction, and gets up close and personal with koala poo – does it hold the secret to ensuring the koala's survival?

Are We Killing The Koalas? offers an unvarnished and surprising view on the threats the koala faces, as it explores the realities of survival and the potential solutions available to protect this precious species.

HD 1 x 60'

THE WILDLIFE REVOLUTION

Bold new technology helps save our wildlife

Although home to over a million species of plants and animals, we're losing them at an alarming rate. In this race against time, Dr Ann Jones explores how technology can help protect our wildlife in bold new ways.

Nature journalist, Jones knows firsthand the vast, dramatic, and diverse landscape that is home to more than one million species of plants and animals. Many – like our most endangered animal, the mountain pygmy possum – are found nowhere else in the world. But our abundant biodiversity is under increasing pressure from habitat destruction, predation and climate change. With one of the worst extinction records in the world, the speed at which native species are being lost is accelerating.

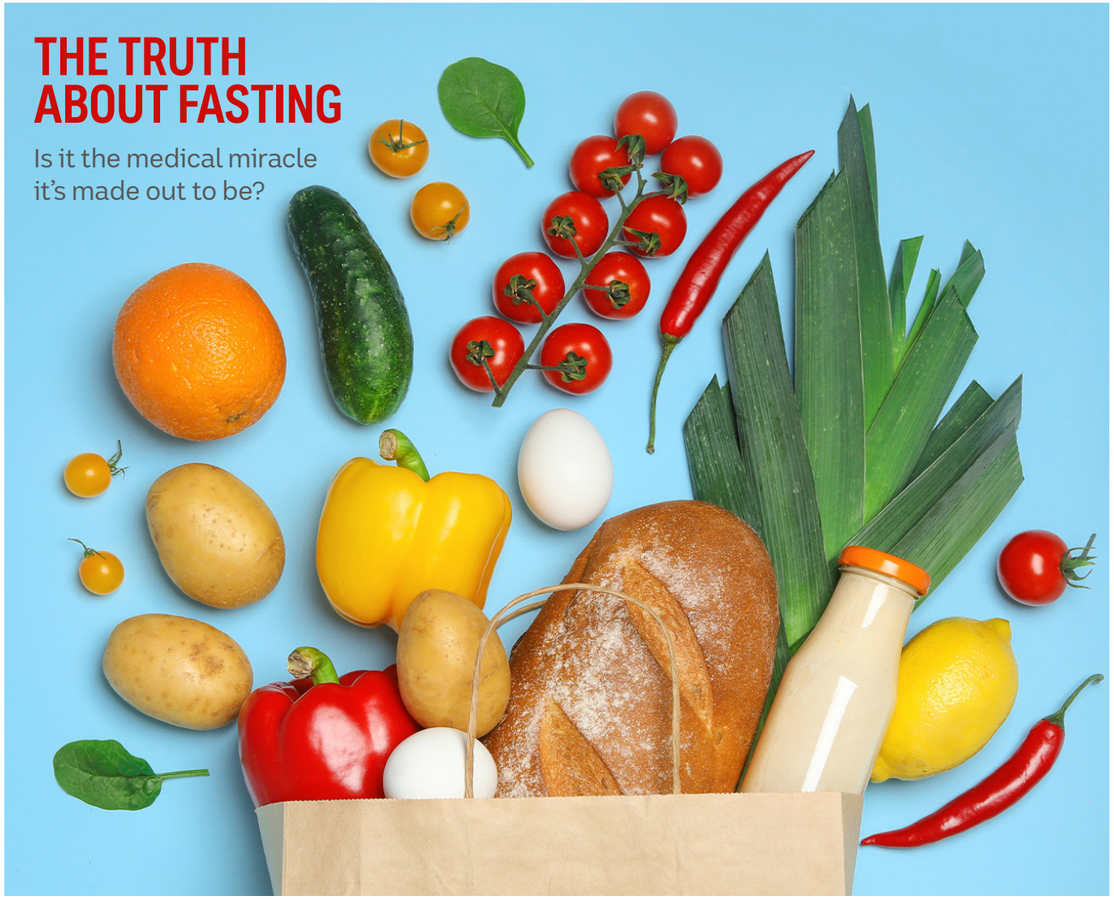
We are in a race against time to protect what's left. To understand the rate of loss, experts use tools to monitor and assess each threat. And right now, there is a revolution taking place, one where emerging technology is helping to safeguard our wildlife in bold new ways.

