

GROUP EXERCISE EXAMINATION  
PROGRAM TECHNICAL REPORT  
2010

July 2011

## Introduction

This report provides an overview of examination program activities and the statistical properties of the certification examination for Group Exercise Instructors, administered by the National Exercise Trainers Association – Certification Board (NETA-CB). The version of the exam discussed in this report was administered in a number of locations at different times throughout the United States during 2011. The data from these administrations were combined and served as the basis for the statistics and analyses appearing in this report.

## Background

NETA has certified Group Exercise Instructors (since 1977) and Personal Trainers (since 1995). It has always been a priority for NETA to provide fitness professionals with a cost-efficient way to obtain the best education, knowledge and skills to enter the fitness industry. To that end, NETA strives to stay abreast of industry trends and changes in order to communicate those to its certificants through continuing education and certification workshops.

In 2003 it became abundantly clear that the industry was headed towards a higher standard of practice in relationship to certification agencies. NCCA accreditation was held up as the highest standard to achieve. Therefore, NETA began the NCCA accreditation application process in early 2004 for its Personal Trainer Certification and was approved by NCCA in April 2007. In 2008 NETA commenced the accreditation process for its Group Exercise Certification. In 2009 NETA's Certified Group Exercise Instructor Certification (CGEI) was approved by NCCA.

NETA established a separate board, currently known as the NETA-CB, to govern all certification processes. Dr Gerald Rosen, a psychometrician and licensed psychologist was retained to consult with NETA's Certification Director on psychometric subject matter. The most recent Job Analysis was conducted and completed in September of 2008, at which time a new exam was constructed to reflect the Job Analysis findings and to better reflect the changes that were in progress. The exam that was constructed, analyzed and deemed accurate, sound and fair. That examination was used during the last quarter of 2008. During that time all test construction processes required by NCCA standards were conducted and documented. The result of the test construction processes is the examination that was placed in service in January of 2009. The examination in this report was used throughout 2010. The latest form of the exam was produced in May of 2011 and placed into service in July 2011.

## Section I: Examination Administration

The examination was administered via computer based testing (CBT) and paper-and-pencil format using scannable answer sheets under a secure, proctored arrangement. Comira Testing was the CBT. The paper-and-pencil format was used at conventions and in areas in which Comira Testing Centers were not available or convenient for the candidate.

## Section II: General Test Results

The Certified Group Exercise Instructor (CGEI) examination consists of 100 questions. The mean, standard deviation, reliability coefficient and standard error of measurement reported here are based on all 100 items (see Table 1). The raw score mean is the arithmetic average of the total number of items answered correctly by the group of examinees. For instance, the table shows that the mean or average raw score for 83.24%. The median is the score point above and below which half of the candidates scores fall. The median for the examination was 84%. The standard deviation is a measure of the dispersion of the raw scores about the mean. The standard deviation of the examination was 7.53.

The Kuder-Richardson-20 (or KR-20) reliability reflects the degree of consistency in the test score. The KR-20 coefficient for the examination was .80. This reflects a high degree of internal consistency.

The domain-level reliability coefficients were: I. Exercise Science = 0.55, II. Class Design = 0.50, III. Group Instruction = 0.50, IV. Interpersonal = 0.36, V. Legal Issues = 0.19. The magnitudes of these reliability coefficients reflect the relatively small number of items in each domain. (The official score report contains a cautionary statement regarding the interpretation and use of domain-level information.

Table 1 also contains information on the reliability or consistency of pass/fail decisions computed via the Livingston method. The pass/fail decision consistency index was .95. This represents a very high degree of decision consistency.

Table 2 summarizes the pass/fail statistics for the CGEI examination in terms of both the raw number of candidates and the percentage of candidates. A total of 1003 (90)% of the 1115 candidates passed the examination and 112 (10%) failed.

