

PREVENTIVNI IN REGENERACIJSKI POSTOPKI ZA TENIŠKE IGRALCE

Ključne kompetence

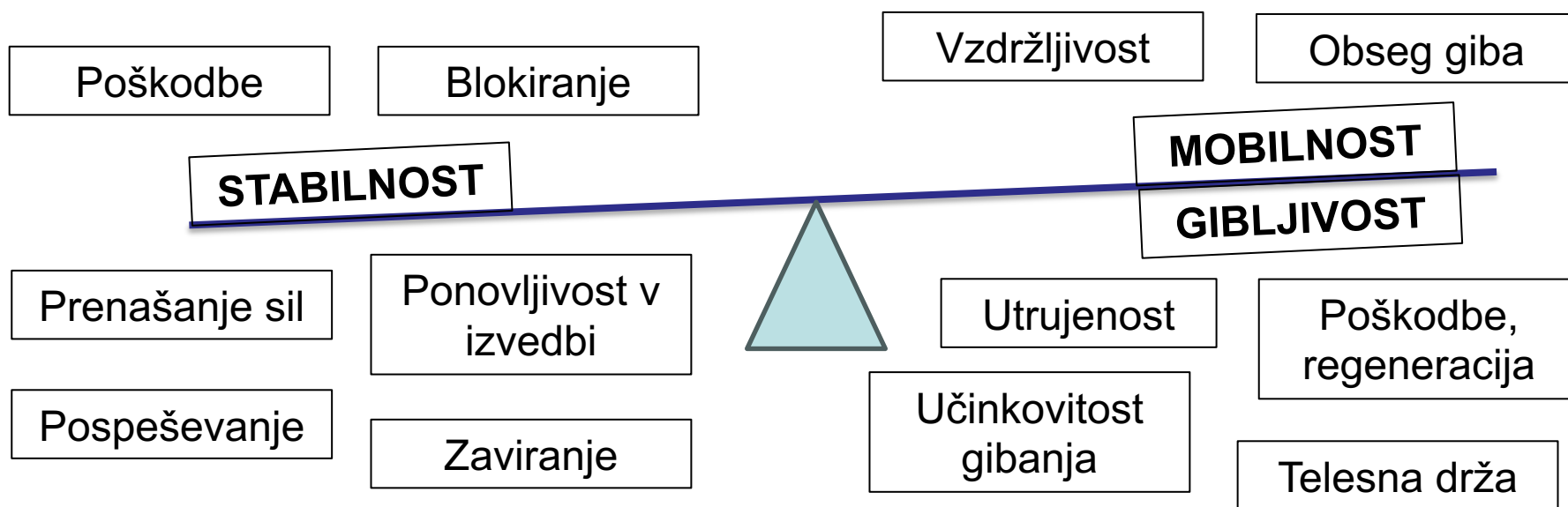
Poznavanje osnovnih preventivnih in regeneracijskih postopkov, ki igralcem omogočajo lažje in hitrejše premagovanje utrujenosti ter jih ščitijo pred morebitnimi poškodbami.

V tej predstavitvi bomo...

- Pojasnili pomen in osnovna področja (dele telesa) preventivnega delovanja.
- Predstavili vaje za posamezne dele telesa, ki so pri teniških igralcih najbolj izpostavljeni poškodbam.
- Predstavili regeneracijske metode, ki pomagajo pri premagovanju utrujenosti.

Pomen preventivne vadbe

- Povečevanje velikosti obremenitve, ki jo tkivo še premore pred odpovedjo
- Zmanjševanje akutnega ali kroničnega stresa na tkivo
- Optimalno delovanje sklepa, mišic, vezivnega tkiva...



