

Balance enhancement training program dedicated to Biathlon



Program prepared by employees of the Dept. Motor Behavior at the Academy of
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3.2. Jumping Training	Błąd! Nie zdefiniowano zakładki.
3.3. Functional Training	Błąd! Nie zdefiniowano zakładki.



General part

The training program is divided into three phases with the progression of exercises in each of them. Each phase lasts 2 weeks. Each training unit should be preceded by a general warm-up (proposal below) and followed by stretching (proposal below).

1. In the first week of each phase of the program, perform two sets of the exercise. In the second week, increase the number of series to three.

Warm-up

- Make Forward Run 30 s
- Reverse 30 s
- -:- circling the arms front and back one-handed
- -:- alternate front and back
- Shuttle run 30 steps per side
- Torso rotations plus stretching of the inner thigh in the low step position of 60 s
- Running in place plus stretching the quadriceps or buttock 60 s
- Skip A 50% intensity 30 s
- Skip C 50% intensity 30 s

Stretching - Perform after the workout

Name	Series	Time (s)	Name	Series	Time (s)
Latissimus dorsi	1	2x60	Triceps calf	1	2x60
Hamstrings	1	2x60	Quadriceps thighs	1	2x60
Hip flexors	1	2x60	Pectoralis	1	2x60
Adductors of the thigh	1	60	Gluteus	1	2x60



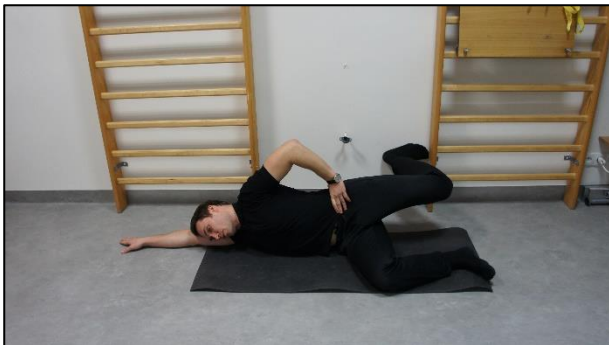
1. Phase I of the programme

1.1. Core stability

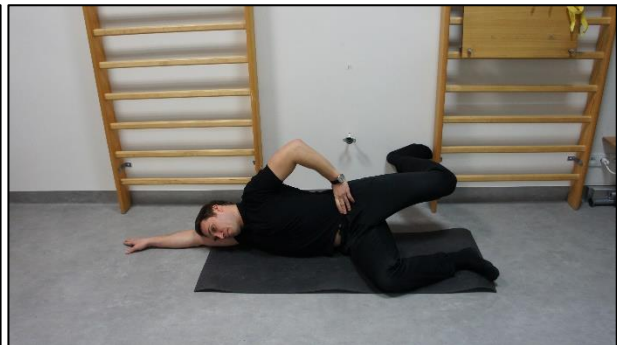
1. Activation of the buttock with the foot on the wall – 2 series x 30 per side, in the second week 3 sets x 30 repts. per side

- Lying on your right side against the wall, rest your left foot against the wall, keeping a 90° bend in the knee joint. Keep the hip joint straight (pic. 1).
- Keep your back straight and core engaged.
- Bend the left leg in the knee and hip joint to an angle of 90°. It will stabilize your position.
- Make small abduction movements in the hip joint so that the foot maintains its natural position stable (pic. 2).

ATTENTION!! The knee should not cross the line marked by the hip and foot in the return movement



Pic. 3



Pic. 4

2. Deadbug - 2 sets x 15 repts. per side, in the second week 3 x 15 per side

- Lying on your back, lift your arms straight at the elbow joints so that they point to the ceiling.
- Lift your legs up and bend in the knee joints to an angle of 90° (pic. 3)
- Keeping the core engaged and ribs still, straighten your right leg and position it in an upright position in the hip joint.
- At the same time, move your arm to the position of extension above the head (pic. 4).
- Return to the position, maintaining a stable position of the ribs and torso.