Table 1  
EXAM STATISTICS

	GE Exam
Number of Scored Items	100
Total Number of Examinees	1115
Raw Score Mean	83.24
Raw Score Median	84
Raw Score Standard Deviation	7.53
KR-20 Reliability Coefficient	.80
Cut Score SEM	4.28
Raw Passing Score	70
Percent Passing Score	70
Decision Consistency (Livingston)	.95

Table 2  
PASS/FAIL FREQUENCY DISTRIBUTION

	GE Examination
Pass	1003 (90%)
Fail	112 (10%)
Total	1115 (100.00%)

## Section III: Test Development

### A. Role Delineation and Test Specifications Development

In an effort to certify industry professionals, the National Exercise Trainer's Association - Certification Board (NETA-CB) has undertaken the task of developing and implementing certification examinations for Group Exercise Instructors. From its inception through 2007, the content of NETA-CB's certification examination for Group Exercise Instructors was keyed to training program curricula and training materials providing comprehensive instruction for exercise professionals working as Group Exercise Instructors. More recently, NETA-CB decided to change the foundation of the examination from "curriculum-based" to "practice-based". In so doing, the organization sought to enhance the legal defensibility of the Group Exercise Instructor certification program and, in addition, make it eligible for national accreditation. A necessary first step in the process of changing to a practice-based examination program was to perform a practice (job) analysis identifying the domains of practice, tasks, and knowledge required for safe and effective performance on the job. Once in place, these Domains, Tasks and Knowledge Statements formed the basis for item (question) writing and examination construction.

In the Summer of 2008, a workshop was conducted in Minneapolis, MN wherein a diverse group of nine subject-matter experts (SMEs) selected by and representing NETA-CB met to conduct the practice analysis for the Group Exercise Instructor examination program. The workshop was facilitated by Lu Herbeck, NETA's Certification Director. Dr. Gerald Rosen, Psychometrician was the consultant. Specifically, the purpose of this meeting was to produce a document delineating the knowledge required for the safe and effective performance of the tasks carried out by the entry-level Group Exercise Instructor. An additional goal of the workshop was to identify a weighting factor associated with each Domain and Task. The weighting factors represented the pooled judgments of the SMEs of the relative importance of, and time spent on, each of the Tasks typically performed by the entry-level Group Exercise Instructor. Information on the participants in the Role Delineation study can be found in Table 4.

Table 4  
PRACTICE ANALYSIS WORKSHOP PARTICIPANTS\*  
Minneapolis, MN  
September 13, 2008

Name	Title	Organization	City/State
Lu Herbeck (Facilitator)	Certification Director	NETA - CB	Minneapolis, MN
Stephanie Maks	Group Exercise Director	Gold's Gym	Reno, NV/Mpls MN
Suzanne Kranitz	Group Exercise Instructor	YWCA of Minneapolis	Minneapolis, MN
Shannon Schritz	Group Exercise Instructor	Busy Body Fitness	Bloomington, MN
Christine Simpson	Group Exercise Instructor	Gold's Gym	Buffalo, MN
Angie Laughlin	Group Exercise Instructor	Fremont Recreation Center	Freemont, OH
Candy Young	Wellness Consultant	Always Young	Tacoma, WA
Debra Orringer	Fitness Center Supervisor	NASA Kennedy Space Center	Cocoa Beach, FL
Hillary Roemsberger	Fitness Director	Town of Parker Rec Center	Parker, CO

\* Please Note: All of these individuals have provided health and exercise training and educational workshops in nearly every state in the U.S. They have a broad prospective on consumer needs across the U.S. and the myriad of niche markets that make up the various regions.

The product of this role delineation workshop was a draft practice analysis that was subsequently returned to NETA-CB staff and selected panel members for final review and comment. Since the product of this workshop represented the work of only nine individuals, the decision was made to validate the practice analysis document by submitting it to a randomly selected group of 260 professionals, all Group Exercise Instructors. In addition to the practice analysis document, participants were provided with an introductory letter from NETA-CB and a packet of materials containing the following: a list of definitions of terms so that participants would become familiar with job analysis terminology; a set of detailed instructions for reviewing and commenting on the practice analysis, and a set of comment sheets containing the survey questions. The respondents recorded their responses to the survey questions directly on the comment sheets. The respondents were asked to review the practice analysis document and: (1) identify those Domains, Tasks and/or Knowledge Statements they would like to eliminate, reword, or revise; (2) suggest any additional Domains, Tasks and/or Knowledge Statements that they would like to add to the practice analysis; and (3) confirm or suggest changes to the Domain weights.

