SPORT NEW ZEALAND
IHI AOTEAROA

BALANCE IS BETTER
THE HOME OF YOUTH SPORT IN NEW ZEALAND

How much is too much when it comes to youth sport?

A GUIDE TO UNDERSTANDING SPECIALISATION, PLAYING MULTIPLE SPORTS, AND TRAINING LOAD

www.balanceisbetter.org.nz

Recently, lots of guidance and advice has been aimed at coaches, parents, and sport leaders & administrators about how much sport young people should do, and whether young people should participate in one sport or many.

This guide has been produced to shed more light on the concepts of specialisation, early specialisation, playing multiple sports (also known as sampling), training load, overuse injury and overtraining. These concepts all underpin the guidance and advice provided about the amount of sport young people should participate in and the number of sports young people should participate in. The guide concludes with practical takeaways for how coaches, parents, sport leaders and administrators should apply this guidance and advice. *

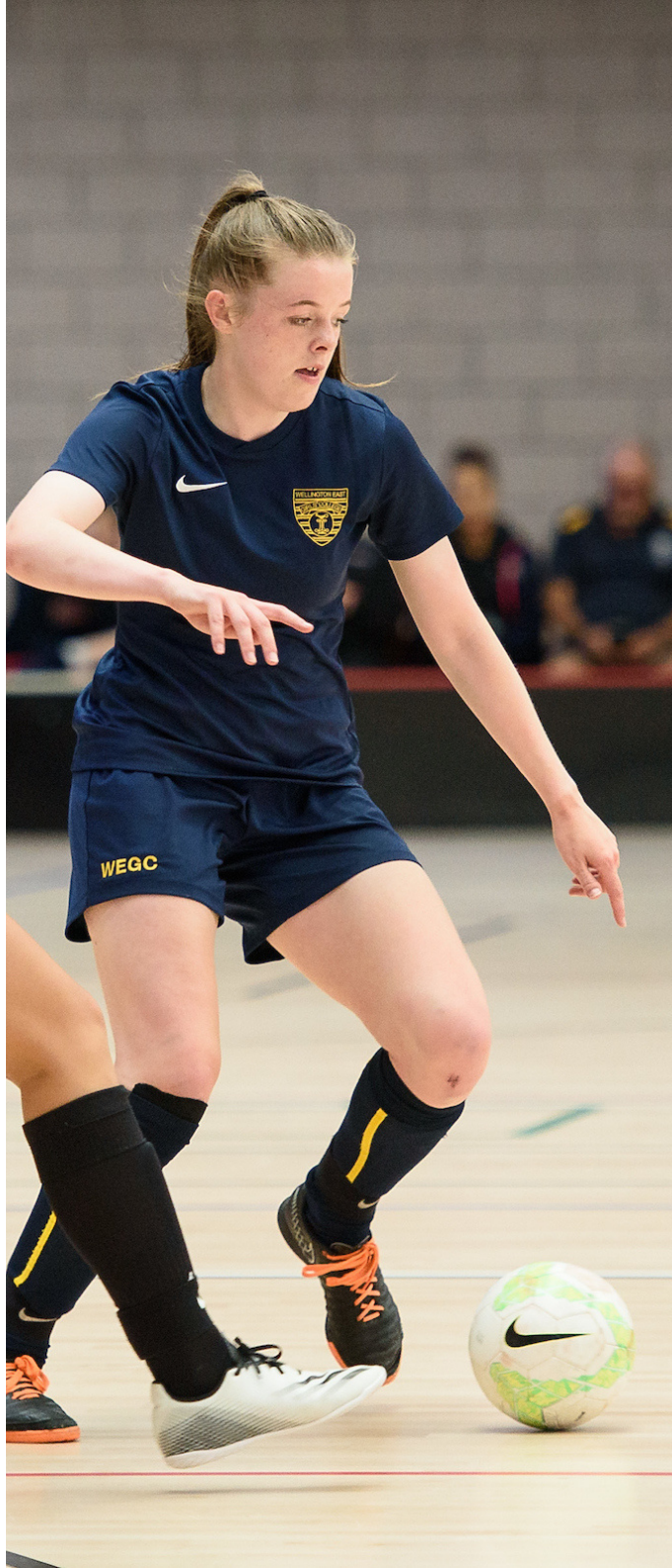
*We recommend that this guide is read in conjunction with our advice on monitoring athlete and competition load.

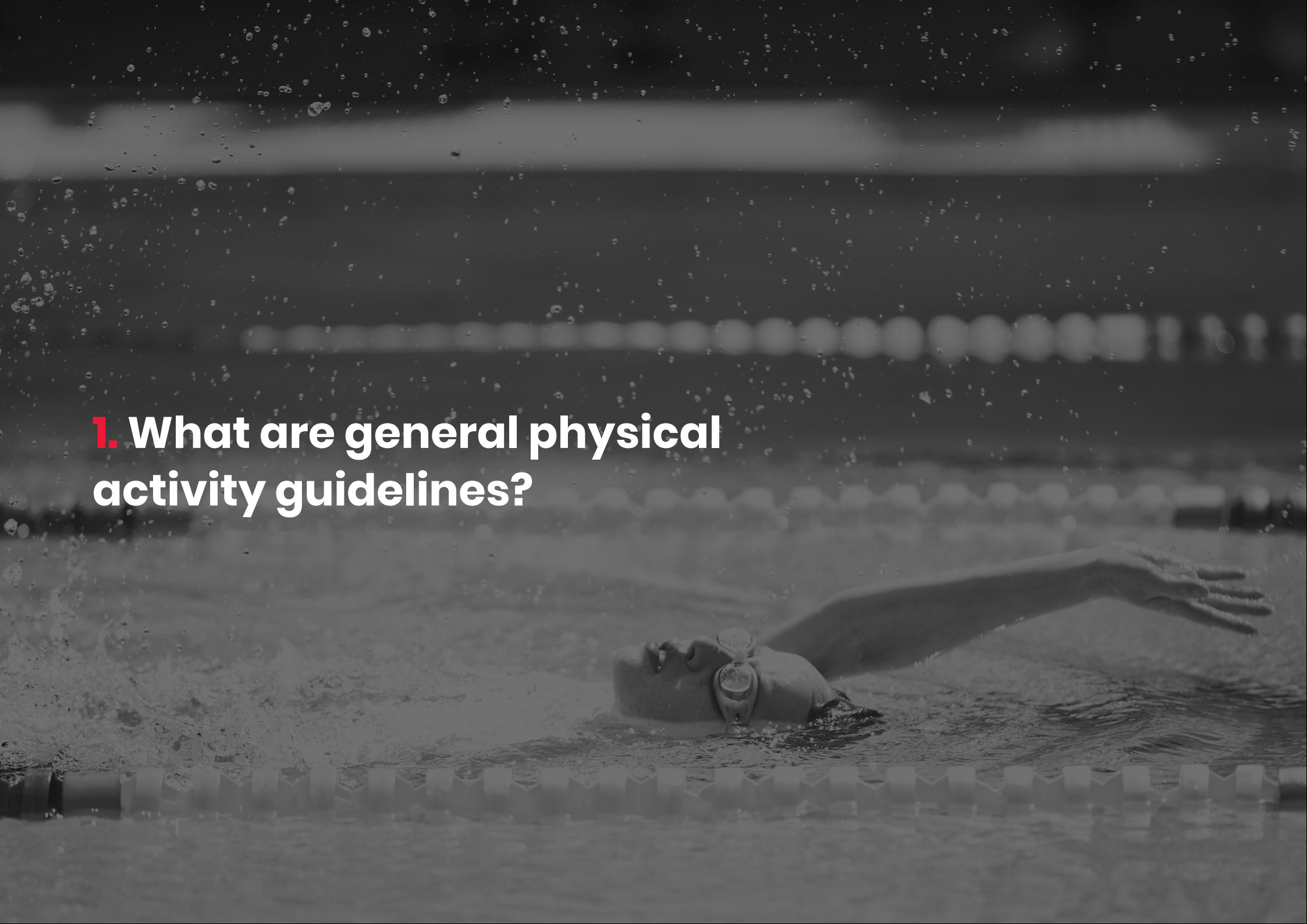
A recent conversation with a colleague drew my attention to the need to produce this guide. We were both commenting on how often we were hearing people talk about the need for young people to "play multiple sports". While on the surface we both agreed with this statement, it was some of the behaviours surrounding some of these "play multiple sports" conversations that suggested the message was perhaps becoming oversimplified.