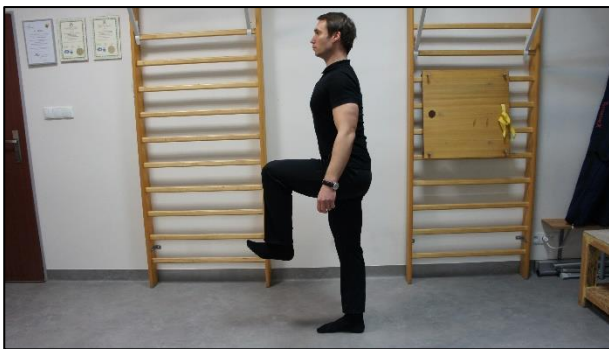
Pic. 3



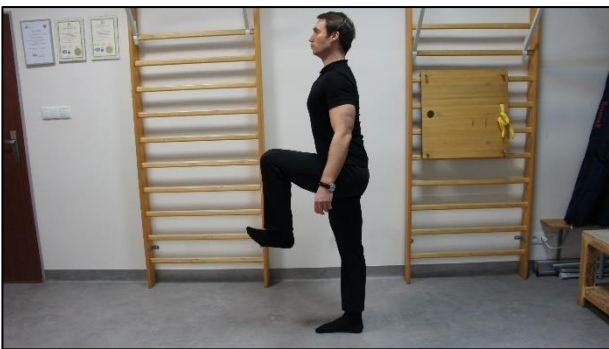
Pic. 4

1. Lifting the bent leg standing on one leg - 2 sets x 60 s per side, in the second week 3 sets x 60 s per side

- Stand on the right leg and lift the left leg to an angle of 90° in the hip joint (pic. 5).
- Make sure your hips are at the same height.
- Maintain a stable posture.
- Lift the other knee 5° up and return to the 90° bent (pic. 6).



Pic. 5



Pic.6

1.2. Jumping training

1. Landing lessons (toe climbs plus landing) - 2 sets x 10 repts., in the second week 3 sets x 10 repts.

- Lift your heels as high as you can, standing on your toes.
- Lift your arms up (pic. 7).



- Dynamically jump down to an athletic position while swinging your arms (pic. 8).

Attention!! Athletic position – go down to the half-squat



Pic. 7

Pic. 8

1.3. Functional training

1. Torso rotations in position 90/90 - 2 sets x 15 repts., in the second week 3 sets x 15 repts.

- Sit on the ground with bent knees.
- Keep your back straight.
- Grab the rubber band, keeping the shoulder joint straight (pic. 9).
- While maintaining a still position of the shoulder girdle and torso, alternate the rotation, moving to the 90/90 position from one side to the other (pic. 10).





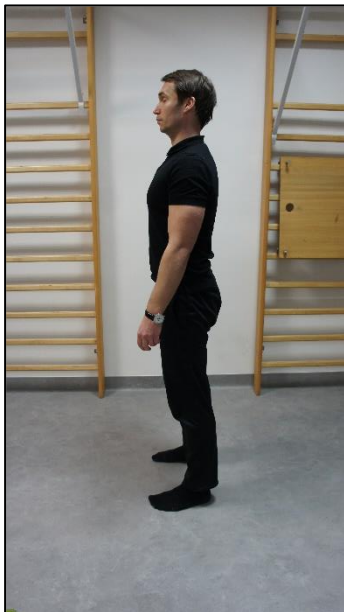
Pic. 9



Pic. 10

1. Squat with push-up – 2 sets x 15 repts., in the second week 3 sets x 15 repts.

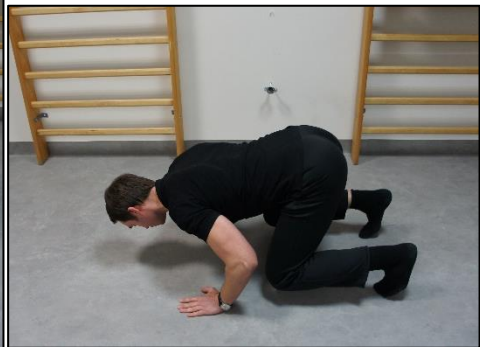
- Stand upright (pic. 11)
- Do a squat and stop in a position with bent knees (pic.12).
- Maintaining a stable torso, move to a quadruple position with the knees slightly above the ground (pic. 13).
- From the quadruple position, return to the low squat by doing a dynamic push-up.
- Return to the upright position.



