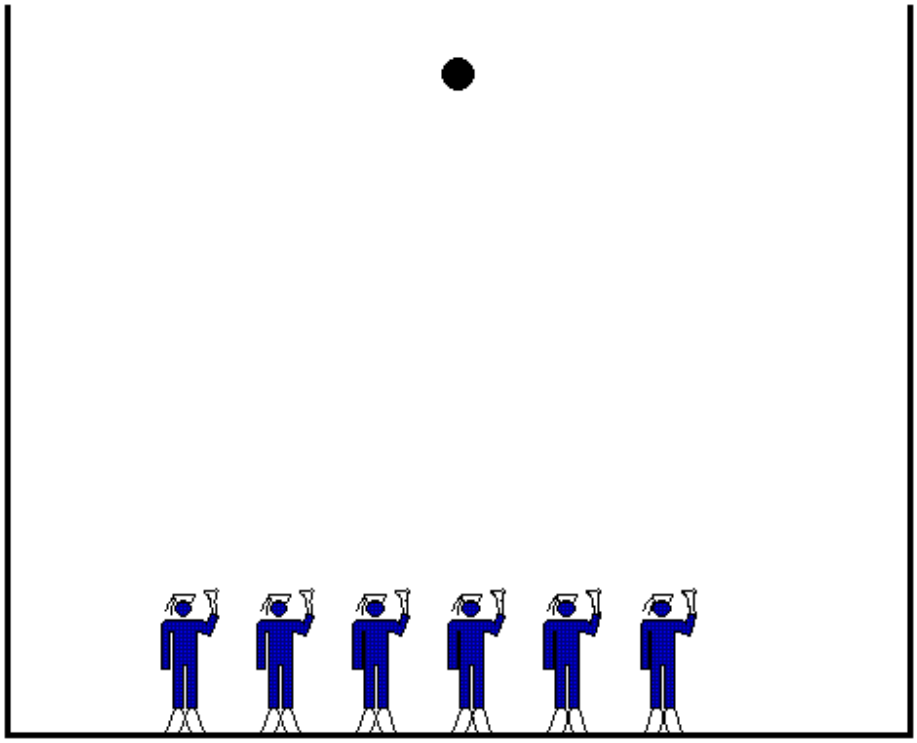
COACHING UNDERWATER HOCKEY

A SCHOOL'S COACHING MANUAL



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1. INTRODUCTION

The object of this manual is to discuss the type of preparation needed to produce competitive underwater hockey players and a competitive underwater hockey team.

Any sport, when examined, can be broken into more and more precise sets of requirements - skills, techniques, fitness, communication, mental attitude and so on. Underwater Hockey is certainly not any different in this respect. In fact it could be argued that Underwater Hockey, by its nature, requires more preparation. It may be the only sport in which the active players can not clearly communicate.

Hockey (by "hockey" we mean the underwater sort) is also physically demanding. It is a sport in which players who are recovering can not contribute; in soccer or any field sport, players standing to rest can still catch, kick or hit the ball. It is a sport in which a significant amount of skill is required before even beginning to contribute in a game.

At its best hockey is a fast-moving, tremendously skillful game, physically and mentally demanding. At its best hockey is also the ultimate team sport. Positions and tactics must all be understood and practised to become automatic. A top team plays together as though with ESP. Playing in such a team can be very satisfying and is probably the best goal to aim for; such teams generally win.

It is very tempting for new or relatively inexperienced teams or coaches to concentrate on the team tactics - positional play. However this may not be the quickest way for effective results. Team tactics are important, but they rely on individual skill and ability. This manual will therefore commence by examining the basic skills required for underwater hockey thus working up to the peak of the performance pyramid shown below:

THE PERFORMANCE PYRAMID

When coaching a team to this philosophy don't spend all your time at one level of the pyramid until the performance of the team at that level is adequate.

Rather the pyramid represents the proportion of time to be spent on a particular aspect. All aspects should be worked on continually. This keeps players interested and encourages them to understand the importance of what they are being taught. NEVER FORGET TO ASK WHY A TEAM PLAYS. Normally it is for enjoyment and the game is normally the main source of enjoyment.

The manual consists of a set of articles written by Wellington players of some particular knowledge or ability together with some player feedback from three Wellington school players, and an article taken from Jeni Pearce a Nutritionist. The manual is presented in a manner which may suit the development of a new team. Coaching methods and motivational aspects (for coach and team) are examined first. Fitness is next, followed by basic skills and a progression upwards to tactics, team skills and motivation.

COACHING/MOTIVATION. The first article is on the means of coaching. It advises on how to build a team from individuals and how to motivate them to win.

FITNESS is the basic element. No team can play underwater hockey without the minimum fitness of being able to swim underwater on the bottom. Until this can be done by all team members the TEAM is not playing underwater hockey.

Fitness is essential for a top team. Skill can not support an unfit team against fit opposition.

The fitness required includes:

- Surface fitness - for mobility around the pool (especially in full courts).
- Underwater fitness - bottom time.
- Underwater speed.
- Strength.

The chapters on fitness deal with the STRETCHING, the PHYSIOLOGY OF FITNESS and FITNESS SESSIONS.

BASIC SKILLS. A high level of fitness is not sufficient to play the game. As in any sport there are certain skills that are essential in order to play the game with control. These are discussed in 6. TEACHING BEGINNERS BASIC WATER SKILLS and 7. SKILLS/TECHNIQUES.

INDIVIDUAL SKILLS. The skills a player uses can be further expanded from the basic skills - turning, passing and moving the puck around. Advanced individual skills include puck control without looking at the puck, tackling and beating players one on one or one on two, receiving the puck and setting up other players. These are discussed in 7. SKILLS/TECHNIQUES.

TEAM SKILLS. The linking of all players together as a whole team is introduced in 9. TEAM TACTICS. Here are given:

- Examples of team situations.
- Examples of team formations.
- How to select for positions or positions for selections.

NUTRITION. Not to to be forgotten in the preparing of top players is the importance of their fuel or diet. is taken from an NZU Newsletter and an article by Jeni Pearce.

Finally there is an example of a 12. PERFORMANCE CHECKLIST to evaluate players' performance, some examples of 13. THE PLAYER'S VIEWPOINT- from players themselves, concluded by a section on how to rise up a level to get into a representative team.

S Stoke

2. MOTIVATION

2.1 INTRODUCTION

This paper is designed to help a coach motivate a team to win. It is written from my experiences, so it will not be appropriate for everyone. Please read the paper and take from it what you can. Hopefully you will pick up some useful ideas. Happy coaching.

To explain some general motivational principles and some specific points to prepare a hockey team for a competition this paper will endeavour to show you ways to:

1. get to know your team (and them you),
2. leadership principles and styles to consider,
3. understanding team culture,
4. building a team and preparing it for a competition,
5. the big game and finally
6. some general points.

2.2 KNOW YOUR TEAM

2.2.1 Talk with the team

Sit down with the whole team and ask them what they want to achieve. Initially it is good to hear their opinions before you voice any of your own. Don't give them a big speech about how they have to win, or conversely that winning is not important, just tell them that you are here to help the team with its game and whatever they want to accomplish is just fine with you. Now it is possible at this point that you will not like what you hear. Don't worry. This step is best conducted with groups smaller than ten or fifteen players.

2.2.2 Formally define their objectives

This should be the first time your own opinions are voiced to the team. Make it subtle if your objectives differ from those of the team. It is quite easy to pick up the mood of the team and gently lay your own ideas down as sub-issues. If, for example, the team say they want to meet lots of boys/girls (delete where appropriate) and have a good time, don't wrap up the meeting by saying: "Well its clear the whole team plans to have a good time this year and the only way to have fun is to win therefore I can tell that you all really want to win so I'll see you at the pool at 5:30 tomorrow morning" - it won't work. It can be more effective to 'plant a seed' and let the team pick up on your ideas, think about them and then call them their own.

2.2.3 Take the team's objectives and break them into goals

Goals should be:

Specific Don't say By the end of the month I want you to get better, that doesn't mean anything. Instead say I think with some time this whole team could have the best flick in the grade. If goals the team sets are too general then you should set a number of incremental goals as step to reaching a final objective.

Challenging A goal should be achievable, but not easy. Use a flexible contingency approach to set goals that are appropriate.

Owned The idea of goal setting is not to impose your ideals on somebody else, it is to enable them to maximise their own potential. They should have a sense of ownership of the goal which means as far as possible the team should set their own group and individual goals. Your job is to ensure that the goals are ppropriate.

Feedback Talk to the team. Praise them, chastise them, but let them know what they achieve is important to you and to the rest of the team. If someone needs confidence let everybody else hear you praising them. If they are too cocky do it quietly and in a more restrained manner.

2.2.4 Give the team the help they need to achieve their goals

This might require many hours in the pool working with a individual, arranging for a specialist coach to help someone with a particular skill or it might take 5 minutes yelling at the whole team. Again be flexible and trust your judgement.

2.3 LEADERSHIP

Now that you should have a reasonable idea of a possible system for implementing your chosen regime you have to consider what style of leadership you will use to convey your ideas and ambitions to the team. Your motivation methods will largely depend on your character strengths. Don't use legitimate and coercive power to coach your team if these are not styles you are comfortable using in daily life.

2.3.1 Status

For a school team the coach is (likely to have to be) the most important person. It is unlikely you will have anyone in the team with sufficient skills to lead the team from a captaincy role. This does not mean you have to ignore the power of the team. There are many aspects of controlling and leading a team that are better left to others.

2.3.2 Power

As a coach there are five recognized power bases you can draw from:

reward, expert, legitimate, coercive and referent. It is important to recognize these bases and utilize the strengths of each approach to develop a leadership style you are comfortable with.

Reward As a coach you have the power to reward the team. Rewards do not have to have any monetary value and in fact the most effective rewards can be praise and friendship. To use friendship as a reward it is important that the team respect you and their is no certain method to ensure this. Use your own personality strengths to maximise your reward power. An important consideration for using rewards is perception. The rewardee must value the reward. Use this power base sensibly and sincerely and it can be effective.

Expert Supposedly you have a reasonable idea of Hockey is supposed to be played (otherwise you wouldn't have volunteered to coach). Use this knowledge to teach the team how to win.

This requires skills, fitness, positions and all the other things you can read about in this manual. By showing the team that you have 'the answers' they will learn to respect your judgements and value your opinions. Do not abuse this power, one slip up can greatly diminish its usefulness.

Correct use of expert power requires leadership by example.

Be on time for training, be the first one into the pool. You don't have to do the fitness work every week but it helps to show the team that the work is achievable and that you are better than they are, it gives them a good role model and something to aim for. If they start to beat you hold your head high and praise them, after all you are here to make them better.

Legitimate As 'coach' you immediately have a degree of power over the team. To maintain this power base it is important to remain some what distant from the team. Be friendly with them but don't make them your only group of friends or the barrier between being the coach and being one-of-the-guys will disappear. Different people will need to use different policies to influence the team with legitimate power, use the policy that suits your leadership style, but remember as a coach you can't count on this power.

Coercive Can only be used sparingly for a team of volunteers. Results obtained from coercive power are unlikely to be as satisfactory as results obtained when the team feels they have a degree of control. This technique tends to gain compliance not commitment. Unless you can show results from decisions implemented using purely coercive power the team will degenerate.

The one time coercive power can be beneficial is when the team is doing something it doesn't want to do but knows is beneficial to them. With out a degree of support from the team you will quickly find out how captain Bligh felt. Use it carefully and sparingly.

Referent This is the most important and the potentially most powerful of the five power bases for a coach. It is also the hardest to teach or explain. Referent power is also known as charismatic power because it is a very personal

quality. You have referent power over a team when they would rather drown than let you down. There is no easy way to gain and use referent power, but there are many easy ways to lose it.

Charismatic power comes from the respect the team has for you. Make them value the time you give them and the knowledge you are passing on. Once this trust is gained DO NOT ABUSE IT. You have to care for the team, value their aspirations and abilities and let them know it. One of the main points is to "make the walk fit the talk", be honest in what you tell them and how you feel about them.

Once you have established where your power comes from hopefully you will be able to recognize where you are strong and where you need to make some changes to your leadership style, but do not attempt to become something you are not. Everyone has their own strengths and weaknesses this is important and it should be encouraged. At this point study the reprints for further guide-lines to the use of the different power bases.

2.4 CULTURAL PROBLEMS

2.4.1 Definition

Cultural problems refer to the culture of the team as a whole. A cultural problem can be the hardest for any coach to correct and usually a change can only be implemented with a team that respects and trusts your judgement. An example of a cultural problem; the team finds it acceptable to turn up 5 minutes after training starts, take 15 minutes to get changed and ignore instructions once they are in the water. Cultural problems, such as seen in this example, require a special approach.

2.4.2 Changing Culture

To change a team's culture you have to: Unfreeze, change and then Refreeze. This means changing the norms. Norms, or usual situations, generally require a significant shock to change. Try acting out of character, for instance if you usually yell at the team a lot, be nice to them, appear hurt by their lack of respect, or if you usually try to be nice to the team take 5 or 10 minutes and really tell them how you feel. If you adopt the latter approach don't stop until every player in the team breaks eye contact with you, this approach is more effective when only used occasionally (once every six months).

2.4.3 Key Players

Start with the key players in the team hierarchy. Get them keen. Let them put the pressure on the key trouble makers to support the group objectives. At a secondary school level the drive to conform to group norms and be accepted by the team is very powerful. Use this power.

