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Excellence through experience

Identify | Treat | Prevent

INJURIES AFFECTING YOUNGER ATHLETES

A GUIDE

Information and advice for young athletes, parents, teachers, club leaders, coaches and clinicians.

CRENDON CORINTHIANS FOOTBALL CLUB

What's in this guide?

Elite Physical Medicine has been looking after local young athletes for more than 15 years, and we are passionate about youth sport. Our aim is to educate athletes, parents and coaches in optimising the health of young people, so that fewer injuries occur.

The Younger Athlete

Introduction from Andy McCrea, Clinical Director, Elite Physical Medicine

The benefits of sport and exercise

The benefits of playing sport for children and teenagers are well documented, and evidenced in the positive outcomes we observe for young people.

Sport and exercise help us all to stay fit and maintain a healthy weight. For students, regular exercise and playing sport for fun are proven to improve concentration at school and have a positive effect on sleep.

Exercise and team sports build self-confidence, help us develop our social networks “in real life” and generally make us feel great!

The positive effect of exercise on the lives of young people cannot be underestimated. But, like adults, young people can get injured. Frustratingly, adolescent injuries can result in a young person losing out on all the benefits of sport.

Click to return to contents page

Introduction from Andy McCrea, Clinical Director, Elite Physical Medicine

The role that sport plays in our lives is something we sometimes take for granted until we experience a sports-related injury ourselves.

Knowledge is power!

The clinical team at Elite have produced this document to help young people - alongside their parents, teachers, and coaches - to gain a basic understanding of the common sporting injuries which are unique to children.

By reading this booklet you will be better informed about how to help reduce the risk of injury and how to aid a speedy recovery if injuries do occur.

For further advice and bespoke recommendations, please contact the clinic.

Click to return to contents page

Why do young people get injured?

Young athletes are vulnerable to injury as a result of hormonal changes concurrent to **rapid physical changes** in their bodies.

Underdeveloped coordination skills can also leave young people exposed to higher risk of injury.

Another well-documented risk factor is the **variation in biological maturity** between children of the same age.

Click to return to contents page

Why do young people get injured?

We all develop physically at different rates, but teenagers commonly participate in activities with their chronological age group, regardless of their size/strength.

This creates a **physical mismatch**, whereby athletes who have matured early are competing against late developers. Unsurprisingly, in contact sports, this can significantly contribute to the risk of young players sustaining serious injuries.

Click to return to contents page

Common musculoskeletal injuries in young people

Fractures

Unfortunately, the sight of a heavily autographed and graffitied plaster cast is not uncommon in schools and playgrounds.

Immature bones are especially vulnerable to stress at the junction between the growth plate and the formed bone, making young people susceptible to breaks.

More complicated fractures occur when the fracture directly affects the growth plate and the joint surface. At Elite, we would strongly advise that **a child or young person should be taken to get an x-ray.**

Click to return to contents page

Musculoskeletal injuries continued...

It's really important that parents seek a specialist opinion if there is any doubt as to the diagnosis. If the true extent of a fracture is overlooked, this can permanently arrest growth.

Avulsion fractures are a type of injury seen in young athletes where a tendon and its bony attachment is forcibly pulled away from the bone.

A "popping' sensation might have been described. Reattachment is rarely necessary but a supervised, **graduated strengthening programme** will optimise recovery.

Click to return to contents page

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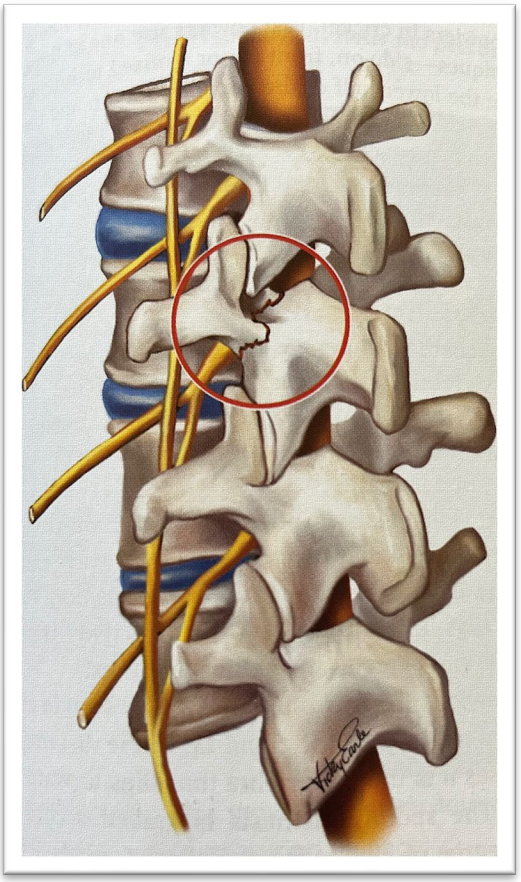
What if my child complains of back pain?