For example, we were hearing of some adults concluding that if they encourage children just to do more types of sport, they wouldn't need to worry about the risks of children doing excessive volumes of sport.

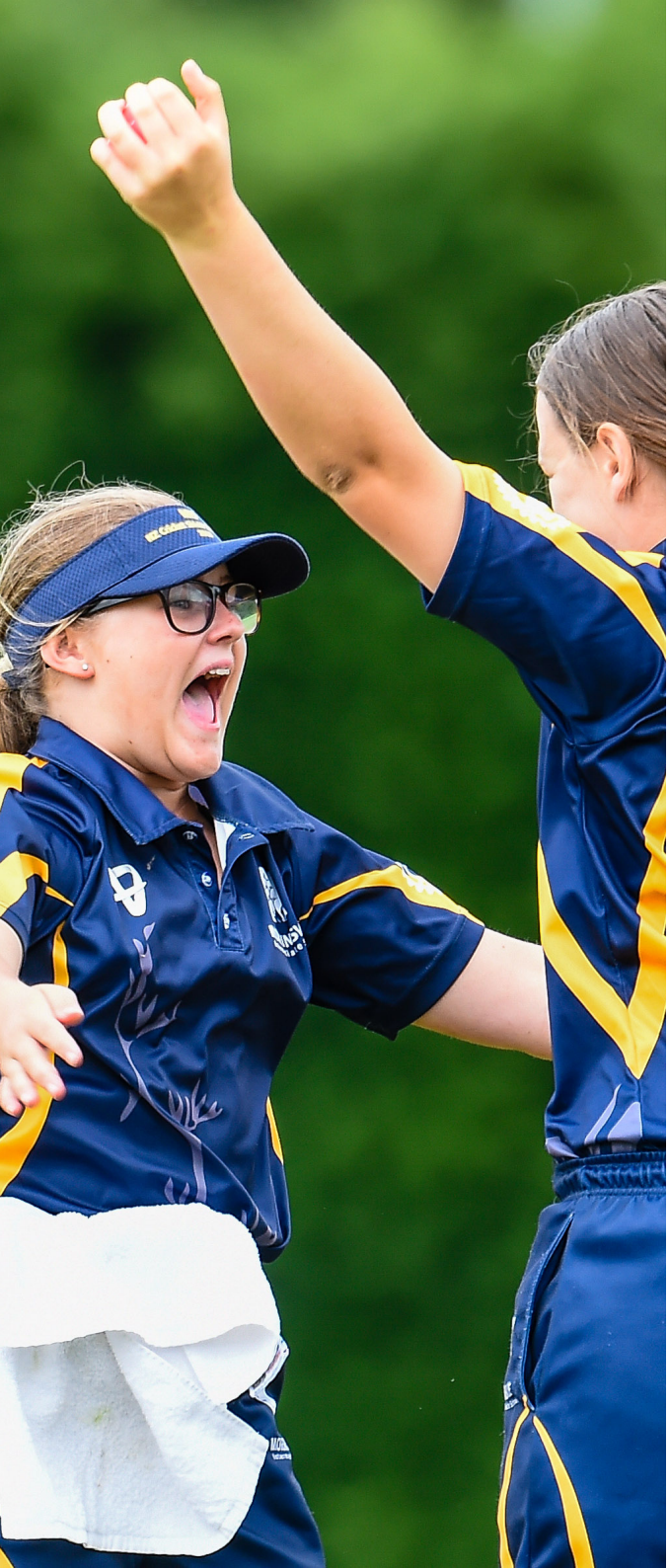
This guide has been written for coaches, parents, sport leaders and administrators involved in youth sport. In it you will find:

1. An overview of general physical activity guidelines.
2. An outline of sport specialisation, early-sport specialisation verses sampling of sport, and the costs and benefits of these different approaches to sport for young people.
3. An introduction to training load and how it relates to overuse injury and overtraining syndrome.
4. An explanation of how sport and early sport specialisation interrelates with training load, especially high-risk training loads.
5. Practical takeaways for how adults should think about and apply guidance and advice on sport specialisation, early sport specialisation and training loads for young people.





1. What are general physical activity guidelines?



What are general physical activity guidelines?

Before we begin to talk about training and competition load, and specialisation verses sampling other sports, it's important to note that we want all young people in Aotearoa / New Zealand to be physically active, which could be through sport, active recreation, or play.

To outline what good levels of physical activity for young people look like, we draw from World Health Organisation and New x Ministry of Health guidelines for physical activity for children aged 5 – 17, which state:

- Children and youth should accumulate at least 60 minutes of moderate to vigorous intensity physical activity daily.
- Amounts of physical activity greater than 60 minutes provide additional health benefits.
- Most of the daily physical activity should be aerobic.
- Vigorous-intensity activities and those that strengthen muscle and bone should be performed at least 3 times per week.
- Sitting time should be broken up and recreational screen time should be limited to no more than two hours per day.

We want to encourage all New Zealanders, especially young people to be physically active because of the extraordinary individual and collective benefits this brings.

Specifically, with regards to children and adolescents, short and long-term benefits from undertaking regular moderate to vigorous physical activity, include:

- Improved aerobic fitness and strength
- Improved bone density
- Reduced symptoms of anxiety and depression
- Improved school performance
- Reduced cardiometabolic risk
- Improved self-confidence and self-worth

Sport NZ's Value of Sport survey, found that:

92%

of the people we talked to believe being active keeps them physically fit and healthy, and helps relieve stress.

84%

believe sport and physical activity bring people together and create a sense of belonging.

86%

agree that high performance sport both helps instil a sense of pride in our country and contributes to our national identity as New Zealanders.

88%

believe that sport and other physical activities provide them with opportunities to achieve and help build confidence.

74%

say sport and physical activity help build vibrant and stimulating communities.

In summary, it is important to recognise that being physically active is important and extremely beneficial to people's physical, mental, social, emotional, and spiritual wellbeing.

Understanding the messages about too much and not enough sport

On one hand you hear we should be doing more sport, and on the other you are hearing we might be doing too much? It's understandable how this might be confusing. To think about this, I like to apply the Goldilocks principle. That is, people, including young people, tend to be in one of three physical activity camps:

a. Those who do "too little"
b. Those who do "too much"
c. And those who do "just right"

For Sport NZ, a lot of the work we do is targeted at young people who fall into the camps of doing "too little" physical activity, as well as continuing to support people who fall into the camps of doing "just right" amount of physical activity. In the past two decades, however, we have also begun to recognise that some young people are doing "too much" physical activity.

By and large, the setting where young people do too much physical activity is through sport. The reasons underpinning this trend are numerous and complex, which I won't go into here but essentially these guidelines and advice on training and competition load as well as on early specialisation have been developed to protect the group of young people that fall or may fall into the "too much" camp.

While slightly outside of the scope of this guide, it is important to recognise that our sport system (leaders, administrators, coaches, parents etc.) generally focus more time, effort and resource into the young people who are doing too much sport or are perceived to be talented.

