Improving Flexibility

EXS 150
Chap 6

Physiological Basis for Developing Flexibility

- Structural Limitation to Movement
  - Ligaments
  - Cartilage
  - Tendons

Muscle
(47% of resistance to flexibility)

Joint Capsule
(47% of resistance to flexibility)

Tendon
(10% of resistance to flexibility)

Physiological Basis for Developing Flexibility

Stretch reflex
- involuntary contraction of muscle that occurs due to rapid stretching of a muscle
Training to Improve Flexibility

- Static stretching
  - stretching that slowly lengthens a muscle to a point where further movement is limited

See Chap 6 for more pictures

Training to Improve Flexibility

- Proprioceptive neuromuscular facilitation (PNF) – combines contraction and relaxation of the muscle to improve flexibility
  - Contract \( \rightarrow \) Relax stretching – demo
  - Contract \( \rightarrow \) Relax antagonist contract stretching (CRAC) – demo

the muscle on the opposite side of the joint

Table 6.2 Sample Flexibility Program

<table>
<thead>
<tr>
<th>Week No.</th>
<th>Phase</th>
<th>Duration of Stretch Hold</th>
<th>Repetitions</th>
<th>Frequency (times/wk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Starter</td>
<td>15 sec</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Slow progression</td>
<td>20 sec</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Slow progression</td>
<td>25 sec</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Slow progression</td>
<td>30 sec</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>5</td>
<td>Slow progression</td>
<td>30 sec</td>
<td>4</td>
<td>3-4</td>
</tr>
<tr>
<td>6</td>
<td>Slow progression</td>
<td>30 sec</td>
<td>4</td>
<td>4-5</td>
</tr>
<tr>
<td>7+</td>
<td>Maintenance</td>
<td>30 sec</td>
<td>4</td>
<td>4-5</td>
</tr>
</tbody>
</table>

Flexibility: The exercise prescription

- Use of PNF or static stretching
- Frequency: 2 to 5 days per week
- Duration: 10 to 30 minutes each session
  - Starter phase – week one
  - Progression phase – add one session per week for the first 4 weeks
    - Start at 5 minutes and add up to 20 to 30 minutes during weeks 6 through 12
- Intensity: – don’t overstretch or bounce
  - Hold each exercise approximately 8 to 10 seconds
  - Can hold stretch up to 20 seconds

Safety!!!

- See page 141 – 144 for contraindicated exercises
- Avoid breath holding
- Do not stretch any joint to the point that ligaments and capsules are stressed
- Use caution during passive stretching
- Avoid forceful extension and flexion of the spine
- Avoid ballistic movements, especially when muscles are cold

How to stay motivated

- Set aside time and stick to the schedule
- Make it FUN!!
- Get goals – short term and long term