and blood pressure during the exercise test.

Although the estimated VO_{2max} increased, a significant improvement in lung function was not observed in the current study. An approximately normal lung function (FEV1% predicted = 89.85%) leaving no room for improvement (ceiling effect) in the current subjects may partially explain this result. Published data[32] support the fact that peripheral physiology remains impaired in patients with OHT for a prolonged period of time after heart transplantation, which may limit exercise performance. Therefore, the estimated VO_{2max} increase after exercise training may have resulted from increased muscular endurance.

With improvement in VO_{2max}, a patient's ability to perform common activities also increases. In the current study, it was found that many patients expressed the ability to perform moderate to heavy work around the house, moderate recreational activities, running a short distance, and renewed sexual activities after exercise training. Since physical functioning is related to quality of life,[33] it may be concluded that exercise training can improve the quality of life in patients with OHT.

Psychological Adaptations after Exercise Training

To determine psychological adaptations after exercise training, exercise self-efficacy and body image were measured in the current study. Results of this study revealed that exercise self-efficacy significantly improved after exercise training, particularly for males and patients who had undergone OHT less than 1 year. Based on Bandura's theory,[34] performance is the most powerful source of efficacy information for enhancing self-efficacy. In the current study, it was found that the average exercise workload during exercise training in males was significantly higher than that in females (6 vs. 4 METs); males also had a higher estimated VO_{2max} than females which may contribute to explaining the discrepancy in exercise self-efficacy between males and females. Greater improvement in estimated VO_{2max} was observed in patients who had undergone OHT less than 1 year than in patients who had undergone OHT over 1 year which may partially explain why the former had higher exercise self-efficacy.

Efficacy expectation refers to an individual's perceived ability to perform a behavior which can help one determine: 1) whether or not to engage in a behavior and 2) how much effort will be expended.[34] A previous study[35] revealed that patients with chronic cardiopulmonary disease tend to underestimate their exercise ability which may lead to a sedentary life style. The results of the current study suggest that exercise training is a very helpful intervention to improve heart transplantation patients' exercise self-efficacy and exercise capacity. Unfortunately, in Taiwan, most patients receive no exercise education or training after heart transplantation due to a lack of cardiopulmonary rehabilitation programs. A well-designed cardiopulmonary rehabilitation center needs to be established as soon as possible in order to improve the quality of care for patients with OHT.

With respect to body image, we found that patients who undergo OHT have difficulties in integrating the new hearts into their bodies. A few patients stated that their new hearts seemed to be out of control. Jones et al.[12] reported that 34% of patients had a negative body image after heart transplantation. A negative body image may result from low physical function. Since physical function improves after exercise training, it was assumed that body image may also be improved by means of exercise training, because the new heart will be triggered during exercise, and patients can feel more self-control during the process. This assumption was supported based on the results of the current study. Before exercise training, 8 of 13 patients (61.5%) were dissatisfied with their body image, but only 5 of 13 patients (23%) reported being dissatisfied with their body image after exercise training. Patients' physical function increased after 10 weeks of exercise training, which may account for the changes in perception of body image.

Another factor that may result in dissatisfaction of body image in patients with OHT could be the side effects of immunosuppressive agents, which result in many physical signs/symptoms. Duitsman and Cychosz[16] reported that females displayed greater dissatisfaction with their body image than males, which is the same as our findings. In the current study, males and females revealed a nearly equal score in body im-