2.5 TEAM BUILDING

There are no easy ways to make a group of individuals bond to form a cohesive team unit. If you have group that are friends to start with then the hard work has been done for you. It is very unlikely that in a group of eight players they will all be the best of friends, but luckily friendships are usually easy to create. Some brief 'bonding' suggestions:

Encourage the team to work together to prepare plans for you for what they want to learn.

Treat them as a group. Eg. Punish one punish all, tell individuals their specific strengths and then tell the whole team how this strength will enable the team to be a more effective unit.

You work for your team mates, not your self. Eg. Point out that if someone does not do their job effectively then someone else has to work harder to compensate for the mistake.

Foster team socialisation. Eg. Give them time at training to talk together. Suggest that the whole team may want to do something away from the pool together.

2.6 THE BIG GAME

2.6.1 A Goal

A competition is a great goal to set a team. It is specific, team members have a stake in the outcome, it will challenge their abilities and it offers instant feedback. Use this goal as a reference point for the team throughout their training. Before the big competition make sure the team have all of their equipment together and they know what is expected of them. Talk to them about food, sleep and let them know that their training programme has been designed around

getting them ready for the competition. This will get them thinking about the competition and hopefully taking it seriously.

2.6.2 Balance

While you want to focus the team on the competition don't let them get psyched by it. It is important to balance their enthusiasm so that they peak their energies at the right time. You will not be able to judge this unless you know the individuals in the team.

2.6.3 On the Day

On the day of the first game you will have to make sure the whole team is mentally ready for the game. You will need to calm some players, praise, psych, coax, encourage, and nag others. There is no right way to do it. If you have taken the time to get to know your team you should be able to help their preparation. If you haven't you are probably best to leave them alone.

2.6.4 Together

Keep them together as much as possible. Get them focused on each other and on what is required of them. Let them do it.

2.7 SOME POINTS OF INTEREST

Although there are no hard and fast 'rules' to gain a team's respect and motivate them there are a number of specific points I recommend at least trying.

No coach can motivate a team unless they are motivated themselves. If you are not genuinely interested in making the commitment to work with a team don't bother. A coach who is merely going through the motions will not be effective and will not inspire the respect an effective coach needs.

Talk with your team and be patient. Can you remember learning to turn? It was not as easy then is it is now. Be prepared to repeat training sessions persistently until the team is confident. If you have one or two players who are slower to learn a point than the rest of the team (and we all know every team has at least one) be prepared to work with them one on one. If they are genuinely interested in learning the time you spend with them will more than pay off in personal loyalty.

Show interest in the team. Let them know you care whether they win or lose, play in a sporting manner or start fights, have friends in the sport or sit alone. Talk with them. Get in the pool and watch them.

Foster confidence and honesty. There is no point offering personal help and then not making the time to implement it. Don't tell the team winning is not as important to you as having fun and then get upset when they lose every game - make the walk fit the talk

Remember Hockey is a team sport. Don't be afraid to drop key players from the team if they don't live up to your standards (for example being on time for training) - F.I.F.O., Fit In or (use your imagination to guess the ending).

The success of any organization requires Resources, Ability, and Role Perception. By Understanding these components and satisfying the team's needs it is possible to develop a plan that will prepare the sports team for competition. For instance; ensure they have the resources to do the job (fins, training time, etc.), give them the ability to perform at their maximum potential (coach them and remove other barriers to success such as uncooperative parents) and ensure they perceive themselves as athletes who are here to play hockey.

Success is a relative term. Depending on your desired result from any given activity any given outcome can be considered; acceptable, disastrous or sublime. The important thing is to achieve what you set out to do, or more.

The role of a coach is not to make the team win, it is to help them reach their objectives and maximise their potential (even if they do not know what their objectives are).

Final point, yell at the team while they play, they can hear you, and the feedback is as close to immediate as you can get. In competitions watch quietly and talk with the team to build confidence, it's too late to chastise now.

DISCUSSION: It is not easy to motivate a team. The only way to learn to coach, in my opinion, is to coach. Having said that I still feel you should read everything you can on the subject. Take the time to broaden your horizons and

you will have your efforts paid off by improved personal abilities and that wonderful feeling of success that only comes when your team improves.

Dave Phipps

3. STRETCHING

3.1 INTRODUCTION

You should stretch before you play, and you have to warmup before you stretch. An easy way to warmup is to do some running on the spot for about 2 minutes.

3.2 STRETCHING

- Stretching has to be done slowly with no bouncing and no undue pain.
- Breathe evenly as you stretch; on every exhalation relax the muscle being stretched.
- Hold the stretch for about 30 seconds or repeat each stretch 3 or 4 times holding each for about 10 seconds.

3.2.1 Head

- Start with the head. Hold the head down, relax the shoulders, look up keeping the mouth closed.
- Stretch to the sides trying to touch the ear on the shoulder - keep the shoulders relaxed and parallel to the floor.
- Turn the head to the left and right looking behind.

3.2.2 Shoulders

Rotate the shoulders forward and back keeping your arms by your sides 10 revolutions each way. Rotate the arms one at a time forward and back 10 times each. Then both arms together in opposite directions.

3.2.3 Back

- Lean forward and touch the toes. Bend the knees a little if necessary.
- Breath easily and relax the lower back on each exhalation.
- Lean to the left and right keeping the back straight - don't bend forward at the hips. Your feet should be about 1 metre apart. Slide the hand down the leg to the knee or just past the knee. Hold the other arm above the head. Repeat 4 or 5 times each side - hold for 10 seconds each.
- To stretch the back the other way, go down into a press up position, with arms straight and keeping the legs straight let the hips sink towards the floor - not on the floor. Do this 3 or 4 times and hold for 10 seconds each.

3.2.4 Groin

From the press up position above, bring the right foot forward to the hands. Keep the back leg straight. Hold for 10 seconds then change legs. Repeat 3 or 4 times.

3.2.5 Legs

Raise one leg to hip height and rest it on a chair, table or step. Keep the leg and back straight, bend forward at the hips until you feel the tension in the back of the leg. Hold 10 - 15 seconds. Repeat each leg 3 or 4 times.

Standing up, bend the leg up behind you and grab the foot. Pull up on the foot keeping the front of the body and leg in a straight vertical line. Hold 15 - 20 seconds. Repeat 3 - 4 times.

3.2.6 Ankles

Sit down. Keeping one leg straight, place the other ankle on the thigh. Grasp the toes in the other hand and rotate the foot clockwise and then anti-clockwise 20 times in each direction. The foot should move evenly with no jerking movements. Firstly relax the ankle and then try to rotate the foot using the ankle muscles as well as the opposite hand.

3.2.7 Wrists

Hold the arms at shoulder height, bent at the elbows with the wrists one above the other. Rotate the hands around each other forwards and backwards. Relax the wrists. Rotate 20 times each way. This exercise is very important for underwater hockey as a supple wrist is necessary for controlling and flicking the puck.

3.3 CONCLUSION

These exercises are just a few of the stretching techniques that may be used, however they will ensure that the muscles are warmed up and supple before you play. This will mean less muscle related injuries such as cramp, a quicker warmup time during the game and little or no stiffness after the game.

Stretching should be done before every training session and game. It is also useful after the exercise - especially if it was intense. But how many people do stretch? How many of those that don't get cramp during a game? Most of them say that they stretched before hand but did they do so for long enough and did they do it properly? My guess is that the answer is "NO" to both of these.

Simon Lockwood

4. THE PHYSIOLOGY OF TRAINING

4.1 INTRODUCTION

In this training guide I hope to give you a basic understanding of how our bodies use energy and how it relates to underwater hockey.

4.2 ENERGY SYSTEMS

All the movements we make are the result of muscular contractions. For our muscles to contract they need energy or `fuel'. This fuel is provided in the form of Adenosine triphosphate (ATP). ATP is an energy rich molecule which is stored in our muscles. It is the breakdown of the ATP to Adenosine diphosphate (ADP) that releases a phosphate and the energy for muscular contraction.

ATP---->ADP + P + ENERGY

The ATP has one of its phosphates ` broken off'. The energy that was stored in the bond between the phosphates is then used for muscular contraction. For further muscular contraction to occur however the ADP must be converted back to ATP ie the phosphate that was broken off must be put back on. This too requires energy. The body has three ways of replacing the phosphate. These are called our energy systems or energy pathways.

The three systems are:

- ANAEROBIC (without oxygen) ALACTIC
- ANAEROBIC LACTIC
- AEROBIC

It is the INTENSITY and DURATION of the activity that determines which system the body will use to convert the ADP back to ATP.

4.2.1 Anaerobic Alactic

This system is used for very high intensity, 95 to 100% of maximum effort. It only lasts for about 10 seconds but recovers very quickly, 50% in 30 seconds and 100% in 2 minutes. It does not require oxygen therefore you do not have to breath which is ideal for an underwater hockey player.

4.2.2 Anaerobic Lactic

This too is used for high intensity but from 60 to 95% of maximum effort. If working at 95% it will last about 30 seconds and at 60% it will last about 30 mins. Unfortunately there is a waste product called lactic acid. It is the build up of lactic acid which causes muscular fatigue and soreness. It takes 20 minutes to 2 hours for the body to remove the lactic acid. Like the alactic system it does not require oxygen.

4.2.3 Aerobic

This is used for low intensity work up to 60% of maximum effort. At low intensity there is no limit to how long you can go. The only recovery time needed is the time it takes to eat and replace fuel stores. This system however does require oxygen. The only waste products are Carbon dioxide which we breath out and water which we sweat or pass out.

4.3 TRAINING EFFECTS ON THE THREE SYSTEMS

4.3.1 Anaerobic Alactic:

- 1 Can increase the amount of ATP stored in the muscles by up to 25%.
- 2 Can increase the rate at which ADP is converted to ATP.

4.3.2 Anaerobic Lactic

- 1 Can increase muscle stores of ATP by up to 100%.
- 2 The body can cope with lactic acid build up better ie an improved tolerance to the pain caused by lactic acid and the body's ability to remove it.

4.3.3 Aerobic

- 1 More rapid transport of oxygen to the muscles.
- 2 Increase the muscles ability to use fat.
- 3 Increase the efficiency of the body's use of oxygen.
- An underwater hockey player will use mainly the aerobic system during a game since a game lasts half an hour. However at times in the game a player will require more intensity and hence use more of the anaerobic systems. This occurs for example when a forward sprints for the goal, or a back chases the forward.
- A hockey player can therefore benefit from training all three systems.

4.4 HOW TO TRAIN THE THREE SYSTEMS

To train the systems you must do activities or training which place a strain on the specific system being trained. When the body is place under stress it reacts and adapts to meet the needs required. It is this adaption which is the improvement in fitness. For best benefit the training must also be specific to the sport or activity.

4.4.1 Anaerobic Alactic

To train this system you must put in 100% maximum effort. The duration is for 10 seconds as we know that this is how long this system lasts before you change to the LACTIC system. We also know that you will recover fully in 2 mins. So to place a stress on this system we can look to either increase the duration or decrease the time allowed to recover or combinations of both.

For example to improve recovery time we would aim at gradually decreasing the rest between sprints or increasing the duration of the sprint for 11 to 12 seconds. As the system does not require oxygen the sprints can be done either under or on the surface.

4.4.2 Anaerobic Lactic

To train this system we can use the same principles as for the alactic; the only difference being that you are only working at 60 to 95% of max effort.

4.4.3 Aerobic

It is important to have a good aerobic fitness as it helps the other two systems and greater gains can be made when training. It is possible that an improving aerobic system will cause some improvement in breath hold as the body becomes more efficient in its use of oxygen. To train this system you must do an activity that is of sufficient intensity to get the heart rate up to about 60% of the maximum for your age for a duration of at least 20 mins not including warm up. (The maximum heart rate for your age can be roughly calculated by: 220 - Age.)

This can be done in a number of activities such as aerobics classes, walking, running, cycling, as well as swimming with or without fins.

4.5 WHEN TO TRAIN

When training for an event or season you should use a technique called PERIODISATION. This basically means that you should do different types of training depending on the time in the season. As hockey is a new sport and periodisation is a very large topic I am going to give you some basic outlines. We can divide training into three phases for the season.

PHASE 1: Light aerobic work perhaps jogging or swimming twice a week.

PHASE 2: More aerobic emphasis training up to four times a week. Start to

incorporate some anaerobic twice a week work building up to a high volume but low intensity.

PHASE 3: Little aerobic work perhaps once a week to maintain aerobic

fitness. Building up anaerobic endurance by having harder sessions. That is: increase repetitions, decrease rest etc.

Higher intensity and low volume.

4.6 TRAINING SESSIONS

Most of us train by doing length after length in the pool. This tends to be very boring and is not very specific to what goes on during a game. Try and use a repetitions and sets method. That is do a number of reps for a number of sets.

Eg. say we want to train the alactic system.

REPS	SETS	REST	BETWEEN	REPS	REST	BETWEEN	SETS	INTENSITY
4	3	15	SECS	2	MINS	100%		

This is placing stress on the alactic system by not allowing total recovery between reps but allowing full recovery between sets. By using this method and all the variables, rest time, intensity, number of reps, number of sets, there is an infinite number of possibilities for preparing training sessions. All it takes is a little imagination. Sessions should be no longer than half an hour of fitness training including warmup.

Shane Clegg

5. TRAINING SESSIONS

5.1 OBJECT

The object of training sessions is obviously to improve fitness in order to improve performance in the games. There are several areas which always need work:

- Speed
- Breath-hold
- Recovery rate

Training sessions should be aimed at one or all of these. Many people say that the best training is playing hard games. While this may not be completely true, training sessions should still reflect the way that the game is played. For example in a game you are typically underwater for only 5 - 10 seconds each time. However you may be working hard during that time. Players seldom swim in straight lines in a real game - forwards being one exception.