STABILNOST + MOBILNOST =



TRENER TENISA B

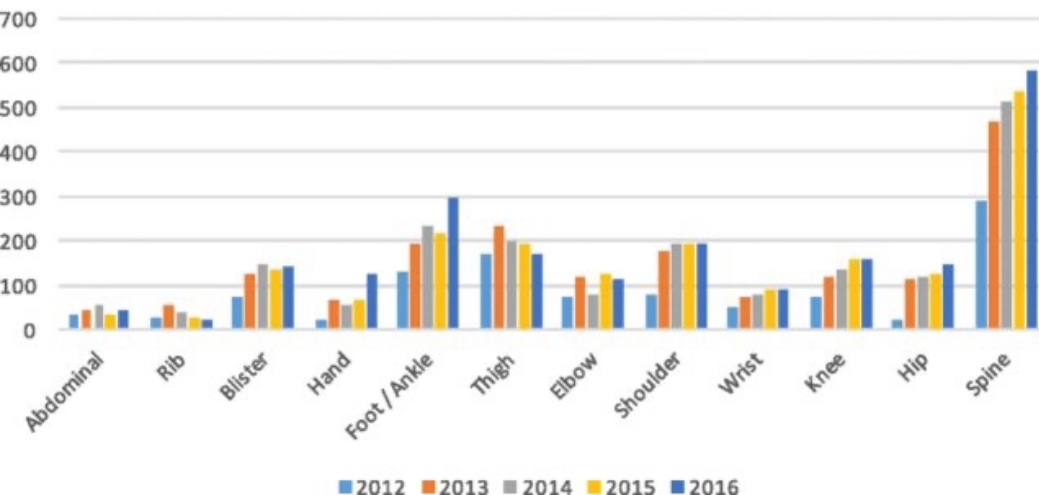
Preventivno delovanje v teniški praksi

- Ogrevanje in ohlajanje
- Specifična preventivna vadba:
 - a) vadba za moč (jakost)
 - b) raztezanje
- Načrtovanje in poznavanje obremenitev (intenzivnost, obseg, odmor, periodizacija...)
- Primernost opreme (lopar, struna, obutev...)
- Spanje, prehrana, regeneracija, asimetrije...

