

Objet: QRS SPORT ET RUGBY

QRS got an invitation from the Italian Olympic Committee (CONI) to present the new procedure rPMS in a scientific-medical lecture. Background: a rugby youth player of the club AS Rome took the opportunity to try the Pelvicenter a few times in a doctor's office, which used to perform an incontinence treatment with the method of rPMS. However, when only a few rehearsal sessions significantly increased the stability and general performance of the player and more and more team-mates also asked for a "trial training", the club management decided to look into this topic in more detail.

Core stability

Core stability is an important component maximising efficient athletic function. The core is important to provide local strength and balance and to decrease back injury. In addition, since the core is central to almost all kinetic chains of sports activities, control of core strength, balance and motion will maximise all kinetic chains of upper and lower extremity function. The core acts as an anatomical base for motion of the distal elements. This can be considered as "proximal stability for distal mobility".

Core muscles

Numerous muscles make up the complex known as core muscles. This imaginary "box" comprises - cursorily said - the diaphragm, abdominal muscles, hip muscles, lumbar muscles and the pelvic floor.

Core training

It has become a common practice to train the core, properly known as the lumbopelvic hip complex, in attempt to increase performance and improve lower extremity biomechanics. Within this lumbopelvic hip complex, there are more than 29 pairs of muscles working to stabilize the spine, pelvis, and hips during functional movements. It is striking that the pelvic floor is usually mentioned in studies in terms of its significance for the core strength, but apart from this mention and the difficulty directly assessing the pelvic floor muscles, it is often neglected or ignored with respect to musculoskeletal core training or rehabilitation - in ignorance of the urological conditions. Therefore, this neglect usually results in a dangerous imbalance because any chain is only as strong as its weakest link.

rPMS - Athletes should train for the sport they play

The rPMS is currently the most effective system to significantly increase performance of the pelvic floor. In case of rugby, for both backs and forwards a predominance of fast-twitch muscle fibres are pre-requisites for success in this sport. Therefore the main focus should be on an explosive workout and rPMS-training should primarily focus on these fast twitch muscle fibers.

In order to reach this goal, rPMS has to adapt to the body's natural signaling.

Motoneurons never deliver a single action potential to make a muscle fiber to contract. Because a single action potential is too short to lead to the greatest possible shortening of the muscle fiber. This is only possible if further stimuli reach the muscle fiber during a single twitch. Therefore, if the number of stimuli does increase, RK 17.02.21

the muscle is ultimately shortened. In contrast to a single twitch, force of contraction increases by 4 -10 fold. The whole is called tetanus. Appropriately, all voluntary activations of the skeletal muscle are tetanic in nature.

Setting recommendations:

Frequency: 30 - 50 Hz / Intensity: Minimum level 3, preferably 5 (it is essential to exercise the muscle with an exercise intensity close to full exercise capacity (MVC = Maximum Voluntary Contraction))

Application period: Week 1: Stimulation 7 minutes - 1 minute break - stimulation 7 minutes (3 times a week)

Week 2: Stimulation 8 minutes - 1 minute break - stimulation 8 minutes (3 times a week)

Week 3: Stimulation 9 minutes - 90 seconds break - stimulation 9 minutes (3 times a week)

Week 4: Stimulation 9 minutes - 90 seconds break - stimulation 9 minutes (4 times a week)

Week 5: Stimulation 9 minutes - 90 seconds break - stimulation 9 minutes (5 times a week)

If you only would train stamina or slow twitch fibers (rather not advisable), appropriate frequency would be 20 - 25 Hz.

Unfortunately, a rPMS session in a sitting position is generally not particularly suitable carrying out a coordinative training, especially in sports. Therefore, it has to be connected with a "high mental effort training". It has been confirmed that neural adaptations can result in significant strength and coordination gain. Many recent studies have reported that subjects who underwent training with motor imagery or mental practice, i.e. performing covert muscle contractions without noticeable muscular activities, resulted in significant strength improvement. For example: one group participants performed high-intensity isometric contractions for 4 weeks, five sessions per week while another group imagined producing these same, high-effort isometric contractions. It has been shown that the group that performed high-intensity physical contractions had a 30% strength increase while the group that performed high-effort imagined contractions had a 22% increase. But please remember: In our case it is not just about to gain additional strength, but primarily about the muscular coordination of related muscles.

Mental-Effort Training protocol

Imagine (internal process) a target (typical competition stance) and imagine contracting your muscles as hard as possible. Quit the mental exercise in the respective rest phases (4 seconds). But take into consideration that during a rPMS (stimulation phase) its impossible to tense up corresponding muscles.

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