

# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

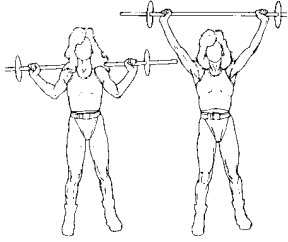
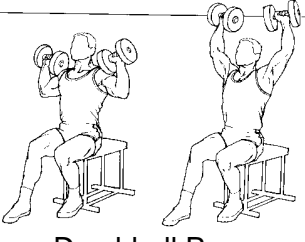
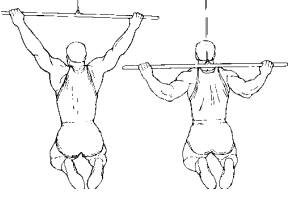
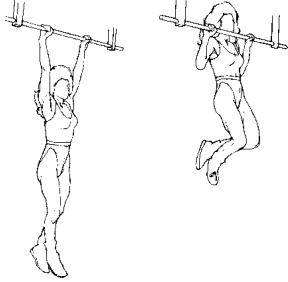
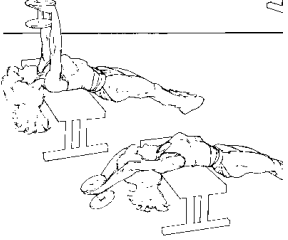
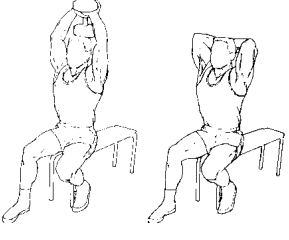
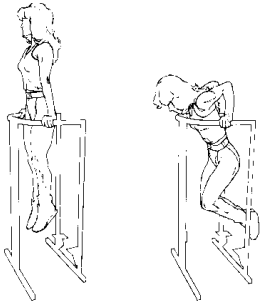
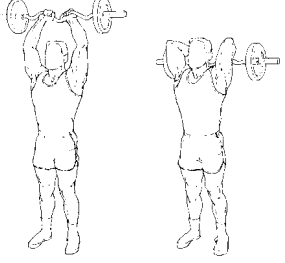
## WEIGHT LIFTING PROGRESSION

### ROTATOR CUFF TENDINITIS / IMPINGEMENT/ DISTAL CLAVICLE OSTEOLYSIS (NON- OPERATIVE)

#### A. CONTRAINDICATED EXERCISES (ILLUSTRATED BELOW)

- Overhead or military press, dumbbell press, push press
- Behind the neck lat pull down, pullovers, and pull ups
- Seated overhead tricep extensions, French Curls, and Dips

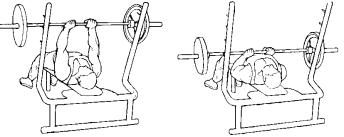
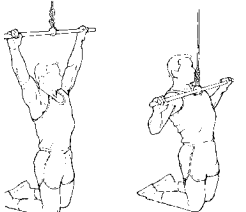
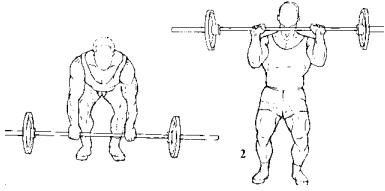
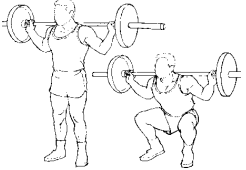
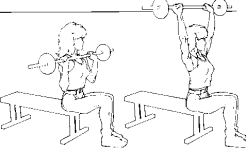
#### DO NOT DO:

 <p>Military Press</p>	 <p>Dumbbell Press</p>	 <p>Behind the neck LPD</p>
 <p>Pull ups</p>	 <p>Pullovers</p>	 <p>Overhead tricep ext</p>
 <p>Dips</p>	 <p>French Curls</p>	

