



Chinooks Soccer – Sports Science and Medicine Plan

Date	Revision Number	Notes	By	Reviewed	Approved
Feb 2024	1.0	For Final Review	D Balsom	R Evans	R Evans / C Lewkowicz
28 Mar 2024	2.0	Issued	D Balsom. S Gough	S Gough / R Evans	R Evans / C Lewkowicz



Chinooks Soccer – Sports Science and Medicine Plan

Table of Contents

1. Sports Science Physical Training Plan.....	3
2.1 Typical Season Training Plan	4
2.2 Development Principles	5
2.2.1 Gender Differences Considerations	6
2.2.2 Disability, Diversity and Inclusion.....	6
2. Fitness Testing	9
3. Injuries and Injury Prevention	10
3.1 Return to Play.....	11
3.2 Concussion Injuries – Return to Play.....	11
4. Program Delivery.....	12



1. Sports Science Physical Training Plan

Chinooks Soccer are working in partnership with Balsom Sports Performance (BSP) to provide an elite program addressing all key elements required for their players to perform optimally both on and off the field. BSP's sports conditioning philosophy is based on combining Dan's doctoral research on propulsive coordination methods, with his background of 20+ years of soccer, including playing University level in the UK.

Propulsive coordination focuses on addressing the players' ability to create and more optimally direct forces, while at the same time increasing dynamic core stability. By improving these elements, results have shown drastically improved acceleration, agility, sprint repeatability, and importantly injury prevention for many of the lower limb injuries common for soccer players. This methodology will not only be applied to game preparation, but also warmups and cool downs.

An example in-season program will be included below, but within each phase sessions will address the physical conditioning skills of speed, agility, power, strength, and sprint repeatability. Programming will be specific to each team based on initial needs assessments and performance testing results and will be continually reviewed and improved based on progress.

The sports science component will be directly tied to Chinook Soccer's Technical Plan. This ensures we optimize each session's physical improvements and ensure a direct transfer to on field results for both the individual and team. Each week's physical focus will be based around our soccer coaches plan for practice. Below we have provided an example of how the physical and technical/tactical work will be structured week to week.

Specific consideration is given to building curriculum and programs related to gender differences and best in class medical science application through the youth development ages and for any special needs athletes, including any specific athlete disabilities.



