



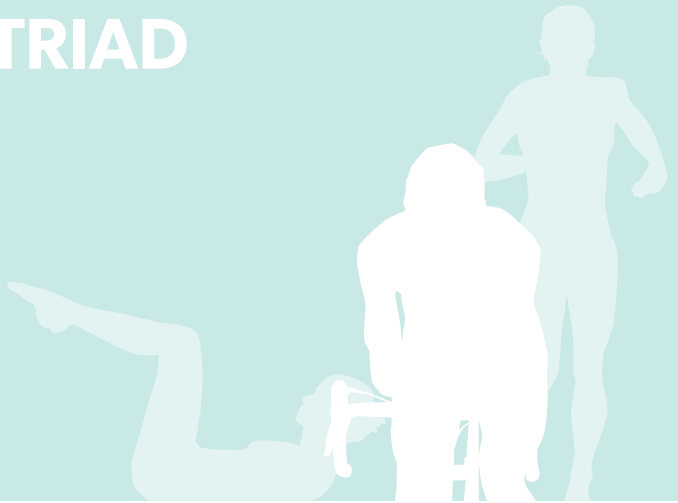
fuel

AOTEAROA

Empowering athletic
girls and women
through education

Important Information for Athletic Girls and Women


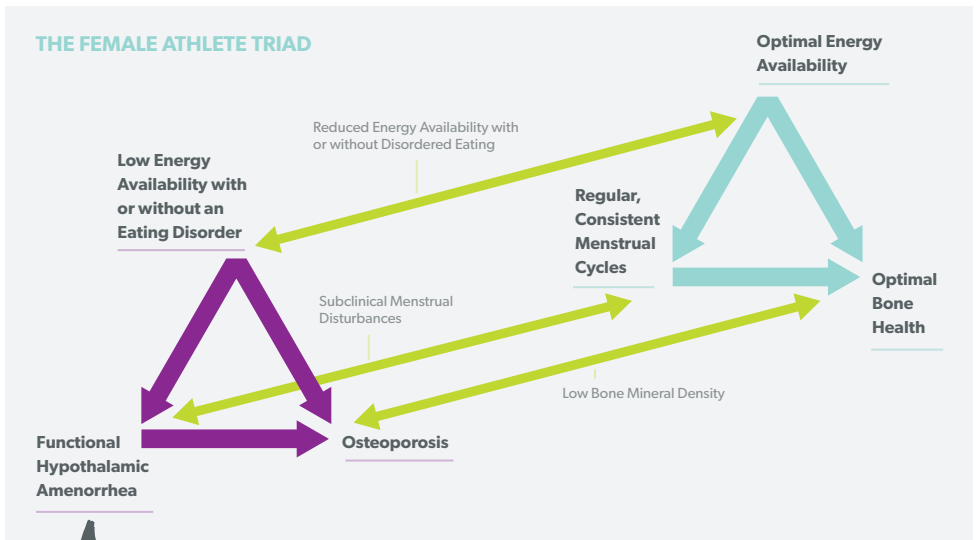
ENERGY AVAILABILITY AND THE FEMALE ATHLETE TRIAD



We all know that sport and exercise is good for us. But there are also a unique set of risks for athletic girls and women that you should know about. This brochure provides an overview of these issues to help girls and women experience the benefits of exercise and high performance sport while avoiding the negative consequences of the Female Athlete Triad and energy availability. **Empower yourself, get educated and enjoy a healthy active lifestyle for many years to come!**

WHAT IS THE FEMALE ATHLETE TRIAD?

The 'Female Athlete Triad' consists of three separate but interrelated spectrums of 1) insufficient calorie intake (with or without disordered eating) relative to the energy demands of exercise training and daily activities, 2) irregular, inconsistent or absent (amenorrhea) menstrual cycles, and 3) bone mineral loss. As seen in the purple triangle below, the Female Athlete Triad can have serious implications for reproductive and bone health. Emerging research also suggests cardiovascular health, mood, injury rate and recovery, exercise training, and sport performance may also be compromised.



“ I rarely went longer than 10 hours between bouts of exercise.... some days it was a need to just see how far I could go before I started feeling that 'good pain'. Other days it was a need to burn off the extra cake I ate...”