Pars fractures are a common cause of back pain for children involved in sports that require a high demand on the back, into extension and rotation.

This area is affected by repetitive stress, so activities such as **gymnastics, dance, golf, tennis and some throwing sports** can lead to children complaining of lower back pain.



The pars interarticularis is a thin bone segment which joins together two lumbar vertebrae.

Click to return to contents page

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Back pain continued...

The discomfort is usually experienced on one side, sometimes associated with buttock pain. The pain is often aggravated with lumbar extension.

Management is determined by the stage and site of the pars defect - **early diagnosis is important for decision making regarding onward referral and developing a rehabilitation plan.**

For those affected they will need to restrict their involvement in the activity responsible for the pain and be guided through pain-free progressive rehabilitation a **gradual return to sport.**

Click to return to contents page

Common overuse injuries in young athletes

Apophysitis Syndromes

The most common overuse injury in young athletes is Apophysitis Syndrome (AS), which occurs when the bony attachment of a tendon becomes inflamed. **The most common sites are the knee and foot.**

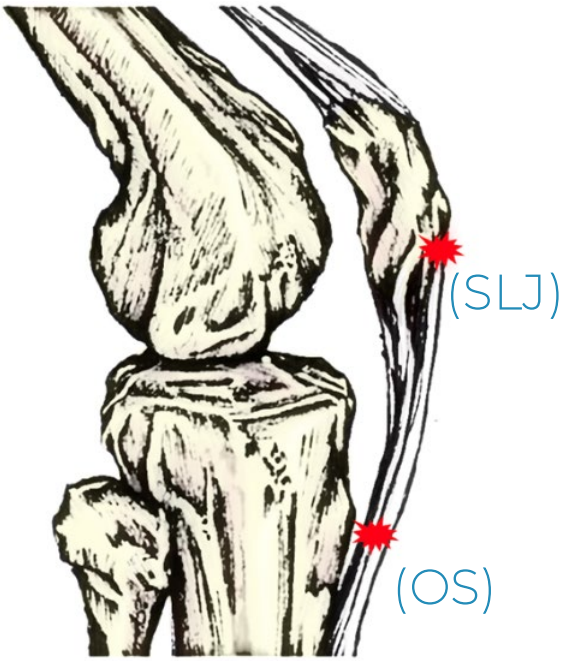
AS affects young people during growth spurts and can occur between ages 8-16. Female athletes may be affected at an earlier age than males, due to physical maturity happening faster in girls than boys.

Click to return to contents page

Knee injuries

Osgood-Schlatter (OS) is another overuse injury which occurs at the growth plate of the main leg bone. It is usually associated with repeated forced knee extension.

OS is particularly common in young people who regularly participate in sports involving a lot of running and jumping (such as basketball and football).



OS is extremely common around the time of growth spurts. X-rays are usually not required and a **clinical diagnosis can be made by a Physiotherapist.**

Click to return to contents page

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Common overuse injuries continued...

Sinding-Larsen-Johansson (SLJ)

SLJ is a similar condition to Osgood-Schlatter, although less common. It affects the lower aspect of the knee cap.

Heel pain

When it comes to foot injuries, Sever's Lesion is common. This **repetitive use injury causes heel pain**, tenderness and swelling at the insertion of the Achilles Tendon.

Click to return to contents page

Common overuse injuries in young athletes

Another repetitive use injury which causes foot pain **is Iselin's Disease**

This condition causes **pain on the outside edge of the foot** which affects most physical activity. You may even notice your child walking on the inside of their foot to avoid putting weight on the affected area.