2.1 Typical Season Training Plan

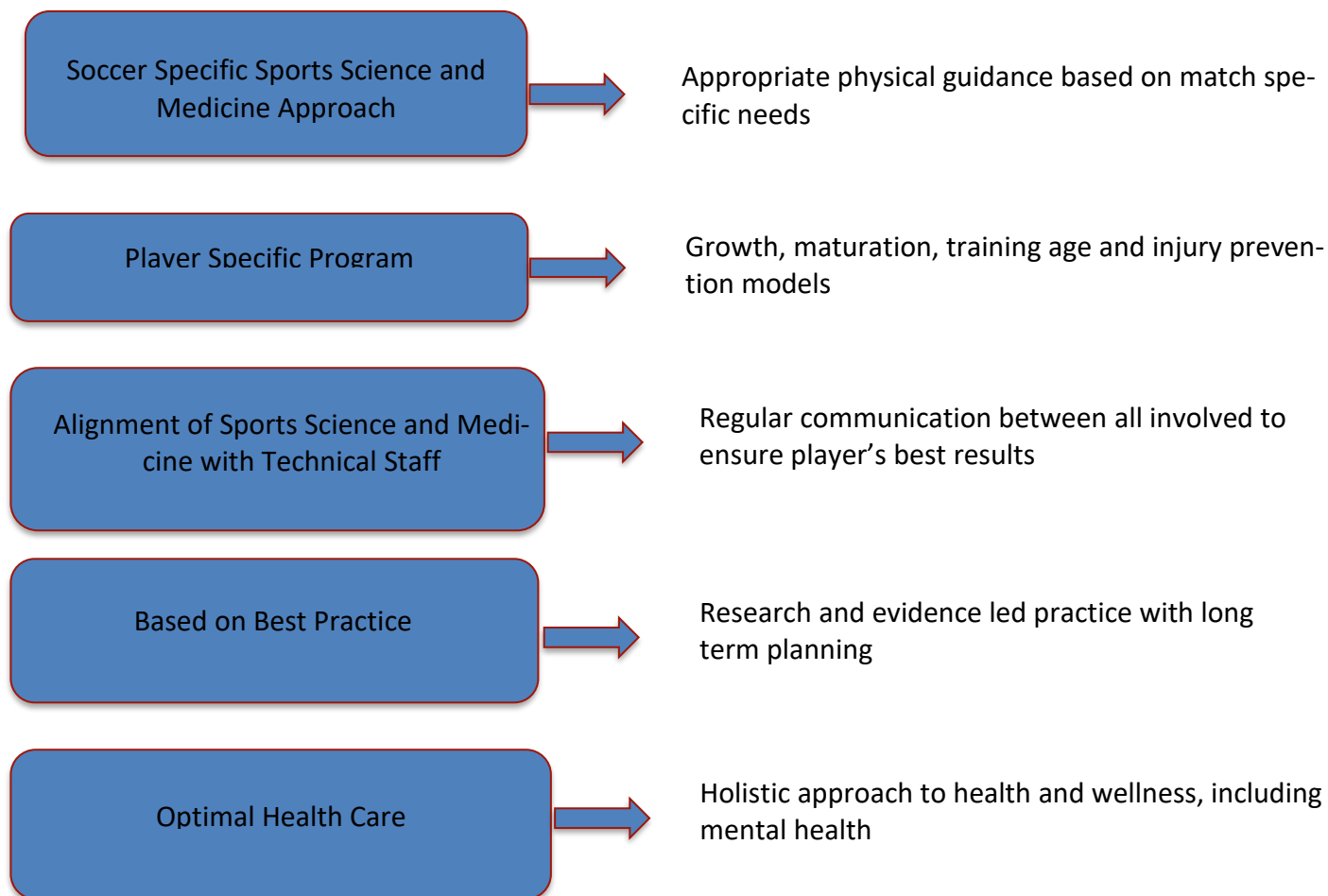
Week	Soccer Focus	S&C Focus	Additional Notes
Week 1	Passing/Build up play	Baseline Testing	Testing will assess players in physiological and biometrical markers, as well as power, speed, change of direction speed and sprint repeatability.
Week 2	Defensive Principles/Pressing	Acceleration/Complex Coordination	These areas will be focused on improving soccer specific complex coordination and speed needs for their individual roles.
Week 3	Finishing/SSG	Agility	To allow for fast and effective combination play, reactive agility work will be utilized to create the fast dynamic movement required in these situations.
Week 4	Attacking at Speed	Acceleration/Top Speed	We will address acceleration and speed through improving degree and magnitude of force, contact time and airtime to give the players the ability to move and attack at speed.
Week 5	Defensive Principles/Pressing	Plyometrics	Plyometrics will be utilized to improve defending, through creating greater strength and power, and importantly dynamic stability with and without the ball.
Week 6	Wide Play/Finishing	Acceleration/Complex Coordination	We will progress the elements discussed above by challenging speed of ground contact time.
Week 7	Attacking at Speed	Acceleration/Top Speed	We will progress the elements discussed above by challenging players force vector and running distances.
Week 8	Possession/Movement	Complex Coordination/Sprint Repeatability	Complex coordination work will be utilized to improve how the players' move in tasks such as dribbling and passing. Sprint repeatability work will be utilized to ensure players can repeat these efforts.
Week 9	Dribbling/Finishing	Agility	Reactive agility work will be progressed to include more force-based COD, while addressing dynamic stability and power for dribbling and finishing.
Week 10	Attacking at Speed	Final Testing	Results will be conducted to assess improvements and help plan programming for the outdoor season.



2.2 Development Principles

Our development principles have been based off Canada Soccer's development principles and are based on the following elements.

Sample development progression.





2.2.1 Gender Differences Considerations

Programs and Curriculum are designed considering the anatomical and physiological differences between genders for the Youth Development age groups coached.

