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MiCo26 here we come! Strategies for staying healthy during the Olympic and Paralympic Winter Games

Maarit Valtonen MD, Associate Professor

Finnish Institute of High Performance Sport KIHU

Jyväskylä, Finland

NoFlu – research team

KIHU

Researcher physicians

Maarit Valtonen, Wilma Grönroos, Katja Mjösund, Raakel Luoto

Sports and exercise medicine
Prof Olli J. Heinonen

Exercise physiology
Johanna Ihalainen, Vesa Raussi

Virology
Matti Waris

Bacteriology
Prof Erkki Eerola, Antti Hakanen

Microbiome
Satu Pekkala, Jukka Hintikka

Latent Viral Infections
Prof Klaus Hedman

Infectious disease and Immunology
Prof Olli Ruuskanen

PAAVO NURMI KESKUS 60 1957–2017

Turun yliopisto
University of Turku

JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

IOC consensus statement on acute respiratory illness in athletes

Consensus statement

International Olympic Committee (IOC) consensus statement on acute respiratory illness in athletes part 1: acute respiratory infections

Martin Schwellnus [1,2] Paolo Emilio Adami [3] Valerie Bougault [4] Richard Budgett,[5] Hege Havstad Clemm,[6,7] Wayne Derman [2,8] Uğur Erdener,[5] Ken Fitch [9] James H Hull [10,11] Cameron McIntosh,[12] Tim Meyer [13] Lars Pedersen [14] David B Pyne,[15] Tonje Reier-Nilsen,[16,17] Wolfgang Schobersberger [18] Yorck Olaf Schumacher [19] Nicola Sewry [1,2] Torbjørn Soligard [5] Maarit Valtonen [20] Nick Webborn [21] Lars Engebretsen[5,17]

The New York Times

The Most Dreaded Opponent at the Olympics: The Common Cold

By David Segal

Feb. 11, 2018

PYEONGCHANG, South Korea — **Lari Lehtonen, an Olympic cross-country skier from Finland, pulled his two sons out of kindergarten a month ago.** They were not allowed to attend birthday parties. They were prohibited from crowded indoor spaces. They could have play dates, but only after a call to the friend's parents.

This may sound like a peculiar style of helicopter parenting, but Lehtonen was not worried about his children — he was worried about himself. Specifically, he was worried about catching a cold, and **he knew that the more time the lads spent around other children, the more likely they were to become little vectors of disease who could wreck his Olympics.**

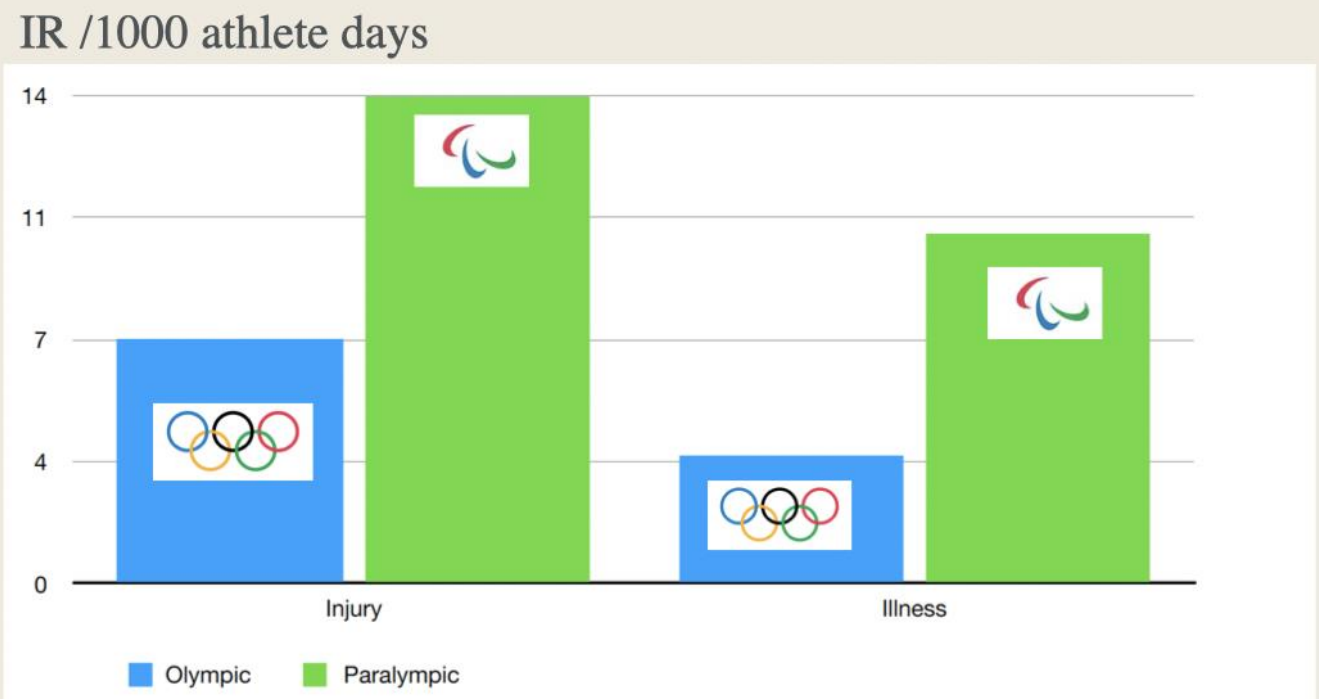
"Most of our friends, they know not to invite our boys if someone in their house is sick," Lehtonen said. "But I call or I text to make sure."

Cordoning off the children is just one of a few dozen stay-healthy strategies deployed by athletes here at the Olympics. A norovirus outbreak — 139 cases and counting as of Saturday — has dominated the headlines in the early days of these Winter Games. But the rhinovirus, the most ubiquitous cause of the common cold, is the challenger every athlete here has been dreading. **Unlike actual rivals, this one is invisible, omnipresent and tireless.**

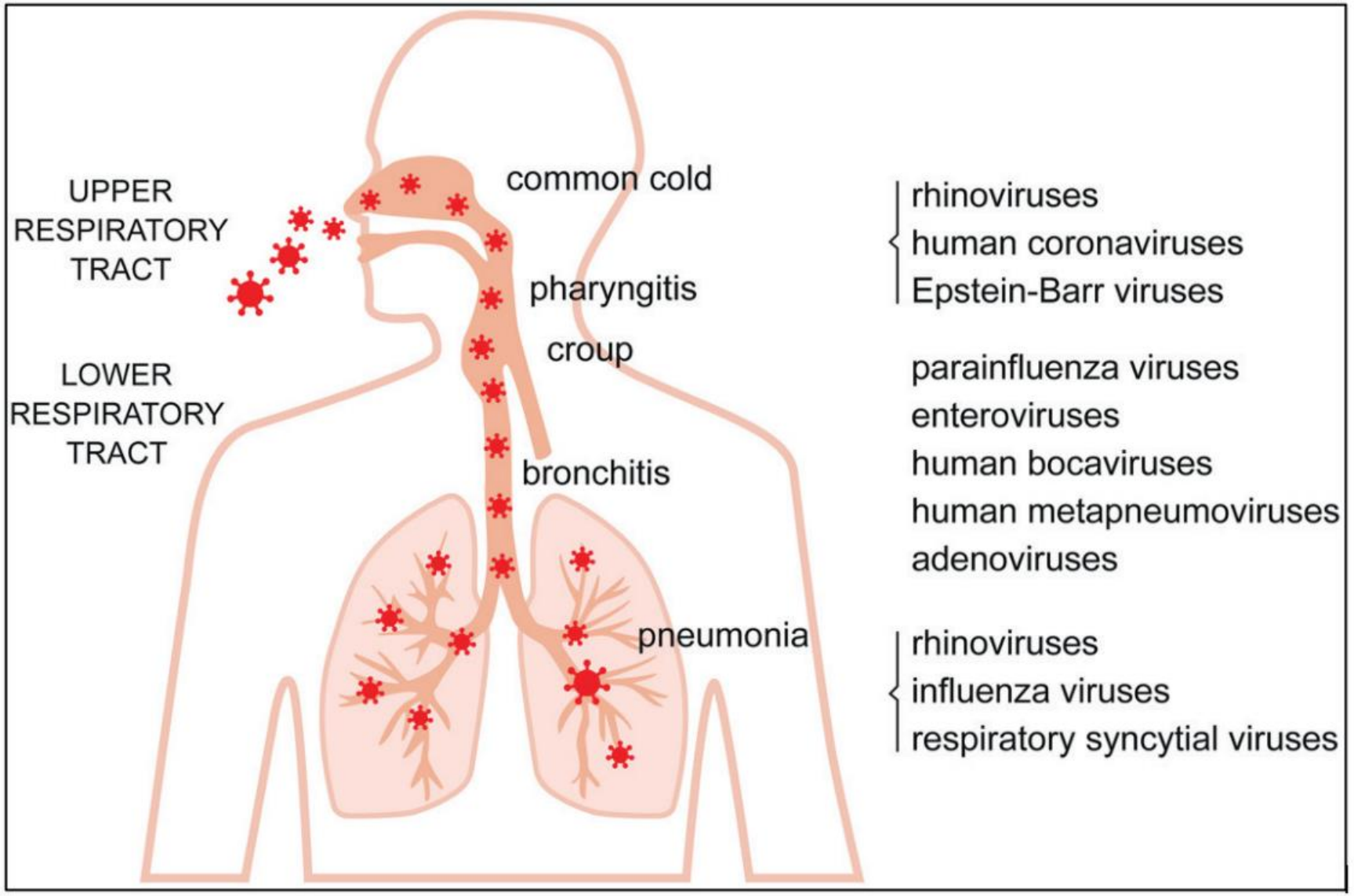
Olympic vs Paralympic Games

Injury rates: more than 2x

Illness rates: nearly 3x more



Torvaldsen, Fahger, Derman et al., BJSM, 2025



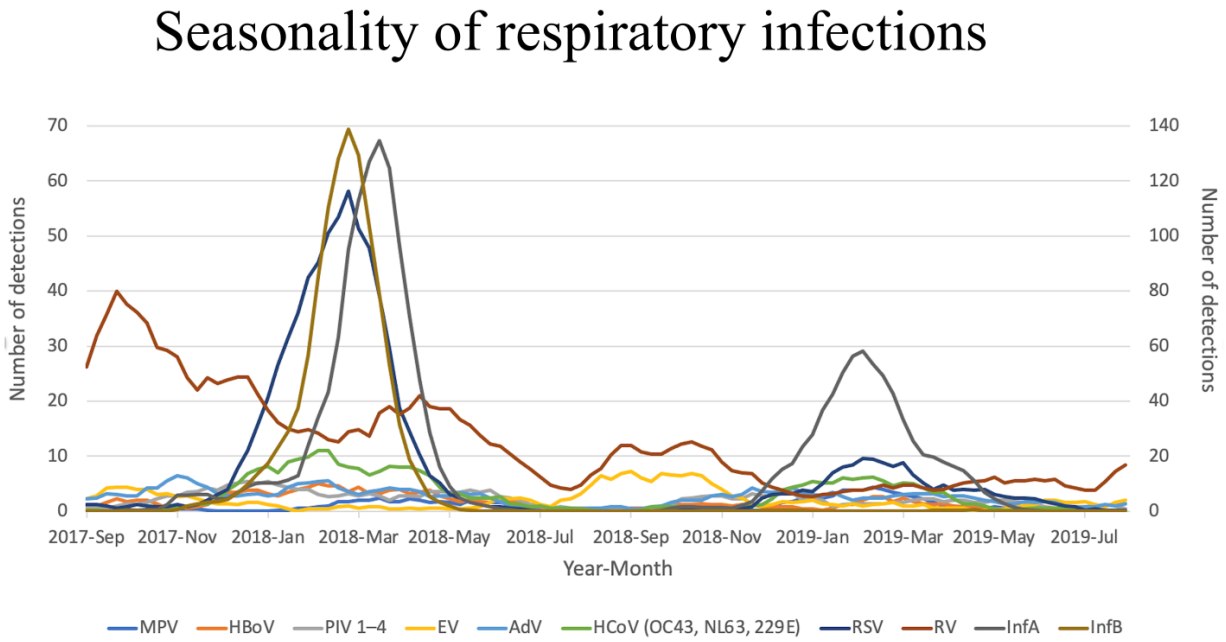
Respiratory viral infections – impact on sport and exercise medicine

