Field Testing of Fitness
WNT Program
Purposes of Fitness Testing

- Determine level of fitness of players
  - tells you what your players have been doing on their own
    - with limited training settings, players must train independently and you need to know the fitness level of your players

- Confirm adaptations to training

- Give objective numbers to gut feelings
  - confirm who your runners are
Running Patterns in Soccer

- Walking, jogging, cruising, sprinting, backing
- 2/3 (men), 3/4 (women) of game is at a walk/jog
- Important feature of fitness is how fast one recovers from activity
- 1 change of speed/direction every 4-5 seconds
Classes of Tests

• Tests of athleticism
  – test the overall athletic ability of the player
  – advantages: fun, pretty good indicators of the level of athlete
  – disadvantages: not very sensitive to training

• Tests of fitness
  – tests the various aspect of physical fitness
  – advantages: very sensitive to training
  – disadvantages: an exhaustive effort for valid results
When To Test?

- No absolutes here
- Pre-season
  - determines who has done their training homework
  - gives you information on what deficiencies you have to address
- 1/3 of the way through season
  - fitness pretty well set by now-not much change from here on
- Post season
  - this serves as the standard to beat for next preseason
Other options

- Preseason or after “cuts”
- Early off season (their low point)
- End of off season training
  - must match or beat this next preseason

- e.g. UNC women:
  - August, February, May

- Little reason to test more often than every 6 weeks-ish
USSF Testing History

• Pre 1996
  – occasional VO2 max tests, body comp, at local Univ/hosp

• WNT 1996
  – USOC study on fitness of women’s soccer

• MNT 1998
  – January, March, May prior to France

• U17
  – every 4-6 months prior to New Zealand

• All youth national teams at one time or another
Selection of Tests

• There are literally dozens of tests to choose from
• Pick tests you are comfortable with and stay with them
• April H choose a series of athleticism and fitness tests
  – low tech, easy to administer, minimum of equipment, and good information
• Her goal
  – all WNT’s (√)
  – all WUSA teams (√)
  – all state ODP programs (?)
Tests of Athleticism

- 1’ sit-ups, 1’ pushups
- 20 yard ‘pro’ agility run
- 20 and 40 yard sprint
- 40 yard T test
Tests of Fitness

- 2 x 300 yard shuttle
- 1-step vertical jump
- 3-hop test
- yo-yo intermittent recovery shuttle run
Test Methods: 1’ sit-ups

- Need a stopwatch
- Lying, flat on back, hips flexed to 45°, knees to 90°, feet flat
- partner holds down the feet
- hands clasped behind the head
- do as many situps in 1’
  - elbows must touch knees, shoulders must touch ground
Test Methods: 1’ push-ups

• Need a stopwatch
• Start in the ‘up’ position, arms shoulder width apart, weight on the toes
• keep head to the feet in a straight line
• do as many push-ups as possible in 1’
  – chest must touch the grounded fist of their partner
  – return to fully extended elbows
  – straight body
Test Methods: 20 yard ‘Pro’ Agility Run

Need a stopwatch, measuring tape

• Player straddles center line
• on command, moves as fast as possible to touch one line (w/ foot)
• then to the far line
• back to center
• record best of 2 trials
Test Methods: Vertical Jump

- Need Vertek or wall, chalk, tape
- Measure standing reach
- Player steps back 1 step
- Approach with 1 step to a 2 foot jump
- Knock highest wand as possible (mark chalk on wall)
- Record the best of 3 jumps
Test Methods: 20 and 40 yd Sprint

Need measuring tape, 2 stopwatches

<table>
<thead>
<tr>
<th>Start</th>
<th>1st timer</th>
<th>2nd timer/finish</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 yds</td>
<td>20 yds</td>
<td></td>
</tr>
</tbody>
</table>

• From a standing start
• Time starts on first movement of player
• 20yd split and 40yd time recorded
• Take best times of 3 trials
Test Methods: 3 Hop Test

start

(30 ft measuring tape)

• Standing long jump with 3 reciprocal jumps (no stops)
• Use arms for lift and balance
• Measure from start to closest heel
• Record best of 3 trials
• (note: players think this is fun and will want to do many times. Don’t let them, they will be pretty sore the next day)
Test Methods: 40 yard T Test

Need measuring tape, stopwatch, 4 cones

X 5yds  X  5yds  X

10 yds

X
Test Methods: 40 yard T Test

- Sprint
- Shuffle
- Back Pedal

Record best of 2 trials
Set up 2nd course for practice
Test Methods: 300 yd Shuttle

Need measuring tape, stopwatches

25 yds

• Group of players start on command
• Run 6 laps (=300yd) for time
• Rest 5’, then repeat
• Record average of two times
• I suggest you record both times.

