Avoiding Muscular Strain
In Patient-Care Activities

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push, pull, carry and lift.
The bones, joints, muscles, nerves and brain all work together to maintain the posture and balance of the body and this body mechanics is explained on the basis of centre of gravity (C.G.) which is considered to be the point at which all external forces are applied on an object. This C.G. must remain stationary to maintain equilibrium of the body. In walking, it shifts from side to side and front to back.

Here are the guidelines which would help the staff in maintaining the body alignment and, ease the musculoskeletal strain while handling and taking care of the patients:

1. Keep C.G. low or close to the base of support by moving the feet rather than twisting and bending at the back which distributes the weight evenly in body and helps to maintain balance of body e.g., while bathing a patient's feet/legs, move from head end to foot end rather than bending the back at head end. Same principle is followed while tucking the sheets during bed making, while bathing a patient in bath tub, while giving hair wash, while emptying the urine bag and measuring the urine out-put.

2. Create a wide base of support by keeping the feet apart with C.G. in centre e.g., in moving a patient from bed to trolley or vice versa or carrying a heavy machine/basin of water or a procedure tray. In crutch walking, the patient is taught to keep the crutch and uninjured foot apart as they form the base, otherwise patient might fall. Patients with heavy braces, orthopaedic appliances and artificial limbs also learn to shift the C.G. without falling over by following the same principle.

3. Keep the work/object close to your body, to prevent unnecessary strain on the muscles of the back. This brings the C.G. of the object closer to C.G. of the body e.g., bring patient close to you when doing any nursing procedure like bathing him, changing his clothes, dressing his wound etc.

4. Use major muscle groups in lifting heavy objects e.g., gluteal and femoral muscles (quadriceps muscles of thighs) than weak sacro-spinous muscles of the back.

5. Avoid working against gravity because of gravitational pull, more force is required to lift an object rather than to push or pull it.

6. At instances patients assist in their movement.

7. Use mechanical devices wherever necessary.

8. Take assistance of others.

9. Use your own weight to push or pull a patient to minimize muscle energy.

10. Face the direction of force when moving a heavy object e.g., when assisting a patient towards head end of bed, face towards head-end.

11. Make the body movement smooth and rhythmic.

12. Move the patient to the edge of the bed before he is lifted so as to keep the trunk more erect.

13. Avoid unnecessary muscle stretches, strains and stooping by arranging your work level e.g., in bed bath, elevate the bed and lower the side rails. In folding a blanket, energy is conserved if the arms are held relaxed at the sides of the body and forearms are flexed. Folding the blanket with the upper extremities stretched directly out in front of the body puts an extra strain on the muscles of the back.

References:
3. Nursing Procedures Spring House, 1992 P-60
4. Kozier & Erb, Fundamentals of Nursing, concept and procedure P-1919