devastating condition that may result in irreversible penile fibrosis. Hormonal manipulation using estrogens and gonadotrophin-releasing hormone analogues has been successful in treating episodes of priapism refractory to other treatment forms, but it is associated with significant adverse effects, particularly to the loss of libido and erectile function. The role of antiandrogens in the treatment of men with refractory priapism should be evaluated in the setting of a controlled study. Al-Jam'a and Al-Dabbous[3] used the immunosuppressive agent hydroxyurea to treat the priapism associated with sickle cell disease. This therapy for sickle cell disease may prevent these complications in the future.[1] DeHoll[4] and his colleagues described the use of intracavernous MB a guanylate cyclase inhibitor, or internal pudendal artery embolization for the treatment of priapism. The results confirmed that MB is effective for pharmacologically induced priapism. During treatment, the agent being injected should be diluted to prevent necrosis of cavernous tissue, the dose of agent should be controlled to avoid acute hypertension, headache, palpitation and cardiac arrhythmia from alpha-adrenergic agents, care should be taken to be tender to decrease bleeding, hematoma, infection, and urethral injury from needle puncture. Infections are usually in the form of cellulites. Therefore, strict asepsis in carrying out penile irrigation and use of antibiotics are both mandatory to avoid this potentially disastrous complication. Having ruled out other causative factors, one should treat the patients by aggressive hydration, oxygenation, and metabolic alkalinization to reduce further sickling. Supertransfusion and erythropheresis should be used as second-line therapy. Irrigation and injection should be performed promptly. Sedation followed by enemas of ice-cold saline solution may induce subsidence of the erection. Red blood cell exchange transfusion[5] can, without increasing the whole-blood viscosity quickly replace abnormal erythrocytes and raise the hematocrit resulting in improved delivery of oxygen to hypoxic tissues. Unfortunately, transfusion can also be associated with complications. Hyperbaric oxygen also has been suggested for these patients.

We considered that priapism in sickle cell patients is a recurrent, low-flow priapism and a urologic emergency. Recognition, diagnosis and prompt treatment of the disease is important to prevent complications such as fibrosis and impotence. The goal of treatment is to abort the erection, thereby preventing permanent damage to the corpora and to alleviate pain. Treatment should be prompt and conservative, medical management should always be tried before resorting to surgery; almost all cases can be successfully aborted with injection of a dilute alpha-adrenergic agonist, provided treatment begins within 12 hours of onset. Intracavernous injection of an alpha-adrenergic agonist remains the most effective treatment for low-flow priapism and is almost 100% effective if the priapism is treated within 12 hours of onset. Various methods and agents, such as adrenergic agonists (etilefrine), antiandrogen, immunosuppressive agent (hydroxyurea) and guanylate cyclase inhibitor (MB) can be used in the patients effectively. Measurements to adjust the occult misbalance of acid-base and electrolyte should be given simultaneously. Blood transfusion should be applied to the patient who received aspiration of corpora cavernosa.

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The effects of cardiac rehabilitation in patients with coronary artery disease

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Cardiac rehabilitation (CR) has been recommended after acute myocardial infarction and coronary artery bypass surgery. Comprehensive cardiac rehabilitation programs usually consist of exercise, education regarding nutrition, smoking cessation and psychosocial support. The goals of these programs shall return patients to a productive lifestyle and to reduce risk of cardiac events or death. The aim of this prospective randomized trial was to investigate influences of supervised comprehensive cardiac rehabilitation on exercise capacity, psychological factors and plasma lipid profiles in patients with coronary artery disease.

