Touch New Zealand
Whakapa Paoro O Aotearoa

Fitness for Touch

AN OVERVIEW OF TOUCH NEW ZEALAND

Welcome to Touch New Zealand. Touch New Zealand is a non-profit incorporated society responsible for the promotion, administration and development of the sport of Touch. Founded in 1986, Touch New Zealand has 75,000 members in 20 provinces. Its aim is to ensure the long-term sustainability of the sport. This aim is achieved through:

- A comprehensive referee development programme from elementary to international level, supported by tutor and referee coach training.
- A comprehensive coach education programme from Junior to international level that compliments the Coaching New Zealand courses. This programme is also being supported by tutor training and development.
- Opportunities for competition above module level including a wide variety of regional and national inter-provincial tournaments and internationals including World Cups, Trans Tasman and South Pacific International Series.
- A comprehensive secondary schools competition structure launched in 1998/99, along with the Junior Touch development programme which includes Kiwi Touch as an official KiwiSport.
- Resource provision to modules including free scorecards and pocket-sized player rulecards.
- Management support and advice to provincial executives to assist in high quality module servicing, promotion, administration and delivery of Touch New Zealand technical and Junior development programmes and competitions.
- A marketing programme that includes media and TV promotion for the sport.

CONTENTS

INTRODUCTION

The word 'fitness' is a controversial one which has a number of different interpretations in all walks of life.

The same can be said of "Fitness for Touch'. Players, coaches, referees and administrators all have different ideas of how to achieve fitness for the sport. The germination of all these different ideas is not necessarily bad and in fact can be quite beneficial to the growth in the body of knowledge for our particular sport. However, there are still many fallacies and myths about 'Fitness for Touch' which can be boith detrimental and even dangerours to the participants concerned.

The aim of this booklet is to provide information on 'Fitness for Touch' which can be beneficial to both players, coaches and referees. It is based on the 'KISS' principle. KEEP IT SIMPLE AND SPECIFIC. It provides knowledge on different types of training for Touch, fitness testing and programming and even gives sample programmes.

Thanks are extended to Graeme Murphy for his efforts in this publication.

National Coaching Panel, 1987.

This material has been produced by Dr Paul Webb and Mr Cary Thompson of the Australian Touch Association.

FITNESS FACTS ABOUT TOUCH

FACT ONE

The game of Touch utilises mainly aerobic energy systems (approx. 80%) indispersed with anaerobic alactic (10-12%) and the remainder anaerobic lactic (8%).

FACT TWO

Players rarely sprint more than 20 metres, but sprint 5-15 metres regularly.

FACT THREE

Movement patterns suggest players move backwards, forwards, sideways at various intensities, i.e. semi-walk to sprint during the game.

FACT FOUR

Effort/recovery ratios during the game will depend on:

a. Position of player
b. Style of game
c. Method of substitution

FACT FIVE

Components of fitness important to Touch:

a. Cardio-vascular Endurance
b. Muscular Endurance
c. Power
d. Speed
e. Strength
f. Flexibility
g. Agility

AEROBIC TRAINING

1. CONTINUOUS (JOGGING) TRAINING

a. Jogging three (3) times per week 6-10 km so that Exercise Heart Rate is 80-85% of maximum.

220 — Age (eg. 35)
= 185
80% of 185 = 148 Aim for heart rate to be 145-155 b.p.m.

b. Set yourself a target to either improve your time or increase distance you run in the same time.

Monitor pulse by using a count of six (6) seconds and add 0 to the number. This will give you your pulse rate in beats per minute.

1. FARTLEK TRAINING

Working on jogging 4-6km three times per week.

1. Stretch Warm-up
2. Sprints indespersed in each run.
3. Distance 5m - 20m.
4. Forwards/backwards/sideways.
5. Set target number — how many sprints you are going to do in your run.
6. Use elements of run e.g. sprint between two driveways, backwards recovery between stobie poles, etc.
7. Finish run with 150-200m sprint (Anaerobic lactic system).
8. Monitor heart rate at finish 140-160 b.p.m.
9. Walk — stretch cool down.

3. CIRCUIT TRAINING

Circuits can be done on off game nights at home in a small area — hall, bedroom, etc. Quick and easy way to improve cardio-vascular fitness, power, strength in large muscle groups related to the game of TOUCH.