University student
and long-time exerciser

KEY POINT The Female Athlete Triad is not just a concern for elite female athletes. The Triad is diagnosed in ANY exercising woman who exhibits signs and/or symptoms consistent with the pathological end (as seen in the purple triangle) of any one or more of these spectrums (i.e. low energy availability, amenorrhea and/or low BMD).

Extensive research shows that recreational female exercisers are increasingly demonstrating symptoms of the Female Athlete Triad.

MINIMIZING THE RISKS

It is important for all female athletes and exercising women to take responsibility and ownership of their bodies, understand the signs, symptoms and risks for low energy availability and the Triad, and be willing to seek further professional advice as necessary. Coaches and parents of athletic girls and women should also be aware of the risks and be able to identify signs and symptoms.

SOME SIGNS AND SYMPTOMS OF THE FEMALE ATHLETE TRIAD AND LOW ENERGY AVAILABILITY:

- Often restricting food intake
- Constantly striving to be thin
- Eating less than needed in an effort to improve performance or physical appearance
- Loss of lean muscle mass
- Decreased resting metabolic rate
- Decreased immune function
- Gastrointestinal disorders
- Tiredness and fatigue
- Depression
- Irregular or absent menstrual cycles and infertility
- Increased risk of musculoskeletal injuries and stress fractures
- Decreased bone mineral density
- Increased cardiovascular disease risk factors
- Problems sleeping
- Cold hands and feet

To further protect your body, you should:

- Monitor your menstrual cycle by using a diary or calendar, preferably alongside your training and nutrition plans.
- Consult your GP or sports doctor if you have changes to your menstrual cycle, feel unusually tired, and/or have recurrent illnesses, injuries or stress fractures.
- Try to eat frequent snacks, and include recovery time in your training schedule, to optimize energy availability.
- Consider seeking counseling or advice from a sport psychologist if you are overly concerned with your body image and weight such that it is starting to control your life.
- Consult a sport nutritionist to help you design an appropriate diet that is specific to your sport and to your body's energy needs.

You start cutting things out of your diet and it all catches up with you until it possesses your life...



Hollie Avil
UK Olympic triathlete

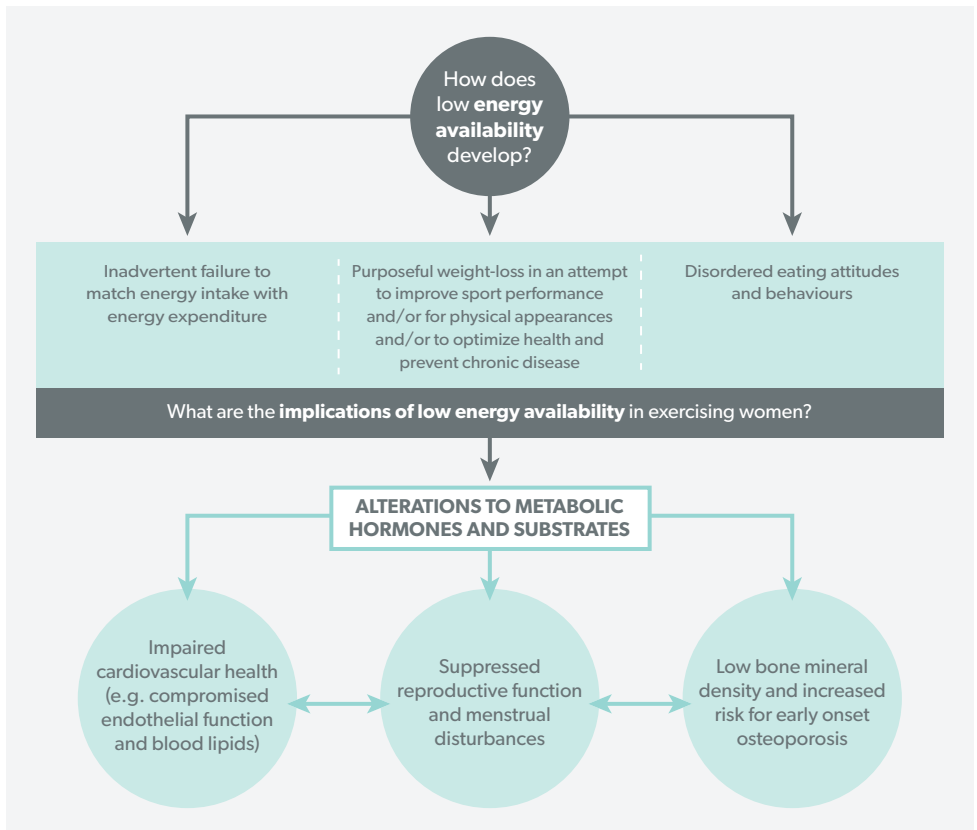
WHAT IS ENERGY AVAILABILITY, AND WHY IS IT SO IMPORTANT?