This gives rise to the following objectives for training:

- 1 Include sessions for speed. These may be straight line, but should also include changes in direction.
- 2 Include sessions for breath-hold and recovery rate. These would normally be repetitive forced cycles under water. (Note it is believed that forced breathold training actually causes the body to make a chemical adjustment that improves the breathold (Carbon dioxide resistance improves). Surface training will not encourage this change).
- 3 Include sessions for body work under water. This means work which does not only involve the legs but also uses the arm muscles as is the case in a real game.

When training a group or team the exercises should be made competitive. Relays are an effective means of providing competition (make sure the winning team is rewarded or the losing punished) as well as providing an easy means of controlling the recovery time. The sessions described below could be used for individuals or for relay exercises.

5.2 TYPICAL PROGRAMME

A length is taken to be 25 metres.

5.2.1 Warmup

10 lengths arms and legs on the surface.

10 lengths legs only on the surface. This may be done with a vertical flutter board for strength training.

10 lengths half under, half on top.

5.2.2 Sprints

10 lengths freestyle on top every 30 seconds.

2 lengths slow

10 lengths under water every 45 seconds.

2 lengths slow

5.2.3 Underwater Work

10 lengths under water every 45 seconds with a puck flicking it forward and swimming on to it.

10 repetitions swimming with the puck four lanes out from the wall; turn and swim back to the second lane; turn and swim back to the fourth lane; turn and swim back to the wall - flick to the wall. Alternate the side to which you turn.

5 lengths slow underwater, or puck skills for 5 minutes.

5.3 PUCK SKILLS

The basic skills can be practised out of the water, but where possible they should also be practised in the pool. These may be done individually but it is ideal to work in twos or threes.

- Basic skills of moving the puck around the body.
    - Flicking the puck at each other in pairs. Try to improve length of flick, and skill of catching and controlling the puck.
    - Practice flicking at all angles.
- 2 on 1, an attacking pair trying to pass a defender.
- 3 players swimming lengths flicking the puck between each other.
    - Swap the middle player every length.
    - 2 or 3 players swimming lengths performing a skill before transferring the puck to the next player.

S Stoke

6. TEACHING BEGINNERS BASIC WATER SKILLS

Almost every beginner knows how to swim. Some have had snorkelling experience or diving experience. But underwater hockey has a unique set of water skills which are outside the past experience of beginners, which are vital to the game, and which need to be taught. Unfortunately, most coaches cannot remember the difficulties they had when they were beginners. They either don't bother to teach basic water skills, or simply don't know how to. After all, you don't need to teach someone how to walk or run, do you?

Here is a list of essential skills, and exercises which can be used to teach them. In general, they are described in increasing sophistication.

6.1 PUTTING ON THE EQUIPMENT.

Fins are easy, providing the size is right. Cope with odd sizes by using socks and fin supports. When a beginner puts on a mask for the first time he or she should:

- Spit in it, rub it in hard, then rinse the mask out, to prevent fogging.
- Hold hair clear of the face, and place the mask against the face.
- Drag the strap behind the head.
- Test for tightness.

If possible, the snorkel should not be slid under the mask strap, as this might make the mask leak on one side. It should be attached to the mask strap by a keeper, string, tape or elastic.

Remember, a beginner is using borrowed equipment. Fins will pinch, masks will leak, snorkels will be uncomfortable. It is the coach's job to reduce the discomfort so that the beginner can concentrate on learning rather than the discomfort.

6.2 SWIMMING AND BREATHING THROUGH A SNORKEL.

The main problem here is one of confidence. Beginners tend to swim a short distance, then lift their heads out of the water, pull their snorkels out of their mouths, and slide their masks up onto their foreheads. Concentrate on getting them to keep their masks and snorkels in place, and get them to swim a few widths breathing through their snorkels. Points to note are:

- Hands forward, NOT at their sides.
- Kick with their hips and ankles, with their knees locked.
- Breathing is "skip" breathing: sharply out (SPIT the water out), then immediately in, then hold for a short time.

Do not confuse them by demonstrating dolphin kick: scissor is definitely better at this stage.

6.3 CLEARING A SNORKEL.

The next crisis of confidence is reached when the beginners have to submerge. Explain to them that they can't breath through the snorkel when they are under the water (a surprising number think that it is possible). Then get them to sink, let their snorkels fill with water, then surface and clear their snorkels. They only need to do this a couple of times to become confident.

You must immediately move to the next step: clearing the snorkel on the way to the surface. Again, have them sink, let their snorkels fill, then start blowing as they surface. They must be taught that this is the normal way to surface.

Finally, get them used to the difference in feel between a snorkel open to the air and one covered by water. Have them suck on their snorkels when there is water in them, so that later they will instinctively know when it is OK to breathe.

6.4 DUCK-DIVING.

The process of a duck-dive is:

- Lie relaxed at full length on the surface of the water, with arms in front, and fins dipped.
- Bring arms down sharply: this will raise the head and shoulders.
- Crash head and shoulders into the water, at the same time do a kick by pointing the feet.
- Raise legs into the air, and let the weight of the legs force the body down.
- When the fins are in the water again, start kicking.

Consolidate this and the previous exercise by having them do a few widths of bumps: duck-dive to touch every line, surface and breathe between duck-dives.

The habits that must be promoted are to start clearing the snorkel on the way up, and to not start kicking until the fins are in the water. Explain that if they have already breathed out on the way up, they can immediately take a breath when they reach the surface. Also, if they start kicking before their fins are in the water, the kicks will pull them UP, not force them down. Have them try it.

Tag the habits with a mnemonic by telling them that they are not allowed to splash spectators.

---------- End of session ----------

6.5 FROG DIVE.

The dive where feet sink first is often referred to as a frog dive.

Unfortunately this dive is often neglected by coaches. It is important for at least two reasons: it is the best dive to use when the player wants to end up stationary and flat on the bottom; and the player can watch the game on the way down.

Start off with a dolphin act: kicking hard, trying to stand as high as possible in the water. When they stop kicking, they should keep their toes pointed and their bodies stiff, and just drop. Most people will easily reach the bottom using this exercise. Once you have proved to them that it is possible, move onto the full skill.

- Hang relaxed in the water, vertical, looking straight ahead (not down), but with arms on the surface.
- Bring arms sharply down to the sides, and give a slight kick: this will bring them out of the water to about mid-chest level.
- Body stiff and toes pointed: fins should be pointing a little backwards.
- As they sink, if their bodies are stiff as described, they will fall down and slightly backwards in an arc.
- When their fall slows down, bring up the left hand as a paddle, to keep pushing down. Not too fast.
- If they are still not on the bottom, bring on the right hand as a paddle in the same way.
- The arc should finish with them flat on the bottom, touching from rib-cage to knees.

Taught properly, this skill can be learned by most beginners in ten minutes. Otherwise, it can take months. The difficulty most beginners have is of not being sufficiently body-aware to keep themselves stiff, with their toes pointed. Have them concentrate on the tension they should be feeling in their ankles, and as they arch their backs. They should imagine that they have their backs to a large wheel, and they need to press against the wheel as they sink.

6.6 STAYING FLAT ON THE BOTTOM.

This skill follows naturally from the one above. It is fundamental to most puck exercises, so it MUST be taught and mastered. You need to be aware of a bit of mechanics. The buoyancy of a body is mainly determined by its fat content, and air in the lungs. Women have a higher fat content than men, so are naturally more buoyant. Almost everyone floats naturally, so needs to use a swimming skill to stay flat on the bottom. (There are rare exceptions, like Tjalling van Soest, who sink naturally.)

The skill that most people (at first) use to stay down is to simply swim forward. You need to teach them another way, relying on handwork and body positioning. The easiest way is to teach them a way of going down which they will never use in a game: one using just one hand. I've provisionally called this the "helicopter dive", because one arm is used like the blade of a helicopter.

When a hand is held stiffly like a paddle, then moved in an arc at arm's length in front of the body, it can be used to force the body up or down. Have them hold their paddle hands at 45[degree], then move in an arc. Get them to figure

out which way their hands must be to force them down. DON'T TELL THEM: they need to find this one out the hard way. When they know which way is which, they can twist their hands at the end of each arc, so that each arc keeps forcing them down. Finally, they can use that hand and that technique to drop to the bottom. Have them do it several times with each hand.

Once the helicopter dive is learned, its application to staying on the bottom is easy. A frog dive is used to drop to the bottom, then the paddle hand is used to stay there. To help keep the legs down, have them bend their legs at the knees, and point their toes at the surface. An occasional kick will keep them down.

This position is called the "skydiver" position. Like a skydiver, legs are bent at the knees, arms are out, and head is up. You'll find this hard to teach because of a simple problem of concentration: people are more aware of the positions of their head and arms than they are of lower parts of their body. I've often seen beginners who are convinced that they are flat on the bottom, when in fact their fins are almost at the surface.

As before, give them a couple of things to concentrate on. Tell them to make sure they feel their knees touch the bottom; and have them look forward at you. If they look down, their heads will sink too low, and their legs will drift up. EYES ARE IMPORTANT.

The skydiver position works because of the position of the centre of gravity of the player. The main buoyancy factor for most people is the air in their lungs. This acts to lift the body. When lying flat the upward force of the lungs works through the centre of gravity of the body. If the legs are up the upward force tends to pull the lower body further upward. If the head and chest are up the upper body is lifted. Now the main means of staying down is by using the free arm. (One does not want to simply blow all the air out as this makes clearing the snorkel more difficult). The free arm is quite capable of learning to control the body position if the body is going up head first. The arms work near the head and are therefore above the resultant upward force if the head is up. However if the legs are rising the arms have to work to keep the body down from below the body and this is much more difficult to do.

Keeping the head up is worthwhile for another reason - it improves the player's vision and keeps the head further away from the puck and other player's sticks.

---------- End of session ----------

6.7 TURNING SKILLS.

Most beginners need very explicit instructions on how to turn, otherwise they will tend to turn by arching their backs. I normally tell them:

- Duck-dive to the bottom, and swim along a line.
- Turn onto one side. (The side opposite from the way they want to turn).
- Bend at the waist, and touch your fins with your bottom hand. When doing this, do it with force: STAB at your fins. This initiates the turn.
- Bring your knees into your chest, and your heels up to your buttocks.
- Stretch your hand further, let your legs coast round, then kick out as you extend your legs again.
- Turn back onto your front, and swim back a few lines.

Tell them to try to keep within the confines of a line. Make sure that they swim at least two kicks on the bottom after a turn, to prove that they have finished it.

They should practise turns on both sides by doing figure-eights: swim a lane, do a right-hand turn, swim back a lane, do a left-hand turn, and so on.

Consolidate this with a "butterfly turn". They go down in pairs, shoulder to shoulder. Both must turn in opposite directions at the same time, and both should do at least two turns before surfacing. This exercise is HIGHLY RECOMMENDED.

---------- End of session ----------

6.8 SKILLS TO TEACH WHEN THEY HAVE THREE MONTH'S EXPERIENCE.

Consolidate breathing and duck-dives by having races or relays of bumps.

This will speed up duck-dives, and start emphasising "one-breath" hockey.

Do lengths underwater as three-person plaits. The outer person rises slightly, crosses over the middle person, and down into the middle. The middle person moves sideways to make room. The process keeps repeating. This teaches players how to move over the opposition to take up a better position for a pass.

Do "butterfly turns" with a puck. Just before each turn, the player with the puck passes it across to the other.

6.9 INCIDENTAL EXERCISES AND DRILLS.

Bumps are (in my opinion) THE most useful swimming exercise. They practise:

duckdiving; surfacing and clearing the snorkel; one-breath hockey; an appreciation of how long it takes to get to the bottom; in a new pool, you quickly get used to the depth. For variety (when fitter) breathe every second or third bump.

Bump and pass is bumps with a puck. The solo exercise is to pass the puck forward as far as possible, surface for a breath, then duckdive onto it again. Beginners (who tend to have short passes) tend to get a lot of bump practise, with a little less monotony. The exercise can be done in pairs, with one puck, for young players. The partners pass to each other, but surface after each pass.

Three person plaits are a more interesting way of doing lengths underwater. The three players swim along the pool bottom, but the outer player rises slightly, crosses to between the other two, and sinks down again. The centre player moves out to make room. Done properly, this is good to watch, and quite fun. Ideally, all players should have their heads in line, and be continuously moving sideways one way or the other. For variety, add a puck. The person coming into the middle passes the puck directly forward.

Players who want to practise passing on their own should try leapfrog. You need two pucks. Pass one over the other, and keep going. Improves accuracy and height.

To combine exercises, set up an obstacle course. This is best done as a relay. Set up a low barrier to pass the puck over, a cone to dummy round, and another cone to swim a complete turn around. Require them to do the entire thing on one breath.

More about eyes: it must be drummed into beginners that they should only pass to where they can see. (Some top New Zealand rep players still have not learned this lesson, to their team's cost.) Cut out wild underbody passes, except where they score goals. By all means practise the turn and flick into goal, and the underbody cross pass to someone on the freehand side. But stamp hard and early on the underbum pass that most beginners use as a last resort whilst surfacing. The best way to practise this is with circle exercises. A group of at least four are in a circle. The puck is passed around, with each player making eye contact with the next before passing. Start with straight passes, then gradually work in different exercises such as turns. The coach should act as leader, with everyone else playing follow-the-leader.

