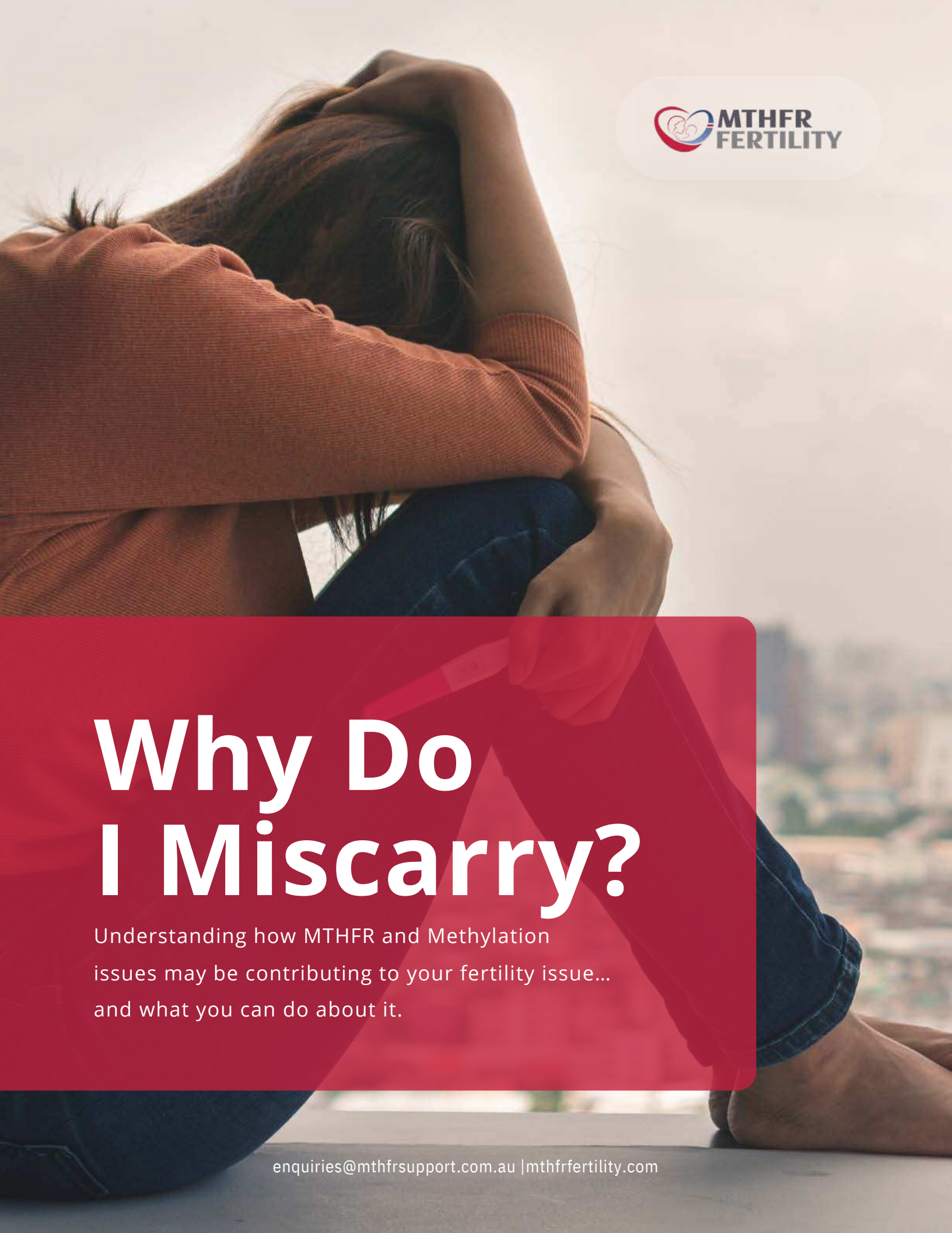

MTHFR FERTILITY

Why Do I Miscarry?

Understanding how MTHFR and Methylation issues may be contributing to your fertility issue... and what you can do about it.

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Introduction

> *I just don't think I could survive another miscarriage. I feel like a part of my soul gets shattered everytime it happens. I honestly don't think I'd be able to put myself back together if it happened again. I am so scared, part of me doesn't even want to try again. But I also know I'd never forgive myself if I gave up."*

I saw the pain and fear in Jane's* eyes as she spoke these words to me. It held the same deep sadness I've seen so many women endure as they suffer miscarriage after miscarriage. The same deep sense of hopelessness that there was nothing she could do about it. The silent shame that comes from believing there was something wrong with her.