Energy availability describes the dietary energy that is available to perform all other physiological processes and functions in the body after accounting for the energy expended during exercise. Low energy availability is common in female athletes and exercising women and has important implications for long-term health.

For some athletic girls and women, insufficient energy availability can happen accidentally by not knowing how many calories are necessary to fuel their exercise. For these women, a sports nutritionist

will be very helpful to ensure proper nutrition for the demands of their sport training or exercise. However, many other women are dieting or purposefully restricting their caloric intake for performance or aesthetic reasons. Either way, insufficient energy availability can have long term effects on bone, reproductive and cardiovascular health.

KEY POINT To maintain good health and avoid the risks of the Triad, athletic girls and women must adequately fuel their exercise with healthy and nutritious food.



How does energy availability affect the menstrual cycle?

Normal menstrual cycles are 26-35 days in length. If female athletes and exercising women do not have sufficient energy available for adequate hormonal production it can affect their menstrual cycle. The severity of abnormalities range from subtle or non-observable changes to irregular and inconsistent cycles with the most severe presentation being complete loss of menstrual cyclicity (i.e. amenorrhea). International research shows a high prevalence of menstrual changes and irregularities among female athletes and exercising women, that often go unnoticed by women for many months.

KEY POINT Menstrual changes in exercising women are not solely dependent on body weight and fat. There is much individual variation, therefore exercising women should be aware of their own unique energy requirements and avoid comparing themselves to others.

KEY POINT The menstrual cycle is an important indicator of good health. All exercising women should be aware of their menstrual cycle. If they observe major changes or a prolonged cessation (>3 months) of their periods, they should consult with their GP. Diagnosis is complex and thus a specialist may be required.

KEY POINT For women who are taking the Oral Contraceptive Pill (OCP), the menstrual cycle is not a valid indicator of good health. Female athletes and exercising women who are taking the OCP for an extended period of time and are in an energy deficit will not see tangible evidence of the deficit (i.e. menstrual disturbances).

What about bone health?

Low energy availability can have a direct negative effect on bone mineral density (BMD) via effects on various metabolic and ovarian hormones, and also insufficient intake of nutrients, vitamins and minerals that are important for maintaining bone health. In so doing, it increases the risk for fractures and premature osteoporosis.

KEY POINT The teenage years are a particularly important time for optimizing bone mass and strength. Thus, a chronic energy deficit and amenorrhea can pose particular risks to the long-term bone health of young women.

FOOD FOR THOUGHT While exercising and dieting might seem important for achieving the body you want today, try to consider the long-term health of your bones and reproductive system. Ask yourself – do you want to be physically active into your old age? Might you want children one day?



I have treated lots of athletes with amenorrhea over the years, but I'm also seeing growing numbers of 'high achieving' young women presenting with similar symptoms. Young women need to be aware of the long-term health risks posed by dieting, excessive exercise and high stress lifestyles.

Dr Stella Milsom
Fertility Associates



Normal menstrual functioning

Eumenorrhea > regular, consistent, ovulatory cycles (26-35 days)

Obvious clinical presentations

Amenorrhea > 90 days between cycles

Luteal phase defect

Less obvious subclinical presentations

Irregular or inconsistent cycle

WHO WE ARE

The Fuel Aotearoa website was founded in 2012 by Dr Holly Thorpe and Maria Bentley. Holly is a Senior Lecturer in the Department of Sport and Leisure Studies at the University of Waikato, and Maria is a physiotherapist at the Corrective Clinic in Auckland with postgraduate training in sports medicine. Both have spent their lives immersed in sport, and they continue to actively participate in an array of sports and exercise activities ranging from long-distance running to surfing.

Holly and Maria designed the website specifically to provide female athletes, exercising girls and women, coaches and family with accessible information about the physiological, psychological and social aspects of low energy availability and the Female Athlete Triad. The website provides further information on body image issues, exercise addictions, and contact details for a network of specialist health professionals.

For further information visit

www.fuelaotearoa.co.nz

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