

# Multidisciplinary training of undergraduate students in the Faculty of Health Sciences: Hypertension as a case study

**Grobler L**, M.HPE, NDipPhysio, NDip TertiaryEd Lecturer  
Department of Physiotherapy, University of the Free State, South Africa

**Dippenaar H**, MBChB, M Fam Med  
Consultant, Department of Family Medicine, University of the Free State, South Africa

**Joubert G**, BA, MSc  
Head of Department, Department of Biostatistics, University of the Free State

**Correspondence to:** Dr H Dippenaar, e-mail: [dippenh@fshealth.gov.za](mailto:dippenh@fshealth.gov.za)

## Abstract

**Background:** Healthcare students should be aware of the specific skills, knowledge and management options of other disciplines in order to achieve an effective and cohesive working relationship.

**Aim:** The aim of this study was to expose healthcare students at the University of the Free State to one another's domains, as related to hypertension management, during a formal didactic lecture attended by medical, physiotherapy and dietetic students, and to determine whether they could apply in practice the theoretical knowledge regarding blood pressure measurement and exercise, obtained during a multidisciplinary session. The perceptions of students regarding multidisciplinary sessions were also to be obtained.

**Method:** Students received a formal lecture on hypertension from a medical doctor, a dietitian, a physiotherapist and an occupational therapist and they then worked in multidisciplinary groups to demonstrate the physiological effect of exercise on blood pressure and pulse rate. Students had to report their findings and perceptions of the session by completing data forms.

**Results:** A total of 125 medical, physiotherapy and human nutrition students participated in the session. The students were able to demonstrate the influence of exercise on blood pressure and pulse measurements. They reported that they enjoyed the multidisciplinary session and gained information on the scope of practice of the domains of the other disciplines. Negative feedback was received on the size of the groups and lack of equipment.

**Conclusion:** The students could apply theoretical knowledge in practice and all gave positive feedback. The sessions will continue in the current format but attention will be given to smaller groups and the availability of more equipment.

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## Background

Tertiary educators share the opinion that undergraduate healthcare students should be aware of the specific skills of others in order to achieve an effective and cohesive collaborative working relationship.<sup>1-3</sup> At the University of the Free State (UFS) the teaching programmes for medical and allied healthcare students are outcomes based. Some of the outcomes of these programmes prescribe/expect that students should be prepared for a team approach to health care, be able to utilise the services of allied health professions, and to work as a member of a team rendering health services. A specific attitudinal and behavioural outcome involves the willingness and the ability to work as a member of a multidisciplinary team.<sup>4</sup> With the emphasis on teamwork and the question "should we train students of different disciplines together?" it is important to evaluate multidisciplinary sessions. The Scottish Council for Research in Education identified some of the key issues of multidisciplinary teamwork:<sup>1</sup>

1. to bring more than two groups together,
2. to focus on complementary issues,
3. to learn from each other, and
4. to focus on the clients' needs.

As part of the modules on *Health and Disease in Populations*, third-year medical and physiotherapy students and fourth-year human nutrition students together attended a multidisciplinary session during April 2004. Afrikaans and English students took part in different sessions according to the University's language policy. Lecturers from the Departments of Family Medicine, Physiotherapy, Occupational Therapy and Human Nutrition gave lectures on hypertension and their specific roles in the treatment of hypertension. The correct techniques of blood pressure and pulse measurement were demonstrated and the physiological effects of different body positions and exercise on blood pressure were also addressed.

The students were then divided into multi-disciplinary groups of between 4 and 10 students per group. This wide range was necessary in order to recruit students from all disciplines in each group, as there were fewer English students in the allied health classes. Each group was tasked with calculating an effective pulse rate for the three-minute exercise routine and to measure resting pulse rate and blood pressure in one student per group, in accordance with standard methods.<sup>5</sup> Some of the big groups performed the exercise on two students. The same one or two students per group then had to climb a 20-cm high step for three minutes to demonstrate the effect of exercise on blood pressure and pulse rate. The blood pressure and pulse were measured just before and directly after the three minutes of exercise. This was done under controlled conditions in the skills laboratory, with assistance available.

## Aim

The main aim of this study was to expose each discipline of students to the training and management domain of the other disciplines regarding hypertension. It was also aimed at evaluating whether medical and allied health students at the UFS could apply the theoretical knowledge obtained during the formal lectures regarding physiological influences on hypertension in practice. Other outcomes were to evaluate the perceptions of students regarding the multidisciplinary sessions, to evaluate positive and negative aspects of these sessions, and to try to address these aspects in future sessions.

## Method

The results of the different measurements were collected on a standardised data form, with one or two measurements per group.

Each group also had to answer open-ended questions regarding the positive and negative aspects of the session, and could make suggestions for future sessions.

Standard protocols for the measurement of blood pressure and pulse rate were used and the same person took all the measurements in order to limit interpersonal variation to the minimum.

Answers of open-ended questions were grouped together in order to calculate percentages for specific answers.

Permission was obtained from the ethics committee of the Faculty of Health Sciences, UFS to perform the evaluation of the session.

## Results

A total of 87 medical students, 31 physiotherapy students and 18 human nutrition students participated in the session. Occupational therapy students could not participate due to other responsibilities. Students were divided into 24 groups. The measurements of 27 students were recorded. Of these 27 students, 16 were male and 11 female. Their ages varied between 19 and 25, with an average age of 21 years.

**Table I:** The physiological effects of exercise on blood pressure measurement

	Average Systolic BP	Average Diastolic BP
Resting BP	119 mm Hg (102–147)	78 mm Hg (60–119)
BP after 3 minutes of exercise	155 mm Hg (120–221)	75 mm Hg (50–105)

All the students reached an effective maximum pulse rate during the exercise session. The maximum pulse rate was calculated as 220 minus age, for both sexes. An effective pulse rate during exercise was calculated at 60–80% of the maximum pulse rate. The resting pulse rates varied between 48 and 100 beats per minute, with a mean of 70 beats per minute. After the three minutes of exercise the mean pulse rate was 130 beats per minute. The expected increase occurred in 100% of the groups.

All the groups gave positive feedback regarding the session and 54% commented on the fact that they enjoyed it very much. Table II tabulates the positive responses from the groups.

**Table II:** Positive feedback expressed by the students

Comment	Percentage (N = 24 Groups)
Informative and/or new knowledge gained	54%
Enjoyed the multidisciplinary effort	54%
Enjoyed the practical experience	25%
Very good lectures	17%

The positive comments varied, for example: "cool" and a "most enjoyable experience, which we hope would lead to better interdisciplinary work relationships for the rest of our careers".

The only negative feedback was on the size of some of the groups and the fact that they had to wait for equipment (29%), especially from the bigger groups.

## Discussion and conclusion

All the combined student groups were able to measure blood pressure and pulse rate and demonstrate the effect of exercise on

blood pressure and pulse rate. Complementary issues regarding the management of hypertension were addressed during the didactic lectures. The different groups could learn from each other during the lecture as well as the practical exercise. The students reported that they enjoyed the multidisciplinary sessions and gained knowledge from each other.

### Recommendations

We recommend that the multidisciplinary training of undergraduate students in the Faculty of Health Sciences should continue in the current format, but attention should be given to smaller groups and the availability of more equipment. In addition, one should measure if students understand the different roles of each team member in

the management of hypertension and what their respective roles are. Teamwork in the session should also be evaluated.

### References

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