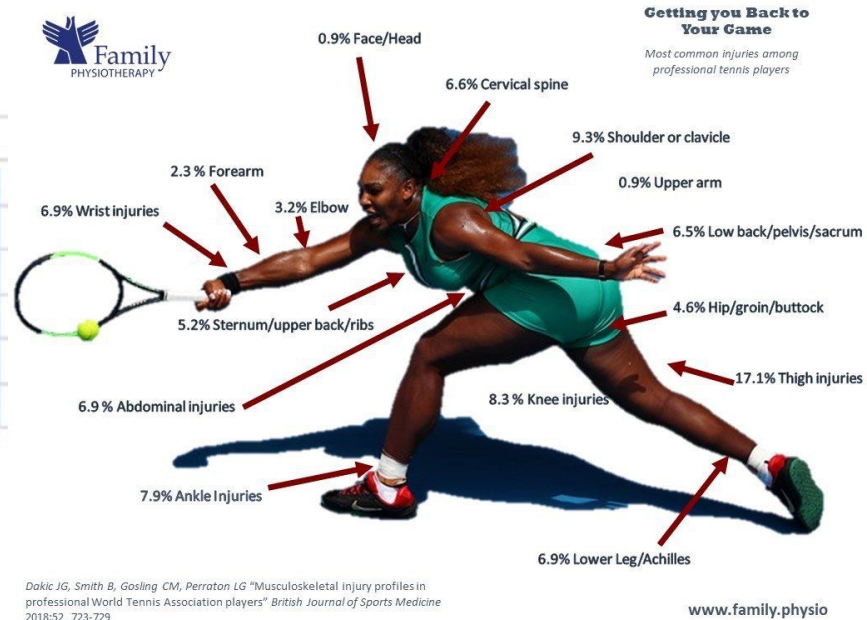
Najbolj izpostavljeni telesni deli

ATP

ATP Injuries 2012 to 2016
A Five Year Summary



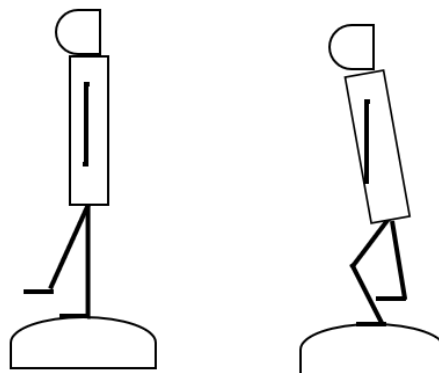
WTA



- Spodnje okončine (predel bokov, stegno, koleno, gleženj)
- Zgornje okončine (ramena, komolec, zapestje)
- Trup (ledveni in vratni predel)

Koleno in gleženj

- Poskoki, kolebnica, nestabilne površine...

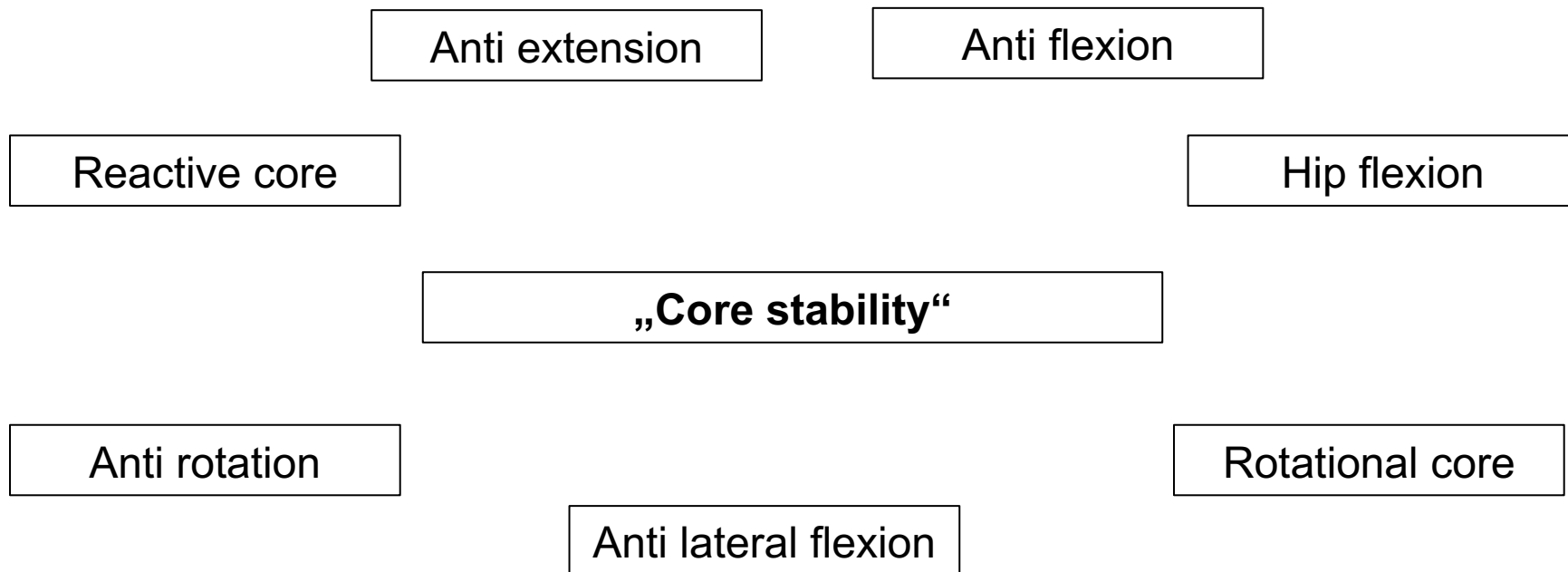


- Video

Ramenski sklep – mobilnost

- CARs → aktivno gibanje (novi obseg giba)
- Video

Trup – stabilnost



Ogrevanje – primer

ŽIVČNO-MIŠIČNI
SISTEM



AKTIVACIJA



POVEČANA
VZDRAŽENOST
ŽIVCEV

TRENER TENISA B

OGREVANJE 1
(pred prvim treningom, 30 min):