A circuit is done by doing each exercise for a certain number of repetitions (e.g. 10) one after the other in order. The circuit is completed three (3) times non stop.

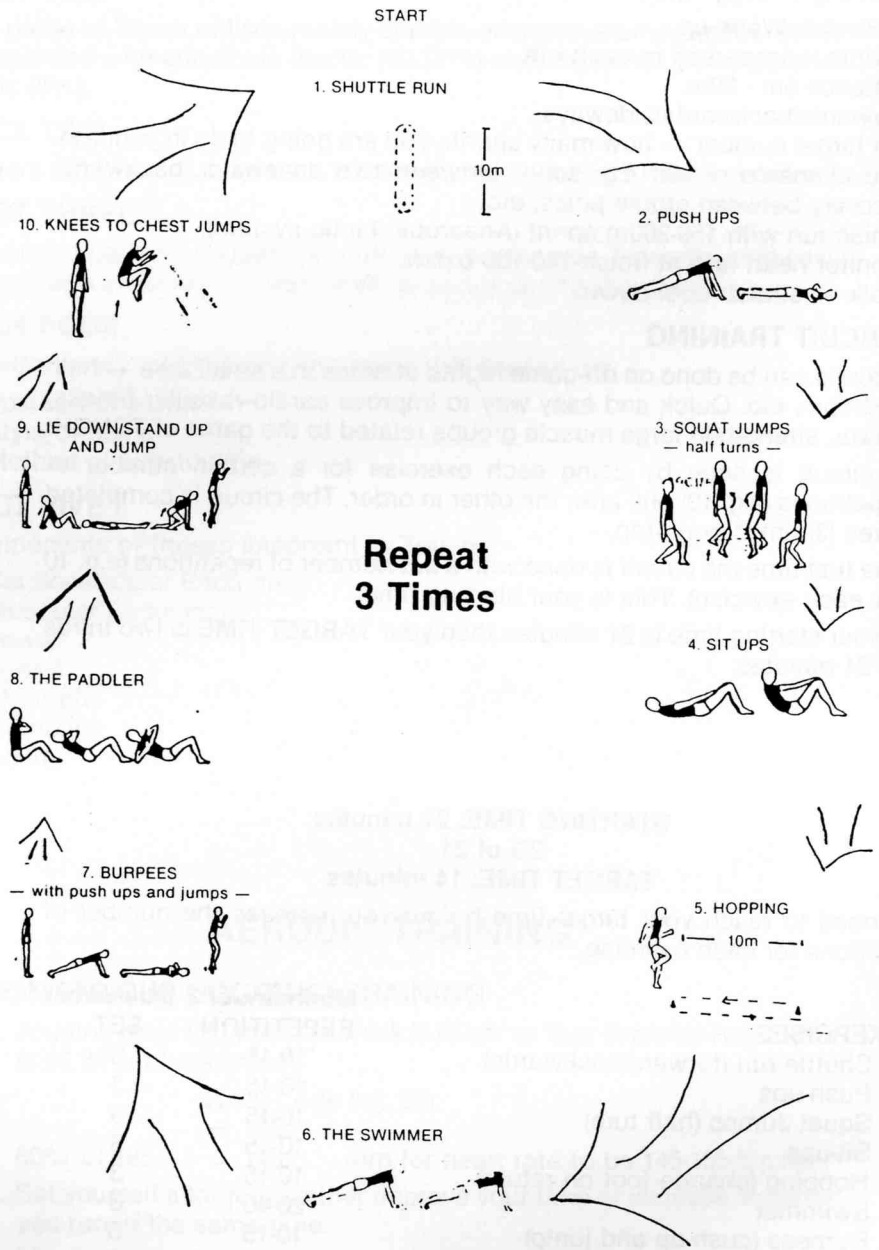
The first time the circuit is done with a set number of repetitions (e.g. 10 for each exercise). This is your starting time.

If your starting time is 21 minutes then your **TARGET TIME** is two thirds of 21 minutes.

STARTING TIME: 21 minutes
2/3 of 21
TARGET TIME: 14 minutes

You need to reach your target time before you increase the number of repetitions for each exercise.

