SmartHealth Resource: SmartHealth aims to provide education for players, coaches, support staff and whānau, to better understand female player health and how to recognise signs in players who may need support.

1 Puberty and Development

Normal Body Changes During Female Puberty

The brain signals the start of puberty by producing female sex hormones.

Body shape changes (10-16yr). Hips widen, breasts develop and there is an increase in body fat – even in highly active, adequately fuelled players.

Hormones stimulate breast budding (8-13yr), pubic and armpit hair (8-18yr), sweating and acne, and the onset of periods.

Puberty is a time for bones to strengthen and muscles to adapt. This may be an "uncoordinated" time.

Periods (menses) start (11-14yr).

During puberty there is a growth spurt (10-15yr). Adolescents will grow on average 5-7.5cm over 1-2 years.

DID YOU KNOW? The same changes happen to everyone, they just happen at different rates.

Puberty – It's temporary and it's normal.

Puberty marks a time of transition and transformation from childhood to adulthood (adolescence).

Puberty is a time of change physically, socially and emotionally.

Onset of the menstrual cycle.

The menstrual cycle takes a while to regulate and may be somewhat irregular in the first few years after onset.

Movement and performance during puberty.

Puberty is a temporary phase with changes and challenges in movement capability. Players may have changes in running and landing mechanics, co-ordination, strength and movement control.

Performance may alter as players learn how to adapt to their new height and changing body shape.

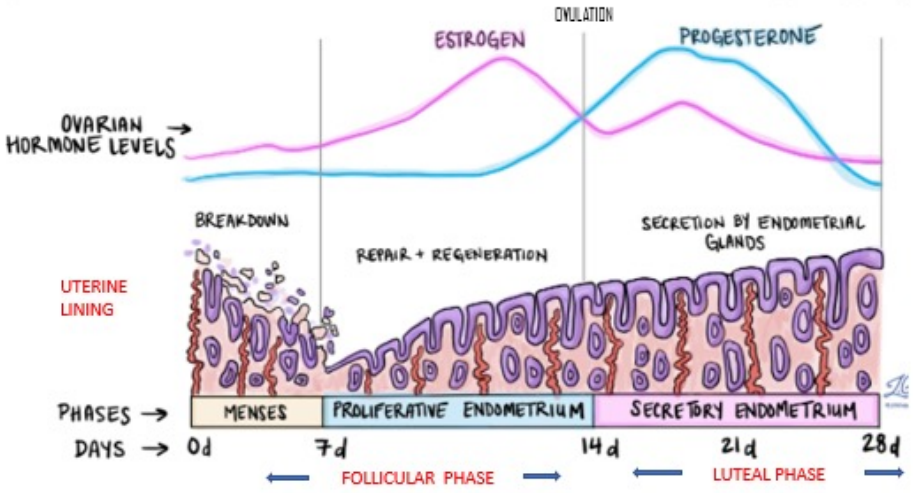
Training should focus on skill development and movement control with a "less is more" approach as the body grows.

Positive language and support throughout change is needed to maintain enjoyment and engagement in Netball.

2 The Menstrual Cycle

KEY FACTS

- The menstrual cycle is a barometer of health in females – like a monthly report card.
- Altered hormone production can cause abnormal menstrual cycles and also lead to reduced bone strength, poor mental health, increased risk of injury (especially bone) and illness (colds and flu) leading to a deterioration in health and performance.
- Your period should not stop you enjoying school, work, social or sporting activities.



- **Menstruation (Period):** Starts on day 1, the average length of the period is 3-7 days.
- **Ovulation:** The **main event** of the menstrual cycle. It produces the female sex hormones (Day 12-14).
- **Hormones:** The two key hormones made are estradiol (oestrogen) and progesterone. They support many body systems and optimise female health.
- **Two Phases:** There are two distinct phases: Follicular (Day 1-14) and Luteal (Day 15-28).

