Poster mit oraler Präsentation

P 1

Prevalence of Abnormal Electrocardiograms in Swiss Elite Athletes Using Modern Screening Criteria

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Aims of the study: Sudden cardiac arrest in athletes is a rare but dramatic event. The value of a routine electrocardiogram (ECG) during pre-participation screening (PPS) remains controversial, partly due to the relatively high number of false positive findings. Our study aimed to evaluate the prevalence of abnormal ECGs in consecutive Swiss elite athletes overall and with regard to different sports classes, using modern screening criteria.

Methods: We analyzed the 12-lead resting ECGs of high-level elite athletes (≥14 years) recorded at the Swiss Olympic Medical Center Magglingen between 2013 and 2016 during routine PPS. The ECGs were analyzed according to the original and revised Seattle criteria. Sports disciplines were categorized according to their static (estimated percentage of maximal voluntary contraction, I-III) and dynamic (estimated percentage of maximal oxygen uptake, A-C) components, and prevalences of abnormal ECGs compared between sports classes by Fisher's exact test (with alpha set at 0.05).

Results: ECGs from 287 consecutive athletes were analyzed (64.1% male; 99.7% Caucasian; median age 20.4±4.9 years; median weekly training volume 17.7±7.1 hours). Based on original Seattle criteria, 8 (2.8%) ECGs were classified as abnormal (3 T-wave inversions (TWI), 1 Q wave duration >40 ms, 2 QRS left axis deviation, 2 Q-wave amplitude >3 mm). The use of the revised Seattle criteria reduced the number of abnormal ECGs to 4 (1.4%) (3 TWI, 1 Q wave duration >40 ms). Further cardiac work-up revealed an underlying structural heart disease in only one of these four athletes (infero-lateral TWI on ECG), consisting of a very localized mid-wall fibrosis suggestive of a former myocarditis. There was a significant difference in occurrence of abnormal ECGs between the different sports categories (p=0.018). All four abnormal ECGs according to the revised Seattle criteria occurred in the high dynamic sport classes (IIC and IIIC), whereby three out of the four were found in the high dynamic high static class (IIIC).

Conclusions: In our cohort of high-level elite athletes, the prevalence of abnormal ECGs according to modern screening criteria was very low. All athletes with abnormal ECG performed high dynamic sports. Less than one percent of our athletes had a new relevant cardiac diagnosis.

P 2

Muscle activation patterns in experienced runners with knee osteoarthritis

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Patients with knee osteoarthritis show distinctive changes in their walking patterns such as higher muscle activation, shorter step length or lower knee range of motion. Running is increasingly popular and runners remain sometimes active despite pain. The aim of this study was to investigate whether runners with osteoarthritis of the knee show similar changes in their running patterns as have been shown for walking.

Six runners with knee osteoarthritis (age: 52.2 ± 7.4 years; body mass index (BMI): 24.5 ± 3.5 kg/m^2; mileage: 28 ± 5 km/week) and eight healthy runners (age: 52.1 ± 4.2 years; BMI: 23.0 ± 1.8 kg/m^2; mileage: 39 ± 17 km/week) participated in this study. Isometric knee flexion and extension strength was tested bilaterally in 60° knee flexion (Biodex, Shirley, USA). Vertical ground reaction force (GRF) and spatiotemporal parameters for running at 12km/h were measured on an instrumented treadmill (Zebris, Isny, Germany). Electromyographic activity (EMG; Biovision, Wehrheim, Germany) was recorded bilaterally on Mm. vastus medialis, biceps femoris and gastrocnemius medialis. EMG envelopes were calculated and normalized to the peak activity of the torque measurement. Asymmetry indices for GRF and EMG signals were calculated. Differences between the groups were analyzed using Wilcoxon rank sum test.

Compared to healthy subjects, patients produced lower isometric knee flexion (82.4 ± 24.6% body weight vs 115.4 ± 21.6%; p=.043) and extension (213.9 ± 47.5% vs 275.1 ± 43.2%; p=.043) torques. There were no significant differences between the groups for spatiotemporal parameters and maximal GRF. The peak EMG amplitude was significantly higher in the patients for Mm. gastrocnemius medialis (stance phase) and biceps femoris (end of swing phase). The asymmetry index for GRF showed no significant differences between groups, while the asymmetry index of EMG envelopes was significantly higher in the patients than in the healthy runners (p=.015).

This pilot study showed differences between the two groups on the muscular level, the patient group produced lower knee flexion and extension torques and had higher peak muscle activation and higher asymmetry in the EMG envelopes. This may be necessary for maintaining a symmetric running pattern and GRF or due to arthrogenic muscle inhibition. Nevertheless, these results emphasize the importance of strengthening all muscles controlling the knee joint to continue being active.

P 3

What can project management teach the clinician when deciding on return-to-play?

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Decisions on Return-to-play (RTP) are made daily by sports medicine clinicians. Current criteria for RTP decisions have a strong focus on biological and physiological function (tissue healing, functional capacity). Clinicians and researchers agree that RTP must integrate factors specific to each situation and injury, which has been described in the Strategic Assessment of Risk and Risk Tolerance model.[1]

We present RTP as a multi-step process, starting from time of injury and ending at successful RTP of the athlete. Parallels can be made with how projects are led from a management perspective. The building blocks of project management are described with relevance to RTP situations: 1. **Initiation**: definition of the successful RTP. Identification of resources (financial, staffing, expertise available) and stakeholders (managers, coaches, family, media). 2. **Planning**: goals and milestones are identified and progression is communicated regularly amongst the medical staff and stakeholders. 3. **Execution**: this is where the actual work is done, integrating usual components of rehabilitation such as optimal loading of tissues, psychological support, and nutritional advice. The logistics are also looked after (transportation, coordination of appointments). The various elements in this section are called **functional areas** and correspond to the domains that constitute RTP criteria (e.g. range-of-motion, strength, balance, endurance capacity). This section benefits from efficient interdisciplinary communication and a shared document with visual progression components is described in this paper/presentation. 4. **Monitoring and Controlling**: documentation and re-assessment of execution phases as rehabilitation progresses. The early identification of difficulties allows for rapid correction and optimization of the RTP process. 5. **Closing**: successful RTP is completed by new knowledge, reporting and research possibilities. When these steps are carefully planned, the medical staff can shape the path to follow for the athlete and his team, in order to ensure a safe and fast RTP without re-injury.

1. Shrier I. Strategic Assessment of Risk and Risk Tolerance (StARRT) framework for return-to-play decision-making. Br J Sports Med 2015;49:1311-5.

P 4

Relation of heart rate and its variability during sleep with age, physical activity and body composition in young children

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Background: Recent studies have claimed a positive association of physical activity and body composition on vagal tone. In pediatric populations, there is a pronounced decrease in heart rate with age. While this decrease is often interpreted as an age-related increase in vagal tone, there is some evidence that it may be related to a decrease in intrinsic heart rate. This factor has not been taken into account in most previous studies. The aim of the present study was to assess the effect of physical activity and body composition on heart rate variability markers of vagal tone independently of the growth associated decline in heart rate in young children.

Methods: Anthropometric measurements were taken in 309 children aged 2 to 6 years. Ambulatory electrocardiograms were collected over 14-18 hours comprising a full night and accelerometry over 7 days. Heart rate variability was determined of three different night segments: 1) over 5 min during deep sleep identified automatically based on heart rate variability characteristics; 2) during a 20 min segment starting 15 min after sleep onset; 3) over a 4-h segment between midnight and 4 a.m. Linear models were computed for anthropometric and physical activity variables with models adjusted for heart rate and other confounding variables (e.g. age for physical activity models).

Results: We found a decline in heart rate with increasing physical activity and decreasing skinfold thickness. Heart rate variability markers of vagal tone decreased with increasing age, height and weight. These relationships were only found in segments of deep sleep detected automatically based on heart rate variability or manually 15 min after sleep onset, but not in the 4-h segment with random sleep phases.

Conclusions: Contrary to most previous studies, we found a decrease of heart rate variability markers of vagal tone with age when adjusted for heart rate. Without knowing intrinsic heart rate correct interpretation of vagal tone growing children is impossible.

Poster mit oraler Präsentation

P 5

Zinc protoporphyrin (ZnPP) increases diagnostic accuracy of athletes' iron deficiency in need for treatment

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Background: Standard blood analysis for iron deficiency (ID) are based on ferritin (FER) and hemoglobin (Hb) levels. Yet, FER as acute-phase-protein is not always a reliable parameter and may be elevated due to inflammation, infection, autoimmune diseases, malignancy or even intense exercise. We tested whether Zinc Protoporphyrin (ZnPP) might improve ID diagnosis in elite athletes, as it is not an acute-phase-protein, it is very stable and reflects 120 day bone marrow function (erythrocytes life-span). When bone marrow suffers from lack of iron, it begins to incorporate a Zinc-ion in the protoporphyrin ring and the ZnPP molecule can be detected in the laboratory.
Methods: This cross-sectional study was performed in a large sample of 655 Swiss Olympic athletes over one year. FER cutoff was set at 30 µg/l, ZnPP cutoff at 75 µmol/mol, Hb cutoffs were based on gender and age. Athletes were divided into four groups: stage 0-no ID, stage1-ID with low FER/normal ZnPP, stage2-ID with ZnPP↑ and normal Hb, and stage3-ID with ZnPP↑ and anemia.
Results: 69,3% (450/649) had normal FER and Hb values, 27,9% (181/649) showed low FER only and 2,8% (18/649) had anemia. Adding ZnPP to our blood analyses we observed 60,5% (395/651) that didn't present any form of ID, 20,9% (136/651) presented with stage 1, 15,8% (103/651) with stage 2; and 18 athletes (2.8%) were anemic (stage 3). Based on the new diagnostic approach including ZnPP, 8,9% (58/649) had normal FER, but elevated ZnPP↑(false negatives in stage 2), and 20.9% (136/651) would have been unnecessarily treated (false postive with Fer↓, ZnPPno).
Conclusion: ZnPP improves diagnostic accuracy and better identifies impaired bone marrow function as FER alone is not representative of ID of an athlete. We recommend routine testing for FER, ZnPP and Hb to appropriately classify the athletes into the ID categories that need treatment and to assess treatment success.

P 6

SOS MAM, an experimental telemedicine call center in process; analyze of four case reports.

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Introduction: The increase of technical communication devices and the ease of data transfer data by anyone from any remote area has enhanced management abilities in mountain medicine care by telemedicine. As part of a European program on the franco-swiss border (Interreg IV), two mountain medicine centers collaborated to develop a call center managed by physician experts in order to give practical advice to mountain guides in case of illness or accidental impairment during any expedition (SOS-MAM Project).
Methods: Since 2012, IFREMMONT (France) and GRIMM (Suisse) have collaborated to implement a specific call center supervised by ten mountain medicine experienced physicians (6 French, 4 Swiss). Thirty mountain guides were trained for three days in advanced rescue courses then equipped with a satellite phone, and some with ambulatory transmittable ECG devices. An Internet platform adapted to ensure highest standards for privacy and medical responsibility was created and tested. For this report, four different cases of emergency calls are detailed and analyzed to demonstrate the interest and utility of such a service.
Results: The first case was a French himalayist affected by a severe high altitude pulmonary edema at 4800 meters during the ascent of Ratnachuli (Nepal). The second case was a Swiss himalayist presenting with signs of high altitude retinal hemorrhage at 7000 meter while he was attempting ascent of Cho Oyu (Nepal). The third was a case of chest pain at base camp of Mustagh Ata (China). The fourth concerned a frostbite case in North Pole.
Conclusion: The author demonstrates the platform and the successful functioning of the call center SOS-MAM.

Poster

P 7

Neuralgische Amyotrophie: Case report einer 39-jährigen Patientin mit Schulterschmerzen

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Ein seltener Fall aus der orthopädischen Sprechstunde beschreibt eine 39- jährige Patientin mit einer neuralgischen Amyotrophie. Auf plötzliche, starke Schmerzen folgte eine deutliche Schwäche in der Schulter ohne vorangegangenes Trauma. Die klinische Verdachtsdiagnose eines Nervus suprascapularis Engpasssyndrom wurde im MRT gestützt mit einem Denervationsödem der Infra- und Supraspinatusmukulatur. Erst die neurologische Untersuchung brachte die Diagnose zum Vorschein mit zusätzlicher Involvierung des M. serratus anterior (N. thoracicus longus). Im akuten Stadium ist eine symptomatische, analgetische Therapie im Vordergrund. Im Verlauf sind der Erhalt der Schulterfunktion und die Vermeidung einer Muskelüberlastung wichtig. Eine vollständige Erholung wird nicht immer erreicht und dauert zum Teil Jahre.