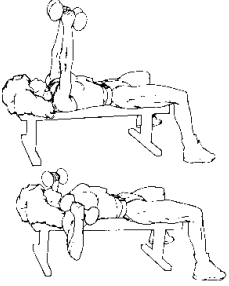
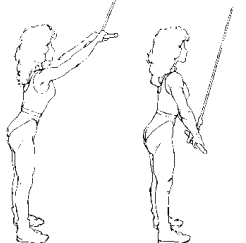
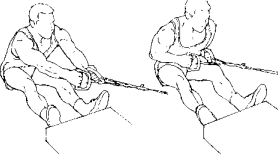
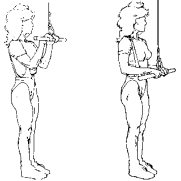
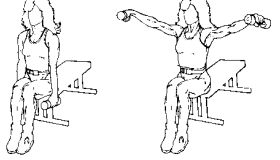
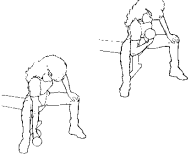
# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

## B. MODIFIED CORE EXERCISES (ILLUSTRATED BELOW)

- Bench Press
- Front Lat Pull down
- Power clean
- Back squat
- Shoulder Press

 <p>Bench Press</p>	 <p>Front Lat Pull Down</p>	 <p>Power Clean</p>
 <p>Back Squat</p>	 <p>Shoulder Press</p>	

## Accessory Exercises

 <p>Chest Flys</p>	 <p>Straight Arm Lat Pulldown</p>	 <p>Seated Rows</p>
 <p>Triceps Ext</p>	 <p>Deltoid Raise</p>	 <p>Concentration Curls</p>

# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

## Calculating 1 Rep Maximums

1. Select a weight that can be completed with proper form 6 to 10 times for a given exercise
2. Perform the exercise with the selected weight and record the number of performed repetitions (the last repetition should be challenging but with good form)
3. On the 3% rule chart pictured below, find the number of repetitions performed in the max reps row. Scroll down inside the chart and find the weight closest to the weight you performed for the given exercise (the exact weight may not be available)
4. Your estimated 1 rep maximum for that given exercise is the load associated with the 100% 1RM column of that same row
5. Multiply the estimated 1 rep maximum by the percentage for the designated step to determine the prescribed weight for the given exercise

**EXAMPLE:** Bench Press- performed 6 repetitions at 120 lbs  
 Approximated 1 rep max= 140 lbs  
 65% 1 RM for Bench Press (140 x 0.65) = 91 lbs

Estimating 1RM and Training Loads

Max reps (RM)	Max reps (RM)														
	1	2	3	4	5	6	7	8	9	10	12	15			
%1RM	100	95	93	90	87	85	83	80	77	75	67	65			
Load (lb or kg)	10	10	9	9	9	8	8	8	8	7	7				
	20	19	19	18	17	17	16	15	15	13	13				
	30	29	28	27	26	26	25	24	23	23	20	20			
	40	38	37	36	35	34	33	32	31	30	27	26			
	50	48	47	45	44	43	42	40	39	38	34	33			
	60	57	56	54	52	51	50	48	46	45	40	39			
	70	67	65	63	61	60	58	56	54	53	47	46			
	80	76	74	72	70	68	66	64	62	60	54	52			
	90	86	84	81	78	77	75	72	69	68	60	59			
	100	95	93	90	87	85	83	80	77	75	67	65			
	110	105	102	99	96	94	91	88	85	83	74	72			
	120	114	112	108	104	102	100	96	92	90	80	78			
	130	124	121	117	113	111	108	104	100	98	87	85			
	133	130	126	122	116	112	108	105	94	91					
	150	143	140	135	131	128	125	120	116	113	101	98			
	160	152	149	144	139	136	133	128	123	120	107	104			
	170	162	158	153	148	145	141	136	131	128	114	111			
	180	171	167	162	157	153	149	144	139	135	121	117			
	190	181	177	171	165	162	158	152	146	143	127	124			
	200	190	186	180	174	170	166	160	154	150	134	130			
	210	200	195	189	183	179	174	168	162	158	141	137			
	220	209	205	198	191	187	183	176	169	165	147	143			
	230	219	214	207	200	196	191	184	177	173	154	150			
	240	228	223	216	209	204	199	192	185	180	161	156			
	250	238	233	225	218	213	208	200	193	188	168	163			
	260	247	242	234	226	221	206	208	200	195	174	169			
	270	257	251	243	235	230	224	216	208	203	181	176			
	280	266	260	252	244	238	232	224	216	210	188	182			
	290	276	270	261	252	247	241	232	223	218	194	189			