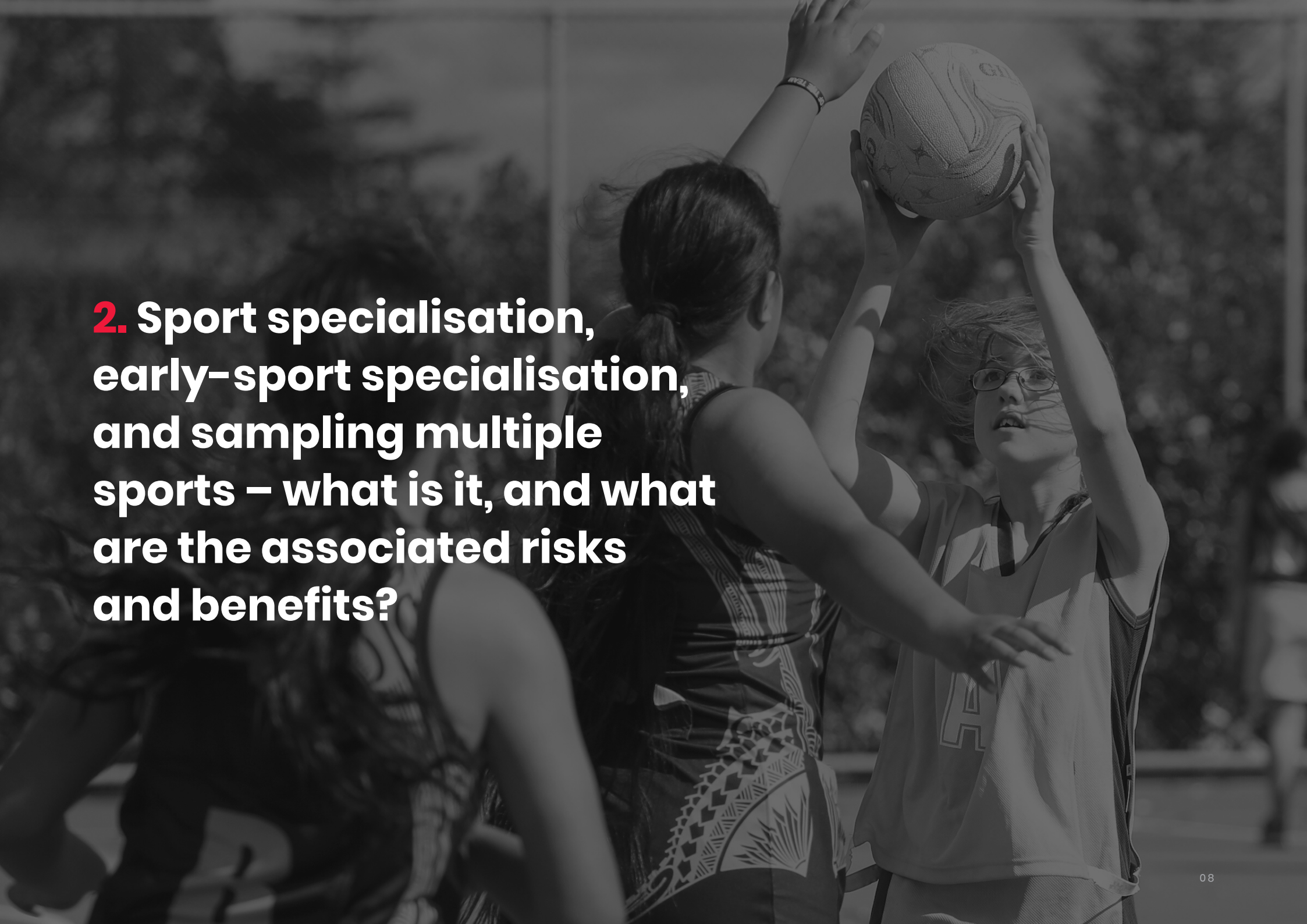
While not intended, this bias of focus, energy and effort is detrimental to young people who are late developers or born later in the year (or later in the chronological grouping a competition organised young people by). Additionally, there is an opportunity cost here, where a focus on supporting the so-called more
'talented' also means that resources, time and energy are not being put into meeting the needs and motivations of the young people who are doing "too little".

With regards to guidelines and understanding definitions, we draw from the Australasian College of Sport and Exercise Physicians (ACSEP) Position Statement on Sport Specialisation in Young Athletes.

In short there are two things to consider here:

- Focusing on one sport (specialising) versus participating in multiple sports (sampling)
- The amount of training and competition participated in by a young person (training and competition load)

Not surprisingly, these things interrelate - we will talk more about that later. But it's easiest to understand them individually first.



2. Sport specialisation, early-sport specialisation, and sampling multiple sports – what is it, and what are the associated risks and benefits?

Sport specialisation, early-sport specialisation, and sampling multiple sports – what is it, and what are the associated risks and benefits?

What is sport specialisation?

Sport specialisation is defined as the intensive, year-round training in a single sport at the exclusion of other sports. The extent of a young athlete's (18 years and under) specialisation can be initially gauged by asking three questions:

- Does the athlete play or train for more than eight months per year in a given sport?
- Does the athlete have a main single sport?
- Has the athlete stopped playing other sports to focus on a single sport?

Answering yes to two of the questions indicates that the athlete has begun to specialise.

Early sport specialisation

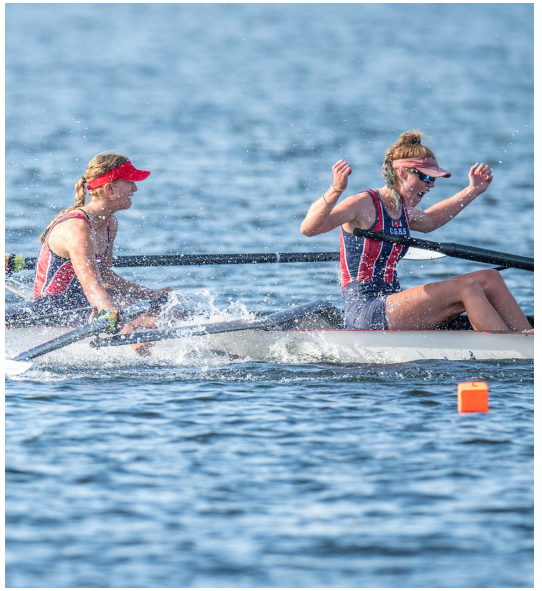
'Early' specialisation is defined as sport specialisation occurring before the age of 12. It is important to understand, however, that just because a young person has reached age 12, does not necessarily mean it is now appropriate for them to specialise in a sport.