P 8

10k and half-marathon running performance in men and women is highly predictable by a heart rate-based lactate minimum test

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Introduction: The heart rate-based lactate minimum test (LMT-HR)[1] developed at our institute revealed a high correlation between lactate minimum (LM) and the maximal lactate steady-state (MLSS) in wheelchair racing[2], which makes this test suitable to determine individual training intensity zones. However, it remains still unclear, if this test is also suitable to estimate endurance race performance in able-bodied sports such as running. Thus, the aim of the present study was to investigate, whether 10k and half-marathon performance can be predicted based on a LMT-HR in male and female runners over a wide range of performance levels.
Methods: 30 participants (13 male / 17 female) performed a LMT-HR on a treadmill. Additionally, they completed a 10k and a half-marathon race at the highest possible pace on a flat track on two separate occasions at least five days apart. During these races, runners were regularly informed about the distance covered, but were not aware of race pace or heart rate. For statistical analysis Spearman correlations for speed data at LM versus average speeds during the 10k and half-marathon run were calculated for male and female runners separately.
Results: The present study included 13 men (age: median [minimum; maximum] 38y [25;47]; height: 181cm [170;186]; body mass: 75.0kg [63.0;86.0]; VO2peak: 54.1ml/min/kg [42.3;66.0]) and 17 women (age: 33y [24;44]; height: 167cm [161;180]; body mass: 58.0kg [50.0;70.0]; VO2peak: 51.4ml/min/kg [41.1;61.2]). Race times for the 10k ranged between 36:02min and 56:36min and for the half-marathon between 79:36min and 128:59min, respectively. Highly significant correlations between speed at LM vs. 10k speed in men ($r=0.875$; $p<0.001$) and women ($r=0.916$, $p<0.001$) as well as between speed at LM vs. half-marathon speed (men: $r=0.873$, $p<0.001$; women: $r=0.924$, $p<0.001$) were found.
Conclusion: Results of the LMT-HR allow an accurate prediction of 10k and half-marathon race performance in male and female runners based on a single exercise test. Thus, in daily clinical practice the LMT-HR seems to be a very useful tool for sport scientists and coaches not only to determine individual training intensity zones but also to estimate the actual athletes' running performance potential over a wide range of fitness levels.
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[2] Perret et al. (2012). Correlation of heart rate at lactate minimum and maximal lactate steady state in wheelchair-racing athletes. Spinal Cord 50: 33-36.

Poster

P 9

Soccer Injuries in Swiss Amateur and Informal Soccer

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Introduction: Soccer is the most popular team sport in Switzerland. According to the study "Sport Schweiz 2014" about 190,000 persons aged 15 to 74 years are practising soccer in a soccer club and 290,000 are playing informally or organised in a different setting. This leads to 45,000 soccer related injuries annually if only non-occupational accidents of working people in Switzerland are considered (UVG, 2015). While a large number of investigations about injuries in soccer have focussed on professional or elite soccer players, the present study examines lower levels (amateur soccer) and especially informal soccer in order to provide a basis for further improvements in injury prevention.
Method: A retrospective telephone survey of 822 persons who had sustained a soccer injury throughout one year (July 1, 2013 to June 31, 2014) and reported this accident to the Suva was carried out. The average age of respondents was 28.6 years and 94% were male.
Results: Out of all injuries 49% happened during formal amateur games, 21% during formal amateur trainings, and 30% during informal soccer play such as playing with family and friends (18%) or fun tournaments (6%). 75% of all injured persons were soccer club members. We found 53% of injuries being caused by contact and 30% by foul play. However, foul play was not associated with severe injuries. With respect to injury severity, twisting/turning, kicking the ball simultaneously and being tackled by an opponent were identified as essential injury situations. Injury cause (contact, foul play) differed significantly by soccer setting ($p \leq 0.001$). For all soccer club members the injury incidence was 10.6 per 1000 hours exposure. With 18.7 injuries per 1000 hours 30+/40+ league players had a significantly higher injury risk than players of other male, female and junior leagues ($p \leq 0.01$). While only responsible for 35% of soccer injuries persons aged 30 years and older accounted for nearly half (49%) of all costs.
Conclusion: In conclusion, 30+ and 40+ league players were identified as interesting target group for prevention. Although soccer clubs constitute an appropriate multiplier for implementing preventive measures our results suggest that injury prevention should not only be focussed on formal soccer. Additionally, a better understanding of injury situations leading to injuries in different soccer settings could be an approach for improvements in prevention.