Raakel Luoto[1], Matti Waris[2], Maarit Valtonen[3], Olli Ruuskanen[1*] Exerc Immunol Rev 2022

Tyks Kliininen mikrobiologia

VIRUSLÖYDÖKSET 2026

Kliinisen mikrobiologian raportit ammattilaisille	vko 3 12.-18.1.26	vko 2 5.-11.1.26	vko 1 29.12.25 - 4.1.26	vko 52 22.-28.12.25	vuosi 2026 vko 3 asti	vuosi 2025 vko 3 asti
COVID-19 koronavirus (SARS-CoV-2)	17	28	29	23	74	208
Influenssa A virus	60	68	58	76	186	54
Influenssa B virus					0	1
Respiratory syncytial virus	10	9	1	3	20	6
Rinovirus	4	2	5	8	11	8
Enterovirus	1		1		2	3
Adenovirus	1	2	2	1	5	7
Bokavirus	3	1		1	4	9
Chlamydophila pneumoniae	1	1		1	2	0
Koronavirus: OC43, NL63, 229E, HKU1					0	9
Metapneumovirus					0	3
Mycoplasma pneumoniae	2	3	1		6	47
Parainfluenssavirus, tyyppi 1	1		1	1	2	4
Parainfluenssavirus, tyyppi 2	2	1		1	3	0
Parainfluenssavirus, tyyppi 3			1	1	1	0
Parainfluenssavirus, tyyppi 4			2	2	2	5
Parechovirus					0	0
Astrovirus	2			1	2	1
Norovirus	6	2	4	1	12	3
Rotavirus	7	6	2	1	15	0
Sapovirus	1			1	1	1
Parvovirus					0	0
Sindbisvirus (Pogostantauti)					0	0
Tuhkarokkovirus					0	0
Vihurirokkovirus					0	0
Sikotauti					0	0
Hepatiitti A virus					0	0
Hepatiitti B virus	2				2	0
Hepatiitti C virus	1	1	1	2	3	3
Hepatiitti E virus			1		1	0
HIV					0	1
Herpes simplex virus, tyyppi 1	8	4	2	1	14	11
Herpes simplex virus, tyyppi 2	2	3		1	5	11
Herpes simplex virus		1		1	1	4
Varicella zoster virus	5		2		7	8
Epstein-Barr virus	2	1		1	3	3
Sytomegalovirus	2				2	1
HHV-6			1		1	0
HHV-7					0	0
Polyomavirus	3	5	3		11	7
Puumalavirus (myyräkuume)	3	4	1	1	8	5
Puutiaisaivokuumevirus				1	0	1
Yhteensä	**146**	**142**	**118**	**130**	406	424



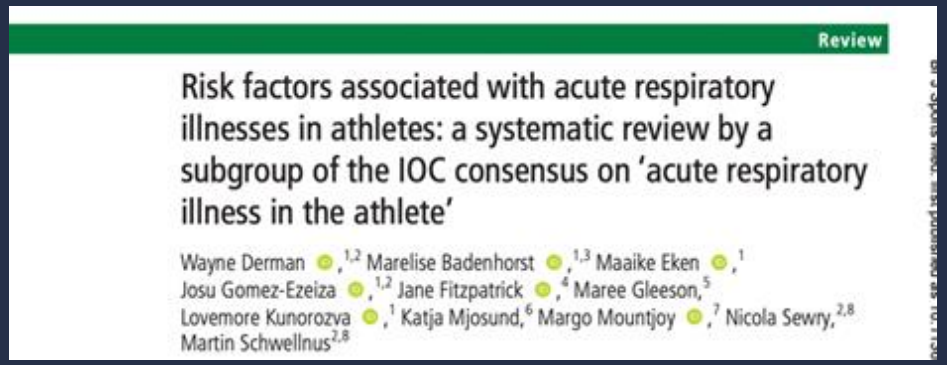
IMMUNE SYSTEM

Heavy exercise

Psychological stress

Sleep disturbances

Nutritional restrictions


Review

Risk factors associated with acute respiratory illnesses in athletes: a systematic review by a subgroup of the IOC consensus on 'acute respiratory illness in the athlete'