In this fascinating special, Ann travels across the country to meet the scientists who are using these innovative technologies to work smarter and faster. From revealing surprising behaviours in native bat species and identifying ways to rejuvenate ocean kelp forests to road-testing new weapons in the fight against the illegal animal trade – emerging technology hopes to be our insurance policy against losing severely endangered animals forever. Could this be the wildlife revolution we've all been waiting for?

HD 1 x 60'

THE TRUTH ABOUT FASTING

Is it the medical miracle it's made out to be?



Could changing WHEN we eat help make us healthier? Fasting – going a set amount of time with little or no food – isn't a new idea, and intermittent fasting is growing in popularity. Recent health trends have reinvigorated fasting for our contemporary lifestyles. Diets, like the 16-8 and 5-2, promise not just weight loss, but the possibility of preventing chronic disease, with early studies showing intriguing results. But many of these studies are in animal models rather than humans – so how does fasting affect people in the real world? And is it the medical miracle it's made out to be?

To better understand the benefits and impacts of these diets on our bodies, this fascinating special tracks 5 different subjects fasting over 6 weeks.

Dietician Dr Joanna McMillan designs a six-week personalised intermittent fasting program for five everyday adults. Hairdresser Sam and her husband Kevin, a butcher, busy mum of four Renuka, train driver Julie and corporate accountant Vanessa all have underlying metabolic health issues that can potentially be treated with a fasting intervention – from insulin resistance to high levels of triglyceride fats in the blood.

As the participants embark on either the 5:2 or the 16:8 diet and radically change the way they approach eating, Jo carefully tracks their metabolic health, mood, microbiomes and weight.

Dr McMillian is guided by leading medical experts, including gastroenterologist Dr Ray Boyapati, lifestyle disease specialist Dr Samantha Hocking and fasting pioneer Professor Luigi Fontana. From 'brutal' fasting days to changes in body composition and function – the end of the 6-week experiment reveals some surprising results.

HD 1 x 60'

CANCER:
A STORY OF HOPE

Advances in technology & medicine are making a difference

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HD 1 x 60'

MAGIC AND THE BRAIN:
THE SCIENCE OF ILLUSIONS

Exploring the strange world of artificial intelligence & sensory perception

Mathematician Lily Serna explores the strange world of sensory perception, using magic and illusions to reveal the difference between how we perceive the world and reality. Lily Serna meets Professor Branka Spehar who explains that what we think of as our seamless experience of the world is really an illusion. We may believe that our eyes work like a camera, but really what we 'see' is our brain's interpretation of the data it receives, that then creates a picture of the world around us. Branka and Lily perform a selective attention test for the audience asking them to keep track of the location of a ball hidden under cups? But is that really what you should be watching?

So why can't we see things as they really are? Lily reveals that the 'shades of grey' optical illusion works because the brain looks for context in everything it sees. Professor Mark Williams explains to Lily that our brains have evolved not to see reality – but something much more useful – to see meaning in the world. Using an AMES room illusion, Mark shows Lily how our brains find it difficult to cope when that meaning is changed. Lily examines how we can be tricked by the brain into believing things that aren't real – and how, despite the occasional glitch in our perception, we're able to navigate life effortlessly. And even more intriguingly, how Artificial Intelligence is now racing to 'match' how we see the world. Researchers working in AI are racing to replicate the human system – and even go beyond it.

HD 1 x 60'

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