APPENDICES
APPENDIX A

INFORMATION SHEET FOR PROSPECTIVE VOLUNTEERS IN THE STUDY

PHYSIOLOGICAL AND ANTHROPOMETRICAL COMPARISONS BETWEEN THE TRIATHLETE, RUNNER, CYCLIST AND SWIMMER

A study by Jonathan Zetisky for MSC (med) Exercise Physiology.
DEPT. OF MEDICAL PHYSIOLOGY, UNIVERSITY OF THE WITWATERSRAND

| Name: | _________________________________________________ |
| Age: | _________________________________________________ |
| Height: | _________________________________________________ |
| Mass: | _________________________________________________ |
| Sport: | _________________________________________________ |

SKINFOLDS:

- Biceps
- Triceps
- Subscapular
- Suprailiac
- Med. Calf

BIEPICONDYLAR breadth of Humerus:
BIEPICONDYLAR breadth of Femur:

GIRTHS:

- Biceps
- Calfs

SOMATOTYPE RATING (See attached Chart): 1. Endomorphy
2. Mesomorphy
3. Ectomorphy

% BODY FAT: _________________________________________________

LEAN BODY MASS: _________________________________________________

VO2max.: _________________________________________________

RUNNING ECONOMY: _________________________________________________

MUSCLE STRENGTH AND ENDURANCE: (AKRON)

60°/s: Knee Flexion / Extension

Peak Flexion Torque: _________________________________________________
Flexion Torque to Body Weight Ratio: __________________
Peak Extension Torque: _______________________________
Extension Torque to Body Weight Ratio: ________________
Peak Flexion / Extension Torque: _______________________

Shoulder Flexion / Extension

Peak Flexion Torque: _________________________________
Flexion Torque to Body Weight Ratio: _________________
Peak Extension Torque: _______________________________
Extension Torque to Body Weight Ratio: ________________
Peak Flexion / Extension Torque: _______________________

160°/s: Knee Flexion / Extension

Peak Flexion Torque: _________________________________
Work done during flexion: ___________________________
Work done to BW ratio: ______________________________
Peak Extension Torque: _______________________________
Work done during Extension: _________________________
Work done to Body Weight ratio: ______________________

Shoulder Flexion / Extension

Peak Flexion Torque: _________________________________
Work done during flexion: ___________________________
Work done to Body Weight ratio: ______________________
Peak Extension Torque: _______________________________
Work done during extension: _________________________
Work done to Body Weight ratio: ______________________

245°/s: Knee Flexion / Extension

Endurance Ratio for flexion: _________________________
Endurance Ratio for extension: _______________________

Shoulder Flexion / Extension

Endurance Ratio for flexion: _________________________
Endurance Ratio for extension: _______________________

Stress ECG
(Comments):........................................................................................................

Training
(General):........................................................................................................

JONATHAN ZETISKY TEL: (011) 647-2363 / (012) 344-0482 / 082 455 6688
APPENDIX B

PHYSIOLOGICAL AND ANTHROPOMETRICAL COMPARISONS BETWEEN THE TRIATHLETE, RUNNER, CYCLIST AND SWIMMER

A study by Jonathan Zetisky for MSC (med) Exercise Physiology

The aim of the study is to obtain measurements of body structure as well as of aerobic and muscle strength performance in each of the athletes participating in the study. The results will then be compared in order to determine which factors are important in making an elite triathlete.

Subject Criteria

- Athletes must be at least 18 years of age
- Elite triathletes must have completed at least a standard triathlon in 2:10 or less
- Elite runners must have run a 21km in 80 minutes or less
- Cyclists must have completed 50km in less than 75 minutes
- Swimmers must be able to swim 1500m in less than 18.5 minutes

Subject Information

A series of tests will be performed on each athlete. The athlete’s results will be available to him at no cost. (These tests are very expensive if done privately). The results could be very beneficial to the athlete’s training programme.

The tests to be carried out are the following:

Physiological tests – VO$_{2\text{max}}$ and Running Economy
Muscle Strength and Muscle Endurance
Physical tests – height, mass, % body fat analysis, lean body mass
Anthropometric Measurement – skinfolds, bone breadths and limb circumference measurements
Somatotype Rating – endomorph, mesomorph, ectomorph

A Stress ECG (Electrocardiograph) as a prerequisite.

