

Partner of **SWISS AQUATICS # SWIMMING medical team**

Coaches Clinic 2024 SCREENINGS, PAIN SCALE, RECOMMENDATIONS

Partnership SAS & 3PO

Partner of

swiss aquatics swimming medical team

Started in September 2021

SDO

Due to talks about the physiotherapy work in high performance

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suimming medical team



Partnership –SAS & 3PO

- 1- The deployment of physiotherapist with the national swimming teams
- 2 Screenings with the national team members
- 3– Concept Work for the national swimming teams
 - Injury Profiling
 - Ilness and Injury Surveillance Program

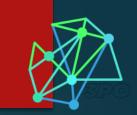
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summing medical team

1 - Deployments National Teams



- Ensuring the highest quality service for national team members
- Creation of guidelines for the national teams
 - ► Warm-ups
 - Recovery Strategies
 - Prevention/Prehab



swiss aquatics a suimming medical team

2-Screenings

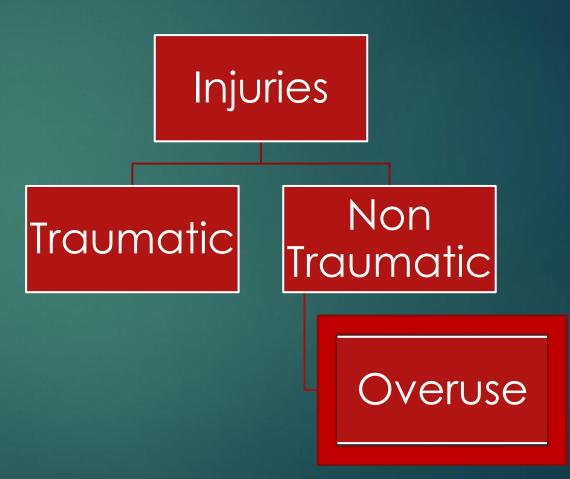
- What are they for?
 - To try and Prevent Overuse Injuries
- Why are they important?
 - Detect asymmetries
 - Congenital problems
 - Detect potential problems in administering load
 - Previous experiences with Screening
 - Low undertanding of what is done
 - Low aplicability in the training process







What are they based on? Scientific Literature





swiss aquatics a swimming medical team

2-Screenings

Scientific Literature

- Case studies
- Risk Factors and Epideomology
- RCT'S with prevention exercises
- Sistematic Reviews

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2-Screenings



Epimediology Injuries

Swimming	Shoulder 40-91%	Supraespinatus
Injuries	STIUUIUEI 40-71/0	Infraespinatus
IIIJUIIES		Long Head Biceps
		Bursitis
	Knee 33%	Medial Collateral Ligament
		Patelar Femular Pain (Chondromalacia)
	Spine 50%	Mechanical Low Back Pain
		Disc Problems
	Hip/Groin 11%	Adductors Tendinopathy

Summing medical team 2- Screenings



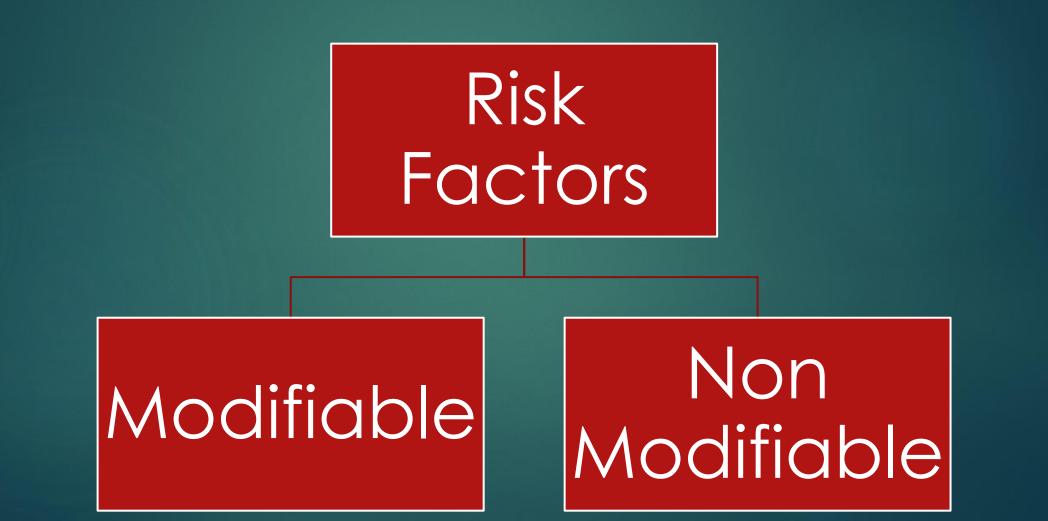
Epimediology Injuries

Chauldar	Supraespinatus	Freestyle, Backstroke, Butterfly
Shoulder	Infraespinatus	Freestyle, Backstroke, Butterfly
40-91%	Long Head Biceps	Freestyle, Backstroke, Butterfly
	Bursitis	Freestyle, Backstroke, Butterfly
Knee 33%	Medial Collateral Ligament	Breastroke
	Patelar Femular Pain (Chondromalacia)	Breastroke
Spine	Mechanical Low Back Pain	Butterfly, Breastroke
50%	Disc Problems	Butterfly, Breastroke
Hip/Groin 11%	Adductors Tendinopathy	Butterfly, Breastroke

swiss aquatics # swimming medical team

2-Screenings





swiss aquatics **a** swimming medical team

2-Screenings

Risk Factors

- Technical
 - ► Hand Entry too lateral at Freestyle
 - Pull too wide
 - Not enough rotation freestyle

Volume

Risk Factors

- Training Load and Recovery
- Years of competition
- Level of Competition

Range

- Deficit on Internal Rotation of the shoulder
- ► Hypermobility

Others

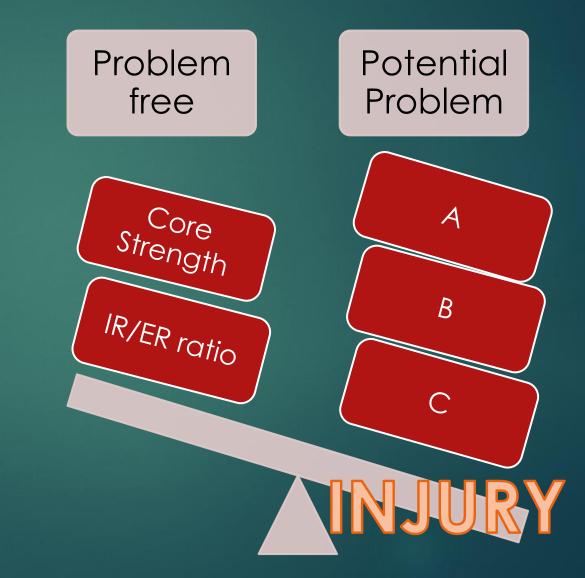
Changing of coach





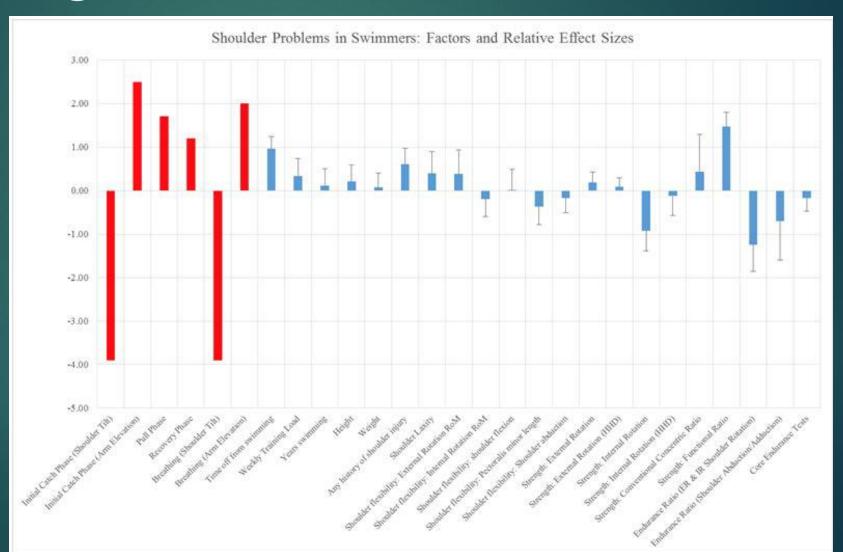


2-Screenings



Swiss aquatics # Swimming medical team 2-Screenings

Scientific Literature Lee et al 2016





Summing medical team 2-Screenings



3 Screening moments during the season. September, January, April

- Identification
- Assessment
- ► PSFS
- ► KJOC



► Identification

Date of test	
Name (First Name, Last Name)	
Gender (M/F)	
Age	
Height (meters, centimeters)	
Weight (kilograms, Grams)	
BMI	
How many years of Competition	
Did you ever Stopped swimming competetively?(Y=1/N=0)	
Best Stroke (Fr, Ba, Br, Bu, Me)	
Best Event(50/100/200)	
Freestyle Breathing Side (R/L/Both) While Recovering	
While Warm-up	
While Fatigued	
During Race pace	
During Competition	
Dominant Arm (R/L)	
Coach Name	
How many years with Coach	
Training volume per session Average (meters)	
How many sessions per week (water+gym, example 8W+2G= 10sessions)	
Total Hours of Training per week	
Previous Injury (Shoulder, Knee, Spine, Hip, Elbow, Wrist, Ankle) (R/L/Both) Where?	
Did You Stop swimming because of the injuries? (No=0) (1day+)	
Had Treatment for those injuries? (Y=1/N=0)	
Do you have Regular Tretament? (Y=1/N=0)	
Frequency (1xW,2xW, 2xM, 1x3w, 1xM)	
Name of Therapist	
Contact	
Pre competition (what happens often), Anything Hurts (Y=1, N=0)?	
When does it hurt?	

SU SU	uiss ac	quatics 🖬		Hip Right	IR ROM Active Supine	
					ER ROM Active Supine	
	SWIMI	mıng medıcal team	4		IR ROM Active Prone	
swiss aquati					ER ROM Active Prone	
Δ	ssessemer	nt			FADDIR test	
- suummina 🎬	bebbenner				Ober's test	
Johnman				Hip Left	IR ROM Active Supine	
	Chauldes Disha	FD DOM A share Constant			ER ROM Active Supine	
2-Scree	Shoulder Right	ER ROM Active Supine IR ROM Active Supine			IR ROM Active Prone	
					ER ROM Active Prone	
		Flexion ROM Active Supine			FADDIR test	
		Aprehension test Supine			Ober's test	
		Pec Minor Index Supine (PMI)				
		Sleeper's test ROM Lateral		Knee Right	Squat Overhead - Knees inwards	
		ER RES ISO Sitting			Squat Overhead - Pronation feet	
		IR RES ISSO Sitting	<u> </u>		Squat Overhead - Curved Back	
Assessment		Load Test 1,2	1		Lunge Straight Line - Knees inwards	
		Hawkins Kennedy			Lunge Straight Line - Pronation feet	
		Neer's test			Lunge Straight Line - Curved Back	
		Speed's Test			SLR	
	Shoulder Left	ER ROM Active Supine	e		MCL Stress Test	
		IR ROM Active Supine			LCL Stress Test	
		Flexion ROM Active Supine	<u> </u>		Macmurray's	
		Aprehension test Supine Pec Minor Index Supine (PMI)			Thessely's	
		Sleeper's test ROM Lateral		Knee Left	Squat Overhead - Knees inwards	
		ER RES ISO Sitting			Squat Overhead - Pronation feet	
		IR RES ISSO Sitting			Squat Overhead - Curved Back	
		Load Test 1,2			Lunge Straight Line - Knees inwards	
		Hawkins Kennedy			Lunge Straight Line - Pronation feet	
		Neer's test			Lunge Straight Line - Curved Back	
		Speed's Test			SLR	
Sho	oulder Blade Right	Active Horizontal Abd Active prone ROM			MCL Stress Test	
		Standing arm at Side (thumbs forward)			LCL Stress Test	
		Standing arms at Iliac Crest (thumbs back)			Macmurray's	
		Standing Abd 90 degrees (thumbs up)			Thessely's	
Sh	noulder Blade Left	Active Horizontal Abd Active prone ROM		Ankla Diaht		
		Standing arm at Side (thumbs forward)		Ankle Right	Knee to wall test	
		Standing arms at Iliac Crest (thumbs back)		Ankle Left	Knee to wall test	
		Standing Abd 90 degrees (thumbs up)		Beighton Scale	Palms on Floor without knee bent	
	Spine Right	St Flx Test			Hyper-extension elbows 10 degrees R	
		Lumbar Lock Rotation test ROM			Hyper-extension Knees 10 degrees R	
		Slump			5th Finger dorsiflexion more than 90 degrees R	
		Patrick Faber			Thumb Touching the anterior forearm R	
and the state of the		KEMPS test			Hyper-extension elbows 10 degrees L	
	Spine Left	St Flx Test			Hyper-extension Knees 10 degrees L	
		Lumbar Lock Rotation test ROM			5th Finger dorsiflexion more than 90 degrees L	
		Slump			Thumb Touching the anterior forearm L	

Is there pain during swimming, either at practice or during a competitive event? Answer: No Score = 0 Score = 1 Answer: No Score = 1 Answer: Yes Score = 2 Does pain last 2 hours during the day? Answer: Yes Score = 3 Answer: No Score = 3 Answer: No Score = 3 Answer: No Score = 3 Answer: No Score = 4 Answer: Yes Score = 5 Answer: Yes Score = 1 Answer: Yes Score = 1 Answer: Yes Score = 1 Answer: Yes Score = 1 Answer: No Score = 1 Answer: Yes Score = 1 Answer: Yes Score = 2 Answer: No Score = 3 Answer: Yes Score = 3 Answer: Yes Score = 1 Answer: Yes Score = 1	suiss 2-S	Answer: No Answer: Yes
Does pain continue even after stopping or changing to a different stroke? Score = 6 Does pain interrupt sleep? Answer: No Answer: Yes Answer: No Score = 7 Does pain consistently occur on consecutive days? Answer: No Score = 1 Has performance diminished? Answer: No Score = 7 Does pain consistently occur on consecutive days? Answer: No Score = 2 Does pain last 2 hours during the day? Answer: No Score = 8 Answer: No Score = 2 Does swimmer have difficulty with shampooing hair after practice OR have pain that last > 4 hours during the day? Answer: Yes Answer: No Score = 5 Score = 5 Score = 10		Is there pain during swimming, either at practice or during a competitive event? Does pain occur withreaching overhead and/or lifting activities not related to swimming?
Answer: No Score = 2 Answer: Yes Answer: No Score = 8 Has pain lasted more than 7 consecutive days? Answer: No Score = 3 Answer: Yes Answer: Yes Answer: No Score = 3 Score = 3 Does swimmer have difficulty with shampooing hair after practice OR have pain that last > 4 hours during the day? Answer: Yes Answer: Yes Answer: No Score = 4 Answer: Yes Score = 10 Score = 10	► PSF	Score = 0 Does pain continue even after stopping or changing to a different stroke? Score = 6 Does pain interrupt sleep? Answer: No Answer: Yes Score = 7 Does pain consistently occur on consecutive
Answer: No Score = 3 Answer: No Score = 4 Score = 5 Answer: Yes Score = 5 Score = 10		Answer: No Answer: Yes Score = 2 Does pain last 2 hours during the day?
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Score=3 Does swimmer have difficulty with shampooing hair after practice OR have pain Score = 9
Your Score Today		Score = 4 Answer: Yes
		Your Score Today

