Sport Smart

COMMENTARY ON

SCREENING BEFORE PLAYING SPORT

What is screening?

One of the most important ways to reduce the risk of injury in any physical activity is to conduct pre-participation screening. Screening exists to help identity risk factors, modifiable and not, that might increase the risk of injury for an individual.

The screening process typically involves three stages; resources and access will affect the degree and level to which these can be conducted.

The three stages are:

MEDICAL SCREENING

PHYSICAL, PHYSIOLOGICAL AND MENTAL /PSYCHOLOGICAL SCREENING

PRE-PARTICIPATION ACTIVITY LEVELS

Why does it matter?

The purpose of a pre-participation examination is to screen for injuries or medical conditions that may place an athlete at risk for safe participation. In addition, it serves to:

- Identify other factors such physical, physiological or psychological factors that can be modified to decrease any risk.
- Identify pre-participation activity or 'fitness' levels, which is important information when considering the type and levels of activity that the person may start to engage with.

Screening vs. Profiling

You might also hear the word 'Profiling' when talking about checking someone is fit to participate. While 'Screening' tends to be a more medical term, both fundamentally come down to assessing a player to see if they are in any way more likely to get injured in the upcoming training session or match.

For the purpose of this content, we are going to use the term 'Screening'.

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Key screening points to consider

The following provides a general overview of the main components that are typically considered in a pre-physical activity screening. It is not exhaustive.

Note: The relevance and access to this will vary considerably in the school environment and dependent on the level of engagement in a sport.

General points to consider

What are you screening for?

There are, of course, multiple extensive medical tests that could be conducted when screening. However, the main criteria to consider in planning an examination are that:

- The conditions being screened for are an important health problem (this depends not just on how serious the condition is, but also how common it is).
- There is a detectable early stage, and treatment at an early stage is of more benefit than at a later stage.
- A suitable test is available to detect disease in the early stage.

The ultimate goal is to ensure that current health problems are managed appropriately and to determine whether an person is medically suitable to engage in a particular sport or event.

Do you have consent?

Informed consent is an important issue for anyone undergoing screening. The process must be conducted in the main interests of the person.

What happens if an issue is discovered?

A support network and process needs to be in place for anyone in a position where screening identifies medical issues that are discovered and or need addressing.

Typical body 'systems' that are incorporated in the medical screening process:

- Cardiovascular system: heart
- Pulmonary system: lungs
- Non injury related illness
- Neurological system: to include previous head injury
- Dental assessment
- Haematological (blood)
- Ear, nose and throat
- Infections and immunity
- Allergies
- Dermatology (skin)
- Gastrointestinal (abdomen)
- Urological
- Endocrine/metabolic
- Ophthalmology (eyes)

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Key screening points to consider

PHYSICAL, PHYSIOLOGICAL AND PSYCHOLOGICAL SCREENING

Compared with the medical examination, the evidence for physical, physiological and mental/psychological factors as predictors of increased risk of injury tends to be more theoretical and based on plausible links rather than strong associative of 'causal' evidence. Nevertheless, these forms of screening can be useful to identify potential determinants of injury or illness risk.

Contact levels with the physiotherapist or strength and conditioning coach are likely to be more frequent than those with doctors, so another important function of periodic health evaluations is the opportunity to establish a relationship with the health team who will be involved in providing continuing care.

Examples of these types of screening are:

1. PHYSICAL EXAMINATION

- Ranges of joint and soft tissue movement that may be reduced or be excessive (hyper-mobility)
- Monitor control issues related to strength, power, endurance, muscle recruitment patterns.
- Proprioception (balance and awareness of body and limb position in space)
- Neurological assessment with a particular slant towards neurodynamics (the ability of the neural tissues of the body to adapt to certain postures.
- Evidence of previous injury that might have not resolved properly and may pre-dispose to injury.
- The examination of the adolescent will typically involve information on the growth spurt and in particular the developmental stage and rate of current progression (growth velocity).

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2. PHYSIOLOGICAL ASSESSMENT

These types of screening/assessments in relation to sport can be conducted at a very 'scientific level' in a sports physiology setting or on a more pragmatic and practical level for example by the use of heart rate monitors.

They are typically used to identify the current fitness levels and at the more scientific level include things such as:

VO2max: the greatest amount of oxygen that someone can take in and use. This can act as a ceiling on someone's endurance/aerobic fitness.

Lactate thresholds: These can be useful for developing training zones, event-specific training, pacing strategies.

Running economy: Helps to identify how efficient you are when running, particularly relevant for the longer-distance endurance runner.

Maximal aerobic power output: Your highest power output for the last minute of a maximum test (cycling).

Fuel utilisation: How much fat and carbohydrate someone uses in grams/min. This particularly useful for endurance and ultra-endurance athletes.

This more 'scientific' screening is more typically used at the higher end of sporting performance, where understanding these parameters helps with the delivery, progression and adaptation.

At a more practical level, more pragmatic approaches of measuring hearts rate, shuttle runs – even times of distance run – can be useful when structuring sustainable and appropriate training programmes that match the person's ability.

An important part of the screening process, which is more typically found in physiological assessment, relates to diet, nutrition, rest and recovery.

Understanding a young person's recovery processes, and supporting and educating them in these areas is critically important to reduce fatigue which is believed to be an important injury related risk factor. In addition, the identification of eating disorders, particularly evident in aesthetic and endurance-related sport where there is trend in some to lower body weight to reduce energy expenditure.

This type of thinking and behaviour may well link to the condition called Relative Energy Deficiency (covered in another episode of SportSmart), whereby the energy intake is insufficient to match the energy expenditure causing the gradual decline in various body systems.

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Key screening points to consider

3. MENTAL HEALTH AND PSYCHOLOGICAL WELLBEING SCREENING

It is important to have an awareness of the potential relationship between mental health and psychological wellbeing and injury. We'll be covering this in greater detail in later editions on the SportSmart Hub.

There is less evidence linking this area to the prediction of injury, but considerable evidence related to the effect of injury (particularly of a more severe nature) on mental and psychological state.

Various types of psychological strain questionnaires can be used to potentially identify those at risk or understand the different responses to injury and how these responses can hinder recovery.

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Key screening points to consider

4. PRE-PARTICIPATION ACTIVITY LEVELS

This is a fundamental and critical part of the screening process. Applying too much training or competition stress to the body and progressing this too quickly is believed to be a major factor in the aetiology of activity or sport related injury.

The key thing to remember is 'too much progressed too fast increases the likelihood of injury' and a simple set of screening questions can help prevent this.

Examples of useful information are:

- How active have they been over the last three months
- In time and distance sport how far and how fast do they run, of how far do they throw, jump or how high?
- Current competition frequency and intensity levels
- Current levels of fatigue and or recovery – do they feel ready to train/ compete?
- Current training frequency and intensity levels
- How active are they outside of school (organised sport and recreational activity)
- Current training frequency and intensity levels
- What sports do they play and to what level and how often?

Doing the basics well

The above content and detail is an 'ideal best' and, therefore, is a lot to expect from a school or grassroots club environment without all the time and resources of an elite-level team.

At a basic level, there are **four simple screening-related questions** to consider for 'doing the basics of screening well':

Is anyone aware or do they know of any medical conditions, physical or mental and psychological, that exclude them or put them at risk of activity/sport related injury?

Has anyone sustained a significant injury in the last six months that has impacted on their ability to be active and play sport?

Does anyone currently have any aches, pains or niggles that they feel when playing sport

What is your current activity level (what do they do, how often, with what intensity, are they coping with it, and does anyone currently feel fatigued or tired due to this?

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THANK YOU