Patients survived after first acute myocardial infarction (AMI), coronary artery bypass graft (CABG) and percutaneous transluminal coronary angioplasty (PTCA) included in this trial if the following criteria were found: History of recent (4-6 weeks ago) first acute myocardial infarction, no conduction abnormality, physically and medically stable and no contraindications to perform exercise. From September 2000 through July 2001, 76 patients were referred to CR programs. All

patients provided signed informed consent before investigation. After completion medical history and physical examination, in all patients transthoracic echocardiography study for evaluation of left ventricular function, based electrocardiography (ECG), monitored treadmill multistage graded exercise tests (ETT) using the standard Bruce protocol were performed. A test was terminated when a patient reached it's age - predicted maximal heart rate, developed abnormality such as ST depression in ECG, declined blood pressure or reported symptoms including chest pain or shortness of breath. The stage and metabolic equivalents (METs) level at the end of the ETT were considered as a patient's maximal physical capacity. After exclusion of 11 patients due to early positive for ischemia on exercise tolerance test, low exercise capacities (METs <7), lack of regular cooperation to take part in CR Programs, 65 patients were enrolled for this study. In all patients blood samples were obtained to measure based plasma lipid profiles such as total Cholesterol (TC), low density lipoprotein (LDL), High density lipoprotein (HDL) and Triglyceride (TG). At the same time, nutritional counseling provided to all participants to achieve restriction in saturated fat and cholesterol and maintain normal body weight.

A psychological evaluation was performed with the use of Minnesota Multiphasic Personality Inventory (MMPI-II) for personality characteristics and symptom checklist-90 Revision (SCL-90R) for self-report inventory of emotional distress in the beginning of study. After that, all patients underwent health education and counseling psychotherapy, stress management training programs, smoking cessation and maintenance of cessation and relaxation training by psychologists. For all patients, an exercise program was developed on the basis of each patient's ETT results. An exercise target heart rate was defined as 80% of the maximal heart rate on it's ETT. All patients continued their routine medications during trial, except they did not take their diuretic doses in the morning of exercise. The patients were supervised by continuous ECG monitoring to exercise in 3 phases.

Phase I: Warm up (light flexibility): 5-10 minutes.
Phase II: Aerobic training activity: (on bicycle or treadmill): 30-40 minutes.
Phase III: Cool-down (slow walking and stretching): 5-10 minutes.

Blood pressures measurements were performed every 5 minutes in phase II and the end of others phases. During each supervised session, intensity of exercise and heart rate from ECG monitoring were recorded. All patients continued the exercise program 3 times a week for 8-12 weeks. Exercise was stopped if patients experienced any cardiac signs, symptoms, or ECG abnormalities. After 8-12 weeks, a participant exercised at an intensity level to reach it's individually target heart rate and duration of exercise. After termination of CR Programs for final evaluation, all patients underwent echocardiography study, plasma lipid profile measurement and psychological assessment. All data of the patients were compared using the paired students t-test for continuous variables and the X^2 test for discrete variables. Differences were considered significant at a value of $P<0.05$. Sixty-five patients (50 men and 15 women; mean age 55 ± 8.5 years were enrolled in the study and completed it. Demographic data for the 65 patients are listed in **Table 1**. All patients have coronary artery disease and majorities of them (92%) have history of intervention for coronary arteries. **Table 2** shows comparison of exercise result and lipid profile values before and after CR Programs. Mean time of exercise tolerance test increased from 7.77 minutes before to 9.56 minutes after CR Programs ($p<0.001$). In comparison of the initial with the final programs, total work capacity (METs) increased from 8.7-10.8 ($p<0.001$). Improvement of work capacity was similar in both sex groups. Cardiac rehabilitation programs and exercise training result in significant improvement in plasma lipid profiles. Total cholesterol, low-density lipoprotein and triglyceride significantly reduced during the program. Although 43% of patients received lipid lowering drugs. Left ventricular ejection fraction was not changed before and after CR.

In assessment of psychological condition, before CR in 12% of patients moderate to severe depression had occurred. Anxiety disorders are manifested in approximately 5-10% of patients. After CR programs, 91% of patients demonstrated decreasing in life stress and depressed mood and significantly improved general well being ($p<0.01$).

Although exercise training for coronary artery disease patients is called CR, exercise is only one component of comprehensive CR Programs.

Many reports have shown the benefits of CR including lower morbidity, mortality and improvement optimal physical working capacity even in patients with depressed left ventricular (LV) function compared with patients no participating in CR programs.[1] There is a report that patients with exercise intolerance and LV dysfunction may have normal cardiac output responses to exercise.[2] This observation suggests that patients with normal flow responses would likely respond to CR, whereas patients with reduced flow responses would not benefit from an exercise program.[2] These studies extend exercise-training in patients with depressed LV function. At present, revascularization procedures greatly reduce the symptoms of myocardial ischemia and may also reduce the subsequent incidence of morbid and fatal events. If we can succeed in helping patients to stop smoking, control weight, exercise regularly and take all medications prescribed, the burden of illness from cardiovascular diseases will fall even more dramatically.

In this trial, our data confirm that supervised exercise training programs is effective in improving exercise tolerance time and working capacity without cardiovascular complications or other adverse outcome. Exercise training in other studies has been shown to increase functional work capacity, reduce

Table 1 - Demographic data of enrolled patients (65 patients).

Demographic data	n (%)
Age (years)	35-71 (55 ± 8.5)
Male/Female	50/15
Post CABG (86% 3VD) (14% 2VD)	53 (81)
Post PTCA	7 (11)
Post MI	2 (3)
CSA	3 (5)
HLP	37 (57)
HTN	29 (45)
Smoking	24 (37)
DM	19 (29)
LVEF	41 ± 4

VD - vessel disease
CSA - chronic stable angina
HLP - hyperlipidemia
HTN - hypertension
DM - diabetes mellitus,
LVEF - left ventricular ejection fraction
CABG - coronary artery bypass graft
PTCA - percutaneous transluminal coronary angioplasty
MI - myocardial infarction

catecholamines and vascular peripheral resistance and improved vasomotor tone during exercise in coronary artery disease patients. Also, reports showed beneficial changes in autonomic balance and attenuation of the vasoconstrictor influences (mainly due to sympathetic activity) and the increased vagal tone after training in animals.[3]

Cardiac rehabilitation and exercise training usually result in statistically significant improvements in plasma lipids. This has been also assessed by the reduced recurrence of clinical events and the decreased rate of progression of coronary artery narrowing as determined by angiography after CR.[4] All patients in our study have nutritional counseling regularly and 43% of them received lipid lowering drugs. A diet restricted in saturated fat and cholesterol and designed to achieve and maintain normal body weight maybe is an important component in lowering serum lipid values. Psychosocial problems are common in patients enrolled in outpatient CR programs. Psychotherapy and stress management shows promising results in improving psychosocial distress among patients with coronary artery disease. In this study, well being sensation after CR programs satisfied patients from decreasing depression, anxiety, and anger and improving quality of life. This result is in agreement with the reports, which showed more marked benefits following CR programs in the coronary patients with psychosocial problem.[5]

In conclusion, we now consider that CR is comprehensive and exercise is only one component of CR program. We confirm CR can be important as a useful adjunct therapy to CABG, PTCA or existing

Table 2 - The means and standard error of serum lipids, exercise duration, left ventricular ejection fraction before and after cardiac rehabilitation.

Variable	Mean ± SE (before)	Mean ± SE (after)	Deviation of mean ± SE	*p*-value
Total cholesterol (mg/dl)	218 ± 5.98	198 ± 5.43	-20.7 ± 5.38	0.001
Cholesterol HDL (mg/dl)	39.4 ± 0.97	40.44 ± 1.14	1.13 ± 0.97	0.25
Cholesterol LDL (mg/dl)	142 ± 5.1	117 ± 4.82	-24.9 ± 5.88	0.001
Triglyceride (mg/dl)	231 ± 15.8	205 ± 14.08	-26 ± 12.28	0.03
METs	8.71 ± 0.27	10.87 ± 0.24	2.15 ± 0.21	0.001
Duration of exercise (min)	7.77 ± 0.27	9.56 ± 0.23	1.78 ± 0.2	0.001
LVEF (%)	41 ± 4	43 ± 5	-	0.60

HDL - high density lipoprotein, LDL - low density lipoprotein, METs - metabolic equivalents
LVEF - left ventricular ejection fraction, SE - standard error

medical therapy in helping people to return to normal activities. Our data indicate that CR program is feasible and effective in improving working capacity, exercise time and quality of life in patients with coronary artery disease.