- 1. Tek/kolo (3-5 min)**
- 2. Valčkanje (5 min):**
 - 30 sek vsaka mišična skupina, od nog do glave
- 3. Mobilnost (3 min):**
 - Trup: »cat cow«
 - Rama: »Half Kneeling Shoulder Cars« (vsaka roka 2 kroga)
 - Kolki: »90-90-90« (z in brez rok: 2x3)
- 4. Dinamične raztezne vaje (4 min/10 ponovitev ene vaje):**
 - (zamahi, kroženja, zasuki, odmiki...)
- 5. Aktivacija mišic trupa (3 min):**
 - Front plank + korakanje narazen-skupaj (30 sek)
 - Šide plank (L-D) + odmik noge (30 sek vsaka)
 - Back plank + izmenični dvigi nog (30 sek)
- 6. Sklop vaj z elastiko za kolke (3 min):**
 - odmiki, primiki, kroženja (stegnjeno/pokrčeno), bočna hoja, različne smeri
- 7. Aktivacija mišic nog – lateralno (3 min):**
 - Prehod iz nizkega v visoki skipping (2x)
 - 1 noga nizki, 1 noga visoki skipping (2x)
 - Izpadni korak v vse smeri (6x z vsako nogo)
- 8. Poljubne lastne vaje (največ 3)**
- 9. Sklop vaj z elastiko za ramo, zapestje in komolec (3 min)**
 - Notranja in zunanja rotacija, servis gib, upogibi, iztegi s stegnenimi rokami, prevleki, potiski, spreminjanje obremenitve...
- 10. Agilnost (3 min)**
 - Mala zvezda (2x, med ponovitvama 30 sek odmora).