Pic. 11



Pic. 12



Pic. 13



2. Rotations in the deadlift position on one leg - 2 sets x 15 repts., in the second week 3 sets x 15 repts.

- Engage your core to maintain a stable posture
- Put yourself in the deadlift position on one leg (pic. 14).
- Make sure that the leg is raised as an extension of your torso.
- Rotate your torso along your axis while standing on 1 leg (pic. 15).

Attention!! The knee should not collapse inside



Pic. 14

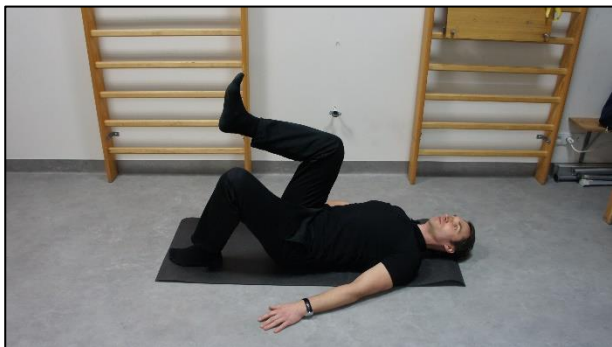


Pic. 15

3. Lifting the hips on one leg - 2 sets x 15 repts., in the second week 3 sets x 15 repts.

- Lying on your back, bend your legs (pic. 16).
- Engage core and lift the hips to full extension in the hip joint (pic. 17).
- Return to the lying position.

Attention!! Keep a stable back position



Pic. 16



Pic. 17

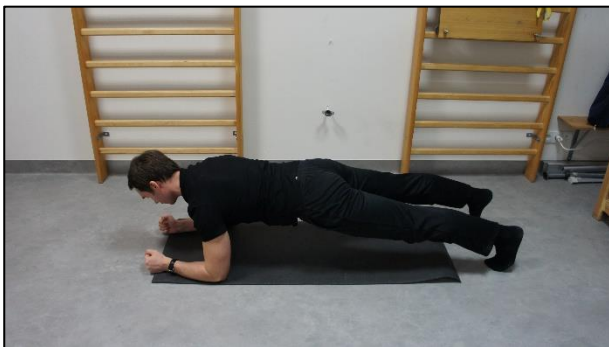


2. Phase II of the Programme

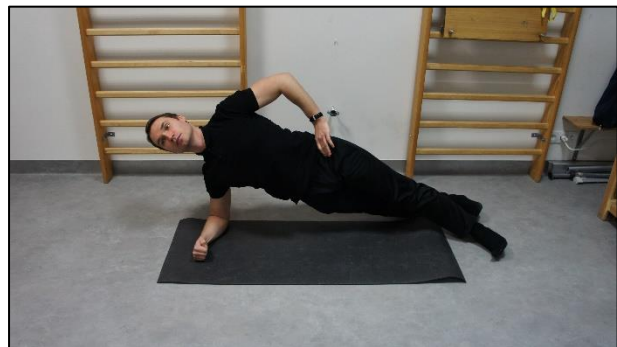
2.1. Core stability

1. Plank with rotation – 2 x 1 minute, in the second week 3 x 1 minute

- Being in the quadruple position engage your core.
- Lower yourself to the support on the forearms and straighten the legs, maintaining a stable torso (pic. 18).
- Supporting yourself on the right forearm, turn torso to the left (pic. 19).
- Maintain a stable torso while moving.
- Return to the position and make a turn to the other side.



Pic. 18



Pic. 19

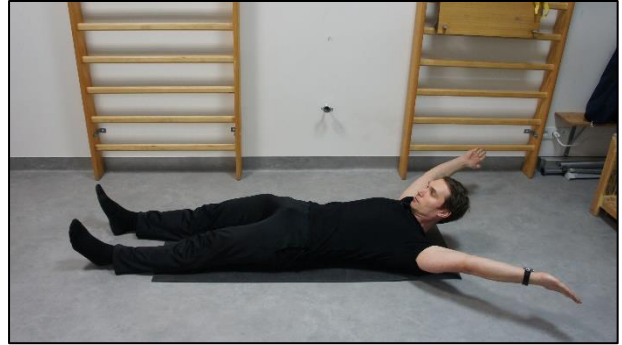
2. Hollow body - 2 sets x 15 repts. (hold position 3 s), in the second week 3 sets x 15 repts. hold 3 s

- Lying on your back, engage your core (pic. 20).
- Lift the torso, so that the shoulder blades lift off from the ground (pic. 21).
- Maintain a stable lumbar and ribs.
- The arms should be an extension of your torso.
- Return to the lying position while maintaining stable ribs.