Wayne Derman,[1,2] Marelise Badenhorst,[1,3] Maaike Eken,[1] Josu Gomez-Ezeiza,[1,2] Jane Fitzpatrick,[4] Maree Gleeson,[5] Lovemore Kunorozva,[1] Katja Mjosund,[6] Margo Mountjoy,[7] Nicola Sewry,[2,8] Martin Schwellnus[2,8]

VIRAL TRANSMISSION

Viral epidemics/viral community pressure

Public transportation – bus, train, aircraft

Human crowding

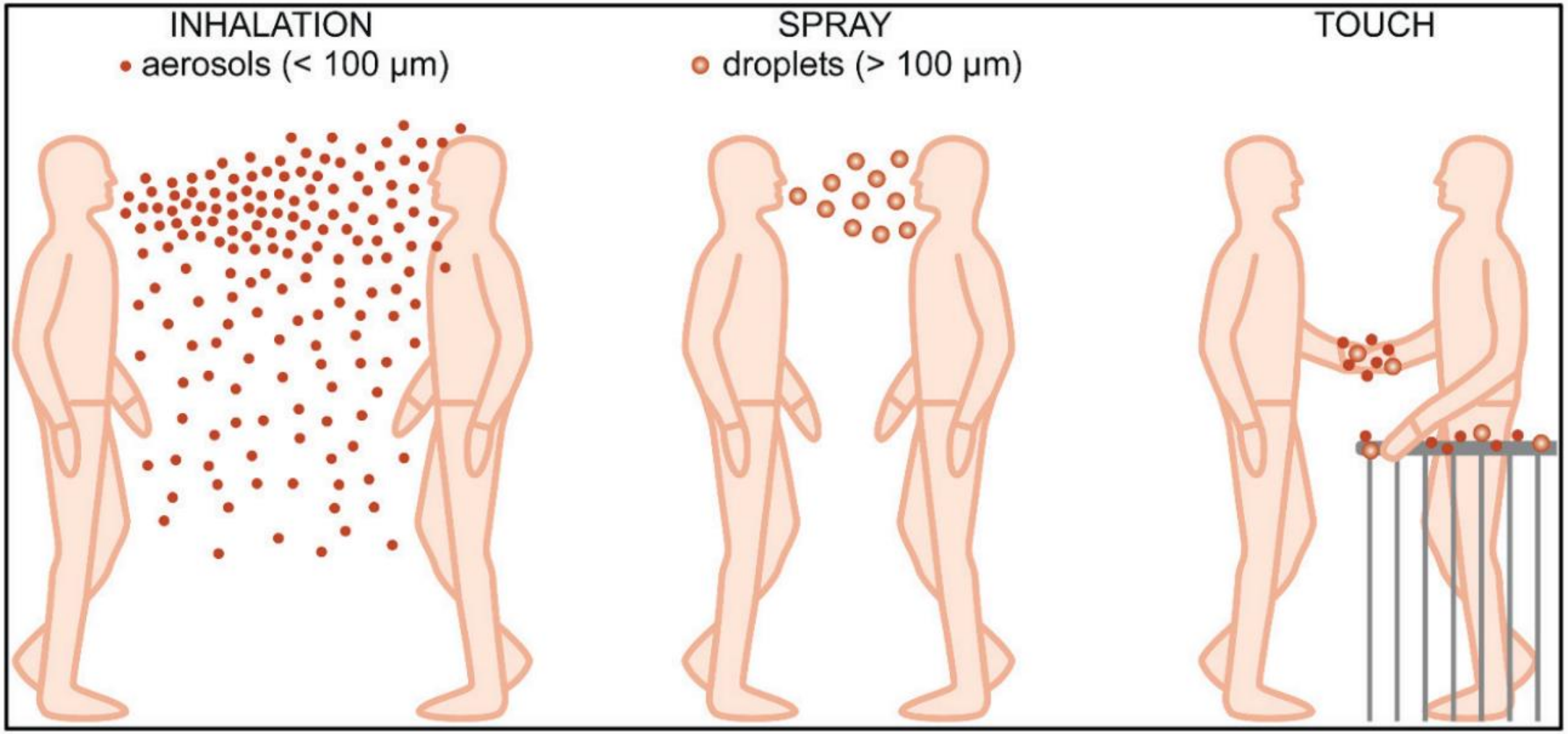
Environmental factors – temperature, humidity

