Child Development and Psychomotor skills- Is there a safe age for riding motorcycles?

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Objectives

• Understand the principles of organised sport and apply these to off-road motorcycling
• Highlight the importance of the impact of growth and development on a child’s readiness for involvement in dynamic sports such as off-road motorcycling
• Determine when it is safe for children to participate in off-road motorcycling

Off-road motorcycling as a sport

• Motocross is a complex dynamic skills based sport
• Children need to master and adapt the basic skills of the sport
• Once mastered, they need to develop speed, control and style for safety
• Children need to be developmentally mature enough:
  – Aware of the surroundings; track / competitors
  – Able to make rapid and often time-critical decisions

Children are not little adults

• Growth and changing body composition
• Components of performance in young bodies:
  – Perfecting motor skills
  – Developing visual perception
  – Improving mental sharpness
• Changing chemistry (physiology)
  – Utilisation of oxygen
  – Energy use
  – Body fluids
• Psychological growth and mental sharpness

Essential components for successful involvement of kids in sport

• Young bodies pass through developmental planes
  – Sports skills are acquired in a progressive sequence
  – Skill not acquired equally or at the same rate
• Compensating and adjusting for growth spurts avoids problems
• Train kids as kids within their bodies boundaries
  – Training kids as adults does not necessarily lead to adult results and can often lead to adult injuries

Johnny falls off his bike

• 8 year old boy falls off a motor bike
• Riding alone in an unsupervised back paddock
• Decided to attempt a complicated jump
• An observer saw it all go wrong- “he panicked and gave the bike the gas instead of the brakes”
• The bike went down a 5m ditch landing on a fallen tree branch
Developmental domains

- Development is assessed in discrete domains
  - Hearing and vision
  - Gross motor
  - Fine motor
  - Speech and Language
  - Social and adaptive skills
- Programming of the domains is very specific and determined by age and genetics

When is a child ready for involvement in competitive activity

- Intimately related to when and how a child:
  - acquire the necessary skills
  - appropriate body composition
  - adaptability to physiologic stress
  - emotional confidence
- If each developmental stage is raised to the full potential the child can maximise performance in an enjoyable way

Integration of motor and psychological skills

- Sports skills involve a complex interaction between movement, sight and thought
- Early skills are the foundation upon which a child can progressively build new skills
  - Should occur without being pressured or rushed
- Motor skills require the right visual processing to allow the correct movement response
- If responses are to be meaningful and effective
  - Complex brain processing
  - Mature thought patterns

Impact of fitness and body composition on motorcycle sports

- Genetics - "children get what they get"
- Good base of moderate aerobic training is adequate
  - Once puberty reached improvements in aerobic capacity and strength occur rapidly
- Flexibility - important for injury prevention
  - Decrease during puberty in boys
- Young children's body composition is such that it is harder to adapt to heat and to regulate body temperature during activity

Strength training and motorcycle sports

- Resistance training in physically active children adds little to overall sports performance with puberty comes strength
- In motocross sports children rely on developmental maturity for performance - resistance training does not give them an edge
- The same principles apply - a child should not be pushed to perform above and beyond their current skill base-developmental level

Psychological Aspects of sports involvement in children

- Children less than 10 yoa approach competition differently to adults
- Excitement about a competitive challenge is a normal response
  - Stress involves fear of the event
- Self-esteem develop from interpretation of other's responses and by comparison of their skills with those of their peers
  - This comparison starts age 5
- Decrease emphasis on winning and increase emphasis on fun
Are young children ready for off-road motorcycling

An 8-year-old motocross rider dies on a Saturday morning riding an 85cc Honda dirt bike on a motocross track.

He was leading the race when he came down a hill too quickly and overshot a "tabletop" jump, hitting a plywood deflection wall suffering internal injuries.

He had been riding motocross since he was 4 years old. "He was a good little rider and loved to jump and go fast." "He liked to ride with the older boys." "He was well-equipped......"

www.vitalmx.com/forums/Moto-Related,20/8-Year-Old-dies-at-Salt-Lake-City-track,524402

Young children and off-road motorcycles

• Make noticeable gains and learn more skills during the 6-9 year old age group
  – Fundamental skills progress to more transitional skills
  – Posture, balance, and running mature to more adult patterns by about ages 7 to 8
• Eyes can track and follow moving objects much better
  – Can't judge direction very well
• Memory and complex thinking patterns are limited
  – Not able to make rapid time-critical decisions

Psychological pressure of competing in young children

Children rarely place high standards on themselves unless there has been considerable influence and pressure to accomplish certain goals.