Pic. 20



Pic. 21

3. Monster - 15 repts., 2 x 1 minute, in the second week 3 x 1 minute

- Put yourself in an athletic position and put the rubber band on your knees (pic. 22).
- Perform abduction in the hip joints by pushing the knees outwards (pic. 23).
- Keep your feet steady on the ground.
Return to the position, remembering that the knee should be in line with the hip and foot.

Attention !! Knee should not cross the line drawn by hip and foot while returning to the position



Pic. 22



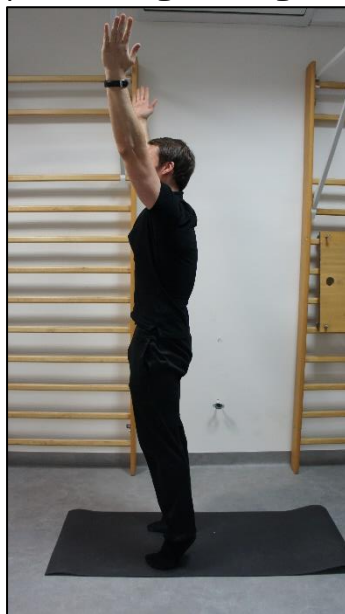
Pic. 23



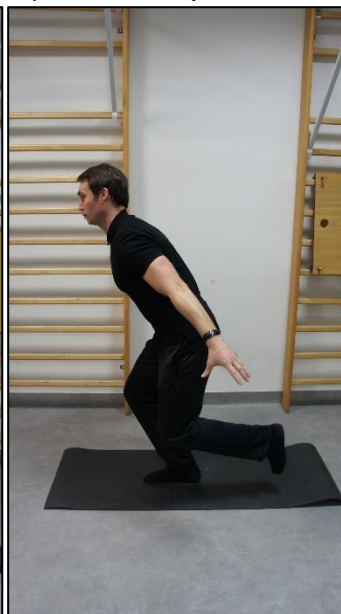
2.2. Jump training

1. Landing on one leg - 5 x L and R

- Perform toe climbs as high as you can.
- Lift your arms up (pic.24).
- Dynamically jump down to an athletic position and land on one leg while performing a swing with your arms (pic. 25).



Pic. 24



Pic. 25

2. Side jumps over the rope - 5 jumps to each side

Jump over the rope using the technique you learned during "Learning to land"

Attention !! Keep the back straight and engaged core

3. Jumps from the box - 40-60 cm height x 5 repts.

- Jump off the box using the technique from " Learning to Land".
- Use the ankle joint for cushioning.

2.3. Functional training

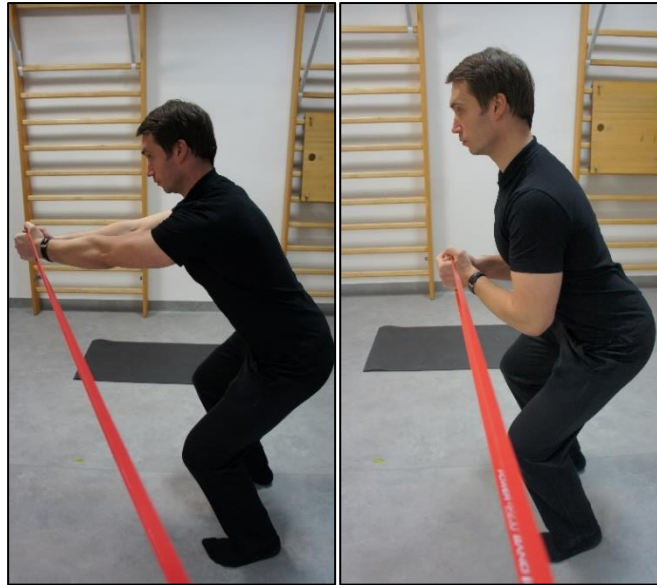
1. Antirotation in the athletic position - 2 sets x 15 repts. per side, in the second week 3 sets x 15 repts. per side

- Position yourself sideways to your partner and grab the rubber band.
- Take an athletic position and straighten your arms (pic. 25).