Based on the data obtained from the Role Delineation, the document was revised and a final set of test specifications was developed. The revised, practice-based test specifications formed the basis for subsequent item-writing and test development. Additional information on the Role Delineation and Test Specifications Development can be found in the NETA-CB Practice (Job) Analysis Development and Validation Report.

## B. Item Development

A panel of 9 subject matter experts (SMEs) (Table 5) was assembled in May of 2011 for the purposes of writing exam questions to create a new exam. Each expert received a copy of the Role Delineation (Appendix P), with specific content assignments, and a copy of the "Guide to Preparing Multiple Choice Questions (Exhibit A of this document) provided by Dr Gerald Rosen. Each SME / Item Writer was asked to write a specified number of questions, from their assigned section, to be included in the NETA-CB item bank.

Table 5 contains information on the participants in the item development project.

Table 5  
NETA-CB Item Writers\*

Name	Title	Organization	City/State
Shanan Lynch	Group Exercise Instructor	Aguila, LTD	North Hollywood, CA
Sarah Ekelund	Group Exercise Director	New Brighton Community Ctr	New Brighton, MN
Jessica Campbell	Group Exercise Instructor	Maplewood Community Ctr	Maplewood, MN
Sue Springer-Hewitt	Group Exercise Instructor	The Training Station	Ham Lake, MN
Gale Marchant	Group Exercise Instructor	Northfield Community Ctr	Northfield, MN
Angie Laughlin	Group Exercise Instructor	Fremont Recreation Center	Freemont, OH
Candy Young	Wellness Consultant	Always Young	Tacoma, WA
Debra Orringer	Fitness Center Supervisor	NASA Kennedy Space Center	Cocoa Beach, FL
Hillary Roemsberger	Fitness Director	Town of Parker Rec Center	Parker, CO

\* Please Note: All of these individuals have provided health and exercise training and educational workshops in nearly every state in the U.S. They have a broad prospective on consumer needs across the U.S. and the myriad of niche markets that make up the various regions.

Item development was accomplished via an iterative review process. The initial stages of the process were coordinated by the NETA-CB certification director. Items written were subjected to several rounds of critical content, editorial and psychometric review prior to their import into the item bank. Each SME was sent, via password protected PDF file, the entire bank of items, with instructions to review each item for content, clarity, and errors. The SMEs were also instructed to return the items, with revisions, to the Certification Director. Revisions were made by the Certification Director, as were deemed necessary to improve the quality, content, clarity and accuracy of the item.

The revised items were sent, via password protected PDF file, back to the SMEs for review for a second round of revisions. The SMEs met to review each item, make changes, additions and deletions as needed. The item-writing and review activities, concluded with a conference call facilitated by the Certification Director. During the call the items were finalized. The process of finalization included final revisions to surviving items and final decisions on exclusion for those items that did not survive the iterative review process. During the conference call the SMEs verified that each of the retained items measured content that was of at least some importance to safe and effective practice, that the items did not stereotype any groups of individuals, and that the items did not contain any content that would result in bias or disadvantage to any candidate on the basis of group membership. The SMEs succeeded in producing a substantial number of questions for the NETA-CB item bank.

### C. Test Construction

The test construction process began with the construction of a draft examination by NETA-CB's Certification Director. The draft examination was built by selecting items from the NETA-Item bank in strict accordance with the content and weightings in the test specifications document. The consultant subjected the draft to editorial and psychometric review and sent it in a password-protected file to the SMEs who participated in the test construction process. Information on this group of SMEs can be found in Table 6.

Table 6  
NETA-CB Test Construction Participants\*

Name	Title	Organization	City/State
Shanan Lynch	Group Exercise Instructor	Aguila, LTD	North Hollywood, CA
Sarah Ekelund	Group Exercise Director	New Brighton Community Ctr	New Brighton, MN
Jessica Campbell	Group Exercise Instructor	Maplewood Community Ctr	Maplewood, MN
Sue Springer-Hewitt	Group Exercise Instructor	The Training Station	Ham Lake, MN
Gale Marchant	Group Exercise Instructor	Northfield Community Center	Northfield, MN
Angie Laughlin	Group Exercise Instructor	Fremont Recreation Center	Fremont, OH
Candy Young	Wellness Consultant	Always Young	Tacoma, WA
Debra Orringer	Fitness Center Supervisor	NASA Kennedy Space Center	Cocoa Beach, FL
Hillary Roemsberger	Fitness Director	Town of Parker Rec Center	Parker, CO

\* Please Note: All of these individuals have provided health and exercise training and educational workshops in nearly every state in the U.S. They have a broad prospective on consumer needs across the U.S. and the myriad of niche markets that make up the various regions.

Following the individual review of the draft examination by the SMEs, a conference call facilitated by the Certification Director was scheduled. During the call the examination was considered item-by-item. For each item a decision was made to keep the item in the examination "as-is", keep the item in the examination with revisions, or return the item to the item bank. For each item returned to the bank a substitute item was selected from the item bank. In the course of the discussions the SMEs verified that each of the retained items measured content that was of at least some importance to safe and effective practice, that the items did not stereotype any groups of individuals, and that the items did not contain any content that would result in bias or disadvantage to any candidate on the basis of group membership.

The Certification Director executed all of the changes that resulted from the SME review of the draft examination. In making the changes the Certification Director verified that the examination still faithfully reflected the test specifications and, in addition, subjected it to another round of editorial and psychometric review. These activities on the part on the Certification Director resulted in the production of Draft 2 of the NETA-CB Group Exercise Instructor examination. Examination draft 2 was sent to NETA-CB for a final review by a selected group of the SMEs. The final review was conducted to ensure that the Certification Director had accurately executed all of the requested revisions to Draft 1. In addition, review of Draft 2 provided an opportunity for the SMEs to once again consider the examination item-by-item on all of the dimensions that comprised the review of Draft 1. As a result of this review, several more changes were requested by the SMEs. The Certification Director executed the SMEs changes to Draft 2 of the examination and once again verified that the examination continued to faithfully reflect the test specifications. At the conclusion of these activities the finalized form of the NETA-CB Group Exercise Instructor examination was produced and submitted..

#### D. Cut-Score Determination

The study was conducted in the NETA-CB office in Minneapolis, MN. The panel of SMEs was selected by NETA-CB. Lu Herbeck, Certification Director was facilitator for the study. Dr Gerald Rosen, Licensed Psychometrician was consulted on the procedure.

Table 7 contains the names of the SMEs and relevant biographical information.

The procedure used in this study was the Direct Standard Setting Method (DSSM) (Schoon, Rosen & Jones, 1988). The DSSM differs from some of the other criterion-referenced methodologies (e.g., Angoff, Modified Angoff) in that the process of making DSSM ratings is one of setting performance standards; the process of making Angoff ratings is one of estimating item difficulties for a hypothetical group of barely qualified examinees.

The DSSM requires judges to answer the following question for each set of 10 items on the examination, "How many questions in this 10 item set should a Group Exercise Instructor certification candidate answer correctly to be considered just barely qualified for certification?"

Prior to making these estimates, the SMEs: 1) engaged in a discussion of the characteristics of the "barely qualified" or "just good enough" candidate for certification. The discussion proceeded until the group arrived at a shared notion of "barely qualified for certification"; 2) received an orientation to the use of the DSSM. The orientation focused on the notions of item importance and difficulty as guides to making DSSM estimates; and 3) applied the DSSM to groups of items as practice in using the methodology. Discussion of the estimates made during the practice session allowed the SMEs to further refine the use of and comfort with the methodology.

After the training and orientation session, the SMEs proceeded to make their independent estimates. The NETA-CB Group Exercise Instructor examination consists of 100 items. Therefore, each SME made 10 estimates, one for each group of ten items on the examination.

Table 7  
CUT-SCORE STUDY WORKSHOP PARTICIPANTS  
Group Exercise Certification Exam  
Minneapolis, MN - May 11, 2011

Name	Title	Organization	City/State
Shanan Lynch	Group Exercise Instructor	Aguila, LTD	North Hollywwod, CA
Sarah Ekelund	Group Exercise Instructor	New Brighton Community Ctr	New Brighton, MN
Jessica Campbell	Group Exercise Instructor	Maplewood Community Center	Hugo, MN
Rebecca Woodford	Group Exercise Instructor	Gold's Gym	Mayer, MN
Joan Peterson	Group Exercise Instructor	YWCA	Minneapolis, MN
Sue Springer-Hewitt	Group Exercise Instructor	The Training Station	Ham Lake, MN
Charlene Austin	Group Exercise Instructor	YMCA	Plymouth, WI
Leah Lawrence	Group Exercise Instructor	YMCA	Minneapolis, MN
Gale Marchant	Group Exercise Instructor	Northfield Community Center	Lonsdale, MN
Dawn Cornell	Group Exercise Instructor	Lifetime Fitness	Houston, TX
Sarah Foley	Group exercise Instructor	Waconia Rec Center	Orlando, FL

\* Please Note: All of these individuals have provided health and exercise training and educational workshops in nearly every state in the U.S. They have a broad prospective on consumer needs across the U.S. and the myriad of niche markets that make up the various regions.

Table 8  
 DSSM ESTIMATES AND RECOMMENDED CUT SCORE  
 Group Exercise Certification Exam

	SME 1	SME 2	SME 3	SME 4	SME 5	SME6	SME7	SME8	SME9	SME10	SME11
1-10	6	7.1	7.1	6.5	7	6.8	6.5	5	7.9	5	7
11-20	6.4	7	6.3	5	4.8	4.8	5.6	6	6.9	5	6.1
21-30	5.7	6.7	6.7	7.2	5.5	6.5	6.5	6.6	5.7	7.3	6.3
31-40	5	7.3	8	7.8	4.4	7.4	7	7.4	6.9	6.7	7.8
41-50	6	6.6	7.3	7.7	4.1	6	6.6	5.9	7.1	7.3	7
51-60	7.6	6.8	8.5	8.4	4.1	6.6	6.1	6.7	7.2	6.8	8
61-70	6.8	7.7	8.8	8.8	6.7	8.1	7.3	8	7	8.1	8.1
71-80	7.5	7.2	6.4	6.9	5.8	6.4	6.3	6.4	7.5	4.6	6.2
81-90	7.7	7.3	6.6	6.1	5.5	6.8	6.6	6.7	7.4	5.5	6.5
91-100	8	7.8	8.8	8.1	7.4	7.6	7	7.6	7.8	7.6	7.8
MEAN	6.8	7.2	7.4	7.2	5.6	6.7	6.5	6.7	7.2	6.5	7.0

Calculations Including Outlier

Grand Mean	6.8
DSSM Cut Score	68% ( raw score points)
SEJ	1.51
DSSM Cut Score -SEJ	66.49
Recommended Cut Score	67% ( raw score points)

Calculations Excluding Outlier

Grand Mean	6.9
DSSM Cut Score	69.2% ( raw score points)
SEJ	1.02
DSSM Cut Score -SEJ	68.18
Recommended Cut Score	69% ( raw score points)

**Results**

The results of the standard setting exercise are summarized in Table 2. Inspection of the data contained in the table reveals that the SMEs' DSSM cut scores ranged from 56 to 72 items out of 100. As is customary, it was determined that the DSSM cut score would be adjusted by subtracting an amount equal to one standard error of judgement (SEJ). For a voluntary certification program, such adjustments are commonly made to ensure that the number of otherwise qualified candidates who might fail the examination due to measurement error alone is minimized.

**Calculations Including Outlier**

Subtracting the SEJ of 1.51 from the DSSM score of 68 resulted in a cut score of 66.49. Because fractional cut scores are routinely rounded up, the final recommended passing score was 67 correctly answered items out of 100.

**Calculations Excluding Outlier**

Subtracting the SEJ of 1.02 from the DSSM score of 69.2 resulted in a cut score of 68.18. Because fractional cut scores are routinely rounded up, the final recommended passing score was 69 correctly answered items out of 100.