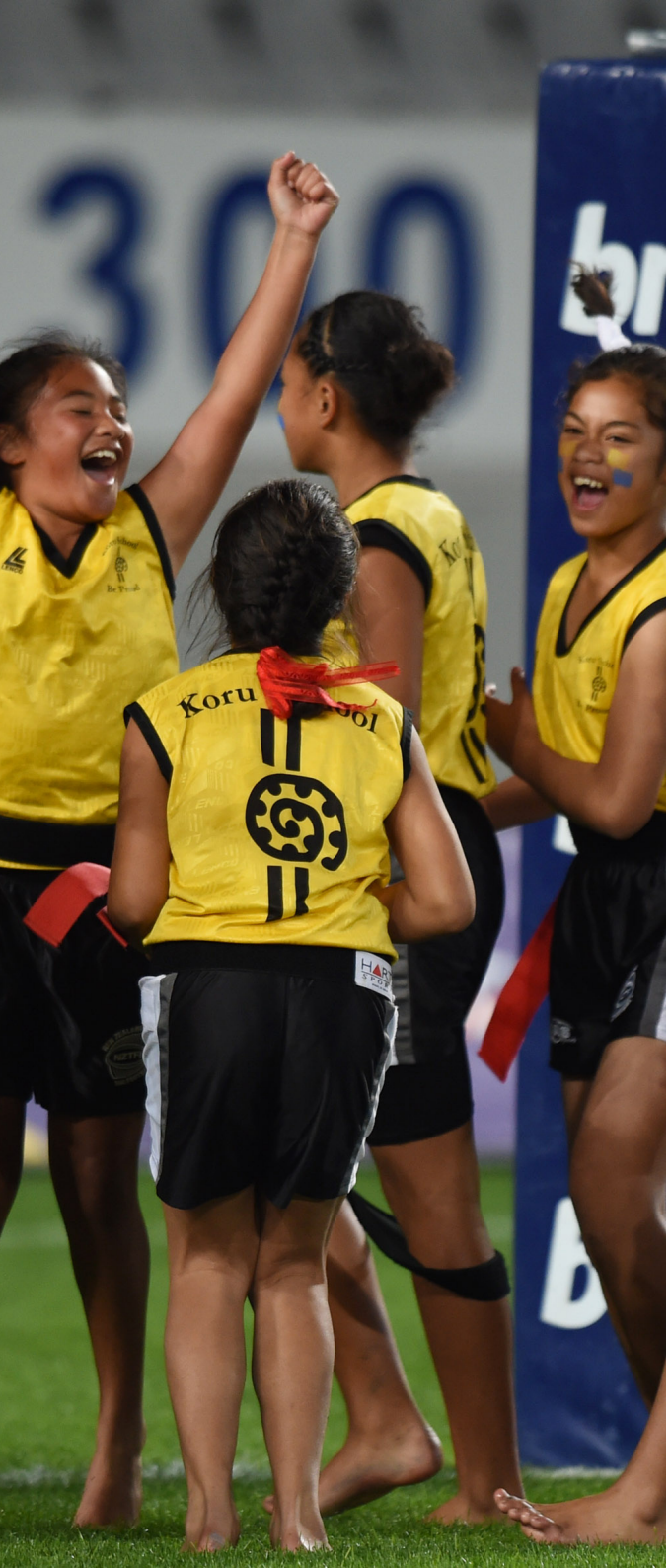
The appropriate time for each young person to specialise is context specific, and will depend on a number of things including:

- The sport
- A range of growth and development factors

We believe that for most sports the appropriate age to specialise will be much later than 12. In addition, we believe intense training in one sport at the exclusion of others should be delayed until middle to late adolescence (i.e. 15 years plus).

For the past seven years, High Performance Sport New Zealand (HPSNZ) have been tracking the age at which athletes who enter into the High Performance Athlete Development system specialised in their respective sport. They have found that on average these athletes specialise in their respective sport at age 15 years and 5 months.





Are there any benefits to early sport specialisation and what are the risks?

While a few successful athletes' development journey has followed an early specialisation pathway, many have not. People will look at athletes who have specialised early and hold this up as THE model for athlete development. We need to be mindful that they are doing so retrospectively, and that they are not acknowledging the athletes who may have followed a similar pathway but did not become elite.

Additionally, research shows that: Specialising early in a sport:

- Increases risk of overuse injury
- Increases risk of overuse syndrome and burnout
- The above two factors underpin an increased risk of dropout

And with a few exceptions, specialising early in a sport, may have short term benefits for performance at junior level, but does not correlate with increased performance at elite-level (i.e., it may help get you the best 12-year-old but not the best 22-year-old).

Lastly, early specialisation comes with an opportunity cost – young people who specialise early miss out on the benefits associated with participating in multiple sports.

What are the advantages of young people participating in multiple sports (i.e. sampling)?

Participation in a variety of sports has been shown to support the following benefits:

- Increased skill, due to exposure to many different movement patterns and tactical problems. This has an added benefit to elite performance due to athletes being able to transfer skills and tactical problems from different sport domains.
- Increased psycho-social development, due to exposure to a variety of sport environments, which means exposure to different coaching styles, sport cultures, etc. There is evidence to suggest this will contribute to young athletes becoming more resilient, empathetic, and coachable.

- Increased 'match efficacy' – by trying lots of different sports there is an increased chance that an individual finds the 'right' sport for them, i.e. one that matches their biological, social and psychological make-up and needs. This in turn means that that person will be more likely to continue playing that sport, and should they aspire to compete at a high-level, be successful.

Recent research by HPSNZ found that athletes in its pre-high-performance network (athletes predicted to be 8-to-12 years from reaching a pinnacle event, e.g. Olympics or World Cup), on average, reported:

- Their point of specialisation at 15 years and 5 months.
- They participated in 5.5 sports at primary school.
- They participated in 3.1 sports at secondary school.
- They participated in 1.9 sports post-secondary school.

Read about some of New Zealand's most successful athletes who attribute their multisport background to their success:

1. Jeff Wilson
2. Lisa Carrington
3. Suzie Bates
4. Sophie Devine
5. Kane Williamson
6. Paul Coll
7. Amy Robinson

What counts as a different sport?

As discussed earlier, there are benefits to being involved in multiple sports. Conversely, early - specialisation may expose young people to increased risks. The basis for this thinking is ultimately about variety of experience versus a uniformity of experiences.

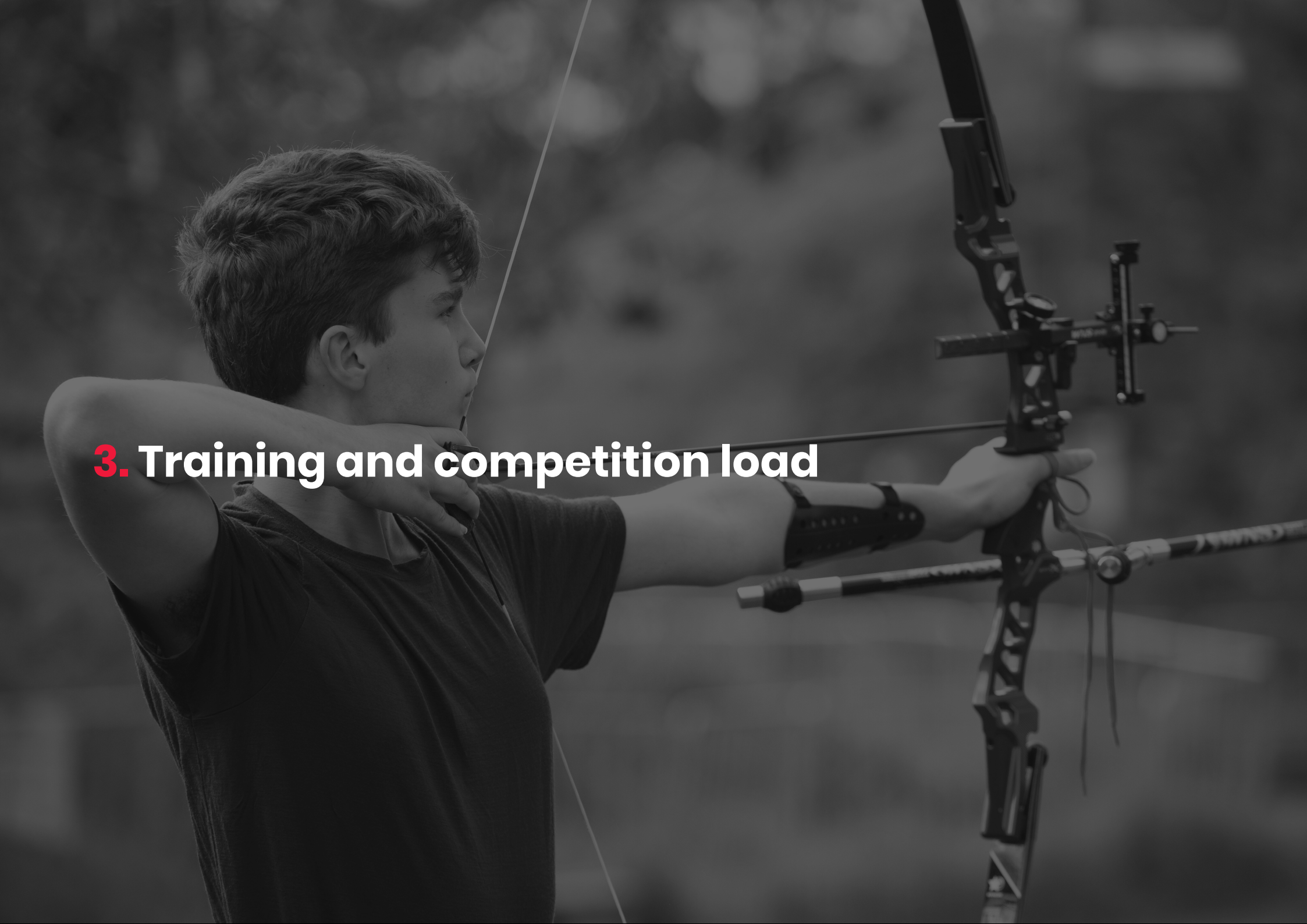
A greater variety of experiences promotes a wider range of benefits in terms of young people's biological, psychological, and social development. In turn, this supports both sport-specific development and youth development.

