RELATIVE ENERGY DEFICIENCY SYNDROME (RED-S)

What is RED-S?
RED-S Stands for “Relative Energy Deficiency in Sport”. This is a set of symptoms that develops when an athlete’s calorie intake does not match their calorie expenditure. This reduces the energy available for the body to function normally, leaving the athlete in a “low energy availability” state. Athletes in this situation may experience a wide variety of symptoms, which are outlined in the table on the next page. RED-S is not the same as having low iron stores or other problems that cause fatigue. It may or may not be associated with weight loss. It is more common in females than males but can still present in males. It is concerning because of the long term risks for bone health, fertility, mental health and athletic performance.

What should I do if I’m worried I (or someone I know) might be at risk?
Consult the symptoms outlined on the next page. If you do have cause for concern the advice for Coaches/Staff is to:
- Talk to the athlete, expressing your concern. Invite them to talk to their sport dietitian, sport medicine or family physician, psychologist or counsellor or coach about making sure they have enough energy to train and compete.
- Decrease the overall intensity and amount of training by at least 50% until the athlete has spoken to a health care provider.
- Consider submitting an Early Alert after consulting with the athlete. [Link](https://facultystaff.students.ubc.ca/systems-tools/early-alert)

Athletes is to:
- Talk to a coach or another adult you trust expressing your concern about yourself or a friend. Should you wish to, you can also make an appointment to see the Sport Physician, dietitian or counselling services at UBC.

What are the risk factors for RED-S?
Studies show that athletes may have some of the following risk factors before developing RED-S:
- Female gender (although men are also affected)
- Recent weight loss
- Recent dietary changes
- Difficult relationships with coaching staff
- Intense pressure from peers, parents or other sources
- Perfectionistic tendencies or a strong desire to succeed

What will happen if RED-s is diagnosed?
The exact treatment plan for RED-s will differ considerably from person to person. What will be common to most cases is a reduction in energy expenditure (i.e. training volume) to restore energy balance. Treatment will involve a collaborative effort between the sports physician, psychologist or counsellor and dietitian at UBC and the coaching staff. The treatment length will vary from case to case.
What are the main symptoms of RED-S?

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Description</th>
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<tbody>
<tr>
<td>Missed or absent periods</td>
<td>Female athletes with low energy availability are at high risk of menstrual cycle abnormalities. This can be: • Irregular periods, which means the number of days between periods varies • Infrequent periods, which means periods are ≥ 35 days apart • Less than 9 periods in a calendar year • No periods at all This is a concerning symptom as athletes with menstrual dysfunction may be at risk of decreased fertility and decreased bone health (stress fractures).</td>
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<tr>
<td>Frequent Injury</td>
<td>Prolonged hormonal imbalance may lead to irreversible changes in bone density and increased risk of osteoporosis (low bone density). Female athletes with menstrual dysfunction (missing or irregular periods) are at much higher risk of bony stress injuries such as stress fractures.</td>
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<td>Decreased performance capacity</td>
<td>Decreased performance capacity may occur during regular workouts or during competition. It is a <strong>consistent inability to achieve realistic goals</strong>. Example: a soccer player usually completes a 30-minute run as part of a practice session, but is suddenly unable to do so without walking breaks. Sometimes, performance is normal but athletes require prolonged rest and recovery from workouts or competition.</td>
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<td>Frequent illness</td>
<td>Athletes with low energy availability are at higher risk of infection than their healthy peers. They often have more frequent cough, cold, sore throat symptoms but also may miss more practice/game time due to illness.</td>
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<td>Fatigue</td>
<td>Many people describe a sense of fatigue as: • Feeling sleepy • Feeling it is difficult to get out of bed in the morning • Feeling slowed down or unable to think clearly • Heavy limbs • Feeling too tired to do things they would normally do in a day • Needing to sleep more than usual for many nights in a row or requiring naps during the day</td>
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<td>Insomnia</td>
<td>Insomnia is the inability to sleep restfully. We usually split this into two types: • Inability to fall asleep • Inability to stay asleep</td>
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<td>Mood disturbance</td>
<td>Mood changes can be small or large. Many athletes with low energy availability describe: • Irritability • Sadness • Frustration • Anxious thoughts or prolonged worry</td>
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** Displaying any of these symptoms may not mean that an athlete definitely has RED-s but athletes should consult with their sports physician, dietitian or psychologist or counselling services for further investigation.**