Max reps (RM)	Max reps (RM)														
	1	2	3	4	5	6	7	8	9	10	12	15			
%1RM	100	95	93	90	87	85	83	80	77	75	67	65			
Load (lb or kg)	300	285	279	270	261	255	249	240	231	225	201	195			
	310	295	288	279	270	264	257	248	239	233	208	202			
	320	304	298	288	278	272	266	256	246	240	214	208			
	330	314	307	297	287	281	274	264	254	248	221	215			
	340	323	316	306	296	289	282	272	262	255	228	221			
	350	333	326	315	305	298	291	280	270	263	235	228			
	360	342	335	324	313	306	299	288	277	270	241	234			
	370	352	344	333	322	315	307	296	285	278	248	241			
	380	361	353	342	331	323	315	304	293	285	255	247			
	390	371	363	351	339	332	324	312	300	293	261	254			
	400	380	372	360	348	340	332	320	308	300	268	260			
	410	390	381	369	357	349	340	328	316	308	274	267			
	420	399	391	378	365	357	349	336	323	315	281	273			
	430	409	400	387	374	366	357	344	331	323	288	280			
	440	418	409	396	383	374	365	352	339	330	295	286			
	450	428	419	405	392	383	374	360	347	338	302	293			
	460	437	428	414	400	391	382	368	354	345	308	299			
	470	447	437	423	409	400	390	376	362	353	315	306			
	480	456	446	432	418	408	398	384	370	360	322	312			
	490	466	456	441	426	417	407	392	377	368	328	319			
	500	475	465	450	435	425	415	400	385	375	335	325			
	510	485	474	459	444	434	423	408	393	383	342	332			
	520	494	484	468	452	442	432	416	400	390	348	338			
	530	504	493	477	461	451	440	424	408	398	355	345			
	540	513	502	486	470	459	448	432	416	405	362	351			
	550	523	512	495	479	468	457	440	424	413	369	358			
	560	532	521	504	487	476	465	448	431	420	375	364			
	570	542	530	513	496	485	473	456	439	428	382	371			
	580	551	539	522	505	493	481	464	447	435	389	377			
	590	561	549	531	513	502	490	472	454	443	395	384			

# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

## Phase I – Exercises

**Goals Phase I:** Full ROM Bench Press, Lat Pull Down, High Pulls

**Time Frame:** 2.5 to 5 weeks (Lift 2-3 X/week; 1-2 days rest between workouts; follow soreness rules on page 13)

<p><b><u>Step 1</u></b></p> <p><b><u>Core Exercise</u></b></p> <p><b>Straight Arm Bench Press</b> Receive the bar in a normal bench press position (hands slightly less than shoulder width apart) with the elbows locked. Push the bar straight up using the shoulder and chest and round the shoulders (<b>no bending elbows or wrists</b>). Movement range is small. Alternate an overhand (palms turned downward) grip with an underhand grip (palms turned upward) every other set.</p> <p><b>Straight Arm Lat Pull Down</b> Assume normal front lat pulldown position. Take shoulder width grip in underhand position (palms facing upward). Lean back to a comfortable position. Lock elbows and wrists. Squeeze shoulder blades together and pull bar down with just upper back muscles. Elbows and wrists remain locked.</p> <p><b>Power Clean</b> Lift bar off a waist-level rack using a power clean grip. Lower the bar to mid thigh with the knees bent and shoulders slightly in front of the bar. Extend the legs and back, then shrug the bar with a quick powerful motion. The elbows remain straight throughout the movement.</p> <p><b>Back Squat</b> High bar squat, modified center of gravity bar or stingray</p> <p><b>Shoulder Press</b> Functional Isometrics at 60 and 90 degrees</p>	<p><b><u>Accessory Exercises</u></b></p> <p><b>Straight Arm Lat Pulldown</b></p> <p><b>Seated Rows</b> <b>Tricep Extensions using lat pull down machine</b> <b>Lateral and Front Deltoid Raises</b> <b>Concentration Curls</b></p> <p><b><u>Program Design</u></b> – 3 sets x 8 reps</p>
---	--

# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

Using a squat rack or Smith Machine, lock bar in front shoulder press position in place so elbows are below shoulder level and perform isometric contractions (30 times contract 5 seconds). Move bar up so elbows are even with shoulders and perform isometric contractions (30 times contract 5 seconds).

**Program Design** – 3 sets x 10 reps at 65% of 1 Rep Max

## **Step 2**

### **Core Exercises**

#### **Partial Bench Press with underhand grip** *(Always warm up with straight arm bench press)*

Place a 6 inch towel roll under T shirt before assuming normal bench press position. Assume a underhand grip (palms turned upward) with hands slightly less than shoulder width apart. The bar is lowered until it touches the towel then pressed to the starting position.

#### **Lat Pull Down Shrugs with overhand grip**

Assume normal front lat pulldown position. Take shoulder width grip in overhand position (palms facing downward). Lean back to a comfortable position. Lock elbows and wrists. Squeeze shoulder blades together and pull bar down with just upper back muscles. Elbows and wrists remain locked.

#### **Power Clean – Power Pull from above the knee**

Lift bar off a waist-level rack using a power clean grip. Lower the bar to a position just above the knees with the shoulders slightly in front of the bar. Extend the legs and back, shrug the bar with a quick powerful motion, then complete the shrug by pulling the bar into an upright row position.

### **Accessory Exercises**

**Straight Arm Lat Pulldown**  
**Seated Rows**  
**Tricep Extensions with lat pull down machine**  
**Lateral and Front Deltoid Raises**  
**Concentration Curls**

**Program Design** – 3 sets x 8 reps

# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

<p><b>Back Squat</b> – High bar squat, modified center of gravity bar or stingray</p> <p><b>Shoulder Press – Functional Isometrics at 60 and 90 degrees</b></p> <p>Using a squat rack or Smith Machine, lock bar in front shoulder press position in place so elbows are below shoulder level and perform isometric contractions (30 times contract 5 seconds). Move bar up so elbows are even with shoulders and perform isometric contractions (30 times contract 5 seconds).</p> <p><b>Program Design</b> – 4 sets x 10 reps at 65% of 1 Rep Max</p>	
---	--

<p><b>Step 3</b></p> <p><b>Core Exercises</b></p> <p><b>Partial Bench Press using normal grip</b> <i>(Always warm up with straight arm bench press)</i></p> <p>Place a 6 inch towel roll under T shirt before assuming normal bench press position. Assume an overhand grip (normal grip) with hands slightly less than shoulder width apart. The bar is lowered until it touches the towel then pressed to the starting position.</p> <p><b>Partial Lat Pull Down with underhand grip</b></p> <p>Place a 6 inch towel roll under T shirt before assuming normal lat pulldown position. Assume an underhand grip (palms turned upward) with hands slightly less than shoulder width apart. Lean back to a comfortable position. Initiate movement by squeezing shoulder blades together then pull bar down until it touches the towel roll. Return to starting position.</p> <p><b>Power Clean</b></p> <p>Begin with the bar at mid shin level. Mid shin level should be attained through the use of bumper plates or wooden practice plates using a power clean grip. During the initial phase the bar is lifted from the floor and the athlete moves through a normal power clean motion finishing in an</p>	<p><b>Accessory Exercises</b></p> <p><b>Straight Arm Lat Pulldown</b> <b>Seated Rows</b> <b>Tricep Extensions with lat pull down machine</b> <b>Lateral and Front Deltoid Raises</b> <b>Concentration Curls</b></p> <p><b>Program Design</b> – 3 sets x 8 reps</p>
--	--

# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

<p>upright row position. <b>Do not</b> rack the bar.</p> <p><b>Back Squat</b> High bar squat, modified center of gravity bar or stingray</p> <p><b>Shoulder Press – Functional Isometrics at 60, 90 and 120 degrees</b> Using a squat rack or Smith Machine, lock bar in front shoulder press position in place so elbows are below shoulder level and perform isometric contractions (30 times contract 5 seconds). Move bar up so elbows are even with shoulders and perform isometric contractions (30 times contract 5 seconds).</p> <p><b>Program Design</b> – 5 sets x 10 reps at 65% of 1 Rep Max</p>	
--	--

<p><b>Step 4</b></p> <p><b>Core Exercises</b></p> <p><b>Full Bench Press using underhand grip</b> <i>(Always warm up with straight arm bench press)</i> Assume an underhand grip (palms turned upward) with hands slightly less than shoulder width apart. Complete full bench press using an underhand grip. Concentrate on keeping arms close to the sides.</p> <p><b>Partial Lat Pulldown with overhand grip</b> Place a 6 inch towel roll under T shirt before assuming normal lat pulldown position. Assume an overhand grip (palms turned downward) with hands slightly less than shoulder width apart. Lean back to a comfortable position. Initiate movement by squeezing shoulder blades together then pull bar down until it touches the towel roll. Return to starting position.</p> <p><b>Power Clean – Hang Clean from power position</b> Lift bar off a waist-level rack using a power clean grip. Lower the bar to mid thigh with the knees bent and the shoulders slightly in front of the bar. Clean the bar from this position concentrating on proper timing and rack position. Avoid letting the bar</p>	<p><b>Accessory Exercises</b></p> <p><b>Chest Flys</b> <b>Straight Arm Lat Pulldown</b> <b>Seated Rows</b> <b>Tricep Extensions with lat pull down machine</b> <b>Lateral and Front Deltoid Raises</b> <b>Bicep Curls</b></p> <p><b>Program Design</b> – 3 sets x 8 reps</p>
--	--

## UNIVERSITY OF DELAWARE PHYSICAL THERAPY

<p>“crash” on the shoulders. Athletes should drop the bar after each clean. Hands should be kept on the bar, but only to control the bar not decelerate it.</p> <p><b>Back Squat</b> High bar squat, modified center of gravity bar or stingray</p> <p><b>Partial Shoulder Press</b> Using a squat rack or Smith Machine place the bar in a starting position for the front shoulder press position. Press the bar from the starting position until equal with the top of the forehead. Return to starting position.</p> <p><b>Incline Bench Press</b> Receive the bar in an incline bench press position (hands slightly less than shoulder width apart) with the elbows locked. Push the bar straight up using the shoulder and chest and round the shoulders (<b>no bending elbows or wrists</b>). Movement range is small. Alternate an overhand (palms turned downward) grip with an underhand grip (palms turned upward) every other set.</p> <p><b>Program Design</b> – 4 sets x 10 reps at 70% of 1 Rep Max</p>	
---	--