So, when adults think about how they can support young people to play multiple sports, they should be considering the right mix of sports to expose a young person to:

- Different movement patterns
- more broadly.
- Different tactical challenges
- Different coaching philosophies
- Different cultural contexts and world-views

Playing multiple sports that are similar (such as Football and Futsal; Netball and Basketball, Rugby and Rugby Sevens) may provide some variety but perhaps not all of the benefits outlined above.

In particular, playing very similar sports may mean that young people are doing similar movement
patterns, which may increase rather than decrease the risks of overuse injury.



3. Training and competition load

Training and competition load

What is training and competition load?

The term 'load' reflects two aspects of physical activity:

- Volume (i.e., the number of hours/minutes spent training and competing)
- Intensity (i.e., the rate of exertion both physically, mentally and emotionally)

Generally, guidelines developed around training load mostly refer to volume. This is because, volume can be measured using units of time.

The Australasian College of Sport and Exercise Physicians provide the following guidelines around training volume:

- Total sport participation (training and competition) should be limited to no more than 16 hours per week, irrespective of the total number of sports played.
- The ratio of hours spent in organised sport (structured training and competition that is led by adults or youth-leaders and goal-orientated)) to those spent in 'free play' (unstructured physical activity, such as running, jumping, climbing, mucking around with nil or limited adult input) should not exceed 2:1
- Hours spent in organised sport (training and competition) per week should not exceed the athlete's age. E.g., a 10-year-old should not train more than 10 hours per week across all sports (this supersedes point i. above where relevant)
- Evidenced-based load guidelines for a specific sport should be adhered to
- Excessive training and competition loads can lead to overuse injury and overtraining syndrome.

With regards to measuring training intensity, there are many methods, both objective and subjective, to measure intensity. Examples include:

- Post-training and competition wellbeing questionnaires
- Rating of perceived exertion
- GPS tracking
- Heart rate tracking

A discussion on these data collection methods can been found in this paper. (*)

Significantly, because collecting and analysing data about intensity often requires expertise, resources and time; and because there are a number of different methods to analyse intensity. There is no one universally excepted guidance around training and competition intensity, other than to say intensity increases should be phased gradually and extreme spikes in intensity should be avoided (coaches who do not manage this well may see more injured players). A more in-depth discussion on training and competition load will be the subject of another guide.

What is overuse injury?

Overuse injuries are the results of repetitive stress to the musculoskeletal system without enough time for recover.

Signs of overuse injury include:

- Gradual onset of pain
- Pain presenting as an ache
- Stiffness or aching during or after training/competition
- Pain persisting for gradually longer periods
- Point tenderness, especially when palpated
- Swelling
- Missed session(s) due to pain/injury
- Recurring injury problem

What is overtraining syndrome and what are the signs?

Overtraining syndrome is simply doing more training and competition than the body can recover from before the next training load is experienced.

Overtraining will eventually lead to declining performance and very likely injury and/or illness.

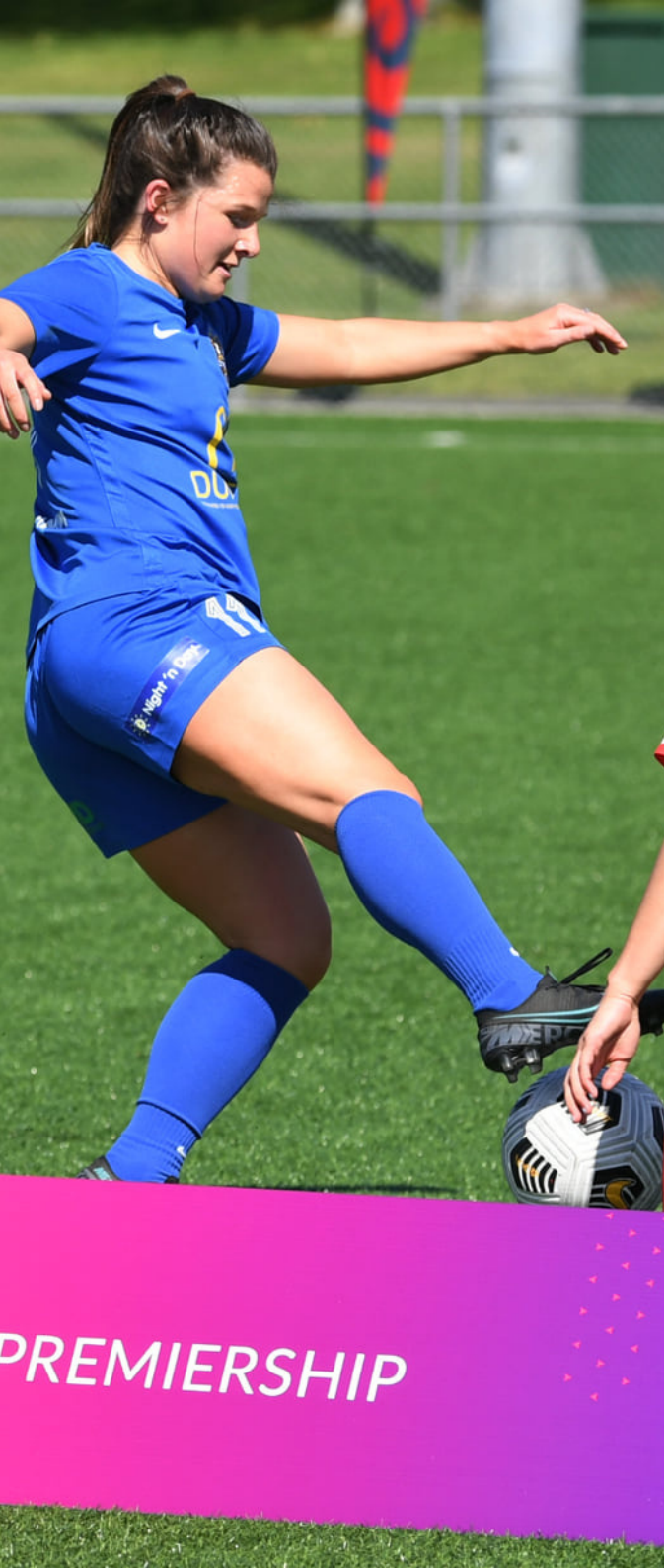
Overtraining negatively affects the biological, hormonal and neurological systems in the body. Parents and coaches are best placed to monitor for overtraining and ultimately should be mindful to balance long term development outcomes of young people (and ensure they are not hindered by overtraining) with the demands of current training and competition loads.