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Thromboprophylaxis in laparoscopic cholecystectomy

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After its introduction in 1989, one of the advantages of laparoscopic cholecystectomy (LC) over the conventional method was low incidence of thromboembolic events due to early mobilization and lower surgical stress. This view was later tarnished by some reports of deep venous thrombosis (DVT) after laparoscopic procedures.[1,2] This was attributed to the fact that increased intraabdominal pressure induced by laparoscopic pneumoperitoneum causes inferior vena caval compression with subsequent impedance of venous return which leads to stasis and thrombosis.[2] However, this fact was refuted[3] resulting in great variation in attitudes of laparoscopic surgeons towards thromboprophylaxis during laparoscopic surgery.

A questionnaire was sent to 114 laparoscopic surgeons in 32 hospitals in all the 5 provinces in the Kingdom of Saudi Arabia (KSA) in January 2002. The questionnaire covered the number of LC performed per annum by each surgeon, selective or routine use of anticoagulants in elective LC, the number of thromboembolic cases diagnosed as DVT or pulmonary embolism (PE) following LC that was encountered by each surgeon and the outcome. The answered questionnaire was collected and entered in a database and analyzed. Only 70 responses (61%) were received. Thirty (43%) of the respondents performed more than 75 LC per annum and only 3 surgeons performed less than 10 per year. Thirty-nine surgeons (56%) were selective in their thromboprophylaxis policy while 37 surgeons (38.5%) prescribed heparin routinely to all patients undergoing LC. Only 4 surgeons did not believe that anticoagulation was necessary in elective LC. Half of the respondents, mainly those working in the private sector, used low molecular weight heparin (LMWH) and the other half used unfractionated (standard) heparin. Thirty-eight surgeons (54%) used other anti-DVT measures such as elastic stockings. Fifty-nine (84.3%) surgeons did not encounter a single case of thromboembolism after LC in their practice. Eleven (15.7%) surgeons encountered 15 cases of thromboembolism. All affected patients were cured by anticoagulation except 2 who died of massive PE (**Table 1**). Surgeons adopting selective thromboprophylactic policy encountered 11 (73%) of the thromboembolic events.

The reported incidence of DVT after LC is 0.03-1%.[1] However, a much higher incidence of subclinical DVT following LC was reported.[2] Although recent papers, mostly as case reports, have addressed the risk of DVT after LC and the need for routine thromboprophylaxis, some authors still express doubts about its validity and cost-effectiveness for routine LC.[3] Therefore, controversy regarding thromboprophylaxis still exists among laparoscopic surgeons. In a review of 8 published original articles on LC from KSA from 1993-1999, that included 3488 patients, only 2 cases (0.07%) of DVT and 2 cases (0.07%) of PE were encountered giving a total thromboembolism rate of 0.14%; all were cured with anticoagulation without mortality. This is indeed very low and does not give a cause for concern. This survey however identified 15 thromboembolic events encountered by 11 surgeons (15.7%) in 9 departments (28%); one department with very high throughput of LC encountered 6 events (40%). All affected patients were cured by anticoagulation except 2 that died of massive PE. It is such mortality that needs to be avoided by aggressive thromboprophylaxis. Furthermore, surgeons adopting a selective policy on thromboprophylaxis experienced more than 70% of these events. This may be explained by the fact that the indications for selective use of thromboprophylaxis are so variable among the respondents. Furthermore, in absence of clear and specific guidelines, some patients may undergo laparoscopic surgery without DVT-prophylaxis, which makes them at an increased risk of developing DVT or PE. This variation in indications was also reported by similar studies from the United Kingdom (UK)[4] and Denmark.[5] In our survey, it was very disturbing to find that surgical members of the same department have different attitudes towards thromboprophylaxis. This