Training History and Basic Demographics

Date _____

ID Number _____(from research team)

Height _____ **Weight** _____ **Age** _____

Current Training Program

1. How many years have you been training seriously (for race events)? _____

2. How many miles per week have you trained on average during the past year?

_____ miles per week, past year average

3. What is your race category? _____

4. List and describe any significant injuries or illness you have had in the previous year, and list any medications you may be using:

_____

_____

_____

5. Please list any vitamin/mineral/herb supplements that you use on a regular basis (at least 3 times a week or more):

_____

_____

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Performance Data

Date_____ TEST SESSION ☐ #1 ☐ #2

ID Number_____

Verification: ☐ Consumed pistachio nuts or no pistachio nuts (depending on your group), AND no other types of nuts during the past 2 weeks
☐ Avoided vitamin/mineral supplements, medications since joining the study
☐ Turned in 3 day food record to researchers
☐ Tapered exercise during previous two days to prepare for 75-km session
☐ Not sick today

Age_____ HR_{max} _____ VO_{2max} _____

Pre-exercise weight: _____; Post-exercise weight: _____

Humidity _____ Temperature _____

Metabolic Measurements

Watts	MIN	H R	RPE
	15		
	30		
	60		
	90		
	120		
	150		
	180		
	210		
	240		
	270		

ASU-NCRC Human Performance Lab;V0$_2$Max Test Cyclists

ID#_____ Age_____ Sex____ (M) ____ (F) Date_____

Weight_____(kg); Height _____(cm)

Metabolic Measurements

STAGE	Lactate	Watts	MIN	H R	RPE	VO2	RER	VE	RR
I		150	2						
II		175	4						
III		200	6						
IV		225	8						
V		250	10						
VI		275	12						
VII		300	14						
VIII		325	16						
IX		350	18						
X		375	20						
XI		400	22						
XII		425	24						
XIII		450	26						
XIV		475	28						

HR$_{max}$ _____ bpm; V0$_{2\ max}$_____ = Rating_____

Aerobic Fitness Measurement: $V0_{2Max}$ Norms

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ID #_____

$V0_2$MAX NORMS

(in milliliters of oxygen per kilogram of body weight per minute)

Age	Low	Fair	Avg	Good	High	Athletic	Olympic
Women							
20-29	<28	29-34	35-43	44-48	49-53	54-59	60+
30-39	<27	28-33	34-41	42-47	48-52	53-58	59+
40-49	<25	28-31	32-40	41-45	46-50	51-56	57+
50-65	<21	22-28	29-36	37-41	42-45	46-49	50+
Men							
20-29	<38	39-43	44-51	52-56	57-62	63-69	70+
30-39	<34	35-39	40-47	48-51	52-57	58-64	65+
40-49	<30	31-35	36-43	44-47	48-53	54-60	61+
50-59	<25	26-31	32-39	40-43	44-48	49-55	56+
60-69	<21	22-26	27-35	36-39	40-44	45-49	50+

Source: Adapted from Astrand *ACTA Physiol Scand 49* (Suppl): 169, 1960. Reprinted with permission from Blackwell Scientific Publications Ltd.

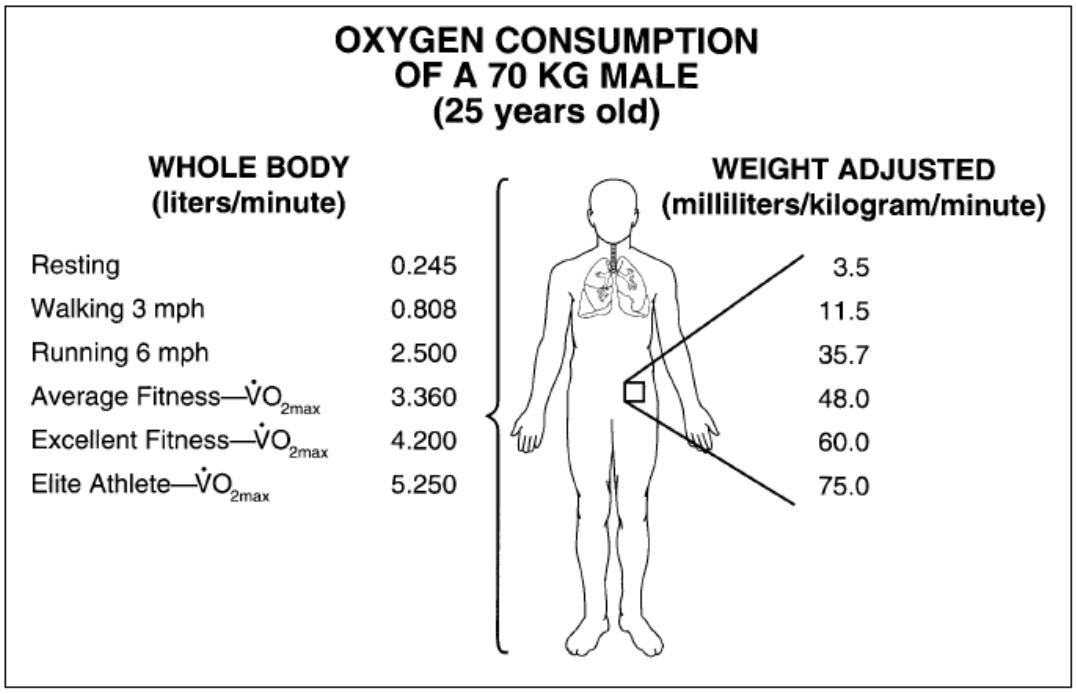

FIGURE 4.1
The oxygen consumption ($\dot{V}O_{2max}$) can be expressed in units of liters per minute for the entire body, or in units of milliliters perkilogram of body weight per minute, to represent the oxygen consumption for each kilogram of body weight.

