

(一) 請閱讀下面文獻之摘要和討論部分，並回答問題 1 和 2。

*Frese EM, Richter RR, Burlis TV. Self-reported measurement of heart rate and blood pressure in patients by physical therapy clinical instructors. Phys Ther. 2002;82:1192-1200.*

**Background and Purpose.** The Guide to *Physical Therapist Practice* (Guide) recommends that heart rate (HR) and blood pressure (BP) measurement be included in the examination of new patients. The purpose of this study was to survey physical therapy clinical instructors to determine the frequency of HR and BP measurement in new patients and in patients already on the physical therapists' caseload. The use of information obtained from HR and BP measures in decision making for patient care and the effects of practice setting and academic preparation on the measurement and use of HR and BP also were examined. **Subjects and Methods.** A sample of 597 subjects was selected from a list of 2,663 clinical instructors at the clinical education sites of the 2 participating universities. Clinical instructors from a variety of practice settings were surveyed. A 26-item survey questionnaire was mailed to the clinical instructors. **Results.** Usable survey questionnaires were received from 387 respondents (64.8%); 43.4% reported working in an outpatient facility. The majority of the respondents strongly agreed or agreed (59.5%) that measurement of HR and BP should be included in physical therapy screening. When asked if routinely measuring HR and BP during clinical practice is essential, opinions were nearly split (strongly agree or agree=45.0%, strongly disagree or disagree=43.7%, no opinion=11.3%). More than one third (38.0%) of the respondents reported never measuring HR in the week before the survey as part of their examination of new patients. A slightly larger percentage (43.0%) reported never measuring BP of new patients in the week before the survey. Conversely, 6.0% and 4.4% of the respondents reported always measuring HR and BP, respectively, of new patients in the week before the survey. When given a list of reasons why HR and BP were not routinely measured in their clinical practice, respondents most frequently chose "not important for my patient population" (52.3%). Relationships were found between practice setting and frequency of HR and BP measurement in new patients. **Discussion and Conclusion.** Practices related to HR and BP measurement reported by this sample of clinical instructors do not meet the recommendations for physical therapy care described in the Guide.

## Discussion

We believe that we are the first authors to report on routine physical therapist practice with regard to measurement of HR and BP. Our data indicate that HR and BP are infrequently measured in new patients as well as in patients already on clinical instructors' caseloads even though the majority of physical therapists across all study settings generally agree that HR and BP should be measured in new patients. For example, 40.9% of those respondents who had not measured HR of new patients during the last week and 46.0% of the respondents who had not measured BP strongly agreed or agreed with the statement that measuring vital signs should be included in a physical therapy screening. We did not have a random sample, and our survey was limited to clinical instructors. These 2 factors limit our ability to generalize the results; however, our respondents' demographics closely matched those of the APTA membership. It is possible that physical therapists who are not clinical instructors might practice in a different manner from those we surveyed. Nevertheless, the findings are strikingly different from recommended practice. Very few clinical instructors reported always measuring HR and BP when examining a new patient, and a large percentage reported never taking HR and BP measurements in new patients. These results differ from recommendations found in the systems review portion of the Guide<sup>6</sup> and with the view expressed by the respondents the majority (59.5%) strongly agreed or agreed that vital signs should be included in a physical therapy screening. The respondents also infrequently measured HR in patients already on their caseload.

We believe that HR and BP measures should be included in the examination of all new physical therapy patients. Three factors led us to this conclusion. First, the prevalence of risk factors for cardiovascular disease in the United States is on the rise; 1 in 4 adults has high BP and 06% of adults are over weight or obese. Approximately 5 million children aged 6 to 17 years are considered overweight. In addition, other risk factors for cardiovascular disease, such as smoking and high cholesterol, are prevalent. Second, common physical therapy interventions such as orthopedic rehabilitation can affect HR and BP. Third, it is the responsibility of a primary care provider to screen the cardiovascular system.

Routine measurement of HR and BP after an initial examination may not be warranted for every patient and all activities. However, routine measurement of HR and BP is important for patients with cardiopulmonary comorbidities regardless of the practice setting in which patients are seen. In this study, more respondents working in home health settings reported measuring HR and BP more frequently than would have been expected by chance. A possible explanation may be that physical therapy examination forms used in home health settings frequently include OASIS (US Department of Health and Human Services Outcome and Assessment Information Set) items that require HR and BP measurements to be documented for Medicare reimbursement. Fewer respondents working in outpatient settings reported measuring HR and BP than would have been expected by chance. Given the high incidence of cardiovascular disease, we are concerned that HR and BP are infrequently measured in outpatient settings, as demonstrated by our data. If HR and BP are not measured, physical therapists may not recognize normal or abnormal physiological changes occurring when a patient performs activities during examination and intervention. Thus, the physical therapist could make decisions regarding choice or progression of an intervention.

