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UWTSD Sport and Exercise Science Physiological Testing Protocols

**Preparticipation Health Screening,
Medical Clearance and Informed
Consent**

Taken From:

Lab 1

**Housh, T.J., Cramer, J.T., Weir, J.P., Beck, T.W. and
Johnson, G.O. (2016). Laboratory manual for
Exercise Physiology, Exercise Testing and Physical
Activity. London: Routledge.**

BACKGROUND

The American College of Sports Medicine (ACSM) recommends that medical supervision is not necessary during exercise for healthy individuals (children, adolescents, men <45 years of age, and women <55 years of age) who have no symptoms or known presence of heart disease or major coronary risk factors.¹ Therefore, the primary purpose of preparticipation health screening is to identify those individuals who should be excluded from exercise due to medical contraindications.

The ACSM has provided recommendations for preparticipation health screening procedures for various populations.¹ Specifically, the ACSM defines preparticipation health screening as a three-step process that involves: (a) risk stratification and medical clearance, (b) additional preparticipation assessment, and (c) exercise test considerations. Of these three steps, risk stratification and medical clearance are the most important for performing exercise testing with healthy individuals. Additional preparticipation assessment and exercise test considerations are necessary when evaluating the elderly and individuals with disease conditions that could limit their ability to perform physical activity.

In addition, it may be important to have potential participants complete an informed consent document. The primary purpose of the informed consent document is to provide potential participants with clear and exact information about what they will be required to do during the exercise test. When participants fully understand what they must do, they will be instructed to sign the informed consent document, after which they will be allowed to do the exercise test. An example of an informed consent document for a maximum one-repetition bench press (1-RM strength test) is shown below.

With the exception of clinical exercise physiology laboratories and cardiac rehabilitation centres, most exercise science laboratories examine normal, healthy individuals. However, some individuals may not be aware of their risk stratification, so it is essential that careful screening procedures be completed. If the results of a preparticipation health screening questionnaire indicate that an individual may be at a health risk for exercise, the individual should be encouraged to obtain medical clearance before participation. Determination of whether an individual is actually at risk for exercise can, however, be vague. Thus, the purpose of this laboratory is to describe the procedures used to perform preparticipation health screening.

KNOW THESE TERMS & ABBREVIATIONS

oACSM = American College of Sports Medicine

o1-RM = one-repetition maximum

oPAR-Q = Physical Activity Readiness Questionnaire

orisk stratification = categorization of the likelihood of untoward events based on the screening and evaluation of patient health characteristics

PROCEDURES

An individual's risk during exercise can be assessed with a medical screening instrument such as the Physical Activity Readiness Questionnaire (PAR-Q; see below) or a Pre-exercise Testing Health Status Questionnaire (see below). The PAR-Q is a common medical screening instrument used by many exercise physiology laboratories. The procedures used to determine risk stratification from both the PAR-Q and Pre-exercise Testing Health Status Questionnaire are described below.

PAR-Q

1. Begin administering the PAR-Q by instructing the individual to complete the first seven questions.
2. If the individual answers "yes" to one or more of the first seven questions, instruct him or her to contact a physician before performing any exercise. Inform the individual that he or she should tell the physician which questions had "yes" answers on the PAR-Q. The individual should also ask the physician what exercise tests should or should not be performed.
3. If the individual answers "no" to all of the first seven questions, he or she should be allowed to perform the exercise test.

Pre-exercise Testing Health Status Questionnaire

1. Begin the Pre-exercise Testing Health Status Questionnaire by instructing the individual to complete the general information at the top of the questionnaire and sections A through G.
2. Examine the completed questionnaire and determine whether the individual can safely perform the exercise test that you are asking him or her to do. If you feel that the individual may be at a health risk during the exercise test, instruct him or her to contact a physician and receive medical clearance before performing the test.

REFERENCES

1. American College of Sports Medicine. ACSM's Guidelines for Exercise Testing and Prescription, 9th edition. Baltimore: Wolters Kluwer/Lippincott Williams & Wilkins, 2014.