Poor room ventilation

Young children

at home


Duodecim



Luoto R et al. Respiratory viral infections – impact on sport and exercise medicine. Exerc Immunol Rev 2022
Oksanen LM: Understanding airborne transmission : experimental and observational studies during covid-19 pandemic. Univ of Helsinki 2023

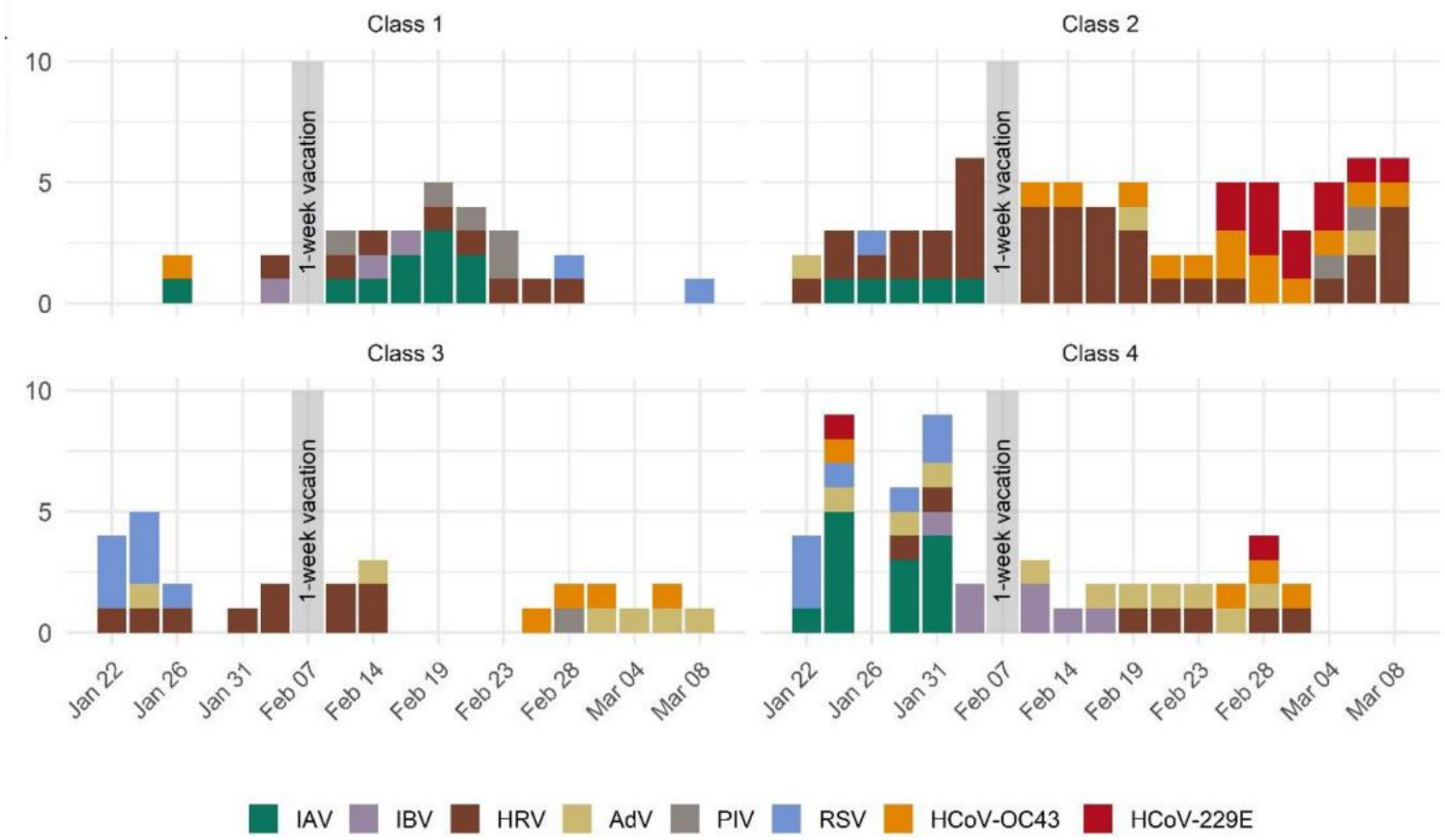
Absences, Symptoms and Respiratory Viruses in a Swiss School: Longitudinal Study With Serial Saliva Sampling