A rough rule of thumb is that a young person is overtraining if the number of hours they spend doing training and competing in a given week is more than their age. Other signs include:

- Decreased performance in sport or/and school
- Chronic muscle or joint pain
- Rapid weight loss
- Mood swings
- Fatigue
- Lack of enthusiasm or change in motivation to be involved in a sport
- Sleep change
- Decreased appetite
- Increased injuries, illness or infections

For parents and coaches of female athletes, it's also important to understand the overtraining considerations that are specific to girls and young women. For example, see Relative Energy Deficiency Syndrome (RED-S).

(*) Monitoring Athlete Load: Data Collection Methods and Practical Recommendations, Wing, Chris MSc

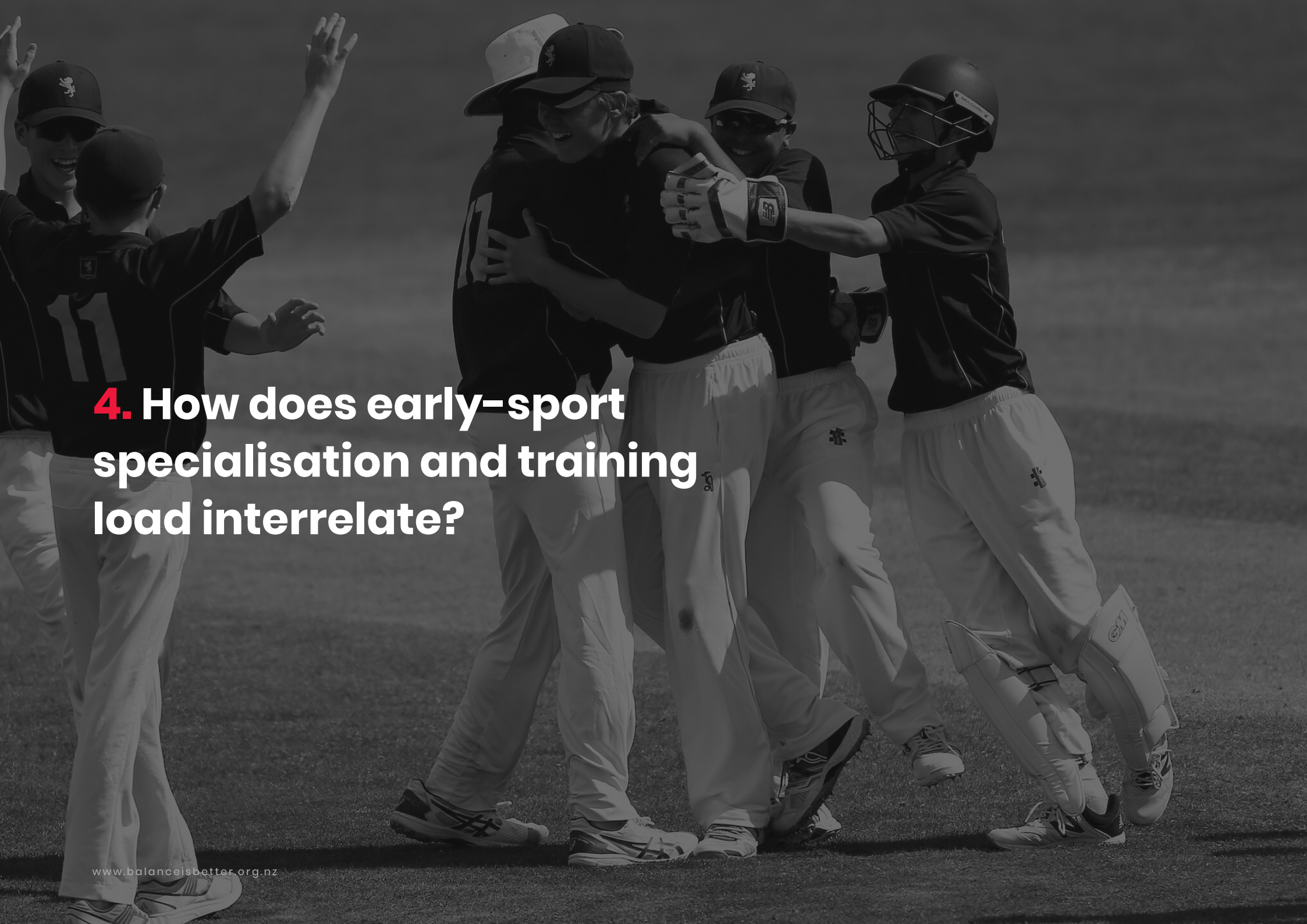


How should adults think about using the training volume guidelines?

These guidelines have been developed to support adult thinking about how best to provide and support quality sport experiences for young people while minimising the likelihood of young people overtraining or overloading. It's important to note that they have been developed at a population level, and therefore application for individuals warrants the following additional considerations:

- Youth sport stakeholders (coaches, parents, administrators etc) should also factor in other individual and contextual knowledge (for example, biological age differences may mean one young person will be fine with a given training load compared to another young person within the same age group; external non-sport activities may also contribute to fatigue and should be factored into thinking about load, such as exams).
- The upper ends of the 'hours spent in organised sport', should not be seen as a target to reach, nor should they be seen as an arbitrary line, where on one side youth sport stakeholders are comfortable with the volume of activity a young person is participating in and on the other side they are not. Rather, the 'hours spent in organised sport' should be thought of as a signal. As the number of hours which young person spends participating in sport approaches the recommend upper threshold, relevant youth sport stakeholders should increase their vigilance in monitoring for signs of overtraining and overuse injury. *

*More comprehensive advice for monitoring athlete and competition load can be found here.



4. How does early-sport specialisation and training load interrelate?

How does early-sport specialisation and training load interrelate?

What is the relationship between early sport specialisation and training load (and overtraining and overuse injury)?

Overtraining and overuse injury can occur without sport specialisation or early sport specialisation, as training and competition load is the main determining factor.

However, young people that have specialised in a sport, especially young people that have specialised early, are more likely to be predisposed to the risks of higher training and competition loads, e.g. injury and illness. Additionally, often very little or not enough emphasis in these environments is placed on rest and recovery.