2-Scre



	Never	r feel	loc	ose								n	ormal	
 How difficult is it for you to get loose or warm prior to competition or practice? 	durin	ig gar	mes	or pr	act	ice					wa	rm-up	time	
	1		2	3	3	4	5	6		7	8	9	10	
													with	
2. How much pain do you experience in you shoulder or elbow?	Pain a				_		-			_	_		tition	
	1	·	2	3	5	4	5	6		7	8	9	10	
	_													
3. How much works are and the first own fit as the set of stars which do you are action on the your	Mode			fat'a.			1				ala		al	
How much weakness and/or fatique (i.e., loss of strenght) do you experience in your shoulder or elbow?	Weak			_	e pi	rever	iting		'				ormal	
shoulder of elbow r	any co		2	30n 3		4	5	6		_	8	10n 1a 9	tigue 10	
	<u> </u>	-	- 2	3	<u>+</u>	4	5	0	· ·	<u></u>	•	9	10	
4. How unstable does your shoulder or elbow feel during competition?	"Popp	ning	out	" rou	tine	alv					Nr	insta	bility	
a now distable does your shoulder of eloow reel during competition:	1		2	3	_	4	5	6		7	8	9	10	
	-	<u> </u>	-		+				<u> </u>	+	-		10	
5. How much habe arm problems affeceted your relationship with your coaches,	Left to	eam,	, tra	ded o	or w	aive	d, lost							
management, and agents?	contr	act o	or se	chola	rshi	ip						Not	at all	
	1		2	3	3	4	5	6		7	8	9	10	
The following questions refer to your level of competition in your sport. Please answer with														
an 1														
that corresponds to your current level.					_						_			
	Comp	lata	dv c	hang	od v	don				_	N	o cha	ngein	
6. How much have you had to change your throwing motion, serve, stroke, etc., due to your a				-			L				IN		otion	
o. Now much have you had to change your throwing motion, serve, scroke, etc., due to your a	1	_	2	3	-	4	5	6		7	8	9	10	
	<u> </u>		-		+				-	+	-		10	
	Lost a	all po	owe	r. bec	am	eline	esse				N	o cha	nge in	
7. How much has your velocity and/or power suffered due to your arm?	or dis												ower	
	1	_	2	3	_	4	5	6	:	7	8	9	10	
			_		\top									
												endu		
	Signif					-							ion in	
8. What limitation do you have in endurance in competition due to your arm?	to sho	-	_		_						_	<u> </u>	tition	
	1	·	2	3	-	4	5	6		7	8	9	10	
	_													
9. How much has your control (in your stroker) suffered due to your arm?	Unpredic 1	_	_		_	es 4	5	F		7	-	o loss of		
How much has your control (in your strokes) suffered due to your arm?	+	-	2	3	<u>'</u>	4	5	6	- '		8	9	10	
	6 mm - 1			4 4 4 - 1						14.4.5	alar f	Laure et al.		
10. How much do you feel your arm affects your current level of competition in your sport	Cannot o	-	10, hə 2	d to cha	-	ports 4	5	6		Had di	sired 8	Level Of 9	competiti 10	on
arm) holding you back from being at your full potential)?	<u> </u>	+	~	-	+		5		<u> </u>	-	-	2	10	
anny noranis you back nom being at your ran potentialy:														