P10

Rückwärtslaufen spezifisch trainiert – bei Fussballschiedsrichtern

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Einleitung: Fussballschiedsrichter laufen in einem Spiel 16.2% ihrer Strecke rückwärts[1]. Die daraus resultierenden Anforderungen weichen von jenen vom Vorwärtslauf ab und müssen spezifisch trainiert werden. Daraus ergibt sich die Fragestellung, ob die Rückwärtslaufgeschwindigkeit durch eine 10-wöchige Trainingsintervention gesteigert werden kann.
Methode: 6 männliche und gesunde Fussballschiedsrichter der Fördergruppe Nordwestschweiz (24.0±2.1 jährig) absolvierten 10 individualisierte High Intensity Trainings (HIT) auf dem Alter-G ® Laufband (Protokoll: Einlaufen: 5min rückwärts (rw) – 10x30s vorwärts (vw) und 5x30s rw voll – Auslaufen: 3min rw, 2min vw). Zur Evaluation des Trainingserfolgs wurde vor (prä) und nach (post) der Intervention ein neuartiger Rückwärtslauftest (Anfangsgeschwindigkeit 4 km/h, Inkrement 0.5 km/h pro 30s mit 10% Gewichtsentlastung) auf dem Alter-G ® Laufband bis zur konditionellen oder koordinativen Erschöpfung durchgeführt. Mittels Wilcoxon Test ($p \leq 0.05$) wurde die Veränderung der maximalen Rückwärtslaufgeschwindigkeit getestet.
Resultate: Die Abbruchgeschwindigkeit beim Rückwärtslauftest wurde nach 10 spezifischen HITs von 12.50±1.89 km/h (prä) auf 14.98±1.39 km/h (post) signifikant gesteigert ($p=0.028$). Die Herzfrequenz war prä und post unverändert bei 190/min (±5.7 prä und ±6.2 post).
Interpretation und Schlussfolgerung: Mit der 10 Wochen dauernden Trainingsintervention, bestehend aus einer Einheit pro Woche, konnte die maximale Rückwärtslaufgeschwindigkeit um 16.6% gesteigert werden. Durch das Erlernen des Bewegungsmusters auf dem Alter-G ®, in gesicherter Umgebung, wurde die Bewegung ökonomischer und durch die Gewichtsentlastung konnte ein zusätzlicher neuromuskulärer Stimulus gesetzt werden. Andererseits hat die fürs Vorwärtslaufen häufig positiv beschriebene Wirkung des HITs auch beim Rückwärtslaufen gewirkt. Diese Leistungsverbesserung ermöglicht den Schiedsrichtern auf dem Feld neue Laufwege bei geringerer körperlicher Anstrengung und unterstützt die Konzentration.
Folglich ist es ratsam, rückwärtslaufspezifische Reize ins Training der Fussballschiedsrichter zu integrieren und diese auch diagnostisch, mittels valider und reproduzierbarer Tests, zu analysieren.
Literatur: 1) Johnston L., McNaughton L. (1994) The physiological requirements of Soccer refereeing. Aust J Sci Med Sport. 26(3-4): 67-72.