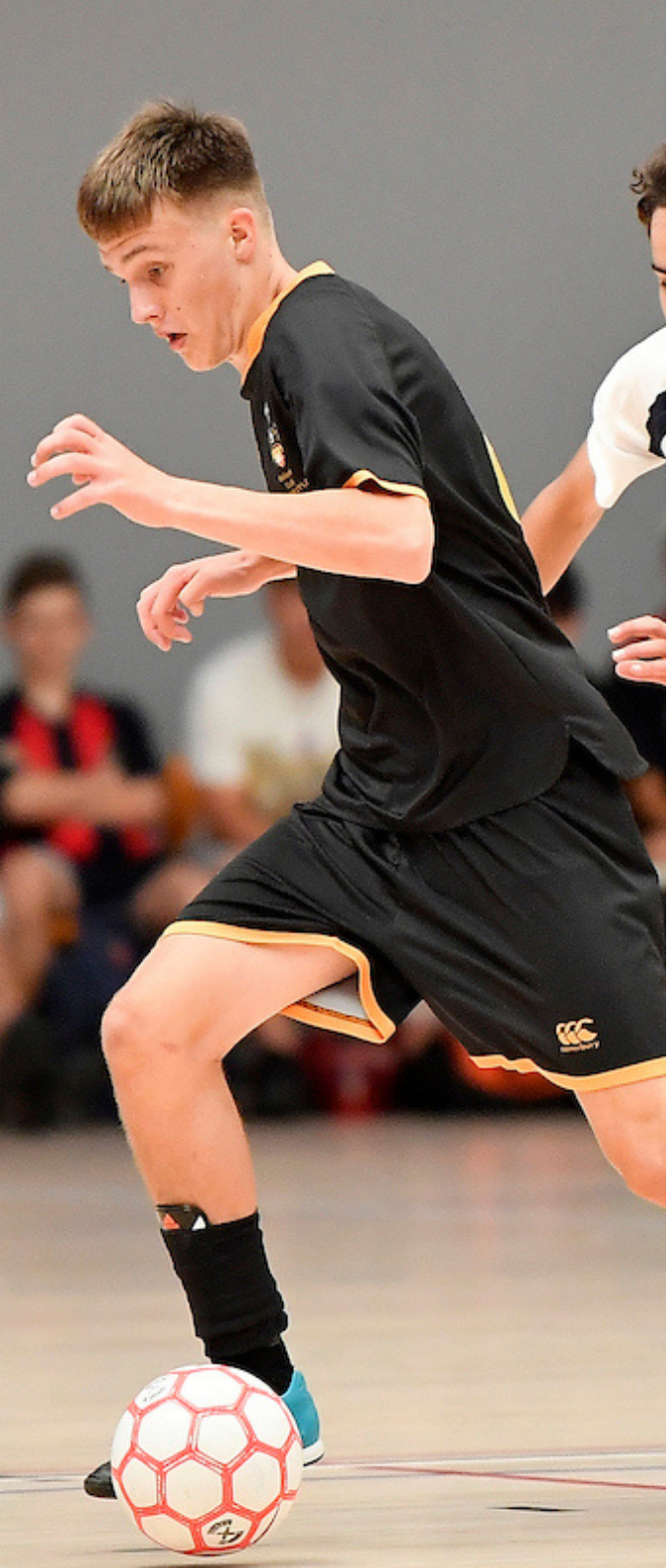
There is also a number of growth and development factors that further puts adolescence at risk when experiencing high training and competition loads.

What are some of the growth and development factors affecting teenagers that puts them at further risk of injury if specialising and overtraining?

Some of the biological factors putting young people (compared with adults) at further risk of injury and illness include:

- An immature skeleton with anatomical differences such as the presence of epiphyseal growth plates, which makes them more susceptible to bone and soft tissue injuries.
- Reduced motor control in periods of growth. The growth can create an imbalance between the strength of a limb and its length, which is thought to also increase the risk of acute and gradual onset injuries.

Significantly, training and competition loads that mimic the loads of elite and professional athletes (or start to get close to those levels), often becomes the norm for young people going through puberty, particularly as they enter towards peak height velocity, can have detrimental short and long-term effects. It is often for these reasons that restrictions on specialisation and participation volume are suggested in sport guidelines for children who remain musculo-skeletally immature.

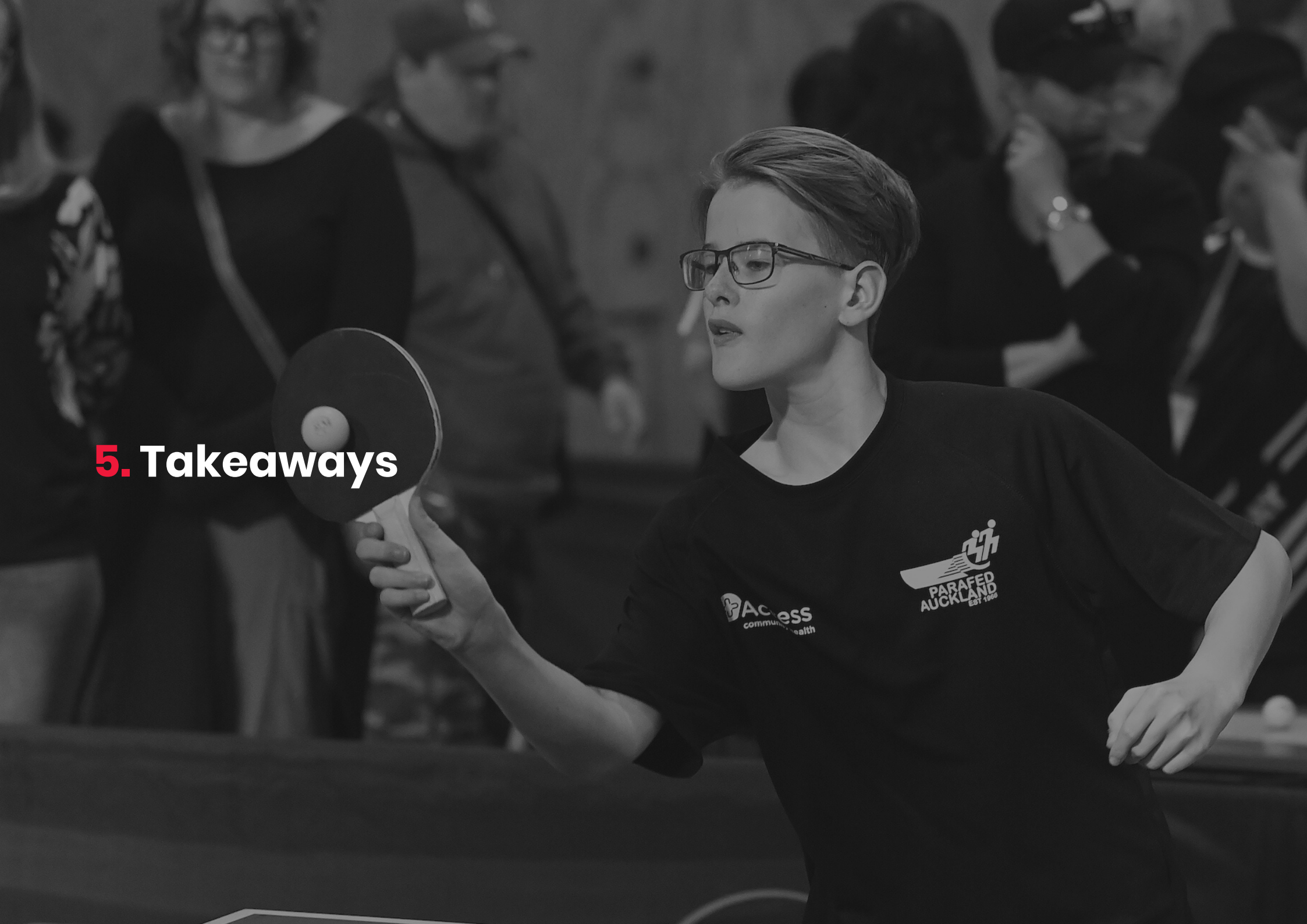


What about the young person who is driven, hyper-competitive and is showing signs of wanting to specialise early?

Its important to acknowledge that some young people will show signs of wanting to go 'all-in early'. They love their sport and just want to do it all the time. Trying to support these young people to retain balance without compromising their development is a challenge.

Key things that parents and coaches can do to best support young people who are like this include:

- Create opportunities for the young person to have a go at other sports, especially in informal settings, and encourage other hobbies outside of sport.
- Don't refer to the young person as 'the basketball player', 'the rugby player', 'the gymnast' etc). Or perhaps worse still, by one position or discipline, e.g. 'This is Johnny, he's a goalkeeper', or 'This is Jane, she's a backstroker'.
- Ensure the young person's load is well monitored and managed with adequate rest and recovery.
- Ensure young people are not competing in one sport for 12 months of the year. Make sure they have at least one-month off where they are active in some other form of activity.
- Try to expose young people to a range of activities within the sport and outside the sport to support diverse motor skill development.



5. Takeaways

Takeaways

How should adults think about applying these guidelines and advice?

