

body+soul EXPERTS



ELIZABETH MERYMENT

Food writer Elizabeth Meryment wrote our feature on mood-boosting foods (page 4). She likes to stay healthy by cooking a

big plate of green vegies such as broccoli, beans and zucchini with every meal. "Not only do I get the daily veg intake in one go, it helps cut down on meat, carbs and sweets." Her top three dinner party guests would be Jane Austen, Hattie McDaniel and George Orwell. "I don't know how they would all get on but it would have to be an interesting conversation."

MELINDA AYRE

Body+soul's beauty editor, Melinda Ayre, is also our art director. Currently on maternity leave, she writes her Beauty Bag column from home every week. Her favourite way of keeping fit is running along the coastline from beach to beach, and her number one health tip is "burn off more kilojoules than you eat". On picking her top three dinner-party guests she says, "Forget celebs - I'd love a gathering of my sister Caroline, my oldest, closest friend Debs and our mutual childhood mate Luke, who passed away over 10 years ago."



SUSIE BURRELL

One of Australia's leading dietitians, Susie Burrell has trained in nutritional science and psychology and

writes our Nutrition column every week. She also appears regularly on TV and consults to key food industry groups. Her favourite way of keeping fit is "interval training at the gym with master trainer Dave Driscoll and early-morning beach runs". And this nutritionist's number one health tip? "Create your own ideal work-life balance formula and stick to it." Her top three dinner-party guests include "Michelle Obama, Iva Davies and Wayne Dyer".

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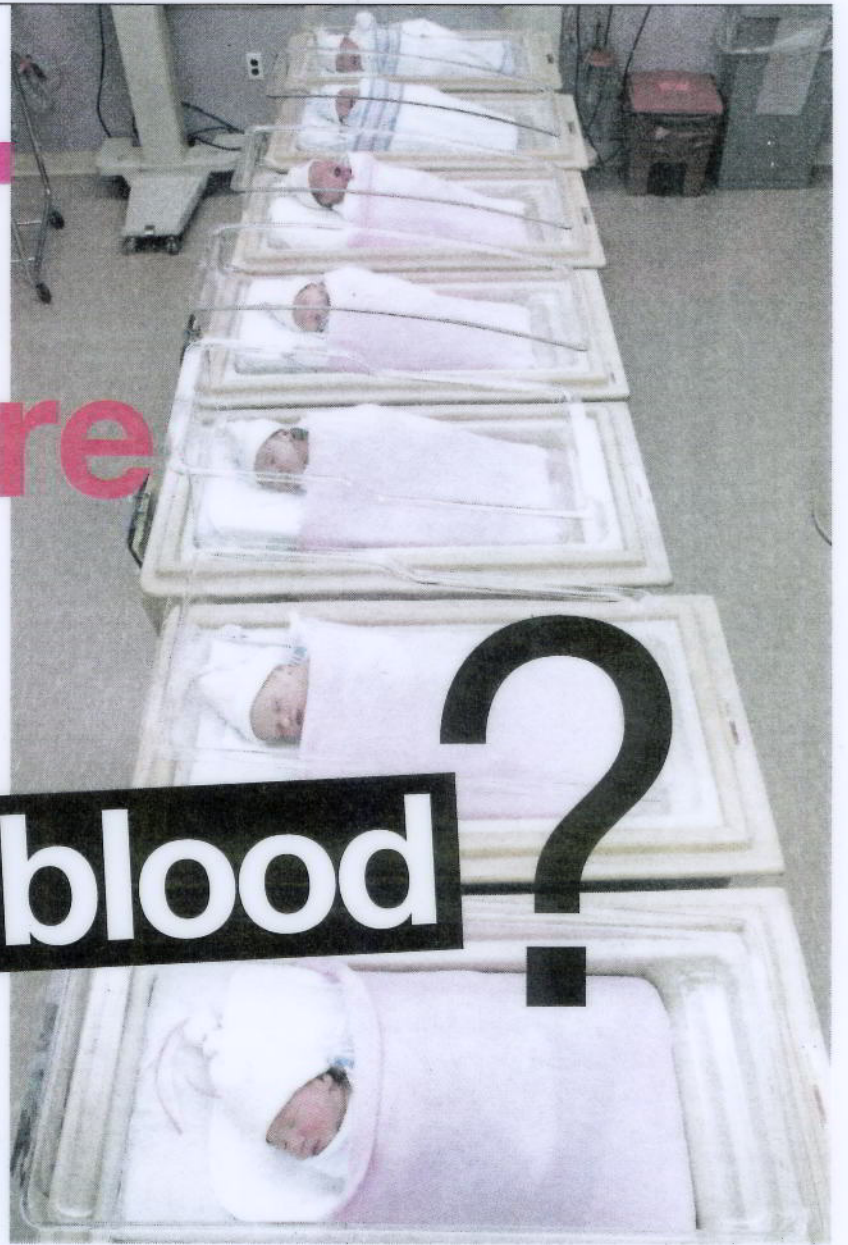
REPORT