- Holding the rubber band, bend and straighten the shoulders, maintaining a stable torso (pic. 26).
- Do the exercise in pairs. Player 1 maintains the position and 2 performs the movement.

Attention!! For difficulty, the load can be hung on the rubber band



Pic. 25

Pic. 26

2. Deadlift on one leg - 2 x 15 rept. per side, in the second week 3 x 15 per side

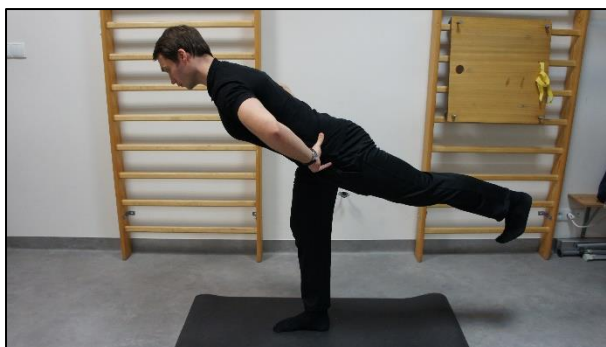
- Perform a deadlift on the right leg by moving the hip backwards.
- Move your left leg back (pic. 28).
- Lift the foot of the left leg so that the lower limb forms one line with the trunk.
- Return to the upright position by performing an extension in the hip joint (pic. 27).

Attention!! Do not make a movement in the back.





Pic. 27



Pic. 28

3. Gait with overhead load - 2 sets x 30 sekund, in the second week 3 sets x 30 seconds

- Position yourself in an upright position by tightening your abdominal and gluteus.
- Take care of a stable torso. You learned this while training Deadbug and Hollowbody.
- Lift the weight over your head (pic. 29).
- Perform a walk with a weight, pay attention to the extension in the elbow joints (pic. 30).
- While performing the exercise, correct the body tilts to maintain a stable posture.





Pic. 29



Pic. 30

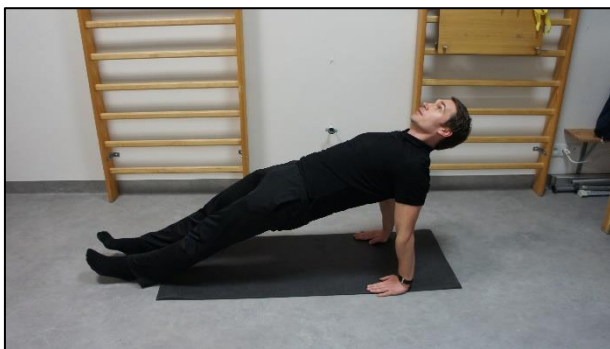


3. Phase III of the Programme

3.1. Core stability

1. Reverse plank - 15 repts. per leg x 2 sets, in the second week 15 repts. x 3 sets

- Lay on your back.
- Support yourself on the forearms and lift hips (pic. 31).
- Maintaining a stable torso, engage ABS and buttocks.
- Pull up alternating knees to chest (pic. 32).



Pic. 31

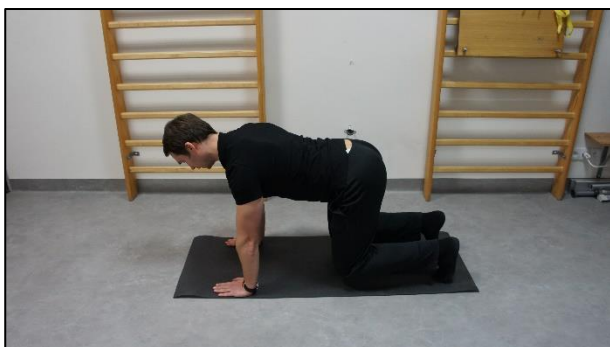


Pic. 32

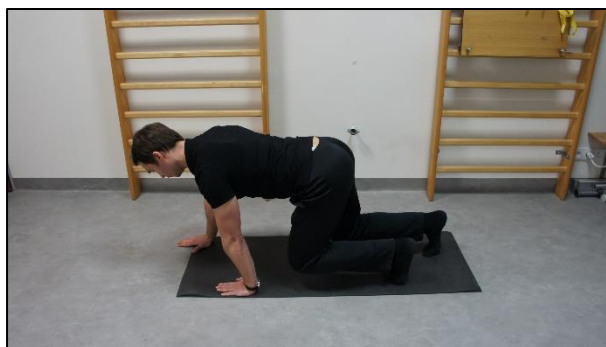
2. Bear walk - 2 x 30 s w przód i tył, in the second week 3 x 30 s to front and back