P 11

Impact of rocker sole footwear on plantar pressure distribution during standing and walking in obese patients

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Context: Obesity increases the stresses applied to the foot. Static pedobarographic evaluations revealed higher forefoot pressures and total plantar force in the feet of obese patients when middle foot pressure was higher while walking. In this population, increased energy expenditure by means of ergonomic unstable footwear has recently been reported. These ergonomic rocker sole shoes (RS) could potentially alter plantar pressure distribution.
Objective: To compare plantar pressure distribution in obese patients during standing and walking with flat-bottomed shoes (FB) versus RS.
Patients: A sample of twenty adult obese women volunteered to participate in the study.
Main outcome measures: Participants were asked to stand quietly and to walk at their preferred walking speed whilst wearing FB or RS. Plantar pressure distribution was assessed bilaterally using instrumented insoles.
Main results: Standing with RS significantly increased pressures and contact areas under the toes, forces and contact areas under the forefoot, and forces under the midfoot, but decreased force time integral under the rearfoot. During walking with RS, pressures and forces significantly decreased under the toes and forefoot, but increased under the midfoot and rearfoot areas.
Discussion: While standing with RS, obese patients showed similar adaptations compared with normal-weight populations such as augmented pressure under the toes (showing an increased active control of the posture through the toe flexors), whereas forefoot and heel pressures remained unchanged (potentially preventing overload of these frequently painful sites in obese patients). Walking with RS resulted in decrease in forces and pressures under the forefoot but not under the midfoot and rearfoot. The relative overload of the heel during walking with RS should be seriously considered to prevent heel pain pathologies, whereas the forces and pressures increase at the midfoot may be efficiently controlled by specific strengthening of the foot arch.
Conclusion: From a plantar pressure distribution perspective, obese patients may benefit from wearing partly RS while standing and walking.

P 12

Effect of a 300 mbars increase in barometric pressure on fingers' microcirculation in healthy subjects exposed at high altitude - Interest of using a portable hyperbaric chamber to treat frostbites and hypothermia.

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Introduction: Hypothermia and frostbites are due to a significant decrease in central and peripheral body temperatures in individuals exposed to a cold or windy environment or to high altitude in mountains. The use of a portable hyperbaric chamber is a well-known treatment against altitude intolerance trough its ability to increase oxygen partial pressure. This study aimed to show that hyperbaric exposure could also be used as a treatment for hypothermia and frostbite.
Methods: During a European research program (SOS-MAM, Flow Pulse study) investigations were made on 27 healthy non acclimatized subjects (21 males, 6 females mean age 41 ±17) at the altitude of 3800 meters (Chamonix Mountain LAB, Aiguille du Midi, France), right before and after spending 1h in a portable hyperbaric chamber (+300 mbars, CertecR). We measured digits' skin temperature (T°cut), digits blood flow (Fcut) and digits tissue oxygenation (T_cPO_2) by laser doppler monitoring (PerimedR), (S_pO_2) by digital pulse oximeter (NoninR), heart rate (HR) and core temperature (CT°) (ZephyrR). Air temperature inside the chamber (T°chamb) was measured during the whole session.
Results: We observed significant increases in T°chamb (+9.3 °C), T°cut: +7,5°C (+/- 6,2) (+71%), Fcut: +58_{AU} (+/-89) (+379%), $TcPO_2$: +18mmHg (+/- 11,9) (+304%), $SatO_2$: +13%.
Conclusion: This study shows that hyperbaric chamber could be used to treat frostbite and hypothermia in altitude when descent or rescue is impossible or even simply delayed.