Should you wish to take part in this project, please contact:

JONATHAN ZETISKY on (011) 647-2459 or (012) 344-0482 or 082 455 6688 or fax your name and contact number to: Jonathan Zetisky
MSC (med) Exercise Physiology
(011) 643-2765
APPENDIX C

INFORMED CONSENT FORM

Dear Participant,

Thank you for consenting to participate in this study. The aim of this study is to collect data on triathletes, runners, cyclists and swimmers in order to see how triathletes may differ from their single sport counterparts, and to compile a mean profile of an elite South African triathlete.

Please read the attached Information Sheet regarding the tests to be carried out and sign below.

I have read the Information Sheet and understand the procedures detailed. I acknowledge that my participation is purely voluntary and I may withdraw at any time.

Name: ______________________ Signed: ________________________

J. V. Zetisky: _________________ Date:  ________________________
# Heath-Carter Somatotype Rating Form

**NAME:**

**AGE:**

**SEX:** M F NO:

**OCCUPATION:**

**ETHNIC GROUP:**

**DATE:**

**MEASURED BY:**

## Skinfold Measurements (mm)

<table>
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<th>Measurement</th>
<th>Upper Limit</th>
<th>Midpoint</th>
<th>Lower Limit</th>
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</thead>
<tbody>
<tr>
<td>Triceps</td>
<td>10.9</td>
<td>14.9</td>
<td>18.3</td>
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<tr>
<td>Subscapular</td>
<td>9.0</td>
<td>13.0</td>
<td>17.8</td>
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<tr>
<td>Suprailiac</td>
<td>7.0</td>
<td>11.0</td>
<td>15.8</td>
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**TOTAL SKINFOLDS:**

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<th>2</th>
<th>3</th>
<th>4</th>
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<th>6</th>
<th>7</th>
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<tbody>
<tr>
<td>Height cm</td>
<td>132.7</td>
<td>143.5</td>
<td>147.3</td>
<td>151.7</td>
<td>156.3</td>
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<td>171.0</td>
<td>175.5</td>
<td>179.3</td>
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<td>Forearm cm</td>
<td>5.19</td>
<td>5.34</td>
<td>5.49</td>
<td>5.64</td>
<td>5.78</td>
<td>5.93</td>
<td>6.08</td>
<td>6.27</td>
<td>6.37</td>
<td>5.51</td>
<td>5.65</td>
<td>5.80</td>
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<tr>
<td>Triceps cm</td>
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<td>7.41</td>
<td>7.56</td>
<td>7.71</td>
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<td>41.83</td>
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<td>Lower limit</td>
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<td>49.47</td>
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## Anthropometric Somatotype

### First Component

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<th>11</th>
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<tbody>
<tr>
<td>Anthroplecmic Somatotype</td>
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<tr>
<td>Anthropometric plus Photogrammetry Somatotype</td>
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</tr>
</tbody>
</table>

*Indicates that sex is corrected for by subtracting triceps skinfold value expressed in cm.

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APPENDIX F

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)
Ref: R14/49 (Registry)

CLEARANCE CERTIFICATE

PROJECT

PHYSIOLOGICAL AND ANTHROPOMETRICAL COMPARISONS BETWEEN THE TRIATHLETE AND THE RUNNER, CYCLIST AND SWIMMER, RESPECTIVELY

INVESTIGATOR: MR J ZETICKY

DEPARTMENT

PHYSIOLOGY, MEDICAL SCHOOL

DATE CONSIDERED

28 JUNE 1992

RECOMMENDATION OF THE COMMITTEE

APPROVED subject to

Stress ECG must be part of routine.

DATE

10 JULY 1992

CHAIRMAN

(Prof PE Cleaton-Jones)

* Guidelines for written "informed consent" attached where applicable.

DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to Miss Sharon Boshoff at Room 10-002, 10th Floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

DATE

SIGNATURE

HECLEAR.WPS/files/smb