STABILNOST



PREVENTIVA

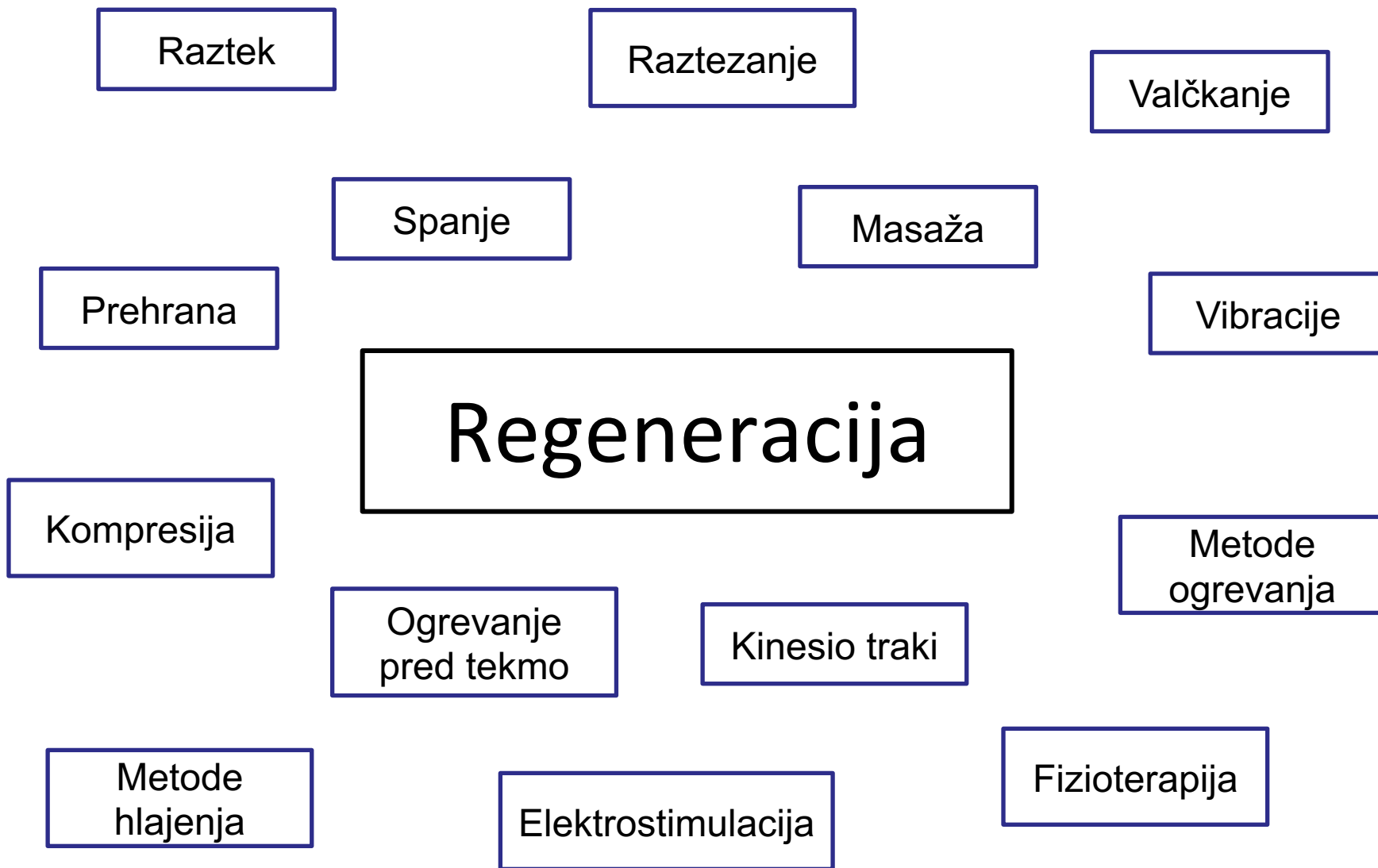


MOBILNOST

POVEZAVA
OGREVANJA Z
REGENERACIJO?

Pomen regeneracije

- Zmanjševanje akutnega ali kroničnega stresa na tkivo (po treningu/tekmi)
- Vplivamo na zmanjšanje utrujenosti, DOMS-a
- Pospeševanje procesov obnove (homeostaza, anabolna/katabolna faza)
- Večina teniških igralcev skrbi za regeneracijo
- Več kot 80% profesionalnih teniških igralcev uporablja kombinacijo regeneracijskih metod (2-5)



Raztezanje

- Potrebno ločiti namen raztezanja:
 - 1) raztezanje kot ogrevanje (dinamično)
 - 2) raztezanje kot regeneracija, večinoma statično:
 - ohlajanje po vadbi: srednja intenzivnost raztega
 - boleče mišice (težek trening/tekma) → 2-3x po 5-10 sek
 - Lažje raztezanje po treningu/tekmi, obsežnejše raztezanje pred spanjem
 - 3) raztezanje kot vadba gibljivosti
 - dinamično, statično in
 - ostale metode (PNF, balistika?...)



Metode hlajenja – hlajenje celega telesa (WBC – whole body cryotherapy)

- Postopnost: 30 sek pri temperaturi -60°C
- 2 – 5 min pri temperaturi -110°C do -190°C
- „WBC may improve recovery from muscle damage, with multiple exposures more consistently exhibiting improvements in recovery from pain, loss of muscle function, and markers of inflammation and damage“ (Rose et al., 2017).



Metode hlajenja – ledena kopel (CWI – cold water immersion)

- 10 – 15 min pri temperaturi (5 °C) 10°C do 15°C
- Začetniki v krajših intervalih: npr. 2 – 3x 5 min
- Čim prej po telesni aktivnosti
- „Studies have shown that CWI reduces post-exercise muscle stiffness, eliminates fatigue, decreases exercise-induced muscle damage (EIMD), and improves athletic performance“ (Xiao et al., 2023).