Nicolas Banholzer[1,2,3] | David Kronthaler[1] | Pascal Bittel[2,4] | Lavinia Furrer[4] | James D Munday[5] | Matthias Egger[6,7,8] | Tina Hascher[2,9] | Philipp Jent[2,10] | Lukas Fenner[1,2]

Influenza and Other Respiratory Viruses, 2025

The relative contribution of close-proximity contacts, shared classroom exposure and indoor air quality to respiratory virus transmission in schools

Prolonged exposure in shared, poorly ventilated spaces drives respiratory virus transmission more than close contact.

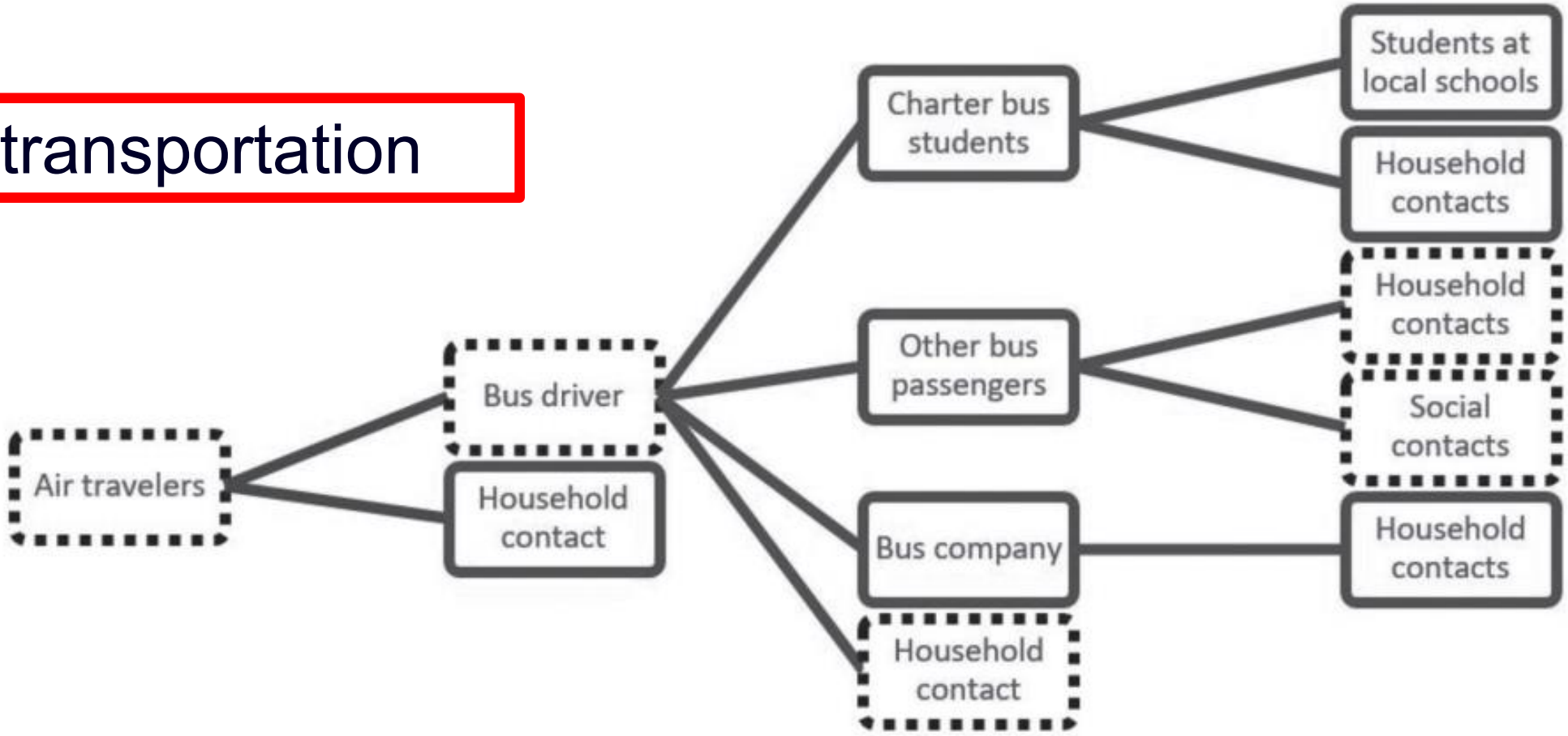


Bus Riding as Amplification Mechanism for SARS-CoV-2 Transmission, Germany, 2021[1]

Emerging Infectious Diseases April 2024

Meike Schöll,[2] Christoph Höhn,[2] Johannes Boucsein, Felix Moek, Jasper Plath, Maria an der Heiden, Matthew Huska, Stefan Kröger, Sofia Paraskevopoulou, Claudia Siffczyk, Udo Buchholz,[3] Raskit Lachmann[3]

Public transportation



Air travel, intercontinental flights

Ruuskanen *et al. Sports Medicine - Open* (2024) 10:60
https://doi.org/10.1186/s40798-024-00725-5

Sports Medicine - Open

CURRENT OPINION Open Access

Contraction of Respiratory Viral Infection During air Travel: An Under-Recognized Health Risk for Athletes

Olli Ruuskanen[1], Henrik Dollner[2], Raakel Luoto[1], Maarit Valtonen[3], Olli J. Heinonen[4] and Matti Waris[5*]

Table 1 Environmental factors in aircraft cabins affecting transmission of respiratory viruses

Passenger seat numbers up to 840 (Boeing 840)
Duration of flight 2–4 h, maximum 18 h
Temperature 21–25 °C
Distances between a passenger in front or behind are most often 81 cm in the economy class
Pressurized to an altitude of 1500–2438 m
Air changes 20–30 times per hour
Half of the air is recirculated
Airflow compartmentalized into 4- to 7-seat rows
Longitudinal airflow is minimal
Air enters from overhead inlets and flows downwards through floor-level outlets
HEPA filters used for air disinfection
Humidity 10–25%

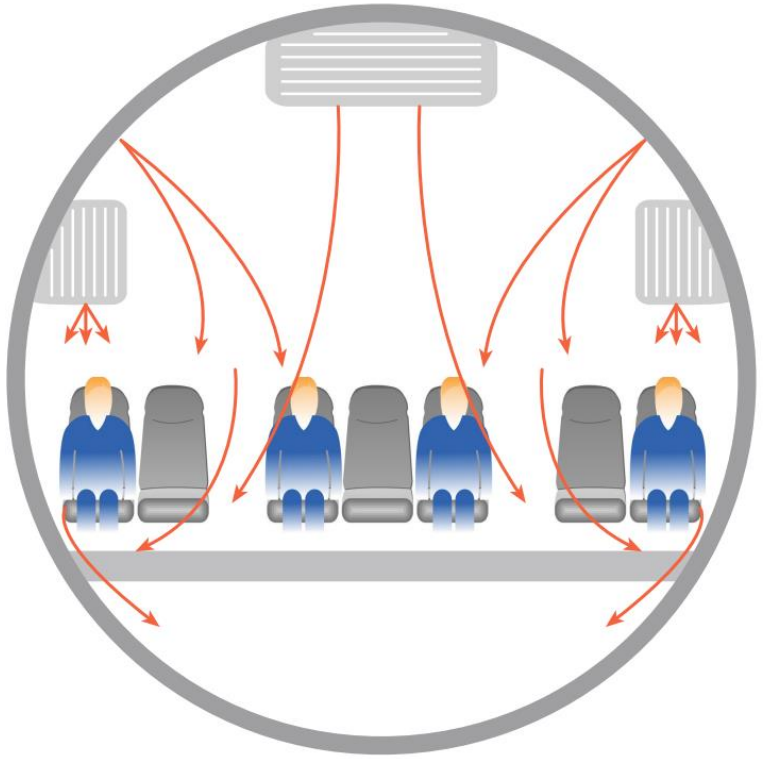


Fig. 1 Airflow in an aircraft cabin (Airbus A320)

TEAM FINLAND
208 members
103 athletes, 11 diciplines
2 olympic villages and 2 hotels