	Minimum of 3 times/week	
EXERCISES	**REPETITION**	**SET**
1. Shuttle run (forward/backwards)	10-15	3
2. Push-ups	10-15	3
3. Squat Jumps (half turn)	10-15	3
4. Sit-ups	10-15	3
5. Hopping (change foot on return)	10-15	3
6. Swimmer	20-40	3
7. Burpees (push-up and jump)	10-15	3
8. Paddler	20-40	3
9. Lie downs, stand up, jump	10--15	3
10. Knees to chest jumps	10-15	3



INTERVAL TRAINING

Interval training is one of the more popular methods of conditioning. Since its inception, many variations of the basic concept have been used by coaches and athletes.

Interval training is based on the knowledge that the body acquires energy through three different processes and that the process used is directly related to the intensity and time spent doing an activity. The first two processes used are anaerobic (energy produced without oxygen), the last is aerobic (requires oxygen). Activities that require lots of power but last less than 10 seconds (eg discus) produce energy through the anaerobic-alactacid system. Activities that are very intense and last less than three minutes (eg 200m sprint) are anaerobic-lactacid because lactic acid is a by-product. Activities of a low intensity or lasting longer than three minutes are aerobic. Of course there is some overlap between the use of each system. For instance, a two-minute run may be 80% anaerobic and 20% aerobic.

The first step in designing an interval training program is to identify the energy system used by your sport. Team sports where you run hard for 5-10 seconds then stop for a bit such as basketball are considered anaerobic even though you may have run a total of 20 minutes by the end of the game. Once you have decided which of the energy systems you use in your sport, use the chart to help you design your workout. It is possible that your sport involves more than one type of energy system. If that is the case, your training program should include both anaerobic workouts plus aerobic.

Interval training involves running (or swimming or cycling) very hard (70-100% max) for short periods of time or for a short distance. This is followed by a bit of a rest that is of a specific duration. The harder the work (eg running all out for 100m) the longer the ratio of work to rest. Anaerobic work might have a work: rest ratio of 1:3, meaning you rest three times as long as you work (run 10 seconds, rest 30 seconds) while aerobic work is 1:1 (rest and work for equal amounts of time (run 3 minutes, rest 3 minutes). A typical training program might look like this.

Set 1: run 200m in 25 seconds, rest 75 seconds. Repeat 6x
Set 2: run 500m in 60 seconds, rest 120 seconds. Repeat 4x.

Interval training is a very intense and therefore exhausting type of training but, used properly, it is also very effective. It is commonly used by athletes to improve their times.

Energy System used	Sets/workout	Reps/set
Anaerobic-alactic	3	8
Anaerobic-lactacid	2	4
Aerobic	1	3

Distance	Time		Work:Rest
	Work	Rest	
50m	10 seconds	30 seconds	1:3
100m	15 seconds	45 seconds	1:3
300m	38 seconds	80 seconds	1:2
500m	60 seconds	120 seconds	1:2
1000m	150 seconds	150 seconds	1:1

* Note the times suggested are guidelines only.
Each athlete should work at 90-100% max.

SAMPLE INTERVAL TRAINING

There are three (3) different types:—

a. Longer slower work
b. Shorter faster work
c Skills interval work

The progression of fitness work leading up to Interval work — Continuous Running — Fartlek — Longer slower interval — Short faster interval — Skills interval work

LONGER SLOWER WORK

5 x 100m	15 seconds	30-40 seconds rest
5 x 150m	22 seconds	45-60 seconds rest
5 x 200m	30 seconds	90 seconds rest

SHORTER FASTER WORK

5 x 5m	Run back Recovery
5 x 10m	Jog back Recovery
5 x 20m	Jog back Recovery
5 x 30m	Walk back Recovery

Touch needs to work mainly on shorter faster interval work, indispersed with slower, longer interval work at a rate of 3:1.

WEIGHT TRAINING

Before speed can be improved strength must be increased. One way this can be done is through weight training. To improve strength the Overload Principle must be used.