Pre-adolescence and off-road motorcycles

• Pre-adolescent is ready to enter competitive and more difficult sports (10-12-years)
• Physically
  – Fine-tuning transitional and more complex skills
  – Bodies are ready for more intense activity
  – Improvement in visual precision
• Mentally
  – Rapid decision making improves- make complex decisions
  – Can ignore irrelevant information, focus on specific tasks
  – Emotionally still very immature

Kids performance and parental attitudes

A father was heard saying at CHISM about their underperforming child -

I tell my kids before each season that once we hit the field, I'm speaking to them as their coach....they don't expect special treatment.

My 11-year-old daughter is so well trained....the moment we step out of the car,.....she stops calling me "Dad" and calls me "Coach."

I don't understand what the problem is.....?

The adolescent and motorcycles

• Early adolescence (13-15)
  – Striking developmental differences
  – Huge variations in weight and bone age
  – Growth plates vulnerable to injury
• Puberty usually arrives in girls earlier than boys- "Performance advantage"
  – "Performance advantage" is a dangerous trap to avoid for the early maturing child
• During rapid growth
  – temporary decline in balance and body control
  – the body’s centre of gravity is changing and limbs become longer
Adolescence and off-road motorcycles

- RC is a 13 yo girl, a known talented motocross rider
- Riding in a paddock with friends
- Fall from trail bike
- Not wearing a helmet or gear
- Bilateral wrist #; previous accident
- Primary retrieval CHW-ED
  - Concussion
  - Leg remained pulseless after reduction requiring an urgent trip to OR

Psychological aspects of performance in the adolescent

- Have the physical & mental strength and stamina
- Over-achievement can injure an athlete:
  - earlier specialisation
  - long intense hours of training
  - excessive pressure to perform
- Impact of individual factors:
  - Perfectionism
  - High expectations
  - Peer pressure / attitude to win-at-all cost
  - Risk-taking behaviour

Johnny falls off his bike

- Found unconscious by his friend, who had the sense to call an ambulance
- He was transferred for emergency care after initial resuscitation
- Injury inventory:
  - Traumatic brain injury – later proved to be minor
  - Possible cervical spine injury
  - Penetrating chest injury- small pneumothorax
  - Large laceration to his thigh/fractures femur; with femoral artery involvement and potential for loss of limb
- Urgently taken to OR
  - Remained in ICU for 5 days
  - Continues to have rehabilitation care in hospital

Simple safety precautions may have helped?

- Never ride alone
- Never ride in unfamiliar territory
- Never ride where bikes are not wanted
- Always do “quick inspections” of the bike before riding
- Always make sure someone knows

Participation in activities involving off-road motorcycles

- This growing activity needs to be treated like any other organised sport requiring a high degree of skill
  - Physical stamina/strength
  - Awareness and concentration: tactics/systematic moves
  - Emotional maturity
  - Experience to make time-critical decisions
- Ride in full gear: a solid helmet, mesh safety leatherjacket/pants, boots and goggles
- The parents participation is the key to safety

Off-road motorcycle sports can begin in pre-adolescence

- Pre-adolescence is a time when a child could consider involvement in off-road motorcycle sports (10-12)
- There should be a gradual progression within the sport based on the children’s developmental capability and skill level
- Strict supervision is mandatory and adherence to safety standards essential
Off-road motorcycling can be safe and fun, if treated with respect like any other sport

- The basic principle of child growth and development are important
- Children are different and achieve maturity at different rates
- Apply the principles of a successful sport:
  - Preparation
  - Protection
  - Practice
  - Performance
  - Supervision

Conclusion

- Off-road motorcycling can be safe and fun if handled like any other organised sport
- Children grow and develop in a progressive manner but each child is unique and this must be considered
- Commenced at the right time with the right supervision and training to ensure children do not go beyond their true capabilities off-road motorcycling can be made safe and fun