Poster

P 13
La prise en charge médico-sportive pluridisciplinaire du patient obèse et sédentaire. Case report.
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La prise en charge non-chirurgicale des patients obèses nécessite un team pluridisciplinaire. Elle est en principe réservée aux spécialistes de l'obésité et du comportement. Nous présentons ici un exemple de suivi par un team médico-sportif qui applique les principes de suivi des sportifs tout en respectant la sphère comportementale et motivationnelle de l'individu non-sportif.
Case report. Un patient de 47 ans consulte pour gonalgies sur arthrose fémoro-tibiale médiale. Poids 154 kg, Taille 177 cm, IMC 49.2 $kg \cdot m^{-2}$. Il est hypertendu sous trithérapie. Un mois auparavant il a tenté un début d'activité au fitness (vélo et tapis), mais une douleur au genou l'a contraint à arrêter. Il est dyspnéique aux escaliers, avec un bilan cardiaque négatif 6 mois auparavant.
Nous proposons au patient une prise en charge globale, en intégrant reconditionnement, conseils nutritionnels et accompagnement médical. Un bilan initial (endurance, force, gainage, habitudes alimentaires) détermine les composantes de la prise en charge.
Le patient s'engage à consacrer 3 à 4 fois une heure par semaine à une activité en physiothérapie ou au fitness, et malgré la réticence à l'approche nutritionnelle en raison de multiples tentatives préalables, il consent à la prise en charge pluridisciplinaire. Un monitoring et coaching participatif des séances est instauré.
Résultats. A 3 mois, on note une progression de 29.5% de la VO_2max (20.0 à 25.9 $ml \cdot kg^{-1} \cdot min^{-1}$), du gainage ventral et dorsal (710% et 100%), sans modification de la force des membres inférieurs. Le pourcentage de masse graisseuse baisse de 17% (35 à 29%), le poids de 9.7% (154 à 139 kg). La courbe de perte de poids est linéaire et atteint après 7 mois -30.1 kg, soit une perte de 19.5%. En raison d'épisodes d'hypotension orthostatique, la trithérapie anti-hypertensive est adaptée pour une monothérapie.
Discussion. Le suivi initial en physiothérapie a pu être progressivement espacé jusqu'à une autonomisation de l'entraînement du patient. Les conseils nutritionnels sont restés simples, mettant en avant le plaisir et la gestion des quantités. L'interaction par le monitoring alimentaire et sportif permet une adaptation régulière des conseils, en évitant blessures, fatigue ou lassitude. Le modèle de prise en charge est actuellement appliqué à nos patients sédentaires et obèses.

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Isokinetische Kraftfähigkeit des m. quadriceps nach einer vorderen Kreuzbandrekonstruktion mit Quadricepssehne 2-5 Jahre postoperativ
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Das Ziel einer operativen Behandlung mit VKB-Rekonstruktion ist das Wiedererlangen einer vollen Kniefunktion und Stabilität bei möglichst geringer Morbidität an der Entnahmestelle des Transplantates. Während das mittlere Drittel der Quadricepssehne (QT) als primäre Transplantatwahl seit längerem bekannt ist, wird sie meist nur als zweite Wahl bei einer Re-Ruptur verwendet. Das Ziel dieser retrospektiven Arbeit war eine deskriptive Darstellung des Outcomes 2-5 Jahre postoperativ nach primärer VKB-Rekonstruktion mittels Quadricepssehne. Die Stichprobe umfasste 47 Probanden, davon waren 11 (23%) weiblich. Das mittlere Alter bei der Operation betrug 31.2 Jahre (Range 14-53), die Follow-up Messung erfolgte 37±7.8 (MW SD) Monate postoperativ. Alle Probanden wurden von demselben Arzt operiert und durchliefen dasselbe Rehabilitationsprogramm. Die Kraftmessung erfolgte isokinetisch (Con-Trex), das Formblatt zur subjektiven Beurteilung des Knies von der International Knee Documentation Committee (IKDC) sowie die Tegner-Activity-Scale wurden zur Beurteilung verwendet. Die anteriore Kniestabilität wurde mit dem Aircast Rolimeter A50 getestet und als Side-to-Side-Differenz (StS-Diff) dargestellt. Beim Follow-up zeigte sich eine Differenz in der konzentrischen Kraft des m. quadriceps bei 60°/s (Qcon60) von 2.4% auf der operierten Seite im Vergleich zur gesunden contralateralen Seite. Der präinjury Medianwert des TAS betrug 9 (Range 5-9), beim Follow-up noch 7 (Range 3-9). Der IKDC-Score beim Follow-up ergab 90.3±7.24 Punkte ((MW SD) Range 71.3-100 Punkte). Die mittlere StS-Diff betrug 1.4±2.2 mm (MW SD), 78.7% der Probanden hatten eine StS-Diff von <3 mm, respektive 4.3% von >5 mm. Eine primäre VKB-Rekonstruktion mittels Quadricepssehne erreicht 37±7.8 Monaten postoperativ zufriedenstellende Resultate.