EXAMPLE INFORMED CONSENT FOR A BENCH PRESS 1-RM TEST

1. Purpose and Explanation of the Test

You will perform a one-repetition maximum (1-RM) bench press strength test using an Olympic barbell, weight plates, and a standard free weight bench. To begin the test, you will perform a warm-up with just the barbell. For each warm-up repetition, you will be required to lower the weight to your chest and then press it upward until your forearms are fully extended. Following the warm-up repetitions, additional weight will be added to the bar, and you will be asked to perform one repetition. If you can successfully complete the repetition, you will be allowed to rest for two minutes while additional weights are added to the bar. You will then be asked to perform one repetition with the new weight. Weights will be continually added to the bar until you are no longer able to complete the movement throughout the full range of motion. The heaviest weight that you were able to lift once will be your bench press 1-RM.

2. Attendant Risks and Discomforts

There is a slight possibility of straining or tearing a muscle during the bench press 1-RM test. Elevations in blood pressure and lightheadedness immediately after the strength test may occur. You may experience muscle soreness for a few days after the test. Every effort will be made to minimise potential risks by allowing for a thorough warm-up prior to the 1-RM test.

3. Responsibilities of the Participant

Information you present about your health status and previous experiences of muscle or joint injuries (e.g., muscle strains, tears, joint dislocations) may affect the safety of your strength test. Your prompt reporting of these conditions is very important to ensure that you are not injured during the 1-RM test. In addition, you will be asked several times during the strength test if you feel any joint or muscle pain.

4. Benefits to Be Expected

The results obtained from your test will provide information regarding your upper-body strength. This information may be helpful for you in the design of future training programs.

5. Inquiries

You are encouraged to ask any questions about the procedures used in the exercise test or the results of your test. If you have any concerns or questions, please ask us for further explanations.

6. Use of Medical Records

The information that is obtained during exercise testing will be treated as privileged and confidential as described in the Data Protection Act (2018). It is not to be released or revealed to any person except

your referring physician without your written consent. However, the information obtained may be used for statistical analysis or scientific purposes with your right to privacy retained.

7. Freedom of Consent

I hereby consent to engage voluntarily in an exercise test to determine my upper-body strength. My permission to perform this test is given voluntarily. I understand that I am free to stop the test at any point if I so desire.

I have read this form, and I understand the test procedures that I will perform and the attendant risks and discomforts. Knowing these risks and discomforts, and having had an opportunity to ask questions that have been answered to my satisfaction, I consent to participate in this test.

Date _____ Signature of Participant _____

Date _____ Signature of Witness _____

Date _____ Signature of Person Conducting the Test _____

PAR-Q

Physical Activity Readiness
Questionnaire - PAR-Q
(revised 2002)

PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

YES	NO	
☐	☐	1. Has your doctor ever said that you have a heart condition <u>and</u> that you should only do physical activity recommended by a doctor?
☐	☐	2. Do you feel pain in your chest when you do physical activity?
☐	☐	3. In the past month, have you had chest pain when you were not doing physical activity?
☐	☐	4. Do you lose your balance because of dizziness or do you ever lose consciousness?
☐	☐	5. Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?
☐	☐	6. Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?
☐	☐	7. Do you know of <u>any other reason</u> why you should not do physical activity?

If
you
answered

YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:

- start becoming much more physically active — begin slowly and build up gradually. This is the safest and easiest way to go.
- take part in a fitness appraisal — this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

DELAY BECOMING MUCH MORE ACTIVE:

- if you are not feeling well because of a temporary illness such as a cold or a fever — wait until you feel better; or
- if you are or may be pregnant — talk to your doctor before you start becoming more active.

PLEASE NOTE: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q: The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

NAME _____

SIGNATURE _____

DATE _____

SIGNATURE OF PARENT
or GUARDIAN (for participants under the age of majority) _____

WITNESS _____

Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.