Strength is increased more by lifting heavy loads for few repetitions than by lifting light loads for higher repetitions.

a. Strength	Heavy weights	Low repetitions (3-5)
b. Power	Medium weights	Medium repetitions (8-12)
c. Muscular endurance	Light weights	High repetitions (15-30)

Minimum of three sessions per week

Exercises	Muscles	Speed Power/Endurance
Legs		
Leg Curls	Hamstrings	Speed and Power
Leg Extensions	Quadriceps	Speed and Power
Calf Raisers	Calf	Speed and Power
Squats (Half)	Quads and Hams	Speed and Power
Dead Lift	Lower Back, Bum Quads and Hams	Speed and Power
Leg Press	Quads and Hams	Speed and Power
Stomach		
Sit ups Leg Overs Leg Raisers Paddles Sit Down	Abdominals	10-15 Repeat 3 times
Shoulder/Chest		
Upright Rowing	Biceps, Deltoids, Brachialis	Speed and Power
Bentover Rowing	Rhomboids, Lats Trapezious	Speed and Power
Bench Press	Pectorials, Triceps	Speed and Power
Lat Raisers	Deltoids	Speed and Power
Flyes	Deltoids, Pectorials	Speed and Power
Lat Pull Downss	Latisimus Dorsi	Speed and Power
Side Bends	Abdominals Obliques	

POINTS TO REMEMBER

1. Breathe in and out while lifting weights.
2. Overload can be achieved by:
   - increasing weights
   - increasing repetitions
   - increasing sets

   or a combination of the above.

A weight circuit can be set up to improve both anaerobic and aerobic energy systems.

3. If you are strengthening muscles you should do them in pairs — e.g. Quads and Hamstrings; Biceps and Triceps.

FITNESS PROGRAMME NUMBER 1 (SAMPLE SESSION)

1. Jogging — around the general area. Should be for at least 5 minutes to warm the muscles up sufficiently before stretching.
2. Stretch Routine — never to be done without a general warm-up activity preceeding.

There are some important rules to remember when stretching.

a. **Never bounce.**
b. **Always hold the position for at least 10-30 seconds before releasing.**
c. **Never move quickly when stretching. When moving into or out of a stretch move very slowly.**
d. **Only ever go as far as you can as an individual. We cannot hope to increase flexibility to any great extent during one session per week.**

The stretching routine will be explained in more detail for you in the booklet "Stretching for Touch". Basically we will be looking at the major muscles that are used while playing TOUCH. These are — back, arms, groin, hamstrings, calf and quadriceps.

3. Anaerobic energy work — basically this means the energy that is already stored in the muscles ready to be used at short notice. To gain this stored energy you do not need to use oxygen to break it down. This energy supply is very limited and can only usually be used for short periods of time e.g. 0-3 minutes. After this time period the stored energy is all used up and the build up of Lactic Acid in the muscles make the muscles feel 'heavy', 'tired', burning. At this stage you need to rest the muscles. The body through only needs a short time to replenish the stored energy to its previous level. When training, this type of energy system is called **INTERVAL TRAINING.** This means that you work long enough to use all the stored energy up and then rest long enough for it to replenish supplies to somewhere between 70-100%.

ACTIVITY ONE

Up and Backs — cones 5m apart. Sprint up and then run backwards a total of 6 times. Have a 1 minute rest and then do it again another 2 times with the 1 minute rest.

ACTIVITY TWO

SPRINTS

10m Sprint as fast as you can walk back to beginning and repeat 10 times.
15m Same as above but only 5 times.
20m Same as above only 3 times.
30m Same as above only 3 times and a jog back to the beginning — not walking. Allow yourself 1 minute rest in between each set of sprints.

ACTIVITY THREE

SQUARE WORK

Cones arranged in a square 5m apart. Sprint to first cone, sideways shuffle to next cone, backwards and then sideways shuffle again. Go around the square 3 times and then have a 1 minute rest and repeat another 3 times.

To finish the session properly you need to repeat the beginning activities.

4. Jogging — the same one that you did at the start. Should last at least 5 minutes to loosen the muscles after strenuous work.
5. Stretching Routine — repeat the same as at the start. Remember the rules!!!
6. Breathing exercises — to completely relax and feel fresh finish off with deep breathing. Breath in as much air as you can, hold it then let it out slowly. When you think you have breathed out as much as you can, try again until your lungs are completely empty. Repeat this at least 3 times. We only use one third of our lungs during normal everyday living and so we get this layer of yukky stuff that stays at the bottom of our lungs — you need to do this exercise to clean that yukky stuff out every now and then and what better time than after exercise.

ARE YOU SERIOUS ABOUT TOUCH????

Well if you are then this programme should be done at least 2-3 times a week along with whatever other activity you do. You may have noticed that this does not cater for General Endurance — your right. To improve your endurance a good way is to go for a jog — about 20 minutes to start off with. Intersperse your jog with sprints of around 5-10m e.g. spring from one light pole to the next and try and do about 10-15 of these in your 20 minute run.