Should you store your baby's

cord blood?

SAVING YOUR BABY'S OWN CORD BLOOD IS EXPENSIVE AND THE JURY IS OUT AS TO WHETHER IT'S WORTH IT.

BY Clair Weaver



It's weird-looking, slimy and usually ends up in the bin. And amid the excitement of meeting their newborn baby, many parents barely notice the umbilical cord before it's severed and disposed of as medical waste.

But could this seemingly depleted piece of anatomy - which has a vital role keeping babies alive in the womb - hold the key to curing a range of diseases and injuries?

A growing number of Australians are banking on it. About 15,000 have stored their babies' cord blood privately as insurance in case these babies become ill in the future.

Umbilical cords are a rich source of stem cells, which are important because they can regenerate and fix human tissue. Some also have the ability to turn into other types of cells.

Scientists are trying to use these "master" cells to treat wide a range of disorders such as cancer, autoimmune diseases and arthritis.

It's an exciting prospect. There is, however, no conclusive evidence that it works.

At about \$3000 to collect and store the blood in a private bank for 18 years, many parents consider it money well spent even if their child remains healthy.

NEW SOLUTIONS

Critics argue there is no proof, and some have even accused private cord blood banks of preying on parents' worst fears despite slim odds the blood will be needed.

Australia also has a free public cord blood bank, which accepts donations and provides cord blood for public use. It cannot safeguard an individual's blood, and collection is limited.

Professor Mark Kirkland is medical director of the private cord blood bank BioCell. He first became involved in cord blood research as a haematologist or "blood doctor", which he says converted him from being a "conservative medical professional" to an "excited scientist".

"People have to understand we are doing this without promises of life-saving treatment tomorrow," he says. "But probably in the next five to 10 years the science will make this valuable for your child."

He believes autologous (your own) stored cord blood will prove to be valuable if current trials to treat autoimmune diseases, such as type 1 diabetes, multiple sclerosis, Crohn's disease, lupus and arthritis, are successful.

"The evidence from the lab is that it could be very important for treating autoimmune diseases," Professor Kirkland says. "In that sort of treatment it's probably critical to use your own stem cells because if they were incompatible cells, they would be destroyed [by your immune system]."

Autoimmune diseases, which occur when the body starts attacking its own cells as if they were foreign invaders, are on the rise in Australia.

There are many other areas of medicine where it is also hoped umbilical stem cells will provide new solutions, including helping to repair the heart after a heart attack and treating Parkinson's disease, cystic fibrosis, Alzheimer's disease and kidney failure.

Stem cells have already been used successfully to treat spinal cord injuries in laboratory rats. And in 2005, Korean doctors reported in the journal *Cytotherapy* that a 37-year-old woman began to walk again following stem cell treatment after 19 years in a wheelchair.

Researchers are also using stem cells to regrow teeth in animals. This treatment could replace the need for dentures and implants if successfully applied to humans.

Despite these prospects, the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) urges caution.

It supports altruistic cord blood donations to public banks, but not to private banks. RANZCOG says the current odds of needing autologous stem cells are miniscule.

DISORDERS THAT MAY BE TREATABLE WITH STEM CELLS IN THE FUTURE:

- Cancer
- Type 1 diabetes
- Arthritis
- Wounds and broken bones
- Crohn's disease
- Blindness
- Deafness
- Spinal cord injuries
- Parkinson's disease
- Multiple sclerosis
- Cystic fibrosis

DID YOU KNOW? The medical College of Georgia, US, has recently initiated the first FDA-approved clinical trial evaluating the use of a child's own cord blood stem cells as a medical intervention for cerebral palsy.

"The issue we have with it is the cost, and also some of the advertising, in that people are sold dreams or promises about stem cells," Dr Ted Weaver, president of RANZCOG, says.

"It's obviously a big, emerging area of research, and in 10, 20, 30 years I think we will see all sorts of interesting things arising from these cells, but it's not here yet. There's a lot about this that's complex and not well understood."

ETHICALLY ACCEPTABLE

An advantage to cord blood cells is that they are more ethically acceptable than embryonic stem cells, which are controversial because they involve destroying a human embryo.

A limitation until now has been that cord blood cells provide only a small dose. But in January, US scientists reported in the journal *Nature Medicine* they had found a way to vastly expand the number of cells and successfully use them in treatment.

This could mean that, in the future, one person's cord blood may be enough to cover a lifetime of different illnesses if stem cell therapy lives up to expectations.

Today, the main established use for stem cell therapy is for children with leukaemia who haven't responded to standard treatment and need a bone marrow transplant. However, they are normally treated with cells taken from the public bank rather than their own cells.

According to Professor Bob Williamson, a human genetics expert at the University of Melbourne, it is "safer and more effective to use stem cells from another baby, since these can help to get rid of any remaining cancer cells from the blood stream".

Research has suggested the stem cells of children who get cancer may carry the very flaws that made them ill, making their own cord blood cells unsuitable for treatment.

Professor Kirkland disagrees, arguing this theory is based on early results from an incomplete study that became "one of those rumours that gets established which is scientifically very dodgy".

Regardless, for most other disorders and injuries, having autologous cells would at least, in theory, be beneficial because your body wouldn't reject a transplant of its own cells.

A PERFECT MATCH

"If stem cells become useful in the future to treat broken bones or injured muscles, or heart disease, there will be great advantages in having a perfect match, and the best perfect match will be stem cells from the child," says Professor Williamson.

It's also possible that paying for "perfect match" cord blood storage will be found to be unnecessary because of advances in genetic manipulation of donor stem cells, RANZCOG says.

But for families whose children are already ill, the technology isn't coming quickly enough. Some are being lured to countries such as India and China for expensive and unregulated stem cell treatment.

"I know that caring people with a relative, particularly a child, with one of these terrible diseases will want to do all they can to help them," Professor Williamson says.

"At times it breaks my heart to say so, but I would avoid any of these clinics at this time, and wait for proper, safe trials in Australia and the US to show whether stem cells work well or not."

Dr Weaver acknowledges RANZCOG's stance may change, pending developments in the rapidly advancing stem cell field.

Some treatments may be tried in the next two or three years, Professor Williamson says, but he says others will take much longer because of "very strict safety rules in Australia, which is a necessary safeguard".

Professor Kirkland admits there are no guarantees for parents who choose to store their baby's cord blood in private banks, but he insists there is great potential.

"People have been critical of private banking because a lot of these therapies are not proven, but the inevitable catch-22 is that we can't do these studies until we've stored the blood," he says. "So people have got to make the decision for themselves if they want to take that chance."

Professor Kirkland is frustrated that Australia's cord blood collection rate, at about one per cent, is low compared to between six and eight per cent in the US, four per cent in the UK and 12 to 14 per cent in Greece.

"It's not a case of false hope," Professor Kirkland says. "It's not snake oil. There's good science underpinning the idea these stem cells may have good uses in the future."

For now, however, it's a matter of faith.



"IT'S JUST REASSURING TO KNOW IT'S THERE"

Fiona Hill, 33, from Melbourne, has chronic myeloid leukaemia.

Fiona Hill knows it is unlikely her one-year-old son Alexander will develop the condition too, but she opted to store his cord blood in a private bank when he was born.

"Certainly if anything came up concerning Alexander's health, it's reassuring to know it's there," she says. Hill, who manages to keep her illness under control with medication, decided to store her son's cord blood after watching a documentary about the issue.

"We talked to my doctor and obstetrician about it and we were lucky in that they were keen to do it," she says.

Some public hospitals ban the private collection of cord blood. Hill says she would have donated to the public bank if it had been an option.

"We have friends who have stored cord blood and in most cases they have a genetic condition in the family," she says.

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