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PRE-EXERCISE HEALTH QUESTIONNAIRE EXAMPLE

PRE-EXERCISE TESTING HEALTH STATUS QUESTIONNAIRE

Name	Date
ID#	Birthdate (mm/dd/yy)
Home Address	
Work Phone	Home Phone
E-mail Address	
Person to contact in case of emergency	
Emergency Contact Phone	
Personal Physician	Physician's Phone
Gender	Age (yrs)
Height (ft) (in)	Weight (lbs)

Does the above weight indicate: ☐ a gain ☐ a loss ☐ no change in the past year?
If a change, how many pounds? _____ (lbs)

A. JOINT-MUSCLE STATUS (✓ Check areas where you currently have problems.)

JOINT AREAS

- ☐ Wrists
- ☐ Elbows
- ☐ Shoulders
- ☐ Upper spine & neck
- ☐ Lower spine
- ☐ Hips
- ☐ Knees
- ☐ Ankles
- ☐ Feet
- ☐ Other

MUSCLE AREAS

- ☐ Arms
- ☐ Shoulders
- ☐ Chest
- ☐ Upper back & neck
- ☐ Abdominal regions
- ☐ Lower back
- ☐ Buttocks
- ☐ Thighs
- ☐ Lower leg
- ☐ Feet

B. HEALTH STATUS (✓ Check if you previously had or currently have any of the following conditions.)

- | | |
|---|---|
| ☐ High blood pressure | ☐ Acute infection |
| ☐ Heart disease or dysfunction | ☐ Diabetes or blood sugar level abnormality |
| ☐ Peripheral circulatory disorder | ☐ Anemia |
| ☐ Lung disease or dysfunction | ☐ Hernias |
| ☐ Arthritis or gout | ☐ Thyroid dysfunction |
| ☐ Edema | ☐ Pancreas dysfunction |
| ☐ Epilepsy | ☐ Liver dysfunction |
| ☐ Multiple sclerosis | ☐ Kidney dysfunction |
| ☐ High blood cholesterol or triglyceride levels | ☐ Phenylketonuria (PKU) |
| ☐ Loss of consciousness | ☐ Allergic reactions to medication |
| ☐ Other conditions that you feel we should know about | Please describe: |

_____	_____
_____	_____
_____	_____
☐ Pregnant	☐ Allergic reactions to any other substance
	Please describe:

QUESTIONNAIRE, page 2

C. PHYSICAL EXAMINATION HISTORY

Approximate date of your last physical examination _____

Physical problems noted at that time _____

Has a physician ever made any recommendations relative to limiting your level of physical exertion? YES NO
If YES, what limitations were recommended? _____

Have you ever had an abnormal resting electrocardiogram (ECG)? YES NO

D. CURRENT MEDICATION USAGE (List the drug name and the condition being managed.)

MEDICATION

CONDITION

E. PHYSICAL PERCEPTIONS (Indicate any unusual sensations or perceptions. ✓ Check if you have recently experienced any of the following during or soon after physical activity (PA) or during sedentary periods (SED).)

PA SED

- ☐ ☐ Chest pain
- ☐ ☐ Heart palpitations (fast irregular heartbeats)
- ☐ ☐ Unusually rapid breathing
- ☐ ☐ Overheating
- ☐ ☐ Muscle cramping
- ☐ ☐ Muscle pain
- ☐ ☐ Joint pain
- ☐ ☐ Other

PA SED

- ☐ ☐ Nausea
- ☐ ☐ Lightheadedness
- ☐ ☐ Loss of consciousness
- ☐ ☐ Loss of balance
- ☐ ☐ Loss of coordination
- ☐ ☐ Extreme weakness
- ☐ ☐ Numbness
- ☐ ☐ Mental confusion

F. FAMILY HISTORY (✓ Check if any of your blood relatives—parents, brothers, sisters, aunts, uncles, and/or grandparents—have or had any of the following.)

- ☐ Heart disease
- ☐ Heart attacks or strokes (prior to age 50)
- ☐ Elevated blood cholesterol or triglyceride levels
- ☐ High blood pressure
- ☐ Diabetes
- ☐ Sudden death (other than accidental)

G. CURRENT HABITS (✓ Check any of the following if they are characteristic of your current habits.)

- ☐ Smoking. If so, how many per day? _____
 - ☐ Regularly does manual gardening or yardwork.
 - ☐ Regularly goes for long walks.
 - ☐ Frequently rides a bicycle.
 - ☐ Frequently runs/jogs for exercise.
 - ☐ Regularly participates in a weight training exercise program.
 - ☐ Engages in a sports program more than once per week.
- If so, what does the program consist of?