Metode hlajenja – kontrastna ledena kopel (CWT – contrast water therapy)

- 3 – 7x 1 – 3 min pri temperaturi 8°C do 15°C
- 3 – 7x 1 – 3 min pri temperaturi 35°C do 45°C
- Skupno trajanje: 10 – 15 min (čim prej po telesni aktivnosti)
- Začetek s toplo ali hladno kopeljo
- Celo telo ali samo spodnje okončine
- *„Muscle soreness, muscle damage, strength, and power all appear to recover quicker after CWT compared to no intervention. However, when CWT was compared to other commonly employed recovery modalities little difference was observed“ (Bieuzen, Bleakley & Costello, 2013).*

Primer vključevanja hidroterapije v tedenski cikel

Table 5
Example of a cold recovery scheme for team-sport athletes with a high and low training age during an in-season week

		Match-day	Off	Day 1	Day 2	Day 3	Day 4	Day 5	Match-day
	Training load	Very high	Day off	Low to moderate	High	Day off	Moderate to high	Low	Very high
High training age	Categorization	Recovery from damage	Recover to adapt				Recover to perform		
	Intensity of cold modalities	+++		+	+		++	+++	
	Example	CWI: 2 × 5 min (11–15°C); full body		CWT: 3× (1 min cold; 2 min hot); lower body	CWT: 2× (2 min cold; 2 min hot); lower body		CWI: 1 × 5 min cold (11–15°C); full body	CWI: 2 × 5 min (11–15°C); lower body	
Low training age	Categorization	Recovery from damage	Recover to adapt					Recover to perform	
	Intensity of cold modalities	+++			+			++	
	Example	CWI: 2 × 5 min (11–15°C); lower body			CWT: 3× (1 min cold; 2 min hot); lower body			CWT: 3× (2 min cold; 1 min hot); lower body	

CWI = cold-water immersion; CWT = contrast water therapy.

Tavares et al. (2018)

Metode ogrevanja - vroča kopel (HWI – hot water immersion)

- 10 – 15 min pri temperaturi 38°C do 48°C
- Celo telo, samo glava izven vode
- Predolge intervencije lahko povzročijo občutek medlosti, pomanjkanja energije...
- Uporaba savne (vodna para)?
- Mešani rezultati učinkovitosti teh metod in pazljivost pri uporabi (starost, trajanje...)

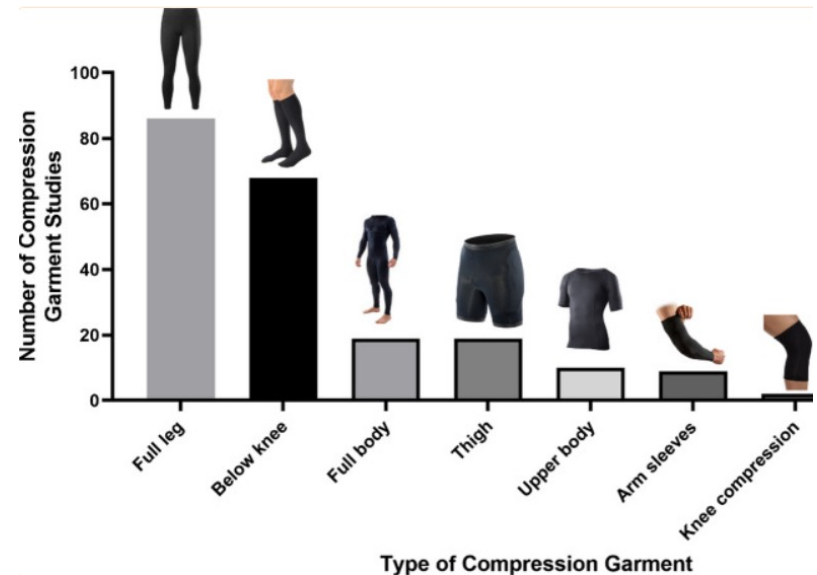
Masaža in samomasaža

- Samomasaža dviguje učinkovitost priprave na trening ali tekmo ter pospešuje okrevanje po obremenitvi.
- Primer: 60 sek na mišično skupino (10 min)