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2-Screenings



Identification Questionaire

				dentifica								reath Side			Coach			olume Lo			ous Injury				ular Treatment			Pre comp
Gender	Age	Height	Weight	BMI	Y Comp	Comp Stop	Stroke	Events	Recovery	Wam-up	Fatigue	Race pace	Comp	Dominant Arn	n Coach	Y Coach	Per Session	N Sessions	Tot Hours	Where	N Stop days	Treatment	Y/N	Frequency	Name	Contact	What	When
F	18	1.8	72	22.22222	10		Free	400	Both	Both	Both	Both	Both	R	Pablo kutscher	1	4500	10	24	Shoulder R	6+	1	1	2xW	Marcel enzler	Physio balgrist	Shoulder R	Most of theti e
F	25	1.64	55 55	20.44914	17	1	Backstroke	200	L	L	L	L	L	R	Nicolas Horter Nicolas Horter	3	7500		26	Knee	6+	Y N	N	None	N	N	N	N
M	19	1.64	85	24.04934	17	0	Free	200400	R	R	R	R	R	R	Pablo Kutscher	3	6000	13	20	Shoulder L	0	N Y	N 1	1xW	N Simone Chatelain	41764173204	None	N
M	27	1.88	85	23.2998	13	1	Medley	200400	L	<u>к</u>	к I	R	R	ĸ	Phillipe Lucas	3	7500	13	30	Shoulder E	0	1	1	1xW	Casanova	41/041/3204	Low Back	Low back :P
			74	23.2330	11	0	Free	800	R	R	Both	R	Both	1	Pablo Kutscher	3	6000	10	22	Ankle L	0		-				Shoulder Bot	
M	18	1.8	74	23.76543	11 11	0	Medley	200400	Both	Both	Both	к Both	Both	L	Pablo Kutscher	2	5500	10	22	Shoulder Both	0	1	0	1xW None	Daniel Beck- Schlanke	se Zurich Löwer	None	Swimming longer dista N
F	18	2	65	22.22906	11	0	Ba	50100	Both	Both	Both	Both	Both	R	Clément Bailly	1	5500	10	18	None	0	1	0	None			None	N
F	26	1.8	68	20.98765	15	0	Free, Ba	100	both	both	both	L	L	R	Clement bailly	1	5000	10	25	None		0	1	1*W	pascal goll	041 79 773 24	None	N
M		1.0		23.30703		~	the second second	100							Service and a service of the service		2000			114114		~	-		pases gos		None	N
F	23	1.65	52	19.10009	13	0	Breaststroke	200	Both	Both	R	R	R	R	ndrea Grassini & Dirk Reinick	7	6000	11	24	Shoulder Both	0	1	1	1xW	Marcel Enzler	cel.Enzler@balgr	None	N
M	18	1.97		21.38679	7	0	Breaststroke	100	L	Both	L	L	L	R	Dirk Reinecke	1	6000	11	24	None	0	0	0	None			None	N
M	21	1.8	73	22.53086	12	0	Free, Ba	200	R	R	R	R	R	R	Clement Baily	2		11	25	Knee	2	Y	Y	1xW	Thomas Meister	787598494	None	N
М	18	1.84		22.7434	10	0	backstroke	50100	both	both	L	L	L	R	Fausto Mauri	6	5500	13	20	Ankle L	0	0	0	None			None	
M																												N
M	18	1.8	72	22.22222	12	0	Free	100	Both	Both	L	L	L	R	Pablo Kutscher	1	5000	11	20	None							None	N
F	17	1.82		22.6422	12	0	Fr, Ba, Bu	50-200	Both	Both	Both	Both	Both	r	Nicolas Bailly	4	4500	10		5 Knee L	14	1	1	2xM	Timothée Bernard	078 873 28	Shoulder I	N
M																												N
M	19	1.8	65	20.06173	13	0	Medley	400	Both	R	R	R	R	R	Gabriel Schneider	9	6500	12	23	Elbow	21	Y	Y	2xM	Medbase		N	N
F																												N
M	18	1.88	76	21.50294	8	0	Fr, Bu	50,100	Both	Both	Both	R	R	L	Xavier Fleury	3	5000	10	19	Shoulder Both	0	1	1	1xW	Fabienne Kernen	io@rennbahnkli	Low Back	After 2 days of compe
	20.29	1.80	71.12	21.85	11.94											3.13	5843.75	11.20	22.82									
	3.46	0.09	10.06	1.38	2.70											2.36	995.30	1.15	3.56									
м	17	1.88	80	22.63468	10	0	Backstroke	200	R	R	R	R	R	R	Dirk Thölking	3	6500	15	25	Low Back	0	1	0	None			Low Back	After some days of Comp
F	14	1.69		19.60716	7	0	Bu, Br	200	Both	Both	Both	R	R	R	Thomas Rother	3		10	23	None	0		0	None			None	N
M	15	1.77	73	23.30109	6	0	Backstroke	200	R	R	R	Both	R	R	Frank Trettin	2	6000	13	22	None	0	0	0	None			None	N
F	15	1.61	51	19.67517	5	0	Medley	200400	Both	Both	Both	Both	Both	Both	Sandra Liesch	4				Knee	6+	γ	N	N	Althius Reinfelden	N	N	N
F						-			D					-						the set of the t			-	4.000				N
M F	17	1.82	69	20.83082	8	0	Free	100	Both	Both	Both	R	R	R	Daniel Santos simo Meloni and Andrea Me	3	5500 6500	11 9	20	Shoulder R	14	1	0	1x3W	Christine Dohogne	41764149324	None	N
F M	14	1.67	63	22.58955	/	0	Breaststroke	50	Both	Both	К	Both	Both	L	simo Meioni and Andrea Me	1	6500	9	16	Knee Both	0	0	0	-		+	None	N
м Е	16	1.73	60	20.04745	8	0	Fr, Ba	200400	R	R	R	R	R	R	Boris Baccala	2	5500	10	16	None	0	0	0	None		+	None	N
F	16	1.73	69	23.32342	5	0	Free	800-1500	Both	Both	Both	Both	Both	R	Dirk Reinicke	1	6000	10	24	Low Back	7	1	0	None		1	None	N
F	13	1.56	48	19.72387	7	0	Free	200	R	R	R	L	L	R	Christoph Schreiner	2	5000	12	24	Shoulder Both	0	1	0	None	MedBase Bern	1	none	N
M	17	1.75	66	21.55102	9	0	Butterfly	100200	Both	Both	Both	Both	Both	R	Stephane de Battisti	2	6000	10	21	Shoulder Both	0	1	0		CONTRACTOR AND INCOME.	1	None	N
F															and the second	-					-	-	Ť			1		N
F	15	1.69	61	21.3578	5	0	Free, Bu	50	L	L	R	R	R	R	Xavier Fleury	1	4000	8		Knee	6+	Y	N	N	N	N	N	N
F																												N
м	14	1.65	53	19.4674	6	0	Butterfly	100	Both	Both	L	Both	Both	L	Paolo Fasani	1	5500	8	16	None	0	0	0	None				N
F	14	1.6	46	17.96875	5	0	Free	800	R	R	R	R	R	L	Jürg Strasser	6	7000	8	14	Low Back	0	0	0	None				N
М																												
м																												
м																												
М	17	1.96	75		7		Butterfly	100		Both	Both	R	R	R	Dirl Reinicke	2	6000		25	Neck	1	N	N	N	N	N	N	
F	16	1.64		21.93635	7	0	Medley	200400	Both	Both	L	L	Both	R	Dirk Reinicke	1	6000	12	25	Shoulder Both	7	1	0	None				
F	13	1.65	58	21.30395	6	1	Medley	200400	R	R	R	R	R	L	Schreiner Christoph	1	5000	9	18	None			0	None	1	1	None	

swiss aquatics # swimming medical team



2-Screenings

What to do with all the data?

How does that brings us closer to finding injuries or preventing them? Summing medical team 3-Concept Work

- What injuries do we have?
- Can we prevent them?
- Can we predict them?
- Is taking data from screenings the answer?

Register the problems when they occur



3-Concept Work



Box 3 Categories for affected system by illness ^{14 19–21 34 36 37}	Box 4 Categories for illness symptoms ¹⁴ ^{19–21 34 36 37}
 Upper respiratory tract (nose, sinuses, pharynx, larynx) Lower respiratory tract (trachea bronchi, lungs) Gastrointestinal Cardiovascular Urogenital/gynaecological Metabolic/endocrinological Allergic/immunological Haematological Dermatological Musculoskeletal Ophthalmological/otological Neurological/central nervous system Psychiatric/psychological Other 	 Pain/ache/soreness Fever/chills Nausea, vomiting, diarrhoea Cough, wheezing, dyspnoea Shortness of breath Irregular heartbeat/palpitation Dehydration/excess sweating Rash/itch/eczema Nasal congestion/rhinorrhoea Dizziness/vertigo Fainting/syncope Numbness/weakness/tingling Fatigue/lack of energy/lethargy Sleep disturbance Psychological problems/anxiety/depression
27 Other	

Swiss aquatics # Swimming medical team 3-Concept Work

Our Concept:

Members of the Youth, Junior and Elite teams
3 Screenings: Beginning of the Macrocycles
Injury and Injury and Illness Surveillance
Cross Reference the data from Screenings and Injury and Surveillance APP
Update Recommendations after every screening.

swiss aquatics # Swimming medical team 3-Concept Work



Swiss Aquatics Swimming Injury and Illness Surveillance APP

- Located on 3PO website <u>https://3pohealth.ch/swiss-swimming-injury/</u>
- Members need to register Name, Email, Password
- Log in to enter the Swiss Aquatics Swimming page on 3PO
 - Videos on how to turn the website into an phone app: IOS, Android
 - Download Dryland Examples Updates in the future
 - SSA IISApp form Instructions in English, German and French

Download Swiss Aquatics Swimming Injury and Ilness Surveillance Application



Swiss Swimming Injury and Illness Surveillance

This is the Swiss Aquatics Swimming self report mask. This surveillance is a part of the Swiss Aquatics Swimming and 3PO partnership. The objective is to have more insight on injury and illness, of our National Team athletes, throughout the season. All data will be treated as medical records and stored under Swiss Data Privacy laws. This injury and illness surveillance system uses the "Consensus statement on the methodology of injury and illness surveillance in FINA (aquatic sports), 2015". This Statement can be found here.

The Athletes of the **Youth, Junior and Elite** Swim teams, please download and read the following instructions

Instructions English	Instructions German	Instructions French

summing medical team 3-Concept Work

Swiss Aquatics Swimming Injury and Illness Surveillance APP

Form:

- ► First name, Last Name
- ► Email
- Location of Injury
- Type of injury
- ► System
- Symptoms
- Time loss
- Pain Scale
- Comment Box





Name *

First	Last

Email *

Box 1 - Location Of Injury *

Correspondent Number of Location of Injury according to FINA Consensus Statement

Box 2 - Type of Injury *

Correspondent Number of Type of Injury according to FINA Consensus Statement

Box 3 - System Affected *

Correspondent Number of System Affected according to FINA Consensus Statement

Box 4 - Symptoms *

Correspondent Number of the Symptoms according to FINA Consensus Statement

Time-Loss *

Summing medical team 3-Concept Work

Swiss Aquatics Swimming Injury and Illness Surveillance APP

- Shoulder Pain 11
- Impingement 15
- MusculoEsqueletal 10
- Soreness/pain 1
- Pain Scale 4

First Name, Last Name11,15,10,1, 5 days of time loss, 4 pain







3- Concept Work

Scientific Literature

Prediction of Shoulder Pain in Youth Competitive Swimmers

The Development and Internal Validation of a Prognostic Prediction Model

Stef Feijen,^{*} MS, Thomas Struyf,^y MS, Kevin Kuppens,^{*} PhD, PT, Angela Tate,^z PhD, PT, and Filip Struyf,^{*§} PhD, PT Investigation performed at Department of Rehabilitation Sciences and Physiotherapy, University of Antwerp, Antwerp, Belgium

3- Concept Work

Scientific Literature

- 2 seasons
- 201 swimmers
- Average age 13,9

Prediction of Shoulder Pain in Youth Competitive Swimmers

The Development and Internal Validation of a Prognostic Prediction Model

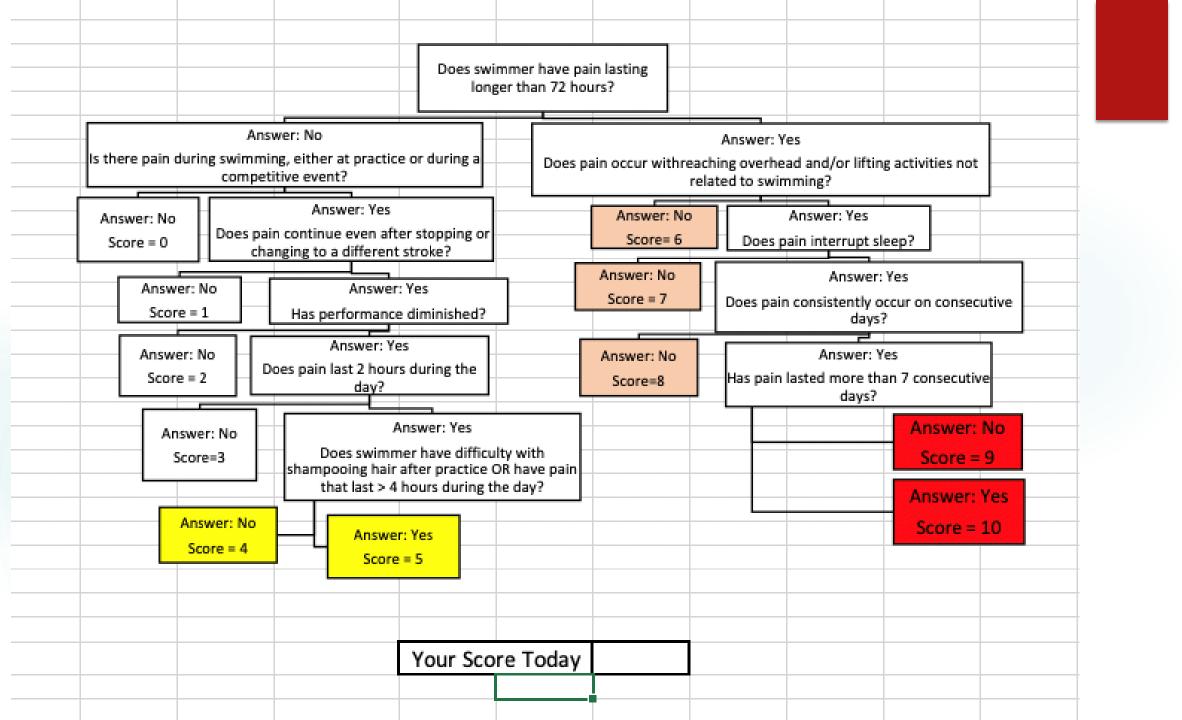
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At a Regional Level

- 1. Acute Chronic Work Ratio
- 2. Posterior Mucles Shoulder Endurance
- 3. Hand Entry error

Predict Injury!





PAIN and Injury

My experience working with Coaches both at club level and national level Pain is the most difficult thing to manage in a training process

Difficulties in adjusting training loads

Difficulties in assessing the situation

Difficulties in the restart after a forced stop a progressive load increase

				nmer have pa er than 72 hou						
Is there pain duri	ng swimmin	ver: No g, either at practice or tive event?	r during a	Does p	ain occur with	Answer: Ye ing overhea ted to swim	d and/or lifting acti	vities not		
Answer: No Score = 0		Answer: Yes continue even after s nging to a different str			Answer: N Score= 6		Answer: Yes in interrupt sleep?			
Answer: Score =		Answer: Ye Has performance di			Answer: No Score = 7	Does pain	days?	tly occur on consecutive lays?		
Answer: I Score =		Answer: Yes bes pain last 2 hours du day?	uring the		Answer: No Score=8	Has pain la	Answer: Yes asted more than 7 o days?	onsecutive		
Answe		Answ Does swimmer shampooing hair afte that last > 4 hou	er practice Of	R have pain				Answer: No Score = 9 Answer: Yes		
	swer: No :ore = 4	Answer: Ye Score = 5						Score = 10		

1-Pain Characterization

- What part of the stroke? Entry, Pull-through or Recovery
- During which specific movement?
- Where? Anterior/lateral/posterior
- Describe the Nature of the pain? Burning, Sharp, Dull Persistent.
- When did it start? Warm up/ During main set/ Before Training

- Insidious or sudden onset?

- Intensity of the pain? Look at SFPS next page

2-Coach Assessment

- About training:
- Sudden increase in training intensity or volume?
- Any recent technique changes
- Mileage and hours swum per week?
- Breathing pattern?
- Use of training devices?
- Hours of land training/ weight training?
- Percentage of training in different strokes?

3 -Technical Faults

- Body roll?

- Breathing pattern?
- Striving for a long arm stroke?
- Crossing the midline after hand entry
- or during pull through?
- Dropped elbow during pull through or/and entry?
- Hand early in front of the elbow during recovery?
- Scapula setting
- Trunk Rotation?

6 - Reassessment

- Improvement:
- > continue, Check SPFS
- No clear diagnosis or no improvement on initial treatment plan:
- > Consider investigations, refer to experienced sports medicine physician or physiotherapist in swimming. Look SPFS next page.

5- Management plan:

- Adjust training load

- Adjust swimming technique:
 - shorter arm stroke

- Improve technique 'faults' found in

- 3.
- Advice on use of training devices
- Adjust percentage of the 4 strokes swum during training sessions
- Sport specifc physiotherapist to optimize clinical fndings in 2 and 3. SPFS next page. Keep in mind performance goals: short-term, mid-term and long-term

4 - Red Flags?

- Neuralgic signs
- Vascular signs
- Referred pain
- Inflammation signs

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- ▶ 0 (zero) is pain free and 10 is unbearable pain.
- 1 to 3. Pain should try to be managed during training sessions.
- 4 to 5. Focus on recovery procedures during training, contact a HealthProfessional (Physio, Massage, Osteopathy)
- 6 to 8. training should be stopped and contact a Health Professional (Physio, Massage, Osteopathy, Physician).
- 9 to 10. This could constitute an emergency. Contact Physician as soon as possible.



►SPFS FROM 1 TO 3

- Go through the Coach Assessment (2) and Technical Faults (3)
- If pain is during warm-up. Consider adjusting Dryland warm-up
 - Consider Decreasing Intensity
 - Consider Decreasing Volume
 - Consider Introducing Fins if possible
 - Consider Changing technique during the training to a pain free technique
 - Changing Stroke



<mark>SPFS FROM 4 TO 5</mark>

- Go through the Coach Assessment (2) and Technical Faults (3)
- If pain is during warm-up. Consider adjusting Dryland warm-up
 - Decrease Intensity
 - > Decrease Volume
 - > Consider Introducing Fins if possible
 - Consider Changing technique during the training to a pain free technique
 - > Changing Stroke
- Contact Physiotherapist, Massage, Osteopathy responsible for Athlete



SPFS FROM 6 TO 8

- Go through the Coach Assessment (2) and Technical Faults (3)

Stop Training

 Contact Physiotherapist, Massage,
 Osteopath responsible for the Athlete.



SPFS FROM 9 TO 10

- Stop Training. This could constitute an emergency.
- Go through the Coach Assessment (2) and Technical Faults (3)
- Contact Physician.
- Contact Physiotherapist, Massage, Osteopathy responsible for Athlete

•1-Pain Characterization

	I I dill clidi					
 What part of the stroke? Entry, Pull-through or Recovery 	Entry		Pull- Through		Recovery	
 During which specific movement? 	Descending		Ascending		Inner Action	
•- Where? Joint?		Anterior		Lateral		Posterior
 Describe the Nature of the pain? 	Burning		Sharp		Dull/Persistent	
•- When did it start?	Before Training		Warm-up		Main Set	
- Insidious or sudden onset?	Insidious			Sudden		
 Intensity of the pain? Look at SFPS next page, Pain under 4 	SPFS					
	•2-Coach A	lssessme	nt			
•About training:						
 Sudden increase in training intensity or volume? 	Yes		No			
 Any recent technique changes 	Yes		No			
 Mileage and hours swum per week? (when applicable) 	Right		Left		Bilateral	
Breathing pattern?	Right		Left			
•- Use of training devices?	Training pads		Fins			
 Hours of land training/ weight training? 	Increase		Same		Decrease	
 Percentage of training in different strokes? 	Changed?		Same?			
	•3 -Techn	ical Fault	S			
•- Body roll?	Asymmetrical			Symmetrical		
•- Breathing pattern?	Asymmetrical			Symmetrical		
•- Striving for a long arm stroke?	Ves	<u>† </u>		No	1	

Asymmetrical	
Asymmetrical	
Vos	

	, logini ne an ea	e y mine a real	
 Striving for a long arm stroke? 	Yes	No	
 Crossing the midline after hand entry 	Yes	No	
•or during pull through?	Yes	No	
 Dropped elbow during pull through or/and entry? 	Yes	No	
 Hand early in front of the elbow during recovery? 	Yes	No	
•- Scapula setting	Asymmetrical	Symmetrical	
•- Trunk Rotation?	Asymmetrical	Symmetrical	/

	•4 - Re	d Flags?				
•- Neuralgic signs	Numbness		Cold		Other Pins and Needles	
•- Vascular signs	Redness		Bruising		Swelling	
•- Referred pain	Shooting pain					
•- Infammation signs	Warm		Redness		Swelling	
	•5- Manag	ement pla	in:			
•- Adjust training load						
	Decrease Intensity					
	Decrease Volume					
	Changing of					
	Technique					
 Adjust swimming technique: 						
	shorter arm stroke					
	Improve technique 'faults'					
 Advice on use of training devices 	Fins					
 Adjust percentage of the 4 strokes swum 						
	during training sessions					
 Keep in mind performance goals 	Short- Term		Mid- Term		Long- Term	
	•6 - Reas	sessment				
 Improvement: continue. Check SPFS, Pain under 4 						
•- No improvement on initial treatment plan, Pain over 4	Refer to Sports Physician		Refer to Physio,	Massage, Osteopath		