- Being in the quadruple position, tighten your belly (pic. 33).
- Lift knees off the floor.
- Walk forward raising hands and feet (pic. 34).
- Maintain stable torso.

Attention !! Try not to rotate the hip



Pic. 33



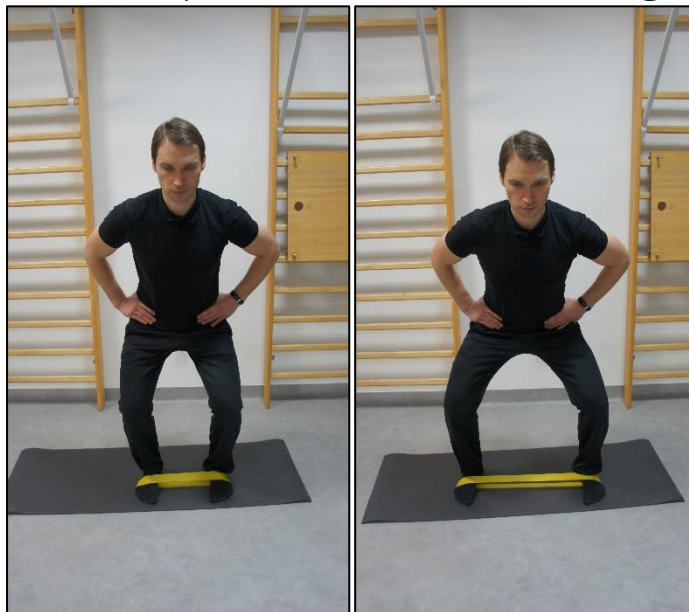
Pic. 34



2. Monster walk - 2 sets x 15 repts. w lewo i prawo, in the second week 3 x 15 to the left and right

- Put yourself in an athletic position and put the rubber band on your feet (pic. 35).
- Walk sideways stretching the rubber band (pic. 36).

Attention !! Push yourself with left leg while walking rightwards and vice versa. Stay at the same level while walking.



Pic. 35

Pic. 36

3.2. Jumping training

1. Side jumps over rope on one leg - 5 x Left and Right leg

- Use the technique that you learned during landing on one leg lesson, jump over rope leftwards and rightwards.

Attention !! Keep the back straight and engage core

2. Jumping on one leg over hurdle forward and backwards 5 x L and R

- Use the technique that you learned during landing on one leg lesson, jump over the hurdle on one leg forward and backwards

Attention !! Keep your core engaged



3.3. Functional training

1. Partial Turkish get-up 2 x 1 per side, , in the second week 3 x 1 per side

- Lay on your side with bent legs.
- Take dumbbell and pull it to your chest.
- Roll over on your back.
- Pull dumbbell forward using your right hand.
- Straighten left leg and put left arm along with torso at 25 ° angle.
- Keep the dumbbell in straight right arm, support yourself on left forearm.
- Support yourself on left hand and lift hips up.
- Keep this position for 10 s.
- Use the same pattern to return to starting position.

2. Dead lift on one leg on mattress - 2 x 15 per side, in the second week 3 x 15 per side

- Stand on a mattress.
- Perform deadlift on one leg, move hip backwards.
- Move left leg backwards.
- Lift left foot up so leg will constitute one line with torso.
- Return to standing position by extending hip.

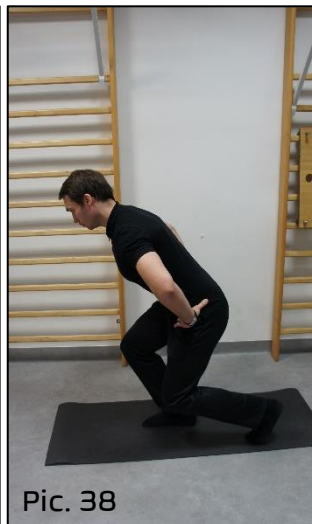
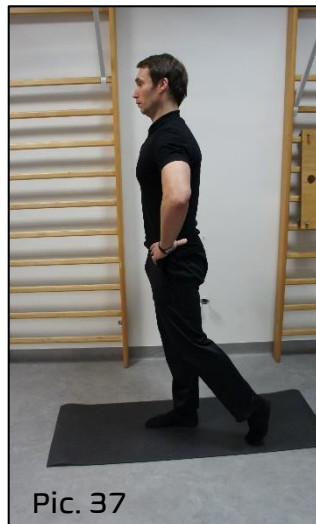
Attention !! Keep torso straight (don't perform movement within)

3. Lunge squat on mattress - 2 sets x 15 repts. na nogę, in the second week 3 sets x 15 repts. na nogę

- Stand on a mattress.
- Move left leg backwards putting toes on the ground (pic. 37).
- Squat on right leg (pic. 38).
- Pay attention to full extension in hip joint.

Attention !! Movement pattern is almost the same as in squat, but most of unweighting is on right leg.

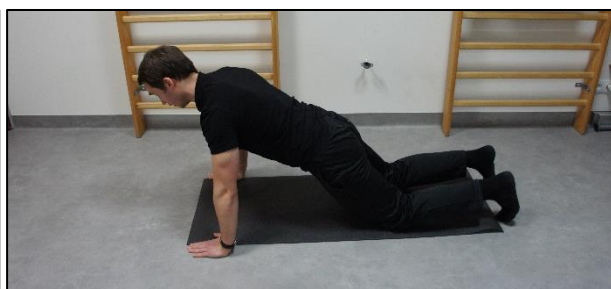
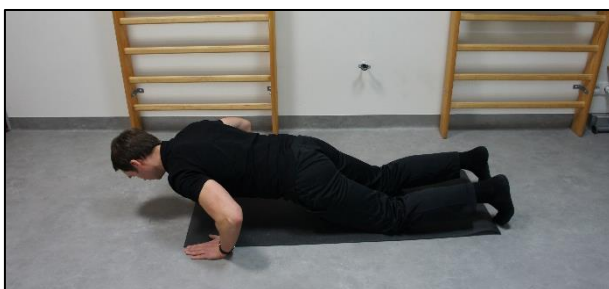
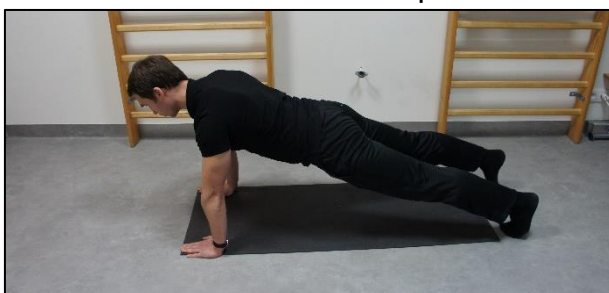




1. Push-up with dynamic push – 2 sets x 10 repts. + 5 dyn., in the second week 3 sets x 10 repts. + 5

- Stand in push-up position (pic. 39).
- Engage core.
- Perform 10 push-ups (pic. 40).
- Put knees on the ground (pic. 41).
- Perform 5 dynamic push-ups lifting hands off the ground (pic. 42).

Attention !! Keep torso and hips straight and stable.





IBU RESEARCH GRANT PROGRAMME



Training unit (Phase I)

Warm-up

Exercise	Time [s]
Run forward	30
Run backwards	30
Run with arms circling, one at the time, alternating	30
Shuttle run	30 per side
Torso rotations plus stretching of the inner thigh in the low step position of 60 s	60
Running in place plus stretching the quadriceps or buttock 60 s	60
Skip A 50% intensity 30 s	30
Skip C 50% intensity 30 s	30

ATTENTION! In the first week of each phase of the program, perform two sets of the exercise. In the second week, increase the number of series to three.