<p><b>Step 5</b></p> <p><b>Core Exercises</b></p> <p><b>Full Bench Press using normal grip</b> <i>(Always warm up with straight arm bench press)</i> Assume an overhand grip (normal grip) with hands slightly less than shoulder width apart. Complete full bench press using an overhand grip. Concentrate on keeping arms close to the side. Do not allow weight to bounce off chest.</p> <p><b>Full Lat Pulldown with overhand grip</b> Assume normal lat pulldown position. Assume an overhand grip (palms turned downward) with hands slightly less than shoulder width apart. Lean back to a comfortable position. Initiate movement by squeezing shoulder blades together then</p>	<p><b>Accessory Exercises</b></p> <p><b>Chest Flys</b> <b>Straight Arm Lat Pulldown</b> <b>Seated Rows</b> <b>Tricep Extensions with lat pull down machine</b> <b>Lateral and Front Deltoid Raises</b> <b>Concentration Curls</b></p> <p><b>Program Design</b> – 3 sets x 8 reps</p>
--	--

## UNIVERSITY OF DELAWARE PHYSICAL THERAPY

pull bar down until it touches your chest.  
Return to starting position.

### **Power Clean – Hang Clean from above the knee**

Lift bar off a waist-level rack using a power clean grip. Lower the bar to a position just above the knees with the shoulders slightly in front of the bar. Clean the bar from this position concentrating on proper timing and rack position. Avoid letting the bar “crash” on the shoulders.

### **Back Squat**

High bar squat, modified center of gravity bar or stingray

### **Shoulder Press – Shoulder Press Lockout**

Using squat rack or Smith Machine, secure the bar in a front shoulder press **starting position** equal to forehead height. Press from forehead height until arms are fully locked out. Return to starting position.

### **Partial Incline Bench Press using underhand grip**

Place a 6 inch towel roll under T shirt before assuming normal bench press position. Assume a underhand grip (palms turned upward) with hands slightly less than shoulder width apart. The bar is lowered until it touches the towel then pressed to the starting position.

**Program Design** – 5 sets x 10 reps at 70% of 1 Rep Max

# UNIVERSITY OF DELAWARE PHYSICAL THERAPY

## ROTATOR CUFF TENDINITIS / IMPINGEMENT/ DISTAL CLAVICLE OSTEOLYSIS (NON- OPERATIVE)

### Phase II – Exercises (following completion of phase I)

Goals Phase II: Full ROM Shoulder Press and Power Clean

Time Frame: 2 to 4 weeks (Lift 3 X/week with 1 day of rest between workouts; follow soreness rules on page 13)

#### Step 6

##### Core Exercises

##### **Standard Bench Press**

##### **Standard Lat Pull Down**

##### **Standard Power Clean**

Lift bar off a waist-level rack using a power clean grip. Lower the bar to a position just above the knees with the shoulders slightly in front of the bar. Clean the bar from this position concentrating on proper timing and rack position. Avoid letting the bar “crash” on the shoulders.

##### **Back Squat**

High bar squat, modified center of gravity bar or stingray

##### **Shoulder Press**

Using a squat rack or Smith Machine place the bar at normal starting position for the front shoulder press. Press to full overhead position and return to start.

##### **Partial Incline Bench Press using Normal Grip**

Place a 6 inch towel roll under T shirt before assuming normal bench press position. Assume a normal grip with hands slightly less than shoulder width apart. The bar is lowered until it touches the towel then pressed to the starting position.

**Program Design** – 5 sets x 10 reps at 70% **(H)**

4 sets x 10 reps at 60% **(L)**

**(H) - Heavy Day** with emphasis on increased repetitions and increase percentage of (1) repetition maximum.

**(L) - Light Day** with emphasis on decreased repetitions and decreased percentage of (1) repetition maximum. The rationale is to allow the muscle tissue to rest and recover for the next heavy session.

If the athlete lifts two days per week he/she should complete one heavy and one light day. If the athlete lifted three days per week, here is a sample alternate heavy /light schedule.