Player A = 59s and 61s
Player B = 56s and 64s
Each average 60s, but who is more fit?
Test Methods: Yo-Yo Intermittent Recovery Shuttle Run

Need boom box, yo-yo tape, measuring tape, lots of cones

<table>
<thead>
<tr>
<th>5m</th>
<th>20m</th>
</tr>
</thead>
</table>

Start/finish

- Cue tape to test start
- Players start on first beep, turn at far line on 2nd beep, finish on 3rd beep
- Use the 10s recovery period to walk around cone 5m behind the start/finish line
- Speeds gradually increase
- 1st time they do not finish on time, they are warned, 2nd time they are done
- Record total meters run (on score sheet)
- One monitor can watch up to 5-6 people
April’s Suggested Schedule

• Day 1:
  – 20/40yd sprint, vertical jump, 3 hop, yo-yo

• Day 2:
  – 20yd agility, T test, push-ups, sit-ups, 300yd shuttle
### Average WNT Data

<table>
<thead>
<tr>
<th>Test</th>
<th>VJ</th>
<th>3 hop</th>
<th>20y</th>
<th>40y</th>
<th>300y</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23.5&quot;</td>
<td>22'</td>
<td>2.99s</td>
<td>5.36s</td>
<td>59.2s</td>
</tr>
<tr>
<td>T test</td>
<td>9.08s</td>
<td>4.27s</td>
<td>59</td>
<td>49</td>
<td>1350m</td>
</tr>
<tr>
<td>agility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The table above presents the average WNT data for various fitness tests. The tests include vertical jump (VJ), 3 hop, 20 yard (20y), 40 yard (40y), and 300 yard (300y) sprints. The data also includes T-test agility, one's situp, one's pushup, and a beep. The times and distances are given in seconds and meters, respectively.
One More To Consider

- Yo-yo tests ability to recover from moderate intensity exercise
- Test recovery from high intensity exercise using the 7 x 30m sprints
- Needs electronic timing ($$$), stopwatch, measuring tape
- Player starts 1st run on their own
- Start recovery stopwatch when they finish
- Count down to next start, repeat for 7 total runs
7 x 30m Sprint Calculations

• Computed fastest, average of all 7, %decline
  – (fastest-slowest/slowest x 100)
• Add a timer at 10m
  – Get 0-10m time for explosive sprint
  – 10-30m time for flying 20m
  – 0-30 for overall speed
• % decline of flying 20m sprint is correlated with game running distance
### Average WNT Results on 7 x 30m

<table>
<thead>
<tr>
<th>Distance</th>
<th>Fastest</th>
<th>Average</th>
<th>% decline</th>
</tr>
</thead>
<tbody>
<tr>
<td>10m</td>
<td>1.98s</td>
<td>2.08s</td>
<td>-9.89%</td>
</tr>
<tr>
<td>Flying 20</td>
<td>2.74s</td>
<td>2.89s</td>
<td>-9.34</td>
</tr>
<tr>
<td>30m</td>
<td>4.75</td>
<td>4.98</td>
<td>-8.25</td>
</tr>
<tr>
<td>Distance</td>
<td>Fastest</td>
<td>Average</td>
<td>% Decline</td>
</tr>
<tr>
<td>-----------</td>
<td>---------</td>
<td>---------</td>
<td>-----------</td>
</tr>
<tr>
<td>10m</td>
<td>1.80s</td>
<td>1.84s</td>
<td>-3.9%</td>
</tr>
<tr>
<td>Flying 20</td>
<td>2.58s</td>
<td>2.71s</td>
<td>-8.23%</td>
</tr>
<tr>
<td>30m</td>
<td>4.41s</td>
<td>4.55s</td>
<td>-6.45%</td>
</tr>
<tr>
<td>Vert</td>
<td>25&quot;</td>
<td>Beep</td>
<td>1600-1860m</td>
</tr>
</tbody>
</table>
Get this on the Web

• Go to www.med.unc.edu/~donkirk
• scroll down and click on Field Tests of Fitness
• email me and I will send you the powerpoint file
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