Click to return to contents page

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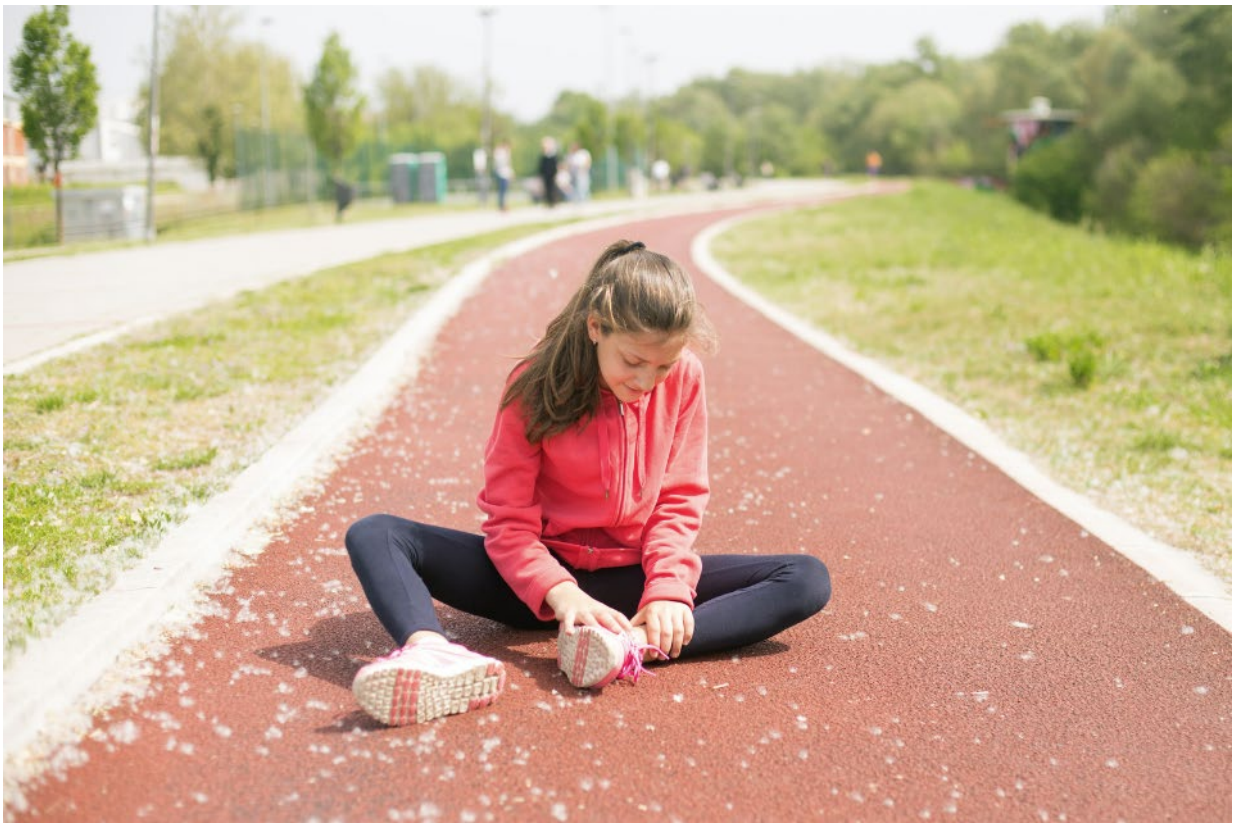

The principles of managing any overuse injury include:

- R.I.C.E (rest, ice, compression, elevation)
- Appropriate volume of activity
- Identifying potential muscle imbalance
- Strengthening weak muscles
- Improving flexibility

Click to return to contents page

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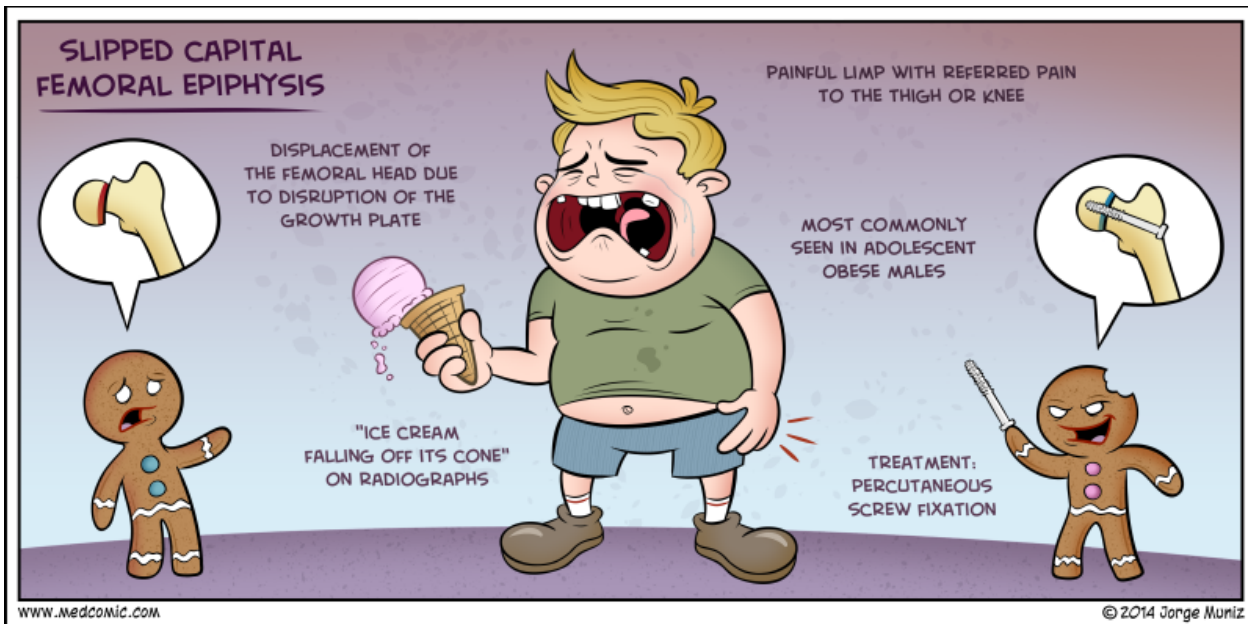
Hip injuries are a serious cause for concern