Nearly a fourth of the respondents (22%) did not routinely measure HR and BP because they stated the information could be obtained from a patient's chart. Nearly a quarter (23.2%) of the respondents who did not routinely measure HR and BP and chose "other" wrote that nurses monitored vital signs. Our concern is that the physical therapist may not see the patient for several hours after a nurse has measured vital signs and the patient's physiological status may have changed in that period. In addition, nurses usually measure vital signs at rest in a sitting or supine position, whereas physical therapists require patients to be active and move into various positions. Basing decisions on resting HR and BP measured well before physical therapy could lead to an inappropriate clinical decision, especially in acute care settings, where patient status is often labile.

Another reason respondents gave for not routinely measuring HR and BP was that physical therapists take HR and BP measurements only when indicated. It is unclear, however, what signs and symptoms or comorbidities therapists look for in patients to determine the need to take HR and BP measurements, and how consistent their judgments are. Given current demands for increased productivity in physical therapy, we were surprised that lack of time was not given by more respondents as a reason for not measuring HR and BP (15.7%). Perhaps lack of time is seen as a socially unacceptable reason for not measuring HR and BP. Making the judgment that measuring HR and BP is not important for a particular patient could be seen as an acceptable reason for omitting these measurements. Physical therapists also may not view HR and BP measurement as part of their patient care responsibility; thus, they may believe that omitting HR and BP measurement in the examination and management of patients is not problematic.

Lack of skill in measuring HR and BP was not frequently reported as a reason for not taking these measurements (0.8%). Therefore, it appears that physical therapists are being taught to measure HR and BP. In a survey of physical therapy department chairs or program directors, Brooks found that 97.1% of respondents believed that performance of vital sign assessment is an essential component of the cardiopulmonary portion of the

curriculum.

Our results suggest that information obtained from HR and BP measurement may have minimal influence on clinical decision making about progression of an intervention in a general population of patients. This is not surprising, because few physical therapists reported measuring HR and BP as part of an examination of new patients. Not using HR and BP measures in clinical decision making for appropriate patients may compromise the physical therapist's ability to formulate an optimal exercise prescription for a patient. Thus, the physical therapist could overestimate or underestimate the appropriate exercise intensity for a patient or fail to modify an intervention as needed. Heart rate and BP measurement also can provide information for documenting outcomes of physical therapy intervention. For example, measures of HR and BP can provide information regarding improvement in response to activity due to physical therapy intervention.

We believe the current level of practice, especially in the area of examination, may not be sufficient for a profession that seeks to provide primary care. Physical therapists may need to implement standard operating procedures to encourage routine measurement of HR and BP.

The results of our study indicate the need for future research in several areas. First, a random sample of physical therapists working in a variety of settings would enhance the generalizability of the findings. Second, a study of education programs and physical therapist students would indicate whether students are taught to make clinical decisions based on HR and BP measurements. Third, a study of practicing physical therapists could determine if and how HR and BP measurements are used in clinical decision making. Fourth, a study is needed to determine whether clinical practice patterns can be modified by efforts to encourage physical therapists to measure and use HR and BP measurements during clinical practice.

- 1 請問作者在討論中認為在評量新病人時測量心率和血壓的理由，請列舉至少四項。(24 分)
- 2 請問
  - (1)本研究發現受試者不將心率和血壓的測量做為物理治療評量之例行項目的兩個主因為何？(12 分)
  - (2)作者在討論中表示不同意的理由又是什麼？(12 分)
  - (3)除此之外，作者還討論了什麼可能的原因？(2 分)

(二) 閱讀完以下英文摘要，請回答下列問題：

- 1 試述本研究的動機和目的。(15 分)
- 2 試述本研究的受試者的特徵和訓練計畫。(20 分)
- 3 依據實驗結果，試對本研究下一結論。(15 分)

## INSPIRATORY MUSCLE TRAINING IN PATIENTS WITH CHRONIC OBSTRUCTION PULMONARY DISEASE

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### Rationale:

Controversy exists regarding the efficacy of inspiratory muscle training in patients with chronic obstructive pulmonary disease (COPD).

Objectives:

This study was performed to evaluate this modality of therapy.

Methods:

123 patients in an outpatient pulmonary rehabilitation program were evaluated. All patients suffered from COPD. Patients used the Threshold Inspiratory Muscle Trainer. Baseline starting pressures were set at 30% of the negative inspiratory force (NIF). If patients were not able to tolerate this setting, the setting was reduced by 2 cmH<sub>2</sub>O. Patients started at 5 to 15 minutes at least once daily, and were instructed to increase the time gradually. When the patient reached 15 minutes, they were instructed to increase the pressure by 2 cmH<sub>2</sub>O and reduce the time. The patients were instructed to work back up to 15 minutes. NIF was used as a measure of the inspiratory muscle function. The more negative value the NIF, the better the function. Measurements were made at entry into and exit from the program. Results were subjected to statistical analysis.

Results:

The average entry value of the NIF was -34.43 cmH<sub>2</sub>O. The average exit value was -38.69 cm.  $P = .0282$ , which was statistically significant. Probability analysis showed there was little probability that patients would perform poorly.

