**Joints & Muscles Affected By Hemophilia Bleeding**

**JOINTS:**
- Shoulder.
- Elbow.
- Wrist.
- Hip.
- Knee.
- Ankle.

**MUSCLES:**
- Triceps.
- Forearm flexors.
- Iliopsoas (hip flexor).
- Quadriceps.
- Hamstrings.
- Calf muscle.

**المفاصل والعضلات التي تتأثر بنزف الدم**

المفاصل: العضلات:
- مفصل الكتف.
- مفصل اليد.
- عضلة العضلة الخلفية. عضلة النفق الأمامية.
- مفصل الركبة.
- عضلات الساعد (النفق).
- مفصل الركبة.
- عضلة اليد.
- عضلة يد الساق.

**Definition of Hemophilia**

X-linked congenital bleeding disorder (one in 10,000 from births) usually persons not bleeding intensively but bleed long time, hemophilia caused by a deficiency of coagulation factor 8 (hemophilia A) or factor 9 (hemophilia B) related to mutations of gene the clotting factor.

**Signs & Symptoms of Hemophilia**

Hemophilia (A) like hemophilia (B):
- Large contusions.
- Sudden bleeding inside body without obvious cause.
- Bleeding for long time after wounds or operations or tooth extraction or accidents especially head trauma.
- Bleeding inside muscles and joints especially knees, elbows, ankles. Results in:
  - pain during movement.
  - Pain or unusual sensation inside joint.
  - Difficulty use of the muscle and joint.
  - Swelling.

**Important points must be followed during exercises**

- Start exercise with most affected limb.
- During exercise you can assist with non affected limb.
- Stop exercise when feeling tired.
- Follow levels of difficulty during exercises.
- Repetition of exercise according to your ability.

**Definition of Hemophilia**

هو مرض خلقي من أمراض الدم (متعلق بنزف الدم) محمل على جين X (يصيب شخصال من بين 10000 نسمة منعوا). عادة لا ينزف الأطفال بشكل غريب ولكنه ينفرد لوقت أطول. نتيجة تنسح عظام التخثر بمعدل مثل العامل 8 مسبباً النوع الأول من (هيموفيليا أ) أو العامل 9 مسبباً النوع الثاني من (هيموفيليا ب) نتيجة لتحول العامل الجنيني الخاص بالتخثر.

**علامات وأعراض مرض الهيموفيليا**

العنوان (أ) و (ب) من الهيموفيليا متشابهان في الأعراض التالية:
- ننزف في الجلد دون سبب واضح.
- ننزف طويل بعدها الإصابة بجرح.
- شعور حساسية في العضلات. يتم عادة في الرأس، الركبة.
- عظام تتأثر بالنزف في المفاصل.
- ألم أو شعور غير طبيعي في العضلات.
- ألم أثناء الحركة.
- صعوبة تحريك المفصل أو العضلات.
- تورم.

**لقاء مع لجنة التدريب**

لا بد من التعاون للحصول على أفضل النتائج. الأنشطة التي تحتاج إلى الشؤون في التدريب.

- تدريب النزيف عند الشعور بالإجهاد.
- مراعاة التدرج في صعوبة التمرين.
- يركز التمرين على حسب التحميل.
Exercise (4):
Move foot up, then down, then practice drawing shapes or letters, repeat several times.

Exercise (5):
Bend knee to buttocks, then straighten leg, repeat several times.

Exercise (6):
Bend non-affected thigh towards chest, assisting with hands, stop bending as soon as there is a stretching sensation in affected thigh, keep affected thigh flat on bed, hold for several seconds, relax, repeat for several times.

Exercise (1):
Slide heel toward body, then sliding heel away from body, repeat several times.

Exercise (2):
Bend knee, then straighten leg, repeat several times.

Exercise (3):
Straighten knee slowly until a stretch is felt at back of thigh, hold for several seconds, relax, repeat for several times.
**Exercise (9):**
Bring affected thigh towards chest & place a strap or towel around bottom of foot, while holding strap with both hands, slowly straighten affected knee, pressing heel towards ceiling, press gently until a stretch is felt at the back of the thigh, hold for several seconds, relax, repeat for several times.

**Exercise (7):**
Bend non-affected knee toward chest, but keep affected leg flat on surface, hold for several, repeat for several times.

**Exercise (8):**
Keep heel flat on floor, slowly flex knee and slide the heel back until a stretch is felt in the calf of non-affected leg, hold for several seconds, relax, repeat for several times.