	WHAT IS "NORMAL"?	WHEN TO SEE A DOCTOR?
AGE:	Average age of first period is 11-14 years.	Delayed onset, no sign of first period at 15 years.
LENGTH OF PERIOD:	Average length is 3-7 days.	Bleeding lasting past 7 days.
LENGTH OF CYCLE:	Between 21-35 days. Average: 28 days.	Irregular (longer than 35 days), frequent (shorter than 21 days) or absent periods.
BLOOD LOSS:	Average 2-4 tbsp (30-60ml) Change tampon/pad 3-4 hourly.	Heavy bleeding, leaking and large clots. Can lead to low iron stores. Regularly changing tampon/ pads.
PAIN:	Abdominal cramps, pelvis and low back pain are normal, and should not limit everyday normal life.	Severe symptoms which are not managed with household medication and/or interfere with daily life.
PRE-MENSTRUAL SYMPTOMS:	Before your period low back pain, abdominal cramps, bloating, fatigue, mood changes and food cravings are normal.	Severe symptoms (pain, mood, fatigue) which interfere with daily life.

Menstrual cycle tracking – What to look at?

Tracking can help plan, prepare and adapt exercise during your cycle.

Symptoms: On which days, in what way do they affect you/a player?

Response to training: Which sessions, in which way, on which days affect you/a player?

Individual requirements: Recovery, nutrition, extra rest days, mental time out may vary between individuals.

3 Female Player Health – Energy Availability

Energy (from food) is not just required for physical exercise. Energy allows our body systems to operate effectively and for us to function well at school, at work and socially. If you do not have enough energy to cover your needs, you have **Low Energy Availability (LEA)**.

GET ENOUGH ENERGY (FROM FOOD) TO MEET YOUR FULL DAILY REQUIREMENTS.

Puberty - The total energy demands of adolescents.

Nutritional demands increase throughout puberty due to growth and development.

How does Low Energy Availability (LEA) happen?

UNDER-FUELLING:

Unintentional: Lack of awareness of the fuel required to meet total needs, poor planning or lack of time to consume adequate energy.

Intentional: Purposefully restricting the amount of food, frequency of meals/snacks or the types of food eaten

AND/OR

OVER–TRAINING AND/OR UNDER-RECOVERY:

Unintentional: Over-scheduling of trainings, games and extra-curricular activities may lead to an energy deficit i.e., over-training and under-recovery. This may or may not be combined with under-fuelling.

Intentional: Over-exercising/over-training including adding extra sessions. Reducing sleep through waking early for training. Not taking rest days or having light training days.

Top tips for players

- Fuel well both before and after exercise to optimise training and support health.
- Nutrition is a key factor in recovery – it helps repair and build muscle, aids sleep, supports the menstrual cycle and brain function.
- Be prepared with additional snacks and fluid for exercise.
- Prioritise recovery strategies.
- A healthy player is one that recovers from and adapts to training.

PROLONGED LOW ENERGY AVAILABILITY (LEA) WILL, IN TIME, AFFECT HEALTH AND PERFORMANCE AND CAN LEAD TO RED-S.

4 Female Player Health and Performance – RED-S

What is Relative Energy Deficiency in Sport (RED-S)?

RED-S OCCURS AS A RESULT OF PROLONGED LOW ENERGY AVAILABILITY (LEA).

Normally, the body can tolerate small changes in energy levels. When LEA persists, the body will need to conserve energy.

The body will shut down other important systems, presenting the signs and symptoms noted below.

WE ARE UNABLE TO PREDICT WHICH SYSTEM(S), IN WHICH PLAYER, AT WHICH TIME WILL "SHUT DOWN".

PLAYERS WITH RED-S PRESENT WITH INDIVIDUAL SIGNS AND SYMPTOMS.

RED-S IS CAUSED BY LOW ENERGY AVAILABILITY FROM UNDER-EATING, UNDER-RECOVERY OR BOTH.

RED-S: Effect on Player Health AND Performance.