For sport leaders and administrators, they should:

- Be aware and share key messages about the benefits of participants sampling multiple sports. Communicate with other stakeholders in youth sport (coaches and parents) and ensure what is best for the participant is at the centre of discussions and decisions.
- Ensure they consider how their competition structures enable adequate rest and recovery, i.e. is there an off-season?; don't incentivise excessive training loads, for example, are competition durations or distances promoting endurance-type training at the expense of skill development? Key areas of intervention here include, limiting season length and ensuring competition structures don't excessively overlap so that athletes end up having excessive training and competition schedules.
- Encourage athletes to sample a variety of sports, and should they aspire to specialise, provide the right support to do so at the right time.
- Ensure parents and coaches receive adequate knowledge on how to monitor and address signs of overtraining and overuse injury.
- Encourage coaches who share the same athlete to connect and coordinate to address and mitigate excessive training loads for that athlete.

For coaches, they should:

- Avoid language and claims around the need to 'pick a sport' with their athletes and parents. Rather, encourage and be supportive of athletes participating in multiple sports, and provide some flexibility to support this (especially at the start and end of respective seasons).
- Where an athlete is aspirational and beginning to show signs of specialising, ensure that their development is underpinned by variety, so that they are exposed to a variety of movement patterns and problem-solving scenarios. Additionally, encourage these types of athletes to pick up other interests outside of the sport.
- Be knowledgeable about signs of overuse injury and overtraining syndrome, know how to monitor for it, and adjust your coaching appropriately.
- Teach and encourage athletes to recognise signs of fatigue and overtraining in their bodies, so that they can then slow down or alter their training methods.
- Find out what other sport commitments your athletes have (e.g. get them to write down other trainings and competitions in the same and other sports)
- Maintain lines of communication with athletes' parents to find out what else is happening outside of sport. Some young people lead busy lives (exams, music, church, etc). Ultimately, coaches should take a holistic approach to ensure their athletes are not overloaded.
- Use guidelines around training volumes as a benchmark or 'risk radar' to establish athlete training and competition load. As the number of hours in a given week a young person spends training and competing gets towards the suggested maximum volume, a coach should increase their attention towards monitoring training and competition load of that athlete.

- Adhere to any sport specific guidance around training and competition volume.

For parents, they should:

- Support their children to play a variety of sports, especially when younger, and if necessary, actively encourage their children under the age of 12 to continue sampling multiple sports (this can include non-club and -school settings).
- If a child is showing an interest in wanting to commit more to one sport to the point that they are beginning to specialise, encourage them to do other types of sports and physical activities in informal settings.
- Ensure young people are provided adequate rest and recovery. This includes actively encouraging them to have an off-season.
- Be knowledgeable about signs of overuse injury and overtraining syndrome, know how to monitor for it, and talk to coaches about this.
- Teach and encourage your child to recognise signs of fatigue and overtraining in their bodies, so that they can then slow down or alter their training methods.
- If your child has multiple coaches and is at risk of high training and competitions loads, share your child's training and competition schedule so that these coaches have a broader awareness of the volume of training and competition your child is involved in.
- Help your child balance the number of sports that they do, so that their total training and competition load isn't excessive for their age. Seek guidance here from your national sport body if necessary.
- Advocate and share these messages with other parents.
- Raise concerns in a constructive manner with your child's coach / club / school (we acknowledge this is hard to do – support with this can be found Sport NZ's Community Guidance Portal).

For further good practice guidance and reading about managing early specialisation, overtraining and athlete development, see:

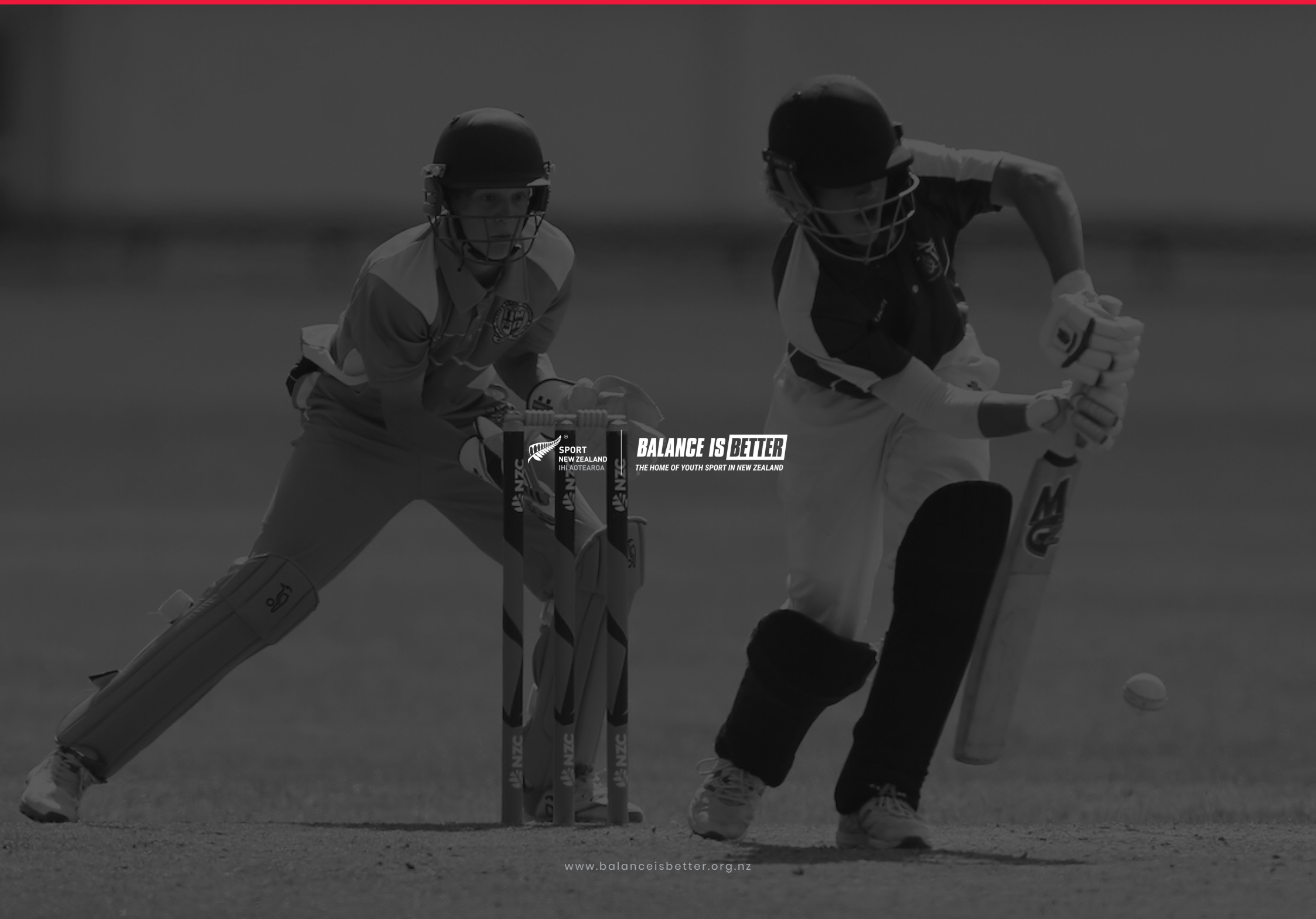
International Olympic Commitee consensus statement on youth athletic development

Australasian College of Sport and Exercise Physicians Position Statement: Sport Specialisation in Young Athletes

American Orthopaedic Society for Sports Medicine Early Sport Specialisation Consensus Statement

International Society of Sport Psychology Position Stand: To Sample of To Specialise? Seven Postulates About Youth Sport Activities that Lead to Continued Participation and Elite Performance

A practical guide for monitoring athlete training and competition load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