Body Composition Measurement: Norms

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ID# _____Date _____

Age _____ Sex _____ Weight _____ Height

Body Mass Index: _____ kg/m^2

<20 Underweight; 20-24.9 Normal; 25-29.9 Overweight; ≥30 Obese

DEXA, BodPod, or BIA Measurement: %Fat

Skinfold Measurement: %Fat

Body Fat Ranges for Ages 18 Years and Older

	Males	Females
Unhealthy range -- too low	≤5%	≤8%
Acceptable range -- lower end	6-15%	9-23%
Acceptable range -- higher end	16-24%	24-31%
Unhealthy range -- too high	≥25%	≥32%

Average Body Fat Ranges for Elite Athletes	**Males**	**Females**
Long distance runners	4-9%	6-15%
Gymnasts	4-10%	10-17%
Body builders	6-10%	10-17%
Swimmers	5-11%	14-24%
Basketball athletes	7-11%	18-27%
Tennis players	14-17%	19-22%

Source: Nieman DC. Exercise Testing and Prescription. McGraw Hill, 2010

Food List During The 3-Day Period Prior To Test Session

You need to come to the 2 tests sessions having eaten similar diets for 3 days prior (moderately low in fat and high in carbohydrates). Please use foods that conform to the list given below.

*Remember, come to the lab in an overnight fasted state (no food or beverage other than water for the previous 9-12 hours. Do not use any nutrient or herbal supplement, or medication unless cleared by Dr. Nieman. Come to the lab at 6:45 am on the exercise test day ready for cycling intensely for 75 km (prepare as you would for a race).

Breakfast Foods:	
Foods to eat:	Foods to avoid:
• Cold cereals (Whole grains, wheat, grape nuts, etc.) • Hot cereals (oatmeal, grits, etc.) • Low fat milk, cottage cheese, cheese (made with skim milk) • Eggs or Egg Substitutes (EggBeaters, etc.) • Fresh and dried fruits or vegetables and juices • Whole grain breads, bagels • Honey • Fat-free margarine/butter spreads or sprays (I Can't Believe It's Not Butter, etc.) • Decaffeinated/regular coffee	• Fatty meats (bacon, sausage, etc.) • Oils, margarine, butter • Whole milk, regular cheese • All nuts, except if in the pistachio nut group
Lunch and Supper Foods:	
Foods to eat:	Foods to avoid:
• Low fat meats broiled, baked, or grilled (chicken, turkey, fish, etc.); eggs • Whole grains breads • Pastas and rice • Low fat sauces (Tomato or herb sauces) • Low fat cheese, sour cream, and milk • Low fat mayonnaise and salad dressings • Cooked and raw vegetables of all kinds (seasonings only, not gravies or butter) • Fruits • Soft drinks • Limit alcohol intake to 2 drinks/day (beer, wine, mixed drinks) • Decaffeinated/regular coffee	• High fat meats (beef, pork, sausage, luncheon and fried or blackened meats) • Oils, margarine, butter, gravies, high fat salad dressings, etc. • Meat or cream sauces • Regular cheese, whole milk • All nuts, except if in the pistachio nut group

ASU-NCRC Human Performance Lab
Food Recording Form

(Follow the moderate carbohydrate diet, and record all food/beverage intake for 3 assigned days. Bring this log with you to your test session)

NOTE: Follow the carbohydrate diet for 3 days prior to the assigned test sessions. Avoid all supplements and medications, unless approved. Avoid all nuts unless in the pistachio nut group.

ID# _____ Age _____ Date _____
(mm/dd/yyyy)

Height _____ Weight _____ Gender _____ (M) _____ (F)

Directions for Using the Food Diary

1. Please record ALL food, beverage, and supplements eaten/ingested for the three days that are assigned for you. Follow the food list. To reduce error, please follow these directions:
    a. Keep your food diary current (list foods immediately after they are eaten).
    b. Whenever possible, MEASURE the volume consumed by using cups and tablespoons. Record amounts in household measures---ounces, tablespoons, cups, and slices.
    c. Be specific when describing the foot item eaten, and the method that was used to prepare the food. Remember to include condiments, sugar, oils, butter, and other visible fats For example:

Apple, raw, fresh, with peel	*1 medium*
Bread, whole wheat, fresh	*2 slices*
Margarine, soft from tub	*1 tablespoon*
Cereal, corn flakes	*1.5 cups*
Sugar, white	*1 teaspoon*
Milk, non fat	*2 cups*
Fish, salmon, baked	*10 ounces*

This food record will be analyzed with a computerized dietary analysis program, so please provide sufficient detail.

Day One

Time Food/Beverage Consumed	**Food Item and Method of Preparation**	**Amount Eaten** **(in cups, tablespoons, ounces, etc.)**

Day Two

Time Food/Beverage Consumed	**Food Item and Method of Preparation**	**Amount Eaten** **(in cups, tablespoons, ounces, etc.)**

Day Three

Time Food/Beverage Consumed	**Food Item and Method of Preparation**	**Amount Eaten** **(in cups, tablespoons, ounces, etc.)**

POST-STUDY QUESTIONNAIRE

ID Number _____

1. How many miles per week did you cycle (on average) during the six weeks of this study?

_____