2.2.2 Disability, Diversity and Inclusion

In alignment with Chinooks Policies on Diversity and Inclusion, all players within the Chinooks U13+ age groups participate in the Sports Science and Medicine program. Where players may have special needs or disabilities, programs are tailored to meet the needs of those players and to ensure a safe program and environment for participation.



Table 3. Physical Training & Sports Science Summary Table

Development Phase	Sports Science/Strength & Conditioning (S&C)	Physiotherapy/ Medical	Fitness Testing	Rate of Physical Exertion
U8 – U11	<p>Physical literacy. Movement proficiency.</p> <p>Assessment and development of coordinative strategies.</p> <p>Squad based. Optional individual training available (8 years+).</p>	<p>Available for all games and all squad training sessions.</p> <p>Baseline concussion testing.</p> <p>Screening.</p> <p>Audit of injuries.</p>	NA	Coach Monitoring.
U12 – U16	<p>12 – 13 years: Intro to basic techniques: speed, COD, power, bodyweight-based strength training, energy systems.</p> <p>Squad based. Optional individual training available.</p> <p>14 – 15 years: Preliminary S&C: speed, COD, power, bodyweight-based strength training, energy systems.</p> <p>Squad based. Optional individual personalized programs including strength/lifting.</p> <p>Maturation measurement for both groups.</p>	<p>Available for all games and all squad training sessions.</p> <p>Baseline concussion testing.</p> <p>Screening.</p> <p>Audit of injuries.</p> <p>Rehabilitation.</p>	<p>4 times per annum.</p> <p>Squad based test and re-test process.</p> <p>Advanced individual assessment available.</p>	Coach Monitoring.



<p>U17-U21</p>	<p>15 – 18 years: S&C: speed, COD, powers, body-weight-based strength training, energy systems.</p> <p>Squad based. Optional individual personalized programs including strength/lifting.</p> <p>19 – 20 years: S&C: advanced speed, COD, power, bodyweight-based strength training, energy system development.</p> <p>Squad based. Optional individual personalized programs including strength/lifting.</p> <p>Maturation measurement.</p>	<p>Available for all games and all squad training sessions.</p> <p>Baseline concussion testing.</p> <p>Screening.</p> <p>Audit of injuries.</p> <p>Rehabilitation.</p>	<p>4 times per annum.</p> <p>Squad based test and re-test process.</p> <p>Advanced individual assessment available.</p>	<p>Coach Monitoring.</p>
-----------------------	--	--	---	--------------------------

Notes:

- Optional individual training may be recommended by the Soccer Coach or BSP’s team and will be referred to generally in the following instances – player is demonstrating movement deficiencies affecting their soccer performance, and/or increasing the risk of injury. The player is aiming to improve soccer performance by addressing specific athletic needs such as speed, agility, sprint repeatability etc. Lastly if the player is behind the expected timeline based off the Canada soccer development model.



2. Fitness Testing

Regular fitness testing with the following array of tests.

All speed testing will be conducted with Zybek timing lights, to ensure accuracy in testing. These timing lights are used at the NFL combine.

Anthropometric	Physical Performance	Posture
Bio Banding Testing	Power – Broad Jump, & 3 Consecutive Broad Jump Assessment	Dynamic lumbopelvic integrated testing
Body Fat (16 years +)	Speed – 5yd, 10yd and 20yd Sprint	
	Change of Direction Speed – Pro Agility Test (5/10/5)	
	Sprint Repeatability – PC Shuttle Test	
	Push Up Test	

Testing is applied at one of two levels:

Test Level	Performance Assessment	Results	Program
Level 1	Standard on field assessments	On-field feedback	Included in base program
Level 2	On field assessment plus recording and tracking of test results	Individual test results prepared for each individual and tracked through each testing. Strength and Conditioning Trainer discussion of results and Performance Improvement Plan.	Provided upon individual and / or team requests. Additional to base program.



3. Injuries and Injury Prevention

Initial and on-going collaborative and integrated approach to injury prevention.

Medical pre-season screening.
Coach monitored training loads.
Neuromuscular warmups with coordinative strategy assessment.
Integrated medical and S&C assessment – on-going.

Tailored sessions at season commencement are delivered to coaches providing examples of best in class injury prevention warm-up sessions (refer section 5.0).

Education and advice is available to coaches to assist with injury prevention and considers aspects such as recent research related to female athletes being more prone to ACL injuries.

Advice relating to rehabilitation for return to play athletes is also available.



3.1 Return to Play

- If any player suffers an injury the following steps will be taken.
 1. All relevant parties will be informed, including parents, Soccer Coaches, BSP Coaches and Sports Therapy team.
 2. An appointment with the Sports Therapy Team will be booked, assessing the exact mechanisms and causes of the injury, as well as discussing the optimal return to play timeline.
 3. BSP’s Coaches will begin rehabilitation following recommendation by the Sports Therapy team, and will begin addressing the causes of the injury, ensuring imbalances and weaknesses are addressed.
 4. Milestones will be used and assessed before the player is permitted to begin dynamic work, again agreed upon by all members of the Sports Therapy Team and Soccer Coaches. Examples of these will be – even left to right balance, adequate strength to bodyweight ratios and the fact that no further flare ups have occurred through the course of the rehab to date.
 5. Steps to return to play fully are discussed in greater detail below.

Integrated pre-game fitness testing by medical and sports science team.

Return to Play Protocol	
Phase 1: Progression of Running and Soccer Drills (no passing or dribbling)	
	Multi-phase progression from fast paced walk to full speed linear sprint and ¾ speed COD drills
Phase 2: Progression of Running and Soccer Drills	
	Passing with a teammate
	Dribbling – full length of field
	Continued multi-phase progression to full speed COD drills
Phase 3: General Conditioning & skill work	
	Passing
	Lateral dribbling movements
	Conditioning work extending up to 60 minutes, initiate interval training
Phase 4: General Conditioning, skill work and team drills	
	Resume team technical training without live scrimmages (no contact)
Phase 5: Full Team Practice with Body Contact	
Phase 6: Discuss with Coach - Consideration for game selection	

Chinooks policy for return to play from more serious injuries requiring medical intervention and / or procedures, athletes will need to provide a note of medical evidence from their medical doctor and / or physiotherapist / chiropractor that the athlete is considered ready for return to play. This may also include advice on specific protocols to follow.

3.2 Concussion Injuries – Return to Play

Chinooks follows strict adherence to Calgary Minor Soccer Association Concussion Policy and Protocols, including Return to Play from Concussion injuries, which can be found at the following link:

[CMSA Concussion Policy and Protocols](#)



4. Program Delivery

Depending upon the Level of Testing referred to in section 2.0 and selected, players and Teams will receive either on-field or tailored testing assessment and feedback as follows:

Prior to season – All players will take part in the following:

- A team performance testing session, testing the players physiological and bio-banding data, as well as their performance in power, acceleration, top speed, change of direction speed and sprint repeatability.
- A team session including soccer coaches, where a full neuromuscular warm up and cool down are covered, to ensure all players and teams have an optimal warm up and cool down. This will help ensure not only optimal performance in games and practices, but importantly help to prevent injuries occurring in these scenarios.

Within the first month:

- Following the team performance testing session, individualized team programs will be written based on specific needs with on-going assessment through the year. All programs will be created with input from Chinooks Soccer's Technical Team and supported by communication with the soccer coaches to gain on-field feedback on progress.
- For individual players, results will be assessed in comparison to team averages, and expected performance results in the various tests. The next steps for any players whose results are significantly lower than the team average, will be individual discussions between the player, their parents, and soccer coaches. During this time, we will discuss the optimal individualized program for their on and off field needs.
- During the testing if movement imbalances or injury indicators such as inability to stabilize, maintain posture etc. are occurring, then we will have a joint discussion between the player, parent, sports therapist, and sports coach to again discuss the necessary training plan.
- All individualized training programs will be based around the soccer schedule and that player's individual needs relating to soccer. Progress will then be assessed based on on-going performance testing every 4-6 weeks, and continual movement assessments with feedback provided back to the player, parents, and soccer coaches again.

Throughout the season:

- Teams and individual players will receive on-going assessments throughout the season in all sports science components, ensuring on-going improvements against Canada Soccer's guidelines. Feedback and reporting will be regularly provided to all the individuals involved in ensuring best possible improvements for the players.