RED-S: The Health Effects LEA

SLEEP ISSUES
Sleep disturbances, night sweats

ABSENT OR IRREGULAR PERIODS
15yr+ no period, 3 months+ without period

PERFORMANCE
Diminishing performance

GUT ISSUES
Constipation, diarrhoea, bloating

RECURRING INJURY OR ILLNESS
Soft tissue injury, bone injury leading to stress fracture/ osteoporosis, respiratory tract illness

TEMPERATURE
Feel the cold easily, cold hands and feet

MENTAL HEALTH
Poor concentration, irritable, low mood

RED-S: The Performance Effects LEA

DECREASED COORDINATION
Increased injury risk

DECREASED MUSCLE STRENGTH

DECREASED MUSCLE GLYCOGEN STORES

DECREASED TRAINING RESPONSE
Unable to improve fitness despite training

IRRITABILITY/ DEPRESSION

IMPAIRED JUDGEMENT
Decreased concentration, poor decision making

DECREASED ENDURANCE PERFORMANCE
Inability to cope with a full game

5 Practical Ways to Support Female Player Health and Wellbeing

The Balanced Athlete – Training and Recovery

TRAIN

TYPE AND INTENSITY
Sport and exercise should include a combination of hard and light sessions, skill work and rest days.

Ensure training has a variety of intensities. The body grows and strengthens as a result. Adolescents should have at least one rest day from all sport per week.

ADAPT

NUTRITION
Players need to eat (fuel) for the requirements of their life activities not just exercise. Include a wide variety of food groups.

Ensure players eat before and after exercise. Nutrition provides energy for exercise and aids tissue repair, muscle growth and hormone balance. Plan additional snacks.

RECOVER

SLEEP AND MENTAL DOWNTIME
Players should have time away from sport and engage in hobbies and social time with friends and whānau.

Adolescents should have at least 8 hours sleep per night. Sleep reduces injury risk and aids growth and tissue repair. Encourage time for rest.

Positive Body Image

- Focus on the body being fit and strong for purpose.
- Develop positive talk around exercise (health benefits), nutrition (fuel for exercise) and strength (strong for Netball).
- Positive body image leads to confidence in sport.
- Beware of excessive exercising or restrictive eating in players.

Mental Health and Wellbeing

It is normal for moods to go up and down. Feeling sad for a day or so is normal. Make bad days and challenges part of "normal" life.

Coaches and parents need to build awareness and understanding of mental health needs in adolescents. Providing supportive environments help players develop psychologically, emotionally and socially.

- Encourage players to identify their person(s) of support, should they need to talk.
- Support individuality and celebrate differences.
- Empower independent thinking, goal setting and self management.

Protecting Player Wellbeing

Physical wellbeing is affected by injury, illness, overtraining, restricting food/food groups.

Mental wellbeing is affected by under-performance, pressure and expectation, burnout, or development of poor coping mechanisms.

Social/emotional wellbeing is affected by unsupportive environments, controlling actions or environments, bullying, harassment, discrimination, abuse, conflict, isolation.

6 SmartHealth – 10 Key Messages for Healthy Players

Puberty is a time of physical, social and emotional change. It is temporary and normal.

Female players should work on simple strategies to improve movement control and landing mechanics during pubertal change.

Understanding the menstrual cycle and the role it plays in health is important for players, as well as those who support her i.e., coach/whānau.

The total energy needs for adolescents are vast. Energy is needed for normal body functioning, social, academic and work needs, growth and development PLUS exercise. A higher food intake is normal.

Optimal nutrition is vital for energy, tissue repair, muscle growth and hormone balance. Ensure players eat before and after exercise. Plan additional snacks to meet total energy needs.

Under-fuelling (food) and under-recovery (rest) leads to energy deficits (LEA). Prolonged LEA may cause RED-S with negative health and performance consequences.

Balance is important for the growing player. Ensure training has a variety of intensities. The body grows and strengthens as a result.

Recovery is vital for performance and health. Adolescents should have at least 8 hours sleep per night. Adolescents should have at least one rest day from all sport per week. Encourage mental downtime.

Coaches, parents and whānau are encouraged to build awareness and understanding of mental health needs in adolescents.

If players, coaches or whānau are concerned for the health of a player, please seek medical advice and support.

SMARTHEALTH IS HERE TO SUPPORT THE HEALTHY FEMALE NETBALL PLAYER. MORE DETAIL IS PROVIDED IN THE SMARTHEALTH HANDBOOK.

NetballSmart has a wide range of resources in support of the messages of SmartHealth: **www.Netballsmart.co.nz**

FOR PLAYERS

FOR PARENTS

RECOVERY

LANDING SKILLS

BALANCED PLAYERS

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