Core stability

Exercise	Time[s]	Rest between alternating [s]	Rest between sets [s]	Series	Rep.
Activation of the buttock with the foot on the wall	-	0	30	2 x side	30
Dead bug	-	0	30	2 x side	15
Lifting one leg standing	60	0	30	2 x side	-

Jumping Training

Name	Rep.	Series	Rest between sets [s]
Landing lessons	10	2	30

Functional Training

Exercise	Rep.	Series	Rest between alternating [s]	Rest between sets [s]
Torso rotations in position 90/90	15	2	-	60
Squat with push-up	15	2	-	60
Rotations in the deadlift position on one leg	15	2 x side	0	60
Lifting hips on one leg	15	2 x side	0	60

Stretching

Muscle group	Series	Time [s]	Muscle group	Series	Time [s]
Latissimus dorsi	1	2x60	Triceps calf	1	2x60
Hamstrings	1	2x60	Quadriceps thighs	1	2x60
Hip flexors	1	2x60	Pectoralis	1	2x60
Adductors of the thigh	1	60	Gluteus	1	2x60

Training unit (Phase II)

Warm-up

Exercise	Time [s]
Run forward	30
Run backwards	30
Run with arms circling, one at the time, alternating	30
Shuttle run	30 per side
Torso rotations plus stretching of the inner thigh in the low step position of 60 s	60
Running in place plus stretching the quadriceps or buttock 60 s	60
Skip A 50% intensity 30 s	30
Skip C 50% intensity 30 s	30

Attention! In the first week of each phase of the program, perform two sets of the exercise. In the second week, increase the number of series to three.

Core stability

Exercise	Repetitions	Time [s]	Rest between alternating [s]	Rest between sets [s]	Series
Plank with rotation	-	60	0	60	2
Hollow body	15	-	0	60	2
Monster	-	60	0	60	2

Jumping training

Exercise	Rep.	Series	Rest between sets [s]
Landing on one leg	5 x L,P	2	60
Side jumps over rope	5	2	120
Jumps from the box	5	2	60

Functional Training

Exercise	Rep.	Time[s]	Series	Rest between alternating [s]	Rest between sets [s]
Antirotation in the athletic	15		2 x x side	0	60
Deadlift on one leg	15		2 x side	0	60
Gait with overhead load	-	30	2	0	60

Stretching

Muscle group	Series	Time [s]	Muscle group	Series	Time [s]
Latissimus dorsi	1	2x60	Triceps calf	1	2x60
Hamstrings	1	2x60	Quadriceps thighs	1	2x60
Hip flexors	1	2x60	Pectoralis	1	2x60
Adductors of the thigh	1	60	Gluteus	1	2x60

Training unit (Phase III)

Warm-up

Exercise	Time[s]
Run forward	30
Run backwards	30
Run with arms circling, one at the time, alternating	30
Shuttle run	30 per side
Torso rotations plus stretching of the inner thigh in the low step position of 60 s	60
Running in place plus stretching the quadriceps or buttock 60 s	60
Skip A 50% intensity 30 s	30
Skip C 50% intensity 30 s	30

Attention ! In the first week of each phase of the program, perform two sets of the exercise. In the second week, increase the number of series to three.

Core stability

Exercise	Rep.	Time [s]	Rest between alternating [s]	Rest between sets [s]	Series
Reverse plank	15 x per side	-	0	60	2
Bear walk	-	2x30 (forward, backwards)	0	60	2
Monster walk	15 L and R	-	0	60	2

Jumping Training

Exercise	Rep.	Series	Rest between sets [s]
Side jumps on one leg over rope	5 x L,R	2	120
Jumps over hurdle	5 x L,R	2	120

Functional Training

Exercise	Rep.	Time [s]	Series	Rest between alternating [s]	Rest between sets [s]
Partial Turkish get-up	2*	-	2 x side	0	60
Deadlift on one leg on mattress	15	-	2 x side	0	60
Lunge squat on mattress	15	-	2 x side	0	60
Push-up with dynamic push	10 + 5	-	2	0	60

* in second week do 3 repetitions

Stretching

Muscle group	Series	Time [s]	Muscle group	Series	Time [s]
Latissimus dorsi	1	2x60	Triceps calf	1	2x60
Hamstrings	1	2x60	Quadriceps thighs	1	2x60
Hip flexors	1	2x60	Pectoralis	1	2x60
Adductors of the thigh	1	60	Gluteus	1	2x60