**Exercise (10):**
Push heels into ground & Left hips, hold several seconds, repeat several times.
Exercise (14):
1. Bend & Straighten elbow, repeat several times.
2. Straighten elbow slowly, letting weight of arm assist, repeat several times.

Exercise (15):
Straighten elbow as far as possible, assisting with other hand, repeat several times.

Exercise (16):
Open and close fingers, repeat several times, trying to open fingers a bit more each time.

Exercise (11):
Place affected leg up on step, push down through affected leg and extend knee to step up onto step, repeat for several times.

Exercise (12):
Move knee toward wall, keeping heel on floor, hold few seconds, relax, repeat several times.

Exercise (13):
Step back slightly with affected leg, & place heel flat on ground, keep knee, straight, lean body toward wall, stop when a stretch is felt in the calf, repeat for a few times.
**Exercise (1):**
Straighten knee, hold few seconds, relax, repeat several times.

**Exercise (2):**
Press ankles opposite together, hold few seconds, repeat with knee bend at different angles.

**Exercise (3):**
Straighten knee (with attached small weight at ankle), hold few seconds, then bend knee, repeat for several times.

**Exercise (17):**
With wrist & fingers in a comfortable position extend Wrist, repeat several times, trying to extend wrist until a stretch is felt in forearm, hold for several seconds, relax, repeat several times.

**Exercise (18):**
With wrist & fingers in a comfortable position, extend the elbow completely then bend it all, repeat several times.
Exercise (7):
Bend knee to 90 degree, then slowly lower foot back to surface, repeat for several times.

Exercise (8):
Bend knee to 90 degree, then slowly lower foot back to ground, repeat several times.

Exercise (9):
Same level (2) + (with attach small weight at end of leg).

Exercise (4):
Step up with affected leg, push with leg to raise body onto the top of the step, repeat several times.

Exercise (5):
Step down with strong leg, letting affected knee bend, gradually lower with your body, then return to upright, repeat several times.

Exercise (6):
Start, in kneeling, bend affected knee & place foot flat on floor, stand up with affected leg, repeat several times.
Exercise (12):
Lift front of foot off floor, hold few seconds, relax, repeat several times.

Exercise (13):
1. Lift both heels & stand on toes several seconds, relax, repeat several times. 2. Walk several steps on toes, walk several steps on heels.

Exercise (14):
Start, stand on affected leg, hold for balance, raise heel off floor, hold, relax, repeat several times.

Exercise (10):
Bend affected leg toward chest, press hand & knee together (gradually building up pressure), hold few seconds, relax, repeat several times.

Exercise (11):
Press thigh against wall (used soft pillow), (gradually building up pressure), hold few seconds, relax, repeat several times.

Exercise (12):
ارفع مشط القدم عن الأرض وحافظ على هذا الوضع لبضع ثوان ثم استرخي وكرر التمرين لعدة مرات.

Exercise (13):
1. ارفع الكعبان وقت على أصابع القدمين. 2. امشي عدة خطوات على أصابع القدمين ثم عدة خطوات على الكفين.

Exercise (14):
قف في البداية على ساقين القدمين (من الأسفل). والثاني الذي انتشر بالإلتزام وأرفع الكعب عن الأرض وحافظ على هذا الوضع لبضعة ثوان ثم استرخي وكرر التمرين لعدة مرات.
Proprioception (Balance Exercises)

**Exercise (1):**
1. Stand on affected leg (*) with eyes opened, maintain balance.
2. The second level with eyes closed as long as possible.

**Exercise (2):**
1. Stand on affected leg (*) with eyes opened on an unstable surface, maintain balance.
2. The fourth level with eyes closed as long as possible.

**Exercise (15):**
Straighten arm slowly, then slowly lower, repeat for several times.

**Exercise (16):**
Extend arm slowly (hold with weight by your hand). Then slowly lower hand, repeat for several times.

**Exercise (17):**
Lean body towards wall, allowing elbows to bend, return to upright position by pushing with arms and straightening elbows, repeat for several times.
Exercise (3):
Like in the picture, raise one leg backward while maintaining balance on both arms, maintain balance for several seconds then lower the leg, repeat with opposite leg, repeat until arms feel tired.

Exercise (4):
Like in the picture, raise one arm & opposite leg, maintain balance for several seconds, return to start position, repeat until affected arm feels tired or shaky-the third level on an unstable surface.

REFERENCES: