

NORWAY



# Implementing injury and illness surveillance at the national level

PyeongChang 2018

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# Top athletes

## Olympic



## Paralympic



NORWAY



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OLYMPIATOPPEN

NORWAY



# Oslo Sports Trauma Research Center

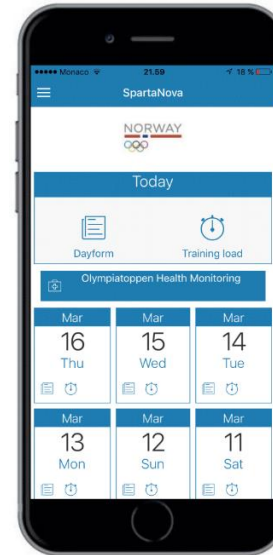


# Injury and illness surveillance

## Periodic Health Evaluation



## Surveillance



# Periodic Health Evaluation (PHE)



## MEDISINSKE SPØRSMÅL

	Nei	Ja	Vet ikke	Kommentar
Har du astma?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Har du allergi?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Har du en revmatisk sykdom?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Har du noen andre kroniske sykdommer?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Har du hatt blindtarmbetennelse?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Har du hatt mononukleose (kysseyken)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Har du hatt infeksjonssykdom som har begrenset treningen din siste halvår?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For kvinner: Er det kjent forekomst av brystkreft <u>eller livmorhalskreft</u> i familien?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Hvor mange øvre luftveisinfeksjoner har du hatt siste halvår? <u>Ble du behandlet med antibiotika?</u>				Antall:
<u>Hvor mange urinveisinfeksjoner har du hatt siste halvår?</u> <u>Ble du behandlet med antibiotika?</u>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Hvis ja, når? _____
Har du hatt vitamin/mineralmangel (for eksempel jern, B-12, D-vit.)?				

Tilleggsinformasjon

## Medical questions

- How many urinary tract infections last year?
  - ✓ 8 (25%) athletes: 1-2
  - ✓ 5 (16%) athletes: 3-4
  - ✓ 1 athlete: >5
- Treated with antibiotics?
- Hospitalized?
  - ✓ 2 (pyelonephritis/ sepsis)

# Periodic Health Evaluation (PHE)



## SKADEHISTORIKK

Kroppsdeler	Tid siden problemet			Hva var problemet?	Side	Trenger oppfølging
	Nå	<6 mnd.	>6 mnd.			
Hode/ansikt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Nakke	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Skulder	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Overarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Albue	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Underarm	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Håndledd	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Hånd/fingere	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Brystkaske/brystrygg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Magen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Bekken/korsrygg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Hofte/lyske	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Lår	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Kne	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Legg	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Ankel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>
Fot/tær	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		V - H	<input type="checkbox"/>

### FOR PARALYMPISKE UTØVERE

Får du hudproblemer f.eks. trykksår, eksem eller sår fra proteser?  Ja  Nei

Hvis ja, hva slags problemer? \_\_\_\_\_

Tilleggsinformasjon

## For paralympians

- Do you get pressure ulcers?  
✓ 10 (31%) athletes
- Due to equipment?

# Periodic Health Evaluation (PHE)



**MAGE/TARM FUNKSJON**

Har du mage-tarmplager, for eksempel kramper, luftmerter, forstoppelse eller diare-mageknip utenom konkurransesituasjon?

Ja, flere ganger/dag    Ja, flere ganger/ukedag    Ja, flere ganger/dag NEI

Har du mage-tarmplager, for eksempel kramper, luftmerter, oppkast eller diare-mageknip under konkurransesituasjon?

Ja, flere ganger/dag    Ja, flere ganger/dag    Ja, flere ganger/dag NEI

I gjennomsnitt, hvor ofte har du avføring?

>2 ganger/dag    1-2 ganger/dag    Hver 2. dag    <3 ganger/uke

Hvordan pleier din avføring å være?

Normal (fast)    Normal (bløt)    Meget tynn, som diaré    Hard og tørr

Har du noen kjente matvare allergier eller intoleranser?  Ja    Nei

Hvis ja, hvilke:

Evt. kommentar eller utdyping angående magefunksjon:

Erst slette hvordan avføringen pleier å være.

Sette inn: Har du problemer med avføring når du er på reise?

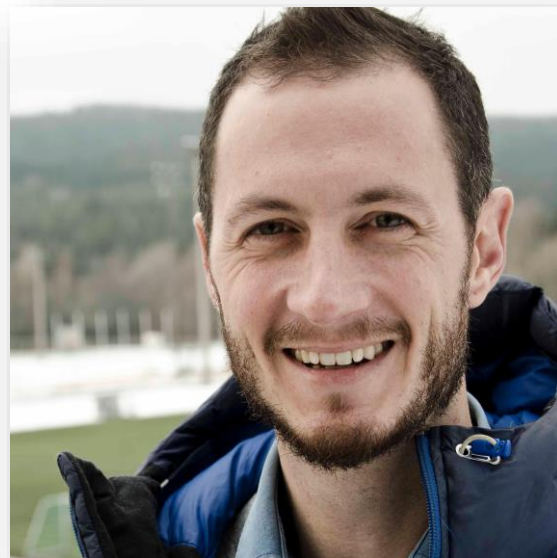
Forstoppelse?   Diare?

## Digestive system

- Diarrhea?
- Constipation?
- Associated with travel?
- **Referred to reg.dietician (n=17)**
  - ✓ 5 (16%) diarrhea
  - ✓ 6 (19%) overweight
  - ✓ 6 (19%) need dietary advice

# Surveillance

## Data examples







## The Oslo Sports Trauma Research Center questionnaire on health problems: a new approach to prospective monitoring of illness and injury in elite athletes

Benjamin Clarsen,<sup>1</sup> Ola Rønsen,<sup>2</sup> Grethe Myklebust,<sup>1</sup> Tonje Wåle Flørenes,<sup>1</sup> Roald Bahr<sup>1</sup>

► Additional material is published online only. To view please visit the journal online (<http://dx.doi.org/10.1136/bjsports-2012-092087>).

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### ABSTRACT

**Background** Little information exists on the illness and injury patterns of athletes preparing for the Olympic and Paralympic Games. Among the possible explanations for the current lack of knowledge are the methodological challenges faced in conducting prospective studies of large, heterogeneous groups of athletes, particularly when overuse injuries and illnesses are of concern.

**Objective** To describe a new surveillance method that is capable of recording all types of health problems and to use it to study the illness and injury patterns of Norwegian athletes preparing for the 2012 Olympic and Paralympic Games.

**Methods** A total of 142 athletes were monitored over a 40-week period using a weekly online questionnaire on health problems. Team medical personnel were used to classify and diagnose all reported complaints.

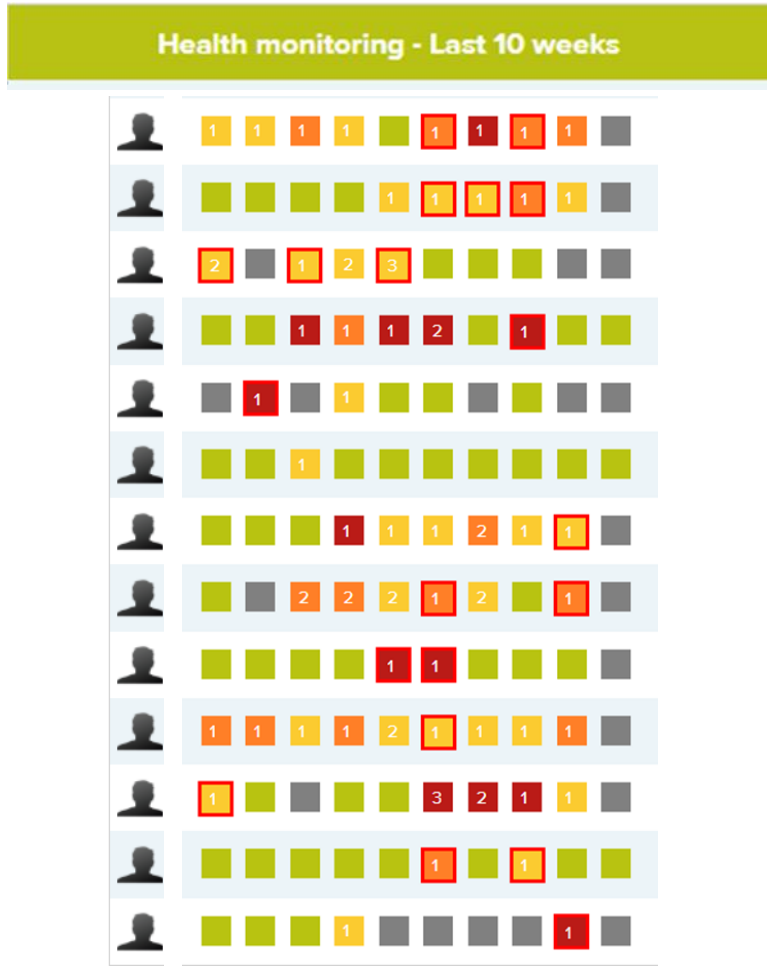
**Results** A total of 617 health problems were registered during the project, including 329 illnesses and 288 injuries. At any given time, 36% of athletes had health problems (95% CI 34% to 38%) and 15% of athletes (95% CI 14% to 16%) had substantial problems, defined as those leading to moderate or severe reductions in sports performance or participation, or time loss. Overuse injuries represented 49% of the total burden of health problems, measured as the cumulative severity score, compared to illness (36%) and acute injuries (13%).

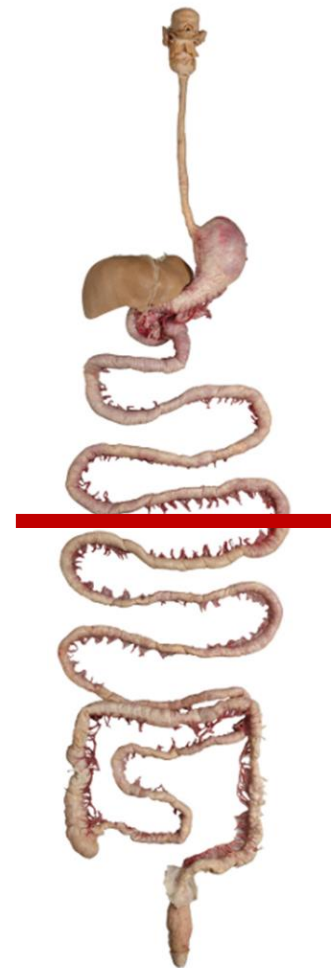
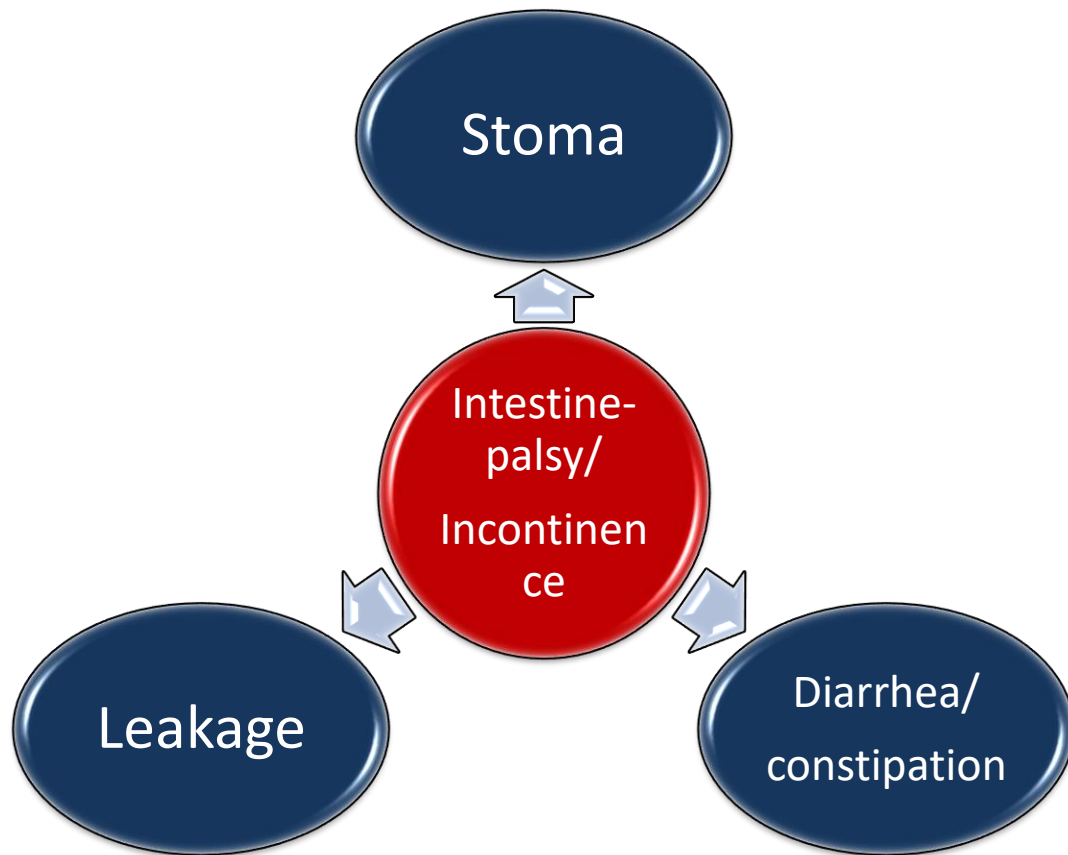
**Conclusions** The new method was sensitive and valid in documenting the pattern of acute injuries, overuse

patterns of illness and injury in their normal training and preparation phases.

Among the possible explanations for this lack of knowledge are the methodological challenges faced when conducting longer term studies in this group of athletes. The methods currently employed in a majority of prospective surveillance studies are based on those developed for recording football injuries,<sup>16</sup> and while they may work well for team sports, they are difficult to implement among groups of individual athletes or those without a centralised team structure.<sup>17</sup> Standard methods of injury surveillance may also be poorly suited to collecting information on overuse conditions, which represent the predominant injury type in many Olympic sports.<sup>10–20</sup> We have recently discussed these limitations in detail,<sup>21</sup> made general recommendations for more appropriate methodology<sup>21</sup> and developed new tools that are better suited to the study of overuse injuries.<sup>22</sup>

Our first aim in the present study was therefore to modify our new method<sup>22</sup> such that it can be used to record not only overuse injuries but also all types of health problems in studies of large, heterogeneous groups of athletes. Our second aim was to apply the method to analyse the patterns of illness and injury in the Norwegian Olympic and Paralympic teams during their preparations for the 2012 games in London.





# Digestion



*So what are you going to do about it?*

February 2017



# What did you do to improve?

## October 2017

- Used more antibac
- Informed early when symptoms
- Wore warmer clothes
- Took off wet clothes
- Better sleeping habits
- Followed recommendations from the reg. dietician



# What more can you do?



## October 2017

- More handwashing
- No springwater for medical equipment
- Better catheters
- Urinary stix every week
- Re-test blood samples and BP
- Take vitamin supplements as suggested
- Vaccination
- Buy a thermometer

# What did we do?

- Worked hard!
- Challenged the leadership
- Expanded the health team
- Increased knowledge
- Included Paralympics in
  - ✓ Presentations (OL & PL)
  - ✓ Medical meetings
  - ✓ Student education
  - ✓ National sports medicine conference





# What more did we do?

- Travelled with the teams
- **Dietician follow-up**
- Travel recommendations
- Injury-preventive exercises at «Get set»
- Close cooperation with orthotics developers
- Infection prevention
- More medical equipment to the Games



# Training days lost due to illness

Pre-intervention

**33** days per athlete per year

Post-intervention

**19** days per athlete per year

# What's in it for me?

Athlete

"Better medical care"

Medical team

"Easier to do my job"

Coach

"Improved performance"

# Medical challenges

## Olympic



## Paralympic