The most common hip bone injury in children and adolescents is a condition known as **Slipped Capital Femoral Epiphysis**. If you suspect a young person in your care has sustained this injury, please seek an orthopaedic assessment as soon as possible.



The injury occurs when the head of the femur bone becomes displaced. This usually happens gradually but can occur suddenly.

Click to return to contents page

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Hip injuries continued... .

Young people suffering with SCFE will present with severe pain and very limited flexibility, with parents reporting the child has had a **sudden growth spurt**.

X-rays reveal the femoral head “slipping off” at the point it connects to the growth plate, with radiographers often explaining it “like ice cream slipping off the cone”.

Slipped Capital Femoral Epiphysis is **associated with intense sport participation and increased physical stress** particularly in sports such as rugby and football.

Acute slips require emergency surgery. Surgical intervention is often required for gradual slips as well.

Click to return to contents page

How physiotherapy helps our kids stay active

Whilst the risk of adolescent growth injuries can be worrying, the information in this booklet has been provided to keep more young athletes playing sport.

Our aim is to encourage active participation wherever possible and to help parents, teachers and coaches make more informed decisions about when a child needs to sit out and when a coach or carer should seek expert clinical help.

Activity modification explained

When a member of the Elite team assesses a young athlete, we discuss how to reduce activity to achieve a balance between rest and active recovery.

Click to return to contents page

How physiotherapy helps our kids stay active

Some activities will need to be eliminated for a period , whereas others may only need reducing by a certain percentage.

A weekly training diary will help the young person to feel in control of their own recovery and supports adults to guide them in the appropriate volume of activity.

Soft tissue release and a gentle stretching programme are also helpful to reduce stress on the bone.

In some cases, **non-steroidal anti-inflammatory drugs (NSAIDS) will help settle the child's symptoms**, for which we would advise seeking help from your GP.

Click to return to contents page

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Resistance training in adolescents

What is resistance training?

Resistance training refers to the use of resistive loads in various movement patterns and velocities.

Activities that young people carry out in the gym include the lifting of free weights (barbells, dumbbells, and kettlebells), the use of weight machines, elastic bands, plyometrics, and medicine balls.

Is it safe for teenagers to be lifting weights?

The evidence to support the benefits of youth resistance training is increasing, as well as an increase in acceptance of young people training in gyms.

Click to return to contents page

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Resistance training in adolescents

Provided the young athlete is supervised and is following a training programme appropriate to their age and physical development, resistance training can improve:

- Muscular strength and power
- Cardiovascular fitness
- Motor skill performance
- Injury prevention
- Psychosocial well-being
- Physical literacy and activity/ exercise participation

For further advice and bespoke recommendations, please contact the clinic.

Click to return to contents page

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Early specialisation vs generalisation in sport

Elite Physical Medicine is committed to supporting more young athletes to enjoy sport - no matter what level they are currently playing at or what they aspire to achieve.

When it comes to the question of whether or not early specialisation increases a child's likelihood of reaching an elite level of sporting performance, we are increasingly seeing evidence that supports generalisation.

Not sure whether your child is a specialist or a generalist?

Sport specialisation[1] is defined by intense, year-round training and competition in a single sport, with the exclusion of other sports.