Another useful passing exercise is one done in triples. The aim of the people on the outside is to pass the puck to each other without it being intercepted by the person in the middle. This is done in two main ways: inside edge flick in front of the centre person; and a pass through the gap under the centre person's armpits. The centre person will stop the pass most times, and should immediately complete the pass.

John Stoke

7. SKILLS/TECHNIQUES

Skills are necessary to play the game. Skills enable players to control the puck, to beat other players. Skills are necessary for players to interact with others. No team play can effectively exist unless there is a level of individual skill. The more skills a player has the more options open for that player, and the more difficult it is for the opposition to contain him or her.

Skills or techniques can be broadly divided into three classes:

- Basic snorkelling skills
- Individual techniques
- Team techniques

7.1 SNORKELLING SKILLS

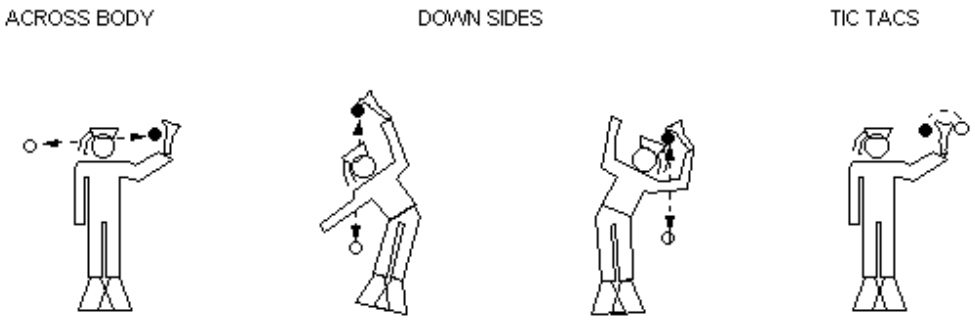
Snorkelling skills consist of the techniques needed to effectively move around the pool. They of course include the basics of snorkelling: swimming underwater, using the snorkel. However they more importantly include some techniques specific to underwater hockey:

- Staying flat on the bottom (especially while playing the puck).
- Getting to the bottom quickly - Head first (Duck Dive) and Feet first (Frog Dive).
- Turns on the bottom - clockwise and anti-clockwise.

7.2 INDIVIDUAL TECHNIQUES

Individual techniques comprise the range of skills that a player can use by himself. The full range may be unlimited although there are several basic skills which every player will need. These are:

- Moving the puck from side to side under the body.
- Moving the puck from behind to front alongside the body on both left and right sides.
- Tic Tacs (moving the puck about a foot from side to side using both sides of the stick. The front of the stick should stay flat on the bottom and the action should spin the puck). This teaches players to point the stick which aids tackling and stick dexterity.
    - BASIC SKILLS



It is normally difficult for beginners to perfect these basic skills. The actions are difficult and the time to practise underwater is limited by breath-hold to about 10 to 20 seconds. It is well worth teaching the basic skills on the poolside - or preferably a carpet. Practising on a carpet definitely helps both learning and perfecting stick skills. The basic skills should be able to be done without looking at the puck, and lots of carpet practice is the quickest way to achieve this.

The list of techniques can then grow almost limitlessly. In the following sections are discussed some areas which are particularly important to beginners or even more experienced players.

7.2.1 Tackling

In underwater hockey a great deal of the time in a game will be played with the opposition in possession. Learning how to tackle is of great importance for beginners. If they can tackle they will generally be more confident on the bottom, they will get more possession themselves which will help them improve more quickly and they will be have a better chance of playing a team game. (Most of these points apply to more experienced players too.)

(1) Spike

For beginners, it can be difficult to gain possession of the puck unless it is given to them. It is necessary for them to learn how to tackle. The simplest tackling skill to learn is spiking. It is simple to pick up, easy to do, and requires little strength. Make sure that the players have strings on their sticks which go around the palm: on a spike, the string takes most of the force. When teaching how to spike, the hardest part is convincing beginners that it is OK to spike hard. Timing is also important: they must hit the puck before their arms are fully extended. Have them practise spiking the pool wall until they do it hard enough. Later, try them spiking the puck for a width or so. Then have them turn their hands palm up for every second spike: this will prove invaluable along a wall.

(2) Spoiling

Most beginners will get into a confrontation with an opposition player when they are pushing against each other with the puck in between their two sticks. Teach them how to twist their wrists to force the puck off onto their stick side. Alternatively they can suddenly relax, and have their opponent reflexively throw the puck away or push upwards to push the puck over the opposition's stick rather than against it.

(3) Turning

Spiking can be effective especially at beginner level. It encourages confidence and aggression. However as players improve the spike becomes less effective. Beginners when spiked tend to give up hence giving the spiker the puck; more experienced players will keep control. More effective tackling relies on taking the puck away from the opposition. This should be taught as early as possible as it can determine a player's style in the future.

Teaching turning skills is described in 6. TEACHING BEGINNERS BASIC WATER SKILLS. The next step is to teach players how and when to use the turn to take possession of the puck. The most important element in using a turn to tackle someone is ensure that as soon as the tackler has possession of the puck he or she guards possession using the body - particularly the shoulder.

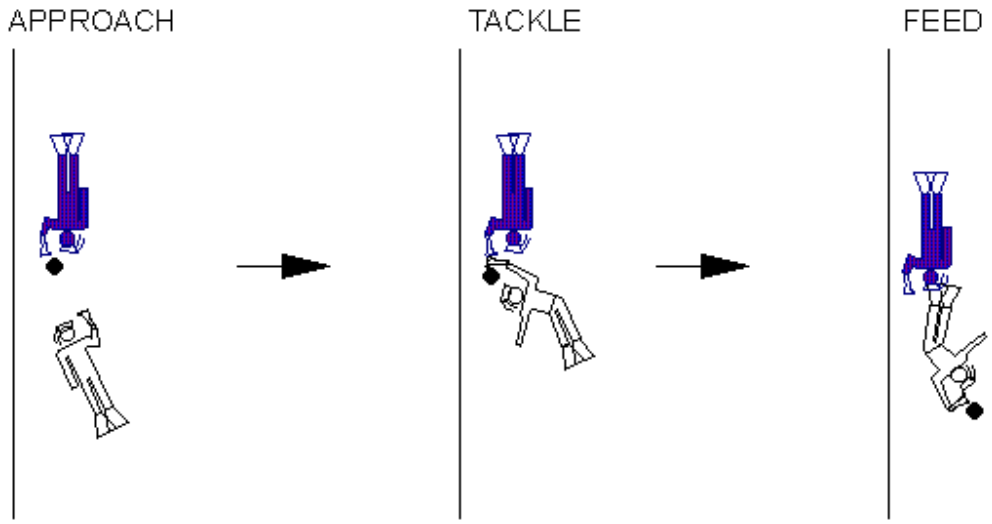
It is important that beginners be taught to swim over the puck rather than try to pull the puck to them. Swimming over the puck improves the chances of retaining possession since the body can be used to protect the puck. Take care to emphasize the importance of staying flat on the bottom - dropping the shoulder - during the turn. Players tend to rise when tackling; this gives the attacker the advantage as he or she can swim through. If the technique is correct the effort is minimised; if incorrect (the defender rises) then the effort required to complete the tackle is increased and control is lost.

The technique is best taught by having the players swim with the puck towards you and then turn away from you while you attempt to get the puck. This teaches them the correct shielding technique. Gradually increase the pressure you apply in trying to get the puck. Make sure to practise both turns - that is to the right and to the left.

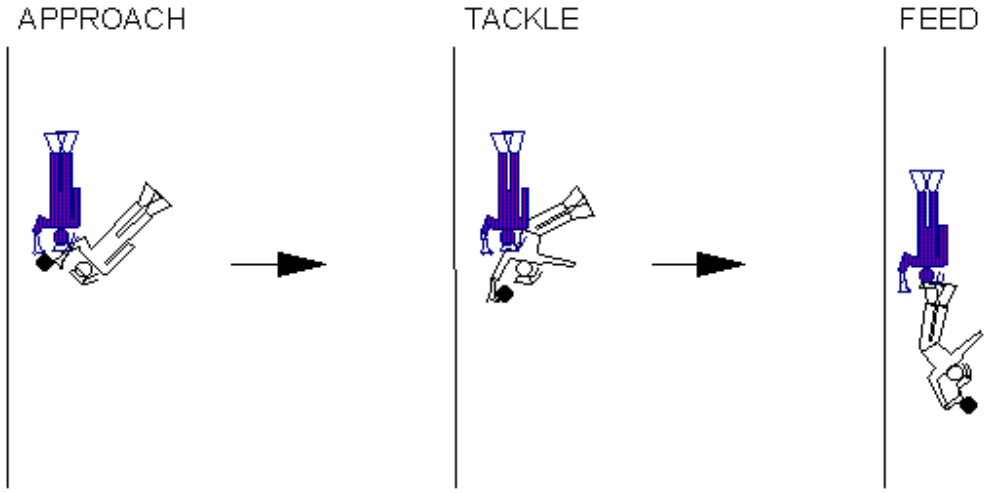
The next step is to start with the coach or another player swimming with the puck and the pupils tackling using the turns.

Once the basic technique is understood have players practise its operation in the following configurations with the attacker swimming straight with the puck.

- Tackling on the wall - head-on.
- Tackling on the wall - turning.
- Tackling on the wall - chasing.
- TACKLING HEADON



- TACKLING CHASING



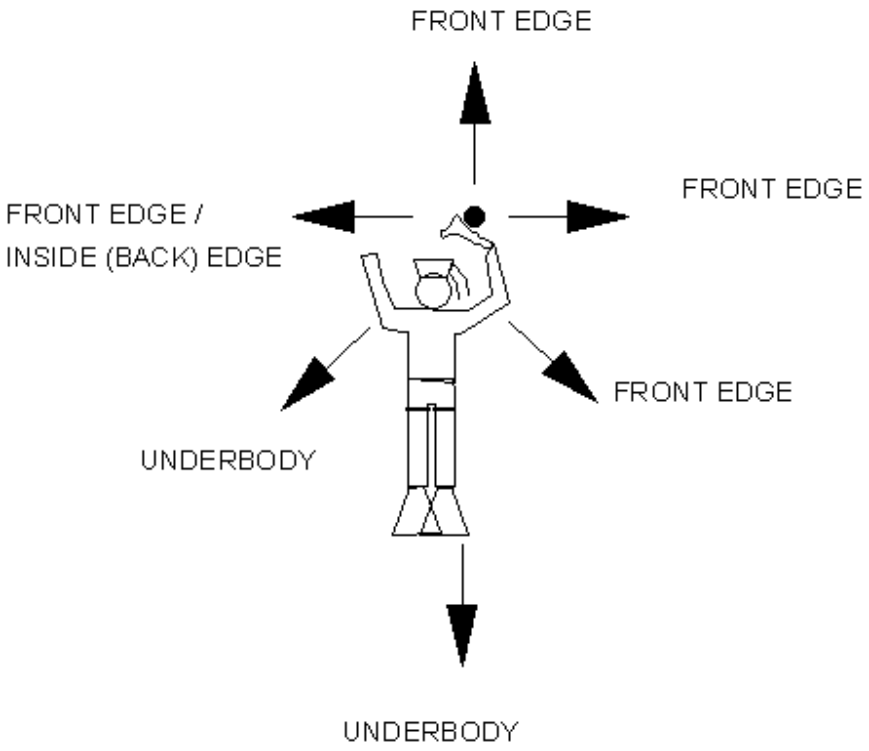
There has been a tendency to think of turning as a weakness - a vulnerable action. Certainly one should not go into a turn when not under any pressure or when able to outswim the opposition or pass past them. However when players are proficient and confident in their turns, the turn becomes a technique of strength. Players learn to keep possession confidently and to free up their concentration to decide what tactically to do with the puck.

7.2.2 Passing

One of the most important skills for a team game is passing. It may also be one of the most difficult to perfect. A player requires:

- Controlled passing - receive and pass.
- Speed of pass.
- Accuracy of pass.
- Variety of pass - using front and back of the stick.
    - Left
    - Right
    - Forward
    - Backward

- Under body passes
- PASSING WAGON WHEEL



- Passing communication - indicating to other players where the puck will or should go.

Good passing seems to require several components:

- The correct design of stick.
- A sensible glove.
- The correct technique.
- Appropriate strength.

(1) Stick

The choice of stick is extremely important. So far no one stick appears suitable for all players - in fact generally players who can pass well with one stick have trouble passing with another (even a different colour of their own!). Some guide-lines may be made for the stick design, but ultimately it is from trial and error - practice and experimentation - that one decides the best stick for oneself.