FITNESS PROGRAMME NUMBER 2 (SAMPLE WEEK)

1. 1km Swim
   Weights — legs — 5-8 repetitions 3-5 sets
   Calf Raisers — Leg Extensions
   Upright Squats — Leg Curls
2. 4-6km Run — Indispersed with 20 sprints
   Arm Weights — 5-8 repetitions 3-5 sets
   Bench Press — Bicep Curls
   Lat Pull Downs — Upright Rowing
3. Swim 1km
   Sprints — 10x10m Repetitions x 10 sets
   5-8 seconds rest between repetitions and
   30-45 seconds recovery between sets

   Interval Work
   5 x 10m — Jog Recovery
   5 x 20m — Jog Recovery
   5 x 30m — Walk Recovery
   5 x 70m — Walk Recovery
4. Swim 1km
   Leg Weights — (Repeat Day One)
5. Repeat Day Two
6. Interval Work — (Repeat Day Three)
   Plyometrics
7. Rest

PLYOMETRIC EXERCISES FOR TOUCH

No its not using sophisticated geometry, but it maybe a useful form of Training for sports that involve explosive movements, i.e. power activites, e.g. Touch.

This method is new only to the Western World, as Russian and East German Track and Field teams used this training method in the 1960's.

However, where strength with speed is required, such as in Touch for acceleration, deacceleration, agility in short sprints, I believe, Plyometrics is another valuable training regime.

A word of caution, this should only be used on Touch players who have a sound foundation of fitness/condition before embarking on this form of Training.

The basic aim of Plyometrics is to enhance explosive strength by conditioning the Neuro-muscular system in the 'yielding phase' i.e. where

the muscle fibres are contracting but the muscle is actually lengthening following a series of Vertical Jumps. This allows for faster and more powerful change of direction.

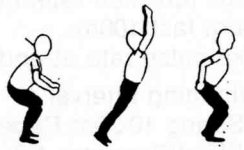
Plyometrics utilise the Overload Principle by focusing on reaction time with the fast change of direction needed to overcome gravity's force in accelerating/deacceleration.

I believe Touch Coaches can help in improving players explosive speed (Power) by adopting the Principles of Plyometrics.

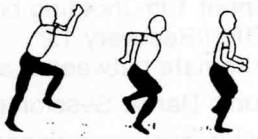
Keep Touching.

EXERCISES

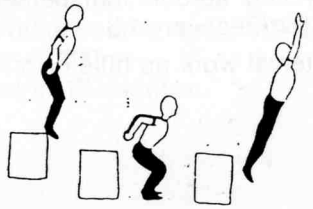
1. Jumps — Reps 10, Set 3 — Rest 30-40 secs



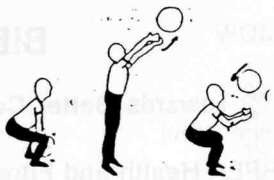
2. Step Hops — Reps 10, Set 3 — Rest 30-40 secs



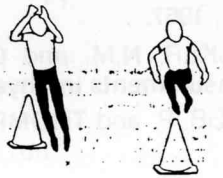
3. Box Jumps — Reps 10, Set 3 — Rest 30-40 secs



4. Step Jumps — Reps 10, Set 3 — Rest 30-40 secs
5. Hurdle Jumps — Reps 10, Set 3 — Rest 30-40 secs
6. Medicine Ball Partner Throws — Reps 10, Set 3 — Rest 30-40 secs



7. Push-ups — Reps 10, Set 3 — Rest 30-40 secs



8. Cone Hops — Reps 10, Set 3 — Rest 30-40 secs

Ref: ***Achper*** *FITNESS READER, July 1986, Vol.4, No.9*

ALTERNATIVE TOUCH FITNESS PROGRAMMES

To help players with their fitness the following alternative programmes may help in overcoming:

a. Overuse Injuries
b. Player Boredom

1. Swimming Continuous
   800-1km three times per week
   Surge (quicken rate) last 15-20m of each 50m lap.
   Sprint last 100m
   Take pulse rate at end (140-160 b.p.m.)
2. Swimming Interval
   a. Spring 10-20m Repeat 10 Sets 8-10
      Effort/Recovery 1:2
   b. Sprint 10m (holding breath) 10 Repetitions 8-10 Sets
      Effort/Recovery 1:2
   c. Alternate between a and b each set
3. Aerobic Dance Session (Low impact movements)
4. Cycling: aerobic indispersed with sprianting for 10-20 seconds
   Effort/Recovery 1:3
5. Interval work up hills or on the beach.

BIBLIOGRAPHY

1. A.C.C. **Towards Better Coaching,** Australian Government. Publishing Service, 1984.
2. ACHPER **Health and Fitness Newsletter,** Vol.4, No.10, Oct, 1986
3. ACHPER **Fitness Reader,** Vol. 3. No.9, Sept, 1985.
4. A.T.A. **Better Touch.**
5. BERGER, R.A. **Introduction to Weight Training,** Prentice Hall, 1984.
6. CLARKE, H.H. **Application of Measurement to Health & P.E.,** Prentice Hall, 1967.
7. TUCKER, N.M. and CAMPBELL, W.R., **An Introduction to Tests & Measurements in Physical Education,** G. Bell & Sons Ltd., London 1967.
8. WEBB, P. and THOMPSON, C., **Stretching for Touch,** A.T.A., 1987.

APPENDIX ONE
TOUCH FITNESS TESTS

1. Aerobic
   Coopers 12 minute Run
2. Speed
   40m Sprint
3. Power (Leg)
   Standing Broad Jump
4. Flexibility (Lower back — hamstrings)
   Sit and Reach Test
5. Agility
   Modified Illinois
6. Height/weight Tables.

1. AEROBIC COOPERS 12 MINUTE RUN

Procedure:

1. Subjects work in pairs, one runs while the other counts laps/distance.
2. Course is a square 4x50m therefore 1 lap = 200m
3. Runners attempt to run as far as they can in 12 minutes.
4. Course should be grass and flat.
5. At completion of run monitor heart rate.
   Post Exercise — 0-6 seconds
   — After 1 minute
   — After 3 minutes

MEN		WOMEN
2970m	EXCELLENT	2400m
2910m	VERY GOOD	2200m
2780m	ABOVE AVERAGE	2000m
2570m	AVERAGE	1920m
2520m	BELOW AVERAGE	1610m
2430m	POOR	1600m
2360m	VERY POOR	1440m

2. SPEED 40m SPRINT

Procedure

1. Static Start
2. Runners running in pairs.
3. Two timers.
4. Runners run twice. Different timer on second run.
5. Take best time for score.
6. Straight grass track.

3. POWER STANDING BROAD JUMP

Subject stands with feet slightly apart and behind take-off line. He/she can take a couple of preliminary arm swings. Take off from both feet to land on both feet. Best of three (3) trials is recorded. The measurements are made at right angles from the far edge of the take off line to the heel or part of body which touches the ground nearest the take off line. A tape stretched along the surface from the take off line helps the measurement of the jump.

MEN	PERCENTILE	WOMEN
279	100	229
262	95	219
256	90	218
251	85	211
249	80	208
246	75	206
244	70	203
241	65	203
239	60	201
236	55	198
234	50	193
231	45	188
229	40	185
226	35	183
223	30	180
221	25	178
218	20	175
213	15	173
208	10	168
203	5	152

4. FLEXIBILITY SIT AND REACH TEST

This test measures hip and back flexion as well as extension of the hamstring muscles of the leg. Line up the fifteen (15) inch mark of a yeardstick with a line on the floor and tape the stick to a box or smaller object approximately 35cm high. The player sits down and lines up their heels with the near edge of the 15 inch mark and buttocks towards the zero end of the yardstick. With knees locked and not more than 12.5 cm apart, stretch forward and touch the fingertips of both hands as many inches down the stick as possible. The best of three trials measured to the nearest cm is the score.

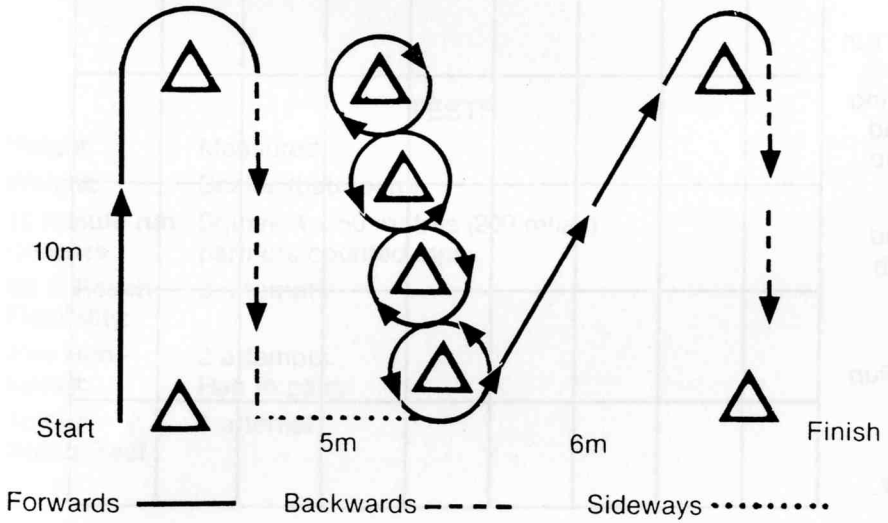
MEN		WOMEN
13.1 +	EXCELLENT	15.0 +
10.1 - 13.0	GOOD	11.0 - 14.9
6.1 - 10.0	AVERAGE	8.5 - 10.9
1.1 - 6.0	FAIR	5.0 - 8.4
less than 1.0	POOR	Less than 4.9

Results taken in centimetres.

5. AGILITY

Procedure

1. Runner lays face down with top of head in line with starting cone.
2. On word 'go' runs around the course in direction shown in diagram below.
3. Two (2) trials given. Best time taken.



N.B. By adding a sideways run from finish to start and do three (3) times you could test agility — endurance.

MEN		WOMEN
15.8 or faster	EXCELLENT	17.4 or faster
16.7 - 15.9	VERY GOOD	18.6 - 17.5
17.3 - 16.8	ABOVE AVERAGE	19.9 - 18.7
18.2 - 17.4	AVERAGE	20.8 - 20.0
18.6 - 18.3	BELOW AVERAGE	22.3 - 20.9
18.8 - 18.7	POOR	23.4 - 22.4
18.8 or slower	VERY POOR	23.5 or slower

Results in seconds.

FITNESS TESTING AND PLAYER PROFILE FOR TOUCH

RESULTS AND EVALUATION

Name _____ Age _____

Test	Date	Score	Rating	Date	Score	Rating	Date	Score	Rating
Weight									
Height									
12min run									
Standing Broad Jump									
Sit and Reach									
40m Run									
Agility									

Assessment _____

TOUCH FITNESS TEST S.A. MENS/WOMENS

Date: Sunday, 30th November, 1986

Time: 9am - 10.30am

Venue: Bonython Park, Adelaide
Grass/flat

Condition: Temperature — mid twenties, fine
Little to no wind
Humidity low 20%

11 women, 17 men

TESTS

Height: Measured

Weight: Scales (bathroom)

12 minute run: Coopers Square 4 x 50 metres (200 m/lap) partners counted laps.

Sit & Reach Flexibility: 3 attempts

40m Run - Speed: 2 attempts.
Ran in pairs

Agility: Illinois Test 1 attempt

RESULTS OF GROUP

Test	Men	Women
Height Average	176.7cm	164.7cm
Range	168cm - 186cm	157cm - 171cm
Weight average	72.9Kg	58.2Kg
Range	60kg - 88kg	53kg - 68kg
12 Min Run average	2786m	2498m
Range	2400m - 3250m	2160m - 2970m
Flexibility average	46.6cm (18½")	52.0cm (20½")
Range	27cm (10½")- 63.5cm (25")	48cm (19")- 58cm (22.9")
Speed average	5.50 seconds	6.10 seconds
Range	5.07-5.80 seconds	5.80-6.40 seconds
Agility Average	14.63 seconds	15.98 seconds
Range	14.04-14.40 seconds	15.42-16.89 seconds
Age average	25.3	23.8
Range	16-33	15-30

1. Timekeepers for 40m - consistent
2. Timekeeper for agility - consistent

APPENDIX TWO
INDIVIDUAL TOUCH FITNESS FORM PROGRAMME

NAME: _____

	OFF SEASON		**IN SEASON**	
Training Type	Form/Intensity	Frequency	Form/Intensity	Frequency
Aerobic				
Anaerobic				
Muscle				
Endurance				
Strength/Power				
Flexibility				
Speed				