Click to return to contents page

Early specialisation vs generalisation in sport

Here are three questions to ask yourself about a young person in your care, in order to ascertain their degree of sport specialisation:[2]

1. Does the child play or train for more than eight months per year in a given sport?

2. Does the child choose a main single sport?

3. Has the child stopped playing other sports to focus on a single sport?

The idea that early specialisation increases the likelihood of a young person reaching elite level performance originates from research into the 'Deliberate Practice Model'.[3] This framework suggests a child who spends hours engaged in effortful, domain-specific deliberate practice will progress towards elite performance. However, increasing evidence is showing that early specialisation is not imperative to a young person achieving elite performance levels in a given sport.

Click to return to contents page

Early specialisation vs generalisation in sport

When young athletes become “overspecialised”

Early specialisation can be detrimental if a child becomes “overspecialised”.

The warning signs and indications that overspecialisation has occurred include frequent overuse injuries and youth burnout.[4]

Child health experts are also concerned about the negative psychological outcomes for athletes who specialise in a particular sport at a young age.[3,4]

Click to return to contents page

Early specialisation vs generalisation in sport

More research is required to strengthen our recommendations when it comes to supporting youth athlete training.

However, the existing evidence[5] has provided us with some commonly endorsed recommendations for parents, teachers and coaches:

- Access to well-trained, high-quality coaching is critical to both safety and performance
- Multi-sport participation is beneficial for all young athletes
- Help for parents to develop an awareness of training, coaching, and best practices, is to be encouraged

Click to return to contents page

Five Top Tips

Practical advice from Andy McCrea, Clinical Director, Elite Physical Medicine

1. Delay specialising as long as possible

- Young athletes should strive to participate in, or try, a variety of sports. This supports general physical fitness, athleticism and reduces their risk of injury compared with intense repetitive training in one sport.

2. No more hours/week than their age in years

- To reduce the risk of overuse injuries, young athletes should not participate in organised sporting activities for more hours each week than their age.
- For example: a12-year-old athlete should not participate in more than 12 hours of organised sport per week.

Click to return to contents page

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Five Top Tips

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3. Keep two rest days per week

- Adolescent and young athletes should have a minimum of two days off per week from organised training and competition.
- Athletes should not participate in other organised team sports, competitions on rest and recovery days.

4. Let our young athletes be kids

- Monitor for young athletes becoming overscheduled.
- Encouragement to take time off or simply play with their friends.
- Staying active outside of organised sports also has tremendous physical and emotional benefits.

Click to return to contents page

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Five Top Tips

Practical advice from Andy McCrea, Clinical Director, Elite Physical Medicine

5. Respect the sporting season – it's there for a reason!

- Young athletes should not participate in any one sport for more than eight months of the year.
- Having an end-of-season break from a favourite sport allows athletes to recover from repetitive movement patterns. It also opens up opportunities to try other sport and renews their hunger for the next season.
- Remember that skills from other sports are transferable and will complement their chosen sport.
- As well as minimising injury risk, a break is beneficial for mental recovery. Rest promotes health and well-being and reduces burnout.

Click to return to contents page

How to get in touch

We're here to advise, treat and support your family

Click here to meet our team

Similarly to elite academies, we have a multi disciplinary team to help our young athletes.

Alongside the physio team we have musculoskeletal sonographers, a sports medicine consultant, strength and conditioning coaches and a registered dietician.

The team meets regularly to discuss patient cases to ensure the best possible standards of care.

To make an appointment with any of the team, either face-to-face or via Zoom, please follow the following link below.

Or call us on 01296 437717

From all the Elite team, keep well and stay active!

Click here to book an appointment

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References

Early Specialisation References:

1. https://www.ais.gov.au/position_statements/content/sport-specialisation-in-young-athletes
2. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3658407/
3. https://journals.sagepub.com/doi/epub/10.1177/19417381211049773
4. https://education.sportsmed.org/Public/Catalog/Details.aspx?id=yWQJcrs0mQKxzKBTjkXTRw%3d%3d&returnurl=%2fUsers%2fUserOnlineCourse.aspx%3fLearningActivityID%3dyWQJcrs0mQKxzKBTjkXTRw%253d%253d
5. https://journals.sagepub.com/doi/abs/10.1177/19417381211051371?journalCode=spha

Additional Early Specialisation Resources:

- https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4853833/
- https://www.sportsmed.org/search#q=early%20sport%20specialization&t=All&sort=relevancy

SCFE References:

- https://www.ncbi.nlm.nih.gov/books/NBK538302/
- Clinical Sports Medicine, 4th ed. Peter Brukner, Karim Khan Sydney: McGraw-Hill Australia

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