## UNIVERSITY OF DELAWARE PHYSICAL THERAPY

	Day 1	Day 3	Day 5
<b>Week 1</b>	Heavy	Heavy	Light
<b>Week 2</b>	Light	Light	Heavy

### Accessory Exercises

**Chest Flys**  
**Straight Arm Lat Pulldown**  
**Seated Rows**  
**Tricep Extensions with lat pull down machine**  
**Lateral and Front Deltoid Raises**  
**Concentration Curls**

**Program Design** – 3 sets x 8 reps

### Step 7

#### Core Exercises

**Standard Bench Press**  
**Standard Lat Pull down**  
**Power Clean**

Resume normal power clean from the floor with emphasis on timing, bar path and proper rack position. Keep the bar close to the body and do not allow the bar to “crash” on the shoulders. In addition, the athlete should be taught to absorb the impact of the bar by bending the knees as the bar is racked on the shoulders.

#### **Back Squat**

High bar squat, modified center of gravity bar or stingray

#### **Standard Shoulder Press**

#### **Full Incline Bench Press using underhand grip**

Assume an underhand grip (palms turned upward) with hands slightly less than shoulder width apart. Complete full

#### Accessory Exercises

**Chest Flys**  
**Straight Arm Lat Pulldown**  
**Seated Rows**  
**Tricep Extensions with lat pull down machine**  
**Lateral and Front Deltoid Raises**  
**Concentration Curls**

**Program Design** – 3 sets x 8 reps

## UNIVERSITY OF DELAWARE PHYSICAL THERAPY

<p>bench press using an underhand grip. Concentrate on keeping arms close to the sides.</p> <p><b><u>Program Design</u></b> – 5 sets x 8 reps at 75% (H) 4 sets x 8 reps at 65 % (L)</p>	
<p><b><u>Step 8</u></b></p> <p><b><u>Core Exercises</u></b></p> <p><b>Standard Bench Press</b>  <b>Standard Lat Pull down</b>  <b>Standard Power Clean</b>  <b>Back Squat</b>              High bar squat, modified center of gravity bar or stingray  <b>Standard Shoulder Press</b>  <b>Full Incline Bench Press using (normal grip)</b>              Assume normal grip with hands slightly less than shoulder width apart. Complete full bench press using an overhand grip (towel is not needed on chest). Concentrate on keeping arms close to the side. Do not allow weight to bounce off chest.</p> <p><b>Program Design</b> – 4 sets x 6 reps at 80% (H) 4 sets x 6 reps at 70 % (L)</p>	<p><b><u>Accessory Exercises</u></b></p> <p><b>Chest Flys</b>  <b>Straight Arm Lat Pulldown</b>  <b>Seated Rows</b>  <b>Tricep Extensions with lat pull down machine</b>  <b>Lateral and Front Deltoid Raises</b>  <b>Concentration Curls</b></p> <p><b><u>Program Design</u></b> – 3 x 8</p>
<p><b><u>Step 9</u></b></p> <p><b><u>Core Exercises</u></b></p> <p><b>Standard Bench Press</b>  <b>Standard Lat Pull down</b>  <b>Power Clean</b>              Full ROM from the floor  <b>Back Squat</b>              High bar squat, modified center of gravity bar or stingray  <b>Standard Shoulder Press</b>  <b>Standard Incline Bench Press</b></p>	<p><b><u>Accessory Exercises</u></b></p> <p><b>Chest Flys</b>  <b>Straight Arm Lat Pulldown</b>  <b>Seated Rows</b>  <b>Tricep Extensions with lat pull down machine</b>  <b>Lateral and Front Deltoid Raises</b>  <b>Concentration Curls</b></p> <p><b><u>Program Design</u></b> – 3 sets x 8 reps</p>

## UNIVERSITY OF DELAWARE PHYSICAL THERAPY

**Program Design** – 4 sets x 5 reps at 85% (H)  
3 sets x 5 reps at 75% (L)

### Soreness Rules

Criterion	Action
1. Soreness during warm-up that continues	2 days off, drop down 1 step
2. Soreness during warm-up that goes away	Stay at step that led to soreness
3. Soreness during warm-up that goes away but redevelops during session	2 days off, drop down 1 step
4. Soreness the day after lifting (Not muscle soreness)	1 day off, do not advance program to the next step
5. No soreness	Advance 1 step per week or as instructed by healthcare professional