> *I understand."* I said. *"What you have been through is truly heartbreaking. And up until this point you've been told there is nothing you can do about it. But I am here to promise you that is not true. And whilst it's not your fault that this has happened, there is SO much you can do to help. Starting from now, we are going to do everything we can to take away the risk of another miscarriage so you can finally hold your healthy baby in your arms."*

If you are reading this ebook, there is a big chance that you have felt the same sense of pain, grief and confusion as Jane.

Or maybe you're here because you've witnessed friends and family go through the emotional and physical toll miscarriage has caused, and are looking at what you can do to prevent this from happening to you.

Hello my name is Carolyn Ledowsky and I'm the founder of MTHFR Support Australia. I am a health scientist, researcher, naturopath and herbalist.

My goal is to ensure that everyone fully understands why 5-MTHF is the best form of folate to be taking when considering fertility, preconception and pregnancy. The goal of this book is to empower you with knowledge, especially about the genetic mutation that is MTHFR and what that means for your fertility. If this resonates with you, you will be glad to find a list of steps at the end of this book that you can take to change your current situation.

MY GOAL IS TO ENSURE THAT EVERYONE FULLY UNDERSTANDS WHY 5-MTHF IS THE BEST FORM OF FOLATE TO BE TAKING WHEN CONSIDERING FERTILITY, PRECONCEPTION AND PREGNANCY.

Carolyn Ledowsky, Founder, MTHFR Support Australia

1 IN 4 COUPLES EXPERIENCE THE DISTRESSING AND OVERWHELMING HEARTBREAK OF MISCARRIAGE OR INFERTILITY.

Before we delve into the underlying cause of miscarriage and action steps you can take, there are a few essential things you need to know:

1. You are not alone

Unfortunately 1 in 4 couples experience the distressing and often overwhelming experience of miscarriage or infertility.

1 in 5 known pregnancies end in miscarriage (Cohain et al., 2017)

1/2 to 1/3 of pregnancies miscarry before a missed period (hence the woman may not ever get a “positive” pregnancy test or know that she was pregnant)

Research shows 70 million couples worldwide struggle with infertility. This equates to roughly 15% of all people trying to conceive (Agarwal, 2015).
But despite its high prevalence, many couples experience a deep sense of loneliness throughout their journey. Feeling as though it is easy for everyone else, but not for them.

2. It is NOT your fault

Unfortunately, many couples experiencing recurrent pregnancy loss (RPL) also deal with the added guilt of thoughts like

- What if it’s my fault?
- Did I do something wrong?
- Is this my punishment because of something I did when I was younger... (like a previous termination, drinking, smoking, drugs etc.)

I can say, hand on heart, I have never had a client who had a miscarriage because she was careless or reckless.
And whilst I have no authority to deal with esoteric questions or beliefs about being “punished from a higher source”, I honestly do not believe that is the cause of miscarriage either.

The truth is, you are doing your very best with the information you have available to you.

Hence, I’ve written this book to provide you with accurate, up to date scientific information so that you can make more informed decisions about what to include in your fertility treatments.

3. There is A LOT you can do to reduce your chance of another miscarriage

More often than not, couples come to our clinic after being told their miscarriage was "just bad luck" and that there was nothing they could do about it.

This is simply not true.

As you will see, it's not about "luck". There is a scientific reason for every miscarriage and there is a lot you can do about it.

4. IVF is not always the best option.

After 3 or more miscarriages, many couples are told IVF is their best (and sometimes only) option. Yes, for some couples IVF is a miracle maker! But for others the process of IVF becomes a living nightmare.

We have found IVF, IUI or ICSI is the only option for couples with infertility due to structural (anatomical) issues that cannot be overcome. This includes conditions such as:

- Tubal disorders (e.g.Fallopian tubes have been removed)
- Uterine abnormalities (e.g. two uteruses)
- Certain male sperm defects (e.g. Where the sperm head is defected and cannot penetrate the egg)
- Primary ovarian failure/ primary testicular failure

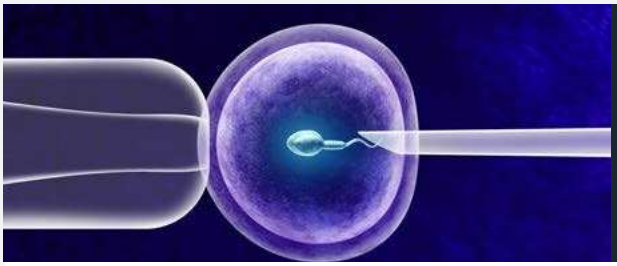
In these cases natural pregnancy is just not physically possible and IVF is truly the only option.

In addition, sometimes IVF is advisable to couples who have significant hereditary chromosomal issues, as embryos may be screened before transfer.

However, IVF is not always the best option for couples just because they have experienced RPL, especially those who have "unexplained" RPL. In these cases, there is nothing to promise that IVF will by-pass the underlying cause of the miscarriage!

If a couple goes into IVF without ever identifying why they are miscarrying in the first place, the chance of them miscarring through IVF is just as high as if they kept trying naturally.

I find it very sad to think how often people are led to believe IVF is a magic solution that will by-pass their fertility issues. Especially when their doctors have not taken the time to properly assess the underlying cause.



RESEARCH CLEARLY PROVES THAT IVF IS NOT ALWAYS THE WHOLE SOLUTION.

Research clearly proves that IVF is not always the WHOLE solution.

For example, In Australia in 2018 there were 84,064 initiated IVF cycles which resulted in 15,475 live births. This equates to an 18.4% success rate (University of New South Wales (UNSW), 2018).

This means that almost 82% of IVF attempts failed.

In this report, the cause of infertility was considered "unexplained" or unknown in 45.9% (37, 927) of couples. Those couples within this "unknown" group, followed the same trend of 18.5% resulting in a live birth rate, 82% ended in miscarriage or no pregnancy at all.

IT'S NOT A NUMBERS GAME.

Have you ever been told that IVF is "just a numbers game"? Meaning, the more you try, the more likely you are to get pregnant. This UNSW Sydney report (2018) showed that 23.1% of couples gave birth to a live baby in their first cycle, and 11.6% in their eighth cycle. Proving the more attempts you have at IVF does not equate to an increased chance of success. However it does equate to a huge financial and emotional burden.

My suggestion to you: if you have already had failed IVF treatments, is to hit pause for now. Don't rush into another cycle because you are afraid you are running out of time. Do the work I outline in this book and in my course before doing another cycle. As you will see by Karen's case study, many of my clients get pregnant naturally even after IVF has failed, because they fix the main issue causing infertility or miscarriage and no longer need medical intervention.

And if you decide IVF is the right option for you, you'll be happy to know that including natural preconception care in the 3-4 months prior to IVF will increase your chance of success to 47.1% (Barnes, 2014)

5. Often the answer is simple (Sometimes it's not)

You might read this book and say to yourself "could it really be this simple?", and to 80% of readers, I answer a resounding "yes! It really can be".

If you have the genetic mutations and/or the main issue with methylation that we are about to discuss, your solution to overcome those issues is actually quite simple.
After what you have been through, I understand that it can be hard to believe this. Part of you may not want to get your hopes up and might not let yourself believe you have finally found the answer you've been looking for.

But as you will see from the research and case studies I've included, and the testimonials from our clients, you really can succeed at having your healthy, gorgeous baby when you know what to do differently.

In my clinical experience 80% of those that follow my fertility course will go on to fall pregnant and successfully have a baby, even those who have been told by IVF and fertility specialists that they have a little to no chance of falling pregnant naturally.

Of course, I have to acknowledge that there are a small number of people reading who will find this is just one piece of their complex fertility puzzle, but I promise, it is definitely a significant piece! For the majority of you THIS IS IT. This is your answer. And I am delighted to share it with you. So let's jump in.

PART 1, CHAPTER 1

Why do I miscarry?

The Underlying Cause of Miscarriage

Miscarriage is defined as a loss of pregnancy less than 20 weeks gestation. For the purposes of this book, however, what we will explore will primarily focus on the losses experienced within the first 12 weeks. Miscarriages or stillbirths after this time are more complicated and will require much more investigation as these are often due to immune or blood clotting issues.

Causes of Miscarriage

More than half of all miscarriages within the first trimester (i.e. first 12 weeks) are caused by chromosomal and DNA issues. (Alves & Rapp, 2020). Besides chromosomal issues, other causes of miscarriage can include:

- Infection (e.g. syphilis, malaria, HIV infections)
- Autoimmune disease. (e.g. antiphospholipid syndrome)
- Environmental toxic agents (e.g. arsenic, lead, organic solvents) or high levels of radiation
- Severe kidney, heart or liver disease
- Uncontrolled diabetes
- Hormonal irregularities that cause ovulation disorders or sperm defects
- Improper implantation of fertilized egg in the uterine lining
- Uterine or cervix abnormalities.
- Lifestyle factors such as smoking, drinking alcohol, or using illegal drugs
- Obesity
- Thyroid disease
- Severe malnutrition

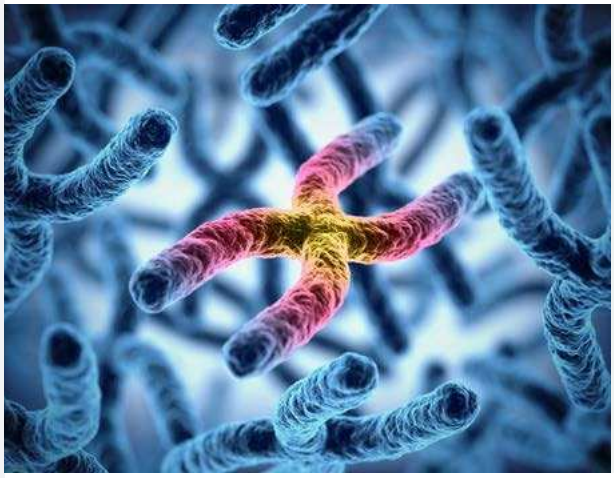
In this book we will discuss many of these conditions and how to identify if they are a risk factor for you. We will also discuss how each of these conditions are associated with MTHFR and methylation issues.

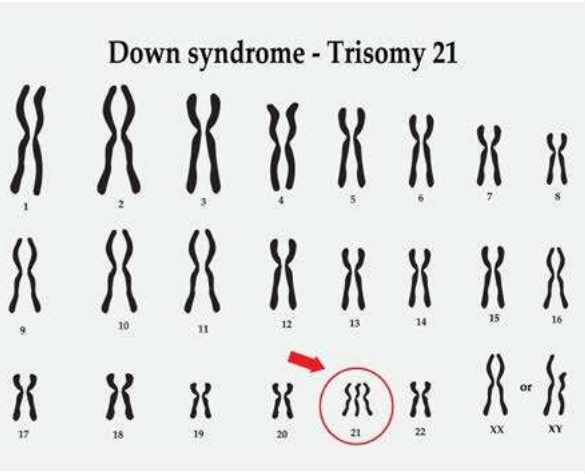
Let's start with chromosomal and DNA abnormalities, as that is the most common problem causing miscarriage.

What is a chromosomal abnormality?

A chromosome is a long rod shaped strand of DNA. Every cell in the body should have 46 pairs of chromosomes.

A chromosomal abnormality occurs when there is an abnormal number of chromosomes in the cell (e.g. 45 or 47 pairs) or a problem with the DNA it contains.





In the oocyte (female "egg") chromosomal abnormalities will occur prior to ovulation, so interventions must be done BEFORE she ovulates.

A woman is born with all the eggs she will ever have. These eggs stay in a "dormant" state until a few months before they are to be released by the ovary.
Like all cells in the body, your eggs contain all the genetic data given to you by your mum and dad in the 46 chromosomes they gave you.
However, if you think about it, if your egg has 46 chromosomes and a sperm has 46 chromosomes... that would equal 98 chromosomes for your baby (waaaay to many!)
In order to make a baby, the egg and sperm must get to the point where they each only have 23 chromosomes at the time of conception in order to give your baby the full 46 pairs. This means before ovulation, your egg needs to work hard to get rid of half of its chromosomes.

How does the egg get rid of half its chromosomes?

In the 4 months leading up to ovulation, the dormant eggs become "activated" by your hormones, start to grow and become metabolically active again. You might hear this process referred to as "egg maturation".

Your hormones, particularly follicle stimulating hormone (FSH), luteinising hormone (LH), estrogen (E2) and testosterone are key to triggering the process of pushing the extra chromosomes out of the cell. So your hormones need to be in tip top shape!

"WHAT CAN DISRUPT THE CHROMOSOMES AND DNA DURING THE MATURATION PROCESS... AND HOW CAN WE PREVENT IT?"

When a chromosome pair fails to separate it is called meiotic nondisjunction or chromosomal nondisjunction and you end up with too many or too little chromosomes in the egg.

Considering chromosomes contain the genetic "instructions" for the normal growth and development of your baby, cells with chromosome abnormalities cannot grow and divide properly.

Cells with chromosomal abnormalities will end in miscarriage 9/10 times.

If by chance the cells are able to develop, the baby will develop a disorder, usually a trisomy disorder, depending on which chromosomes are abnormal. These can include:

- Turners syndrome
- Downs syndrome
- Edwards syndrome
- Klienfelter syndrome
- Trisomy X
- XYY male

If chromosomal and DNA abnormalities are the primary cause of miscarriage, we need to do what we can to ensure normal, healthy maturation of the egg in the months prior to ovulation.

So the question becomes: "What can disrupt the chromosomes and DNA during the maturation process... and how can we prevent it?"

The oocyte and spermatozoa maturation is complex and many factors need to be assessed including genetic, biochemical, nutritional, hormonal, environmental and lifestyle factors. So it is always best to get a trained professional to help you assess ALL your factors.
In saying that, we have found that the number one cause of disturbance throughout this maturation phase is a disturbance to the biochemical pathways involved with methylation.

Methylation is a process where a methyl group- a simple one carbon atom with three hydrogen atoms-, is attached to enzymes, hormones, amino acids, proteins or DNA.

The attached methyl group acts as an "on-off" switch that tells the cell to either increase or decrease activity.
Without methylation, your normal bodily processes are impaired. Even basic cognitive function becomes challenging.
If you have complex and difficult to solve health issues or issues with fertility, it could be attributed to undiagnosed issues with methylation.
Methylation impacts almost every cell in the body, so symptoms of methylation imbalances can be far and wide.

Here is a list of of some of the most known health conditions associated with a methylation disturbance:

Mental health disorders such as: bipolar disorder, OCD, schizophrenia

- Depression
- Anxiety
- Autoimmune disease
- Atherosclerosis
- Behavioural disorders, such as ADHD and autism
- Chronic fatigue
- Hormonal imbalance (especially estrogen issues like PCOS, fibroids, endometriosis)
- Immune and allergic conditions
- Detoxification issues
- Thyroid issues
- Liver health

In reproduction, the DNA within the chromosomes need to be methylated both prior

IS METHYLATION DISTURBED?

ADD/ADHD
Addictive Behaviour
Allergic Conditions
Aging
Anorexia
Alzheimer's Disease
Anxiety
Asthma
Autisme
Autoimmune Disease
Bipolar
Bulimia
Cancer
Chronic Degenerative Disiease
Cardiovascular Disease
Chronic Fatigue
Cleft Palate
Diabetes
Down's Syndrome
Delusions
Depression
Poor Detoxification
Fibromyalgia
Headaches ADD/ADHD
Infertility
Joint Stiffness, Pain, Swelling
Insomnia
Muscle Pains
Low Neurotransmitters
Obesity
Obsessive CompulsiveDisease
Oppositional Defiant Disorder
Pain
Phobias
PCOS
Psychosis
Schizophrenia
Recurrent Pregnancy Loss/ Miscarriage
Thyroid Disfunction

to, and after ovulation. DNA methylation is an essential process that plays a significant role in gene regulation and stabilisation, cell differentiation (Razin & Riggs, 1980) and of course chromosome segregation.

When the body cannot create sufficient methyl groups, it will negatively affect the:

- DNA inside the egg/sperm, so that it cannot replicate, cells cannot divide and differentiate and chromosomes cannot segregate (Tolmacheva et al., 2020)
- Hormones needed to stimulate meiosis and chromosome segregation (Ulrich et al., 2020)
- Immune cells needed to protect the DNA and reproductive tissues from damage (Ulrich et al., 2020)

This means that if we can fix and prevent methylation deficiency BEFORE the egg and sperm starts to mature, and during the key moments of embryogenesis where methylation is needed, we can potentially prevent miscarriage caused by chromosome/ DNA, hormone and immune problems.

What Causes Methylation Deficiency?

Methylation deficiency is usually caused by genetic mutations that slow down or inhibit the pathways that create the methyl groups. When a person has these genetic mutations, and does not work to overcome them, the egg/ sperm won't get the nutrients, methyl groups or energy it needs to grow and develop and they will experience msicarraige or infertility.

There are many genetic factors that we assess in the clinic, but by far the most significant mutation that impacts everything we have discussed so far, is the **MTHFR gene.**
Other significant genes in regards to fertility that are associated with a methylation deficiency include, but are not limited to, mutations in the following genes:

- TCN2
- MTHFD1L
- MTR
- MTHFS
- MTRR
- DHFR
- MAT1A
- COMT

The genes listed above are all genes found within one of the two fundamental biochemical processes known as the folate pathway and the methionine cycle.
Let's look a little closer at these genes and pathways so we can understand HOW they contribute to miscarriage.

MTHFR Fertility

To continue reading this book you can access it here as part of the WHY DO I MISCARRY BUNDLE... currently on sale for $7