Kompresije

- Izboljšanje (venskega) krvnega pretoka
- Lajšanje bolečine DOMS-a
- Ogrevanje površine kože (hladni pogoji)



Ostalo

- Aktivna regeneracija – tek, kolo...
- Elektrostimulacija
- Kinesio trakovi
- Fizioterapija (osteopatija, masaža, mobilizacija sklepov...)

Primer vključevanja preventivno – regeneracijskih vsebin v tekmovalni teden

Table 4
Sample schedule for a 17-18 year old male player exiting in the 1st round and with a five day break between tournaments

Fitness component	Match day	Day 1	Day 2	Day 3	Day 4	Day 5
Fitness—anaerobic/aerobic		Light jog/pool/bike for recovery or rest day.		Sport-specific conditioning session incorporated within tennis training.		
Strength and power			Refer to sample gym session.		Refer to sample gym session: short duration and low volume (2 sets only).	
Speed, agility, and coordination			Twenty minutes of footwork drills included in tennis warm-up.	Twenty minutes of agility drills included in tennis warm-up.		Short-duration high-intensity footwork and speed drills incorporated within the main tennis session.
Flexibility and injury prevention	Completed as part of warm-up and recovery after game.	Flexibility session/rest day.	Completed in warm-up and warm-down.	Completed in warm-up and warm-down.	Completed in warm-up and warm-down. Additional flexibility session in evening.	Completed in warm-up and warm-down.

Reid et al. (2009)

TYPE OF FATIGUE	RECOVERY STRATEGIES
<p>METABOLIC FATIGUE (Energy Stores)</p>	<ul style="list-style-type: none"> ▶ Rehydrate & refuel (including small amounts of protein as well as carbohydrates) before, during & after training ▶ Use contrast temperature showers, pool, or spa, and active recovery activities to increase metabolism ▶ Recovery Snack and appropriate hydration within 45 minutes of training
<p>PERIPHERAL NERVOUS SYSTEM FATIGUE (muscles)</p>	<ul style="list-style-type: none"> ▶ Rehydrate & refuel before, during & after training ▶ Within 5 – 15 minutes after training use a spa or shower with jets focused on the large & fatigued muscles such as legs, shoulders and arms ▶ After training or later in the day – massage large muscle groups & include some jostling / light shaking techniques
<p>CENTRAL NERVOUS SYSTEM FATIGUE (brain)</p>	<ul style="list-style-type: none"> ▶ Steady & regular intake of carbohydrates during training & after training to maintain normal blood glucose levels to aid decision making ▶ After training – unwind, listen to music, visualization ▶ Sauna – contrast hot and cold (for older players >15 years of age) ▶ Rest with reduced cognitive stimulation
<p>PSYCHOLOGICAL FATIGUE (emotional, social, cultural)</p>	<ul style="list-style-type: none"> ▶ Focus on process rather than outcome measures ▶ Debrief by identifying 1-3 things that worked well and 1-3 that need more work ▶ Take mind off training with escapist or funny movie, TV, book, or socialize with family & friends ▶ 10-15 minutes before bed “switch-off” from the day by using relaxation techniques
<p>ENVIRONMENTAL & TRAVEL FATIGUE</p>	<ul style="list-style-type: none"> ▶ Preparation planning will minimize fatigue ▶ Stay hydrated and refueled ▶ Stay cool in the heat - use a pool, shade, iced towels, etc. ▶ Keep moving as much as possible on long journeys ▶ Minimize visual fatigue by wearing sunglasses outside & limiting time on computers & play stations

(USTA, 2010)

Vprašanja?