(a) Material

Wood is universally approved as the best material. It is easily

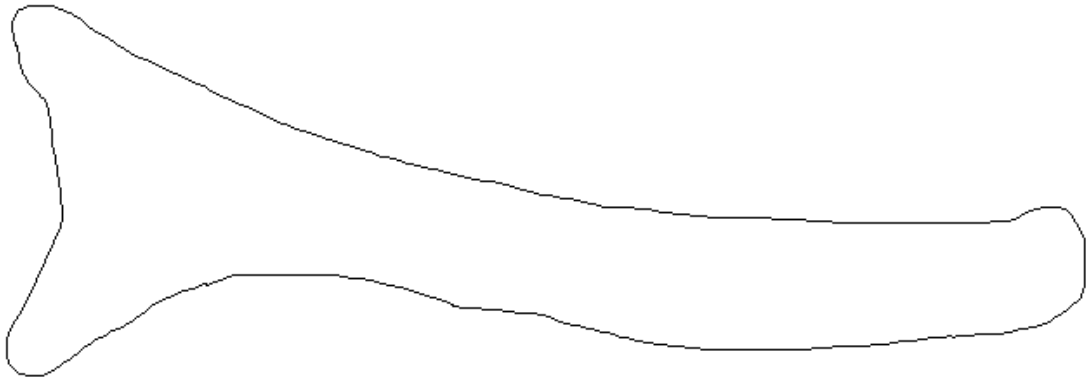
worked, absorbs shock and has good friction on the puck. Most commonly used types of wood are:

- Plywood - almost any type.
- Rimu - prone to split
- Teak - tough but does crumble with age.
- Oak - hard wearing (maybe too hard).
- Pine

(b) Shape

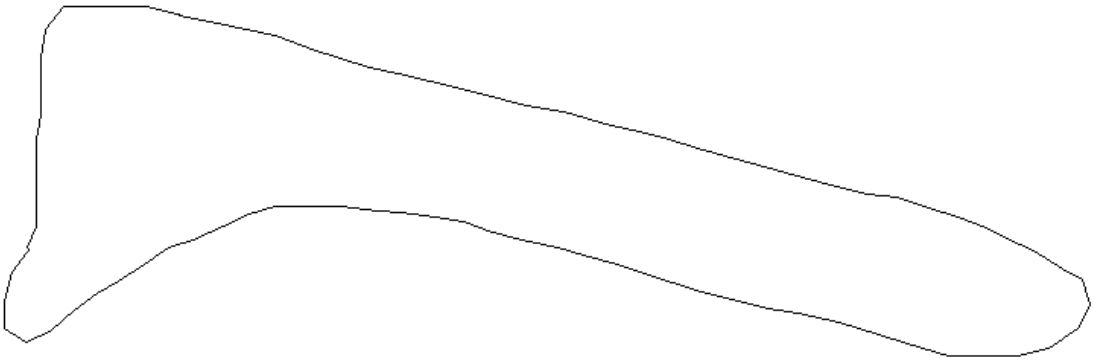
The basic shape is shown below:

BASIC STICK



There are untold variations possible. One of the most common is to flatten the leading edge of the stick intending to get a straight passing edge. This may be more effective for passing.

FLATTENED FRONT EDGE STICK



Thought about the handle shape is often neglected. The handle could be as important as the playing area's shape. The picture of the BASIC STICK shows a handle which curves forward. The effect is to make the stick curve to the right when held normally and the handle also fits in the palm more comfortably.

Not shown in the drawings is the bevel or angle on the playing edge. In order to lift the puck most players put a gradient of about 10 degrees on the front edge of the stick. The slope is so as to encourage the puck to lift when moving the stick forward. The front edge should be bare if possible (don't paint it or varnish it) and uniformly level for best friction on the puck. A rounded front edge will not connect the puck with the same surface area as a flat front edge, and this seems to affect passing reliability.

Some players bevel a mark at the thumb position on the stick - this helps twist the stick upwards when passing to further improve the lift on the puck.

(2) Glove

The glove is almost as important as the stick design. If a player uses a very thick or loose-fitting glove then the stick is higher off the pool bottom than with a thinner glove. This means that the stick is higher up the puck. If the stick edge is above the puck's centre of gravity it is going to be even harder to lift the puck. Keep the glove thin (especially on the bottom) and passing should be improved.

Again there are many styles of glove:

- Silicon - made from RTV or Silicon Glass sealant layered on woven nylon or polypropylene gloves. Don't use cotton or natural materials - they will rot. Rub the silicon in all over the glove - it will protect and strengthen the material. Some people cut out the palm for better feel or grip of the stick.
- Rubber - instead of silicon use latex. This may be tougher.

Radiator Hose - cut finger pieces out of radiator hose of any flexible hose. The result is protection which is tight fitting and leaves the palm and fingers bare. It is inconvenient as normally tape is used to fasten the finger pieces.

(3) Technique

An ideal pass is one in which the puck is spinning and lifted a foot or so off the bottom. (There may be debate about sliding passes versus lifted passes, but at most levels the lifted pass is most effective). The spinning stabilises the puck and gives it improved penetration through the water - just like a Frisbee.

The ideal pass comes from the wrist. It is a quick flick using the wrist but primarily the thumb. This is quick, unpredictable and gives the correct action to lift the puck.

When teaching passing start by:

1. getting the player to spin the puck on the bottom. Exaggerate the spinning action - moving the stick edge across the puck without trying to move the puck forward.
2. When the puck is being spun successfully start adding forward motion, but without trying to lift the puck yet. Watch that their elbow is not too bent and that the force comes as much as possible from the upper arm - not the shoulder. The stick should be level with the bottom of the pool throughout this action.
3. Have them try to lift the puck by starting to twist the stick upwards at the follow-through. The action should be to try to dig the puck up with the bottom edge of the front part of the stick.
4. Practise, practise, practise.

- Good passing takes hours of practise. The ideal practice is
- one against one flicking. For practice in lifting the puck use an obstacle such as a goal or barrier between the two players.

(4) Strength

The quality of passing basically comes down to strength. Lots of practice gives strength. Other exercises are useful - the grippies used by squash and tennis players or anything that increases the strength of the grip will probably help.

7.2.3 Wall Skills

(1) General

In New Zealand play is often dominated by the wall. Techniques to control the wall can therefore be important. There can be two main ranges of wall techniques:

- 1 Moving the puck off the wall
- 2 Defending the puck on the wall

The first two sections below deal with moving off the wall.

Generally it is best to avoid head-on confrontation on the wall. In a head-on situation it is difficult to control the game. Generally the stronger player will win - unless skill is used. When defending on the wall:

- Keep relaxed, flat, facing the puck.
- Keep the stick on the puck with the tip pointing forward and touching the wall. This will help withstand any pressure and have the effect of moving the puck off the wall where skill has more chance.
- If the puck goes behind you the best choice is to turn and control the puck. Hooking it immediately back up the wall simply gives the opposition another chance.
- Sometimes - near the goal for example - confrontation can not be avoided. In this case keep your stick on the puck and try to move it behind the opposition. Avoid a straight pushing battle unless you are sure of winning. If you get caught pushing then the puck can be flicked over the opposition stick by pushing and moving upwards. This may need several attempts and only works reliably if done quickly and from a position flat on the bottom.

The moves described below are examples of ways for a player to move the puck off the wall.

(2) Left Wall

- Right Hand Pull (dummy turn) - move to turn around to the left but only go half way then take the puck under your shoulders to the right hand side and swim off the wall.
- Back Hook - hook with the back of the stick (from left to right for right-handers).
- Swim and Big Pass - simply swim up the wall (preferably a few feet off it) and pass into the middle.
- Normal Curl and Swim out - turn into the wall, take out the opposition in the turn and swim to the middle.
- Inside curl and swim/pass - turn into the middle, then swim towards the middle. (This is less predictable than the normal curl.)
- Curl and pass (inside edge) - turn and flick quickly.
- Right Fade - swimming up the wall move the puck across the front from left to right, catch it with the left side of the stick (arm outstretched to the right), accelerate so that the body moves between the wall (and the defender there) and the puck. Then bring the puck forward again.
- Under Body Passes - turn into the wall and then flick under the body into the middle.

(3) Right Wall

- Left Side Step - move the puck to the right as if going up the wall, then catch it with the left side of the stick, pull it quickly two or three feet to the left, catch it again with the right (normal) side of the stick and swim to the middle.
- Reverse Curl and Swim
- Inside curl and swim/pass - turn into the wall, take out the opposition in the turn and swim to the middle.
- Normal curl and swim/pass - turn into the middle, then swim towards the middle. (This is less predictable than the curl into the wall.)
- Swim and Big Pass - simply swim up the wall (preferably a few feet off it) and pass into the middle.
- Dummy to Left - swim as though going up the wall, then smoothly but accelerating pull the puck in an "S" motion from left to right (the puck staying on the stick the whole time) and swim to the middle.
- Inside Flick - flick into the middle with the left edge of the stick.
- Under Body Passes - turn into the wall and then flick under the body into the middle.

7.2.4 Middle of the Pool

Players should be taught to be confident with their skills anywhere in the pool. The middle of the pool provides the most variables and may therefore be the most difficult area of the game. Most of the other skills apply here. Peripheral vision and speed are more important here because of the increased number of options for both attacker and defender - a player with the puck may be completely surrounded in the middle of the pool but never so at a side.

Some of the skills to practise are:

- Turns for defence (guarding possession) and attack.
- Curl and Swim (Suck in the opposition).
- Dummy
- Soak and Dummy - an exaggerated dummy where the puck is held at the right hand side waiting for the opposition to attack it before moving to the left.
- Fade (as above in the left wall section).
- Swim past (Shield puck with body).
- Flick and Swim (Moving during Flick).
- Side Step.
- Under opposition's arm - inside flick under the arm.
- Under Body Switch - move the puck under the body to change direction.
- Picking up passes.
- Intercepting passes.

- Tackling opposition.

7.2.5 Individual Attacking Goal

Individuals can find it worthwhile training on their own with different means of getting the puck into the goal.

- Flick in all directions and angles.
    - straight ahead
    - left
    - right
    - inside flick
    - turn and under the body.
- Flick and chase.
- Pick up pass and put in.

Ideally when an attacker comes within the 3 metre area of an opposition goal the goal should be scored.

S Stoke

8. INDIVIDUAL TACTICS

These are skills which involve other players. Typically they will involve passing between players, although the full range of techniques is more extensive.

Individual Tactics is the application of Individual Techniques involving other players. Individual tactics are the first step to developing team play. They may be regarded as the building blocks used to develop team play.

8.1 GENERAL TACTICS/TECHNIQUES AND OBJECTIVES

There are several characteristics which show the quality or experience of a player in a team sense:

- Positioning - relative to each other and relative to the opposition.
- Anticipation - game sense.
- Control - over puck, speed of game.
- Passing.
- Effective use of unmarked players.
- Setting up a player.

Some of these are hard to define, but they at least highlight areas that the coach and players should work on.

8.2 GENERAL TACKLING

Tackling is essential in the game and should be given at least equal time to other tactics. Once the basic methods have been taught it is worth explaining some tactics. Teach players how to feint a tackle to make the opposition move before they are ready. This is simply a spike which is not followed through - or showing the stick to the opposition. Teach them to protect their weak side by showing their stick to that side. Teach them how to turn and chase a flick, how to counter turn (turn in the opposite direction to an attacker's turn). Then practise using situations such as:

- Tackling in the middle of the pool.
- Tackling when the attacker turns.
- Controlling passes behind oneself.

CONTROLLING THE ATTACKER

Make the attacker do what you want him to do.

8.3 TWO ON ONE

One of the most basic units of team play is the Two on One situation. It constantly occurs during a game as a player in possession seeks to pass on to a team mate while an oppostion player tries to gain possession.

The 2 on 1 drills are an excellent preparation for game play. The drill is simply based around two attackers - one in possession of the puck - trying to get past a defender. Once the attacking pair are successfully past the exercise has ended and the next set starts. There are a variety of options for the attackers - and for the defender:

ATTACKER

- Passing in front of the defender.
- Passing behind the defender.
- Swimming at the defender.
- Swimming away (drawing) the defender.
- Dummys.
- Turning to take out the defender.

DEFENDER

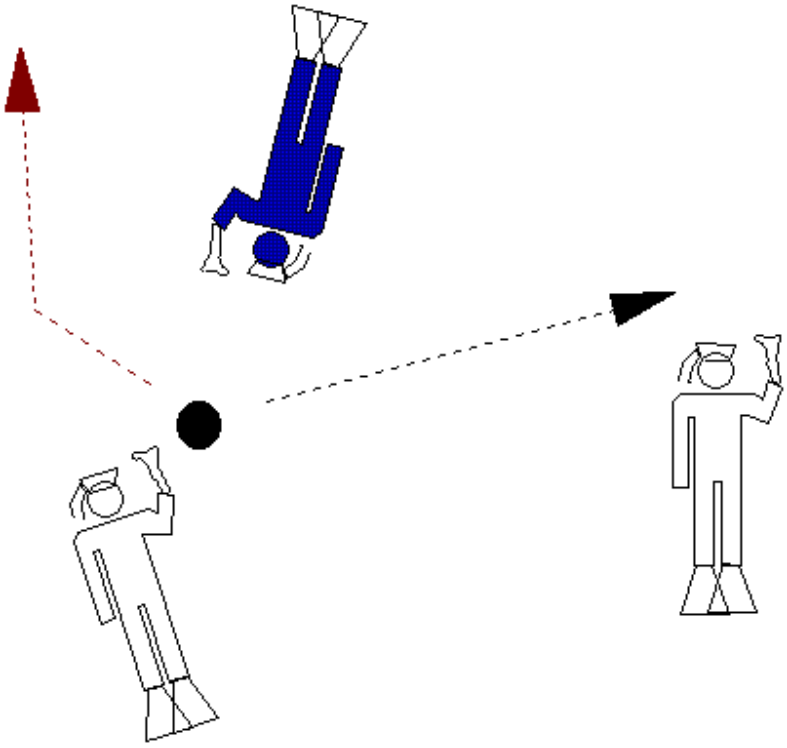
- Defending headon.
- Defending facing the same way as attackers.
- Committing the player with the puck.
- Feinting the player with the puck in order to attack the receiver.
- Moving to cut out the pass.
- Moving to force the pass.

When teaching this exercise start with the basic option of passing. If the pass is good the defender should never get the puck. Here the length, accuracy and especially the timing of the pass are important. Players must not get caught with the puck (too slow to pass) nor must they pass too soon (gives the defender one player to attack). Most beginners will not have this timing - the exercise teaches them.

Note that the timing of the receiver is almost as important as that of the passer. When the puck arrives the receiver must accelerate away - even if the puck is not cleanly controlled. If necessary use the stick vertically to control the puck.

- Passing - draw opposition and set up another player.

TWO ON ONE



Having succeeded in passing reliably the attackers can look at other options such as dummys, turns etc. The exercise thus teaches:

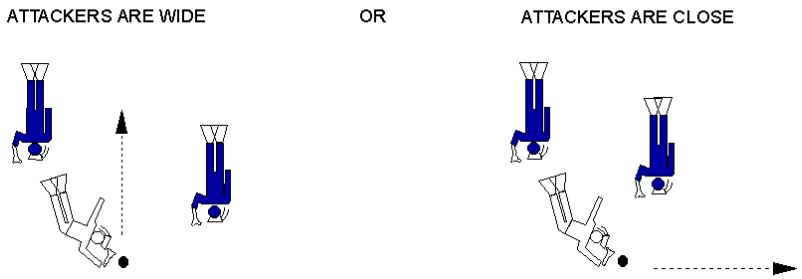
- Pass timing.
- Receiving passes safely - good and bad passes.
- Communication / understanding with partner.
- Using partner to create gaps to swim through.

8.4 ONE ON TWO

One on Two provides an interesting variant of Two on One. Here it is the "Defender" who is getting the major benefit. Normally this exercise would be started with one of the two attackers passing the puck deliberately behind the defender; the two attackers then try to regain possession while the defender's task is complete once the puck is swum or cleanly passed behind both attackers. The defender has the chance to practise the skills of:

- Intercepting passes.
- Committing the player with the puck while controlling the receiver.

ONE ON TWO



- Splitting the opposition - dummy or swerve, inside flick etc.
- Moving round the opposition.

8.5 SCORING GOALS

Scoring goals is a skill in itself - and obviously an important one. Like any skill it requires practice. Two on one can often be practised with the goal as the target. Alternatively practice three on two or even a full team against three backs. A good set of three backs should be able to sustain defence against a full team.

The attackers or attacking team should consider:

- Where to pass - towards the middle of the goal or even away from the goal if the defenders are in the way.
- Getting out of the corners - passes back to the middle
- Containing the opposition - stopping them breaking out away from their goal.

S Stoke

9. TEAM TACTICS

Team tactics are normally called positional play. Not much time is being spent on this section since as described in the introduction, basic skills are initially most important. Once the basic skills exist it is up to the team and the coach to work on perfecting the team play to suit their own style.

The primary object of team play is to ensure that there is always at least one player in control of, or committing the puck, and at least one player to back up or support that player. Put in another way Team Tactics should describe the action the team takes to GET POSSESSION of the puck, and the action taken while IN POSSESSION of the puck.

The whole team needs a good understanding of the team tactics for the team to reach its potential. When teaching positional play actions speak louder than words. It is well worth walking through team play in a field or large room. This gives the players a better sense of position than diagrams or words. When correctly understood, every player knows where to go and what to do in any situation. This will include:

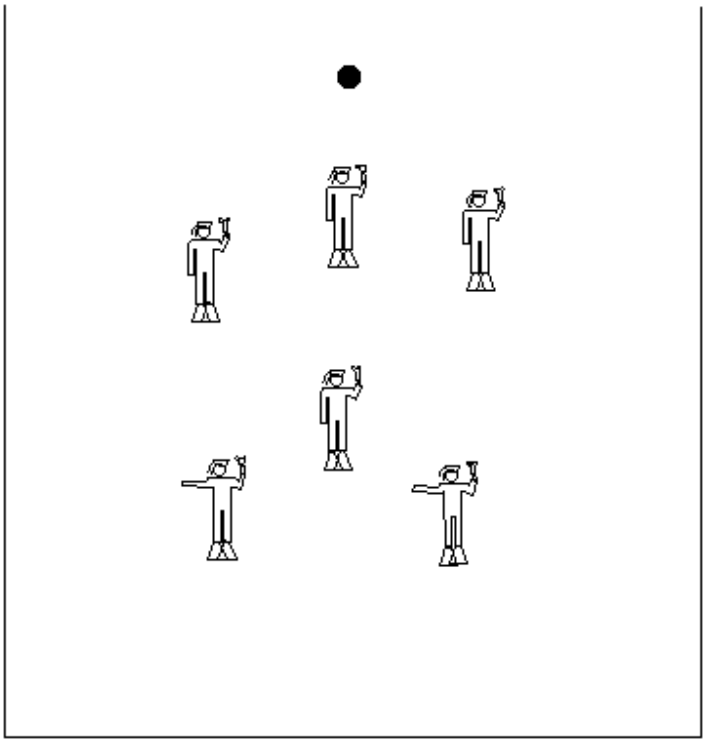
- Where to swim to in attack,
- Where to swim to in defence,
- Where to expect passes,
- Where to pass in any particular area of the pool,
- What to do in set plays.
- How best to support team mates.

Much of team play is putting together the basic building blocks already discussed:

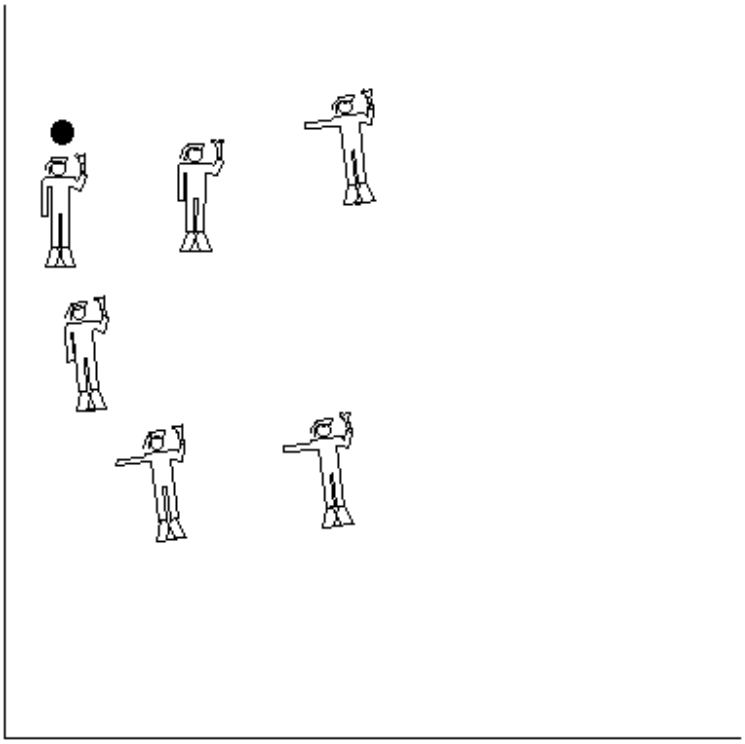
- One on One
- Two on One

Initially positional play or formations are simply a matter of common sense and understanding. As teams become better they develop a style and understanding which becomes their own. Some factors are common to most formations. Examples are shown below. Two player images are shown: the one with left arm stretched sideways represents a player on the surface, the left arm by the side represents a player underwater.

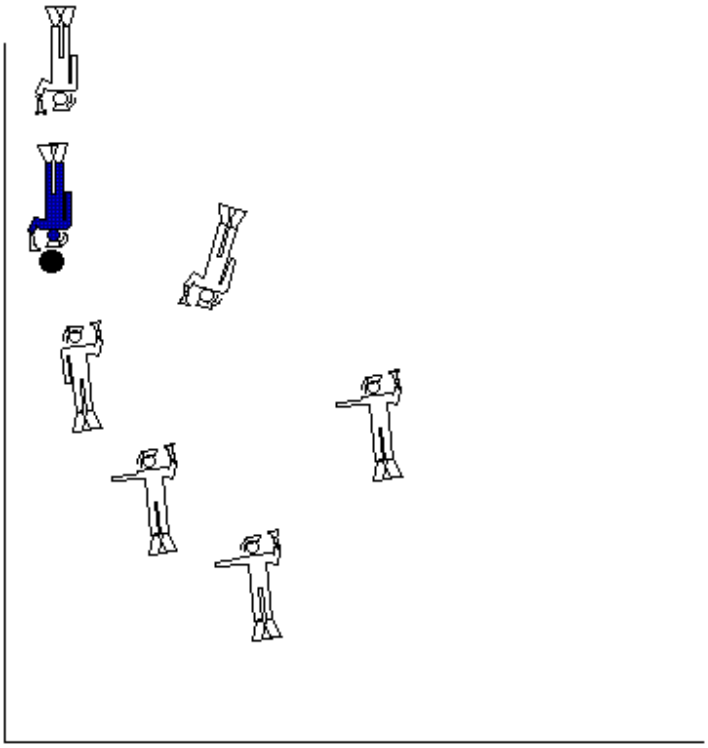
THE STRIKE or CENTRE FIELD FORMATION



ATTACKING UP THE SIDE



DEFENDING ON THE SIDE



Similarly some golden rules apply to playing in any formation:

- Do your own job properly.
- If you make a mistake - fix it up.
- Don't get caught with the puck.
- Stay down to make sure your passes get through.
- Keep your eyes on the puck when not in possession.

There are two common formations worth considering for beginners. These are 2-2-2 and 2-1-2-1.

9.1 THE 2-2-2 FORMATION

This formation consists of pairs of players - two forwards, two midfields and two defenders.

The FORWARDS work as a pair. Generally they will be positioned at the front or sides of the formation. If play is at a side then the forward on that side will be just in front of the puck while the other forward will be level with the puck within a passing distance - normally about 3 metres.

The BACKS work as a pair one in front and one always supporting diagonally behind the other. When the front player comes up the back one will be down moving forwards to take his/her place.

The MIDFIELDS act as the link between the forwards and between the backs and the forwards. They may receive passes from anyone and pass to anyone (though normally to the forwards or the other midfield).

9.1.1 Advantages

This pairing can be useful for beginners. They can be partnered up and told to always look for their partner and go down together. Since most beginners have difficulty getting down and anticipating puck movement operating in pairs can help. In addition most beginners cannot pass and so have to swim the puck to one another. 2-2-2 can be a very compact formation with strength in vertical lines - strong therefore in a swimming type game.

9.1.2 Disadvantages

The 2-2-2 formation is designed to be flexible. When played properly midfields sometimes act as defenders or attackers (forwards or backs). As soon as players acquire some skill this flexibility can make the formation confusing to play. 2-2-2 is also more difficult to play in a passing game. As players' passing improves the formation begins to limit the options that the passing should create.

9.2 THE 2-1-2-1 FORMATION

2-1-2-1 is by far the most common formation presently used in New Zealand. One of the main reasons is its rigidity. In this formation players are given clearly defined roles for each position.

There are two forwards who would more accurately be called WINGS. They are linked with each other but their primary linking is really the BACK on their side. On defence the winds expect passes from their back. On attack the backs support their wings.

There is a specialist MIDFIELD who acts as the link between the wings and between the backs and the wings. The role of this player may vary from being a controlling one or a spoiling one depending on the team and the player's abilities.

There are two BACKS who link with the wings as described above. The backs are crucial to the success of the team in this formation as they are the main source of puck for the attack.

Finally there is a GOALIE who is not the last line of defence but acts as the link and backup for the backs, and controls the area behind the midfield.

9.2.1 Advantages

The defined roles mean that an individual player may concentrate more on his or her performance. Passing is made easier because each player knows where to be positioned relative to the others.

The formation is more suited to a larger pool and a passing game because it is more spread out across the pool than the 2-2-2 formation. The game may become open or closed depending on the ability of the team and its players.

9.2.2 Disadvantages

The rigidity of the formation may be regarded as a disadvantage.

The formation is sometimes seen as weak in the midfield - it does require a strong midfield player and a set of capable, confident backs.

To play well the team needs a higher level of ability than 2-2-2.

9.3 SELECTION FOR POSITION

Generally players will choose a position for themselves, and usually this will be the correct choice. However it is still worth discussing the types of players who end up in each position.

9.3.1 Wings/Forwards

Traditionally the fast players become forwards. Also traditionally the newer, less experienced players become forwards. Generally forwards should be fast, have a high work rate, and the best have a hunger to score goals. The reason new players become forwards is probably because forwards are always being fed the puck by the backs who have to get the puck. Hence experience and skill is necessary for backs while playing as a forward can be a way to gain experience and skill.

9.3.2 Backs

Backs are the cornerstone of the team. Since normally it is the backs who get the puck and feed it to the rest of the team, their quality is important to the whole team. Good backs are experienced, fast, confident and skilled - especially in turns (tackling) and passing. Stubborn and determined not to let goals in. A good set of backs requires confidence in each other which requires a good understanding. This comes from playing games and talking about situations and options.

9.3.3 Midfield

Good midfields are tireless workers - they should always be able to be on the bottom when needed. They need to be fast enough to support/link with their wings, and have a good pass to be able to set up wings or backs. They need a good understanding of the game and good peripheral vision to be able to see gaps or unmarked players and set them up. This implies a high degree of stick skill as their eyes should be looking for options - not at the puck.

9.3.4 Goalie

The goalie can be regarded as one of the backs or perhaps like a midfield. The goalie is really a pivot or link player. It depends on the team formation how this position would be played. In 2-1-2-1 the goalie is important as the link behind the midfield. He or she therefore needs confidence, timing and speed in order to control and dominate play there. Confidence is important as the player cannot afford to be defensive or hesitant - otherwise too much pressure is brought on the team.

S Stoke

10. EXERCISES AND DRILLS

There are countless ways to teach, train, practise fitness and skills. A few are presented here as a starting point.

10.1 FITNESS TRAINING

This has already been examined in 5. TRAINING SESSIONS, however some more examples of relay training exercises are:

(1) Pursuits

PAIRS. The pair start on opposite sides of the pool. At the start the far player goes under water and waits as the near player sprints across the surface to him/her. There the sprinter turns, goes underwater and the pair swim a length underwater. They then take a breath and swim another half length underwater. They then finish on the surface splitting up so that they end up on the opposite side of the pool from where they started, at which time the next pair start.

(2) Back/Forward

PAIRS. The pair start at the same time. One with the puck will swim the whole length underwater - passing forwards to the other player. The other player will come down in front of the first player, receive the puck, swim a lane, then leave the puck, hit the surface and then repeat. After one length the exercise is repeated but with the roles swapped - the player who did the length underwater now becomes the receiver going up and down ahead of the other.

(3) Flicking

With Puck Flicking every second lane - to 6th lane and back. TOUCH WALL UNDERWATER.

(4) Breath-hold

Lengths underwater with flutterboard held vertically.

(5) Lanes

Each relay team swims the puck one lane at a time out - returning

underwater. When the puck gets to the end bring it back one lane at a time

- going out underwater.

(6) Bumps

Lengths swimming two lanes, flick puck, surface and then come down and repeat.

(7) Three Passing

Lengths in groups of three passing the puck between the three. Swap the middle player every length. Emphasize team work - don't pass if no-one is down - wait for them to get down.

As a variation have the outer pair try to pass to each other - missing out the centre player who trys to intercept the passes.

10.2 SKILLS

(1) Tackling

Form a circle of at least 6 players. One starts with the puck and swims around the circle to the next player who tackles with a turn and swims to the next. Repeat this several times around the circle.

The object is simply to practise tackling.

(2) Circle Passing

Form a circle of at least 4 players. Pass around the circle with the puck going behind (on the outside of the circle) each player. Players have to receive the puck by turning away from the centre. Change direction after a few times around.

The object is to practise gaining possession in a turn and passing out of a turn.

(3) Circle Passing

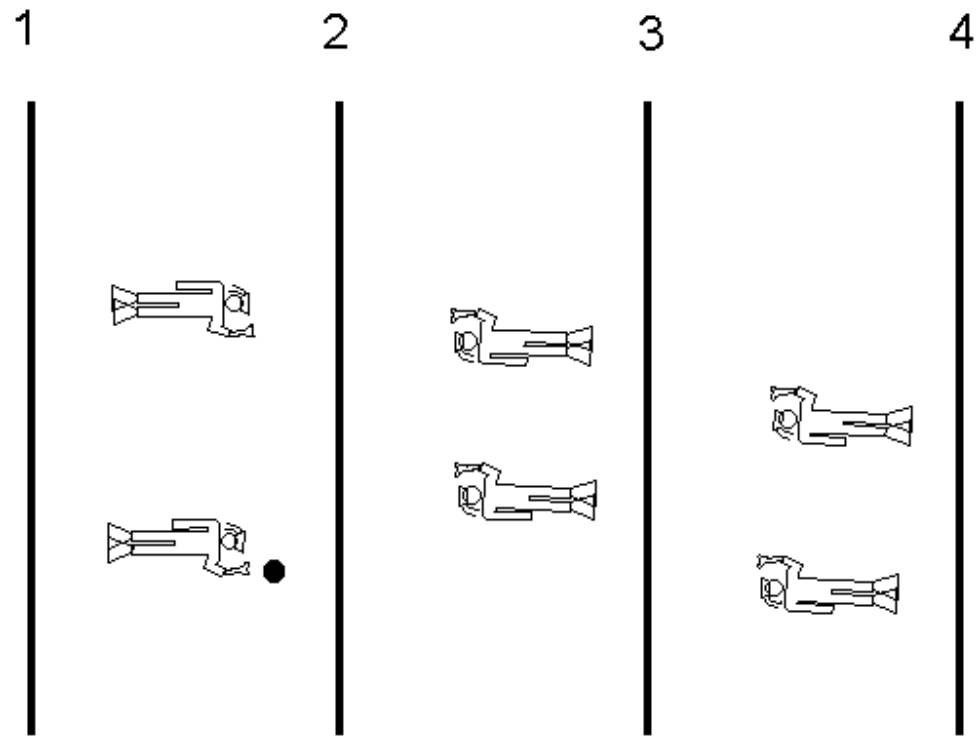
Form a circle of at least 4 players. Pass around the circle with the puck going in front of each player. Players have to move the puck on as quickly as they can. Change direction after a few times around.

The object is to practise quick control and passing of the puck.

(4) Piggy In The Middle

6 players. Split into three groups of 2 players. Using the lane markings on the pool bottom form three regions:

PIGGY IN THE MIDDLE



The outer two pairs try to pass the puck to each other through the centre region; the centre pair try to intercept the puck. Players may only reach as far as their elbow out of their region.

When the centre pair get possession they try to flick past either of the outer pairs regions (marked by lines "1" or "4" in the diagram).

Any one pair may make ONE pass only between themselves, and waiting with the puck to outlast an opposition should not be allowed. The object is to practise quick passing and team work.

(5) Possession 10 Minutes

There should be at least 3 per side. The team that puts together N+2 passes consecutively where N is the number of players in that team can punish the other. (50m, Divewell etc.)

The object is to practice accurate passing, controlled reception and team work.

11. NUTRITION

Nutrition is just as important in your sport preparation as fitness training is.

The following are excerpts from an article by Jeni Pearce

Food for Sport

The Road to Recovery

Jeni Pearce

"Nutritional needs after competition or heavy training are generally not considered by coaches or athletes. During exercise you use the energy stored in your muscles as fuel. This energy is supplied from the carbohydrates you eat as food. High carbohydrate foods including bread, cereal, rice, pasta, potatoes, muffins and crackers and fruits such as bananas, apricots, peaches, pineapples and raisins ensure speedy recovery. After excessive exercise refuelling the body's energy supplies is crucial. Almost total glycogen depletion of working muscles can occur within 1 to 2 hours of severe exercise.

Food provided for the after game/match functions has a tendency to hinder sports people's efforts to replace fuel stores. Dishes tend to be high in protein, high in fat (including takeaways eaten in the bus on the way home) and low in carbohydrate. Suitable fluids are often replaced with alcoholic, high protein or high fat beverages. It is important to rehydrate with water or fruit juices after training.

Alcohol is a poor source of carbohydrates and hinders rehydration. Sports people should avoid drinking alcohol on an empty stomach after training, game or workout then driving home. Quench the thirst with three glasses of water, one glass of fruit juice and eat foods containing carbohydrates before alcohol.

Many athletes consume around 300 to 350g of carbohydrate per day. This is not enough to replace the muscle glycogen used daily during training. Eating 500 to 600 g appears adequate. (There is evidence to suggest that consuming amounts above this level does not give any additional benefit.) Aim to replace about 17 to 20 kilojoules/kg body weight in the first two hours. This is around 1050 to 1800 kj (or 250 to 400 calories) for most people.

Following the guidelines below will aid recovery and provide fuel for muscles to continue activity. Recovery is an integral part of training.

1. Eat carbohydrate rich foods 15 to 30 minutes after exercise. Drink fruit juice, eat fresh fruit (banana, orange, apple, peaches, pineapple), crackers, sandwiches,(Iow fat filling) and yoghurt. Foods with a high fibre should be eaten after the first hour of recovery. Fluids with 7 to 10% glucose or polycose are suitable after events.
2. About 1260 kj (300 calories) which supplies around lOOg of carbohydrate, should be eaten immediately after exercise. This can be gained from a variety of sources: A 2OOg bottle of fruit flavoured yoghurt (30g of carbohydrate), 2 slices of wholegrain bread (30), a large banana (30g) 2 glasses of fruit juice (70g), 50g dried fruit (35g). Repeat in the second hour.
3. Additional servings of carbohydrates should be eaten in the first two hours after training or competition. Foods such as muffins, fruit juice, soup and crackers, spaghetti and toast. rolls, fruit yoghurt, sandwiches, and fresh or dried fruit. Repeat these foods again in a meal three to four hours later and include some protein. Remember to eat according to your needs. This is not an excuse to overeat.
4. After a hard training session (2 or more hours) or an event such as a marathon, Ironman or Coast to Coast maintain a high intake of carbohydrate rich foods for the next few days (at least two days). Foods to be included are: rice, pasta, baked potatoes, pizza with low fat toppings, kumera, pumpkin, fruits and beverages.
5. Rest. Especially after a long endurance event such as a marathon etc.
6. Eat plenty of fresh fruit (such as bananas, apricots), dried fruit, vegetables, and drink a variety of juices. This helps to maintain potassium intakes.
7. If eating solid food is uncomfortable, liquid carbohydrate sources such as Exceed High Carbohydrate Sources, Polycose, Ensure, or sports drinks containing polycose may be useful if well tolerated.

8. Drink plenty of fluids after the event or training. It is difficult to gauge how well hydrated you are by how thirsty you feel. Keep sipping and drink more than you think you will need. Water is fine. However drinking something with a little sugar such as fruit juice, soft drinks (not diet varieties as these have no sugar) and sports drinks are more helpful. A beverage with some sugar or glucose helps return blood sugar levels to normal and replace some glycogen. No alcohol (a diuretic promoting water loss in the urine) until other fluids have been replaced. If drinking alcohol consume at least double the amount of other fluids.
9. If sweat losses are high, sprinkle a little extra salt on food at meal times. It is not necessary to use salt tablets.
10. Drink more fluid than quenches thirst. Keep drinking fluids, especially water, until a light coloured urine is produced. This can take several days if dehydration is severe.
11. Fruit juices are preferable to commercial sports drinks, more economical and widely available. They help replace some of the energy burned during training or competition and reduce the risk of mixing formula beverages and fluids at an inappropriate concentration.

The main meal eaten after exercise will replace the minerals and vitamins used during activity. Supplements are not necessary in the recovery phrase.

1. Recovery is an integral part of training. It is the first step in the
2. preparation for the next workout game or race.

Carbo-Booster recovery Drink.

- 1 cup trim milk
- 2 tbsdns skim milk powder
- 1 large banana
- ½ tsp vanilla essence

Analysis: 1104 kj (263 calories), Carbohydrate 70%, Protein 27% fat 3,7%. One small scoop of ice cream can be added. However this will increase both the fat and energy content of the drink.

Carbohydrate contents in grams:

Fruit yoghurt	1 pottle 150g	25
Flavoured Milk	1 cup/250 mls	22
Ice cream	1 scoop/120g	25
Raisins	4 tblspns	29
Banana	1 large 125 g	30
Fruit Salad	1 cup	32
Bread	2 med slices	30
Rice	1 cup	32
Orange	1 large	15
Orange Juice	1 cup/250 mls	24
Potato	1 large	22

Pre Tournament Build Up

You should be eating a good well balanced diet in your build up. Carbohydrates

- which produce glucogen giving you energy - should make up half your evening meal with one quarter protein (chicken or meat) and one quarter salad and green leafy vegetables.

When training you should have some sort of carbohydrate food 2 hours prior to a training session e.g banana, fruit, crackers, yoghurt. Then approximately 15-20 minutes after training more carbohydrate to replace the energy burned up e.g fruit juice and fresh fruit. During a training session you should be drinking plenty of fluids - especially water.

Too much fat in your diet means it takes longer for water to absorb and carbohydrates to enter the blood stream.

Three days before the tournament

CARBOHYDRATE LOADING

Carbohydrate loading is not overeating. The proportion of Carbohydrate in the daily intake changes. This involves reducing the fat and protein content: include more foods from the bread and cereal and fruit and vegetable food groups. It may be necessary to increase the amount of sugar, honey or foods containing sugar to elevate the carbohydrate content to avoid an excessive increase the bulk of food eaten. The meals should consist of a variety of foods that are pleasant to eat.

EXAMPLE:

Breakfast	
1	glass fruit juice (not tomato)
1	cup cereal
1	large banana
1	cup low fat milk
2	toast or an english muffin
1	tsp butter or margarine
Lunch	
2	chicken vogal sandwiches
2	glass fruit juice
2	pieces fruit
1	muffin
Dinner	
2	cups spaghetti or rice
1	cup savoury tomato topping grated cheese
2	T Parmesan or 4 T low fat cheese
3	slices bread or 4 French bread
1-2	cups fresh fruit salad or rice pudding
1/2	cup yoghurt or ice cream
Snacks	
2	fruit
1/2	cup raisins
3	biscuits
1	glass fruit juice

For peak sports performance it is necessary to fuel up with the right fuel. There is no one magic food which will allow an athlete to train harder, longer, get stronger or improve performance. However, a high carbohydrate intake will supply the muscles with the energy they need. Choose wholesome nutrient-dense foods during training and before events.

Potato, Kumera, Yams: Boiled, baked and mashed potatoes are high in CHO, low in fat, providing some protein and vitamins. Limit added fats such as butter, oil and frying or roasting. Use lite sour cream, low fat milks, or yoghurt to replace sour cream.

Bread, Rolls, Muffins, Fruit Loaf, Scones, Tortillas: Choose those varieties made with wholegrain flour, or oatmeal to provide more fibre. Keep butter intakes and high sugar toppings to a minimum. Try to add fillings low in fat (lean meats and low fat cheese) and high in CHO (banana, dried fruit).

Cereals (Hot): Porridge and other similar cereals with added dried fruit (banana, dates, apricots, raisins), syrups (golden, maple), or even brown sugar increase the CHO intake. Cereals with oat bran help to lower blood cholesterol levels. Pancakes, trench toast and waffles are increasing in popularity. Cover with fruit sauces, apples sauce rather than butter or cream.

Cereals (Cold): Denser cereals such as muesli, bran flakes, weetbix, provide more CHO than light airy cereals (rice bubbles, puffed wheat). Choose higher fibre varieties and . add fresh, stewed or dried fruit. Add a glass of orange juice (increases iron absorption) or fresh fruit such as grapefruit.

Millet and bulgar can be made into high CHO salads and added to meals.

Dried Beans, Peas and Lentils: chilli with beans, chick pea salad, baked beans, pea soup, Lima beans etc are excellent sources of CHO which are low in fat and also high in fibre. They must be well cooked and take care not to overeat as they may cause discomfort for some people.

Low Fat snacks: These include popcorn, crackers and corn chips. Keep the butter and salt away from the popcorn and add low fat toppings to crackers.

Rice: Chinese fried rice is high in oil, choose steamed or boiled rice where possible. Brown rice contains more nutrients than white.

Pasta: Choose a tomato based sauce rather than cheese, oil, cream or butter sauce. Athletes need an increase in CHO not fat. Meat sauces must be lean to prevent fat loading instead of carbo loading.

Fruit: Bananas, pineapple, dried fruits contain more CHO than watery fruits such as oranges, peaches, grapefruit and melons. Be careful not to overload. It could result in diarrhoea.

Juice: More CHO is found in apple, pineapple, cranberry, grape, apricot juices than orange, grapefruit or tomato juice. To increase the energy lever of these juices dilute with less water. Blending fresh fruit with fruit juice (Fruit Smoothie) are high CHO drinks.

Puddings and Desserts: Many desserts (ice cream, cheesecake) are high in fat. More fat is added with cream toppings, butter and pastry. Choose apple crumbles, fruit crisps, brown rice pudding (with added fresh or dried fruit), slices of loaf or biscuits made with wholemeal flours. Sherberts, yoghurt, fruit ices, sorbet are all low fat alternatives to ice cream.

Low Nutrient Dense Carbohydrate foods: This includes: Soft drinks, fizzy drinks, cordials, all forms of sugar, (white, honey, brown, raw, icing, glucose) jelly, lollies, marshmallow, jelly beans, etc. These foods supply CHO to fuel muscles but do not provide any other useful nutrients. Used in moderation offer variety but should be in addition to the nutrient-dense CHO foods.

Night Before

Be very careful of food choices provided at pasta parties. Often food is served with rich creamy cheesy sauces or swimming in oil. Choose baked potatoes instead of roast or fried chips, light spaghetti sauces, but take care with macaroni cheese and pizza which are often covered with cheese. Choose lean meats, such as chicken (no skin), or fish (no batter) and vegetables. Potatoes, pumpkin, kumera, peas, broad beans, and parsnips are fine. Drink plenty of fluids.

For nervous stomachs the night before a tournament, use a carbohydrate supplement drink.

2-3 slices low fat pizza with salad (oil and vinegar dressing). Or 2 cups spaghetti with tomato topping and 3 slices bread or 1 cup chicken with three baked potatoes, peas and kumera or 2 cup rice with ½ cup grilled diced meat or lean mince. Add: salad and other vegetables (especially green leaf vegetables)

Add: fruit, fruit salad, biscuit, yoghurt as required and drink sufficient fluids.

During a Tournament

Have breakfast

Rice bubbles (low in fibre) and peaches (in natural juice)

Low fat milk

Fruit juice (casked juice - not sachet) dilute fruit juice with water

Toast with a light spread

High Carbohydrate drink (Exceed)

Now comes the complicated part. During the tournament you need to replenish the energy being used up - to do this you need to eat carbohydrates and replace the fluids - but you can't play underwater hockey on a full stomach. Carbohydrates take 2 hours to digest - sometimes 3 if you digest your food slowly.

You should drink plenty of water and fluid replacement drinks containing a little energy e.g diluted fruit juice. Exceed Carbohydrate drinks should only be used in the morning and at night - not during the tournament.

Work out a timetable based on your draw. e.g if you have five games in a day at 10.00, 11.30, 2.00. 4.00, 4.50.

You will have breakfast at 7.00 - 8.00

Play at 10.00

Straight after your game have a piece of fruit or yoghurt and fruit juice.

Play 11.30

Then have a filled roll - muffin (no bran) or something a bit substantial as you have a reasonable break before your next game.

Remember to be drinking plenty of fluids.

Play 2.00

Afterr the game eat sandwich/crackers/fruit/or sweet biscuit.

Play 4.00

Just something very light - piece of fruit.

Play 4.50

It is important to replenish your energy level even though you may have finished playing for the day - if you've got more games the next day you need to build up your glucogen supply.

You need to have small amounts of carbohydrate food where you are having less than 2 hours before games. Where you have two hours or more you can eat more carbohydrate food.

Bear in mind some of the following points:

- Use ripe fruit - digests quicker
- Muffins - fruit muffins low in fibre
- Sweet biscuits - use fulofruit slice
- Filled Rolls/Sandwiches - low fat fillings (fat and protein take longer to digest and inhibit your fluid and glucose absorption) white bread - lean chicken or ham - no butter - light on salad - it is the bread you are getting the benefit from - white bread - not too much cheese.
- Make up a lunch box for the competition so you have it all readily available.

The Aftermath

It is just as important to eat after the tournament as it is to eat prior and during a tournament.

12. PERFORMANCE CHECKLIST

This is intended as a guide to evaluating the performance of players. When seriously coaching a team or individual it is worth analysing their strengths and weaknesses. Any coach should extend or modify this list - it is intended mostly as a starting point.

12.1 Fitness

Scale in brackets is for Females.

EXERCISE	BEGINNER TEAM	SCHOOL 'A' TEAM	ADULT 'A' TEAM	NATIONAL
Distance Underwater	20m	40m	50m	75m
Speed (25m Underwater)(Extrapolated)	20s	15s (17s)	13s (15s)	11s (13s)
Recovery (25m Lengths every 30 seconds)	-	5	10	> 20

Skill

EXERCISE	BEGINNER TEAM	SCHOOL 'A' TEAM	ADULT 'A' TEAM	NATIONAL
Passing (over 3m out of 10 attempts)	0	5	10	10
Passing (over a goal out of 10 attempts)	0	2	5	10
Inside Flick (over 3m out of 10 attempts)	0	2	5	10
Tic Tacs (stationary underwater per 15s)	0	30	40	> 50
Basic Skills	NO	YES	YES	YES
Basic Skills (not looking at Puck)	NO	NO	1/2	YES
Right Hand Pull	NO	YES	YES	YES
Side Step	NO	YES	YES	YES
Dummy	NO	YES	YES	YES
Fade	NO	NO	YES	YES
Intercept lifted passes	NO	NO	SOME	YES

13. THE PLAYER'S VIEWPOINT

13.1 BEGINNER

13.1.1 Organisation

I expected the coach to be organised to teach me how to play. For example there should be planned practices with aims, team talks etc.

13.1.2 Control

The coach had to be able to control a bunch of school girls. (One coach couldn't and got endless flack from us like hiding pucks etc.)

13.1.3 Recognition and Involvement

The most motivating factor for Virginia and I was playing in schools' Nationals that first year. We soon went on to play club level and then the New Zealand Under 18 team. Other players just as good and dedicated who did not play representative level soon dropped out.

13.2 2ND YEAR PLAYER

13.2.1 Fairness

The coaches had to be fair. The good junior players spent all year pressuring the coaches to kick the good senior players out of the school's Nationals' team because they never came to practice. If the coaches had not responded we wouldn't have had much respect for them.

13.2.2 Organisation and Control

This was still as important as in the first year.

13.2.3 Motivation

Coaches started telling me what I should aim for. They gave me goals which really helped my motivation.

13.2.4 Jill Ford Factor

Jill was so prestigious, important and scary that the reason I managed to complete the School Regional trials was because I knew she was watching. To have that much influence over players would make you in my opinion a really good coach. That's why I think the "friend" coach does not work - you really have to be on a higher level to command.

13.2.5 Consistency

I also appreciated that my coaches always turned up to games, got in the water, came to school for blackboard sessions on positional play and turned up to all those 8am Sunday morning practices etc. This showed that they were really interested which motivated me at least if not the rest of my team. I also appreciated them making practices really hard and exhausting though maybe I'm a sucker for punishment (I went to every 8am practice) and this may have not motivated other people.

13.2.6 Support

I never needed a coach saying positive things at me the whole time because I was sufficiently motivated as it was. Other players I know need constant reassurance. A coach needs to realise the differences in their players.

Megan

14. THE PLAYER'S VIEWPOINT

14.1 Organisation

- The coach must be on time to practice and games.
- Practice should be organised with a target for each session.
- The coach should have skills to be worked on and maybe drills for them.

14.2 Communication

- The coach must be able to teach - Eg explaining a new skill and then showing them how.
- The coach must be able to motivate players - especially the younger ones. Often in this sport the young teams end up playing experienced teams and being beaten. The young teams need to realise that winning isn't everything so they do not become demoralised.
- The coach should be able to pump up the team before a big game. (Not that important.)
- Players need to feel good about themselves - the coach should set achievable goals.

14.3 Personality

- The coach should be his or her self.
- Patient.
- Must have the respect of the team.
- The coach should be a friend yet someone of higher authority - someone you don't get cheeky to.
- The coach must be committed.

14.4 Discipline

- The coach must be disciplined and bring it into his team's game.
- If players in the team are not disciplined, then some sort of
    - punishment should be given - being careful not to isolate or demoralise players.

14.5 Skills/tactics

- The main aim of a school hockey coach should be to install the basics of the game - getting players to understand the basics first.
- I believe the coach should make sure individuals should be able to:
- to turn both ways
- pass the puck
- receive the puck

Before moving on.

- Team oriented moves such as drawing the man and passing are very important.
- When teaching skills the coach should explain when to use them.
- Tactics should emphasise team play rather than individual play.
- The coach should decide on an easy formation that people understand.
- The coach should emphasise positioning in the formation.
- It is very important that the coach understand the skills, tactics and formation.

14.6 Analysis

Another important skill for a coach to have is to be able to analyse an individual to see what is going wrong. For example if a person is flicking the puck and it keeps going to the right, the coach should be able to work out why.

Jeremy

15. THE PLAYER'S VIEWPOINT

15.1 A Good Coach

- Yells but not too much.
- Has control over the team, Eg at practices.
- Has preparation talks and goes over the game.
- Isn't boring - varies practices.
- Sets things up (to an extent) Eg practices, comps.
- Does theory with the team.
- Turns up on time.
- Tells the team both good and bad points.

15.2 A Bad Coach

- Is late
- Unorganised
- Ill-equipped
- Has no control
- Has no structure (Eg at practices as well as in games).
- Doesn't talk much.
- Yells too much.

Matthew

16. HOW TO GET INTO A REPRESENTATIVE TEAM

No matter who the coach or selector is there are some criteria which will always apply. If you really want to get into a top team then start working on the following:

16.1 Fitness

Fitness is a word often thrown around in sporting environments. A thesaurus has these synonyms for fitness:

condition, fitness, repair, shape, trim, applicability, appropriateness, aptness, opportunism, pertinence, relevance, rightness, suitability, use, usefulness, utility.

Fitness is not just having stamina or endurance. It is whatever is necessary to perform highly in a situation or in this case - in an underwater hockey game. As the synonyms hint, fitness can be thought of everything that is relevant to the sport. Leaving skills for the moment this means:

- Quick recovery time
- Mental toughness and control.
- Endurance, stamina
- Speed - swimming both above and below the surface.
- Speed of reflexes.
- Strength and power - in both upper and lower body.
- Breath-hold.

If serious about competing then you should consider starting preparation now.

- Gym work for strength and power. To obtain any significant benefit this should be started at least three months before the scheduled event. That means joining a gym and attending three times a week for at least three months before the selections or competition.
- If for some reason a gym is not possible, worthwhile work can be done with body-weight exercises and a set of hand-grippies.
- Aerobic Training - two to three times a week. This could be in a pool with or without fins. Other aerobic activity is beneficial although at least half should be in the pool.
- Within two to three weeks of the selections increase underwater pool time, and start speed and acceleration training to tune for the selections.

16.2 Skills

The game is definitely becoming more skillful than in the past. The most important single skill is a good pass. Work on your passing distance, height, speed and variety will help your chances.

These days people are looking for fast passes of all types - forwards, sideways, backwards, with both sides of the stick.

Basic Stick Skills should be maintained. Players need to be confident and strong with the puck without looking at it.

16.3 Game Play

The final test comes in games - pressure games. Therefore the more hard games you play the better your chances. But play the right sort of game. This is an open, passing game which emphasises control of the puck. If you are making the puck do the work you are probably playing the right style. In each game put pressure on yourself and force yourself to perform at your best. You can put pressure on yourself by setting a task to be achieved in each game - such as scoring a goal or dummying past people etc. This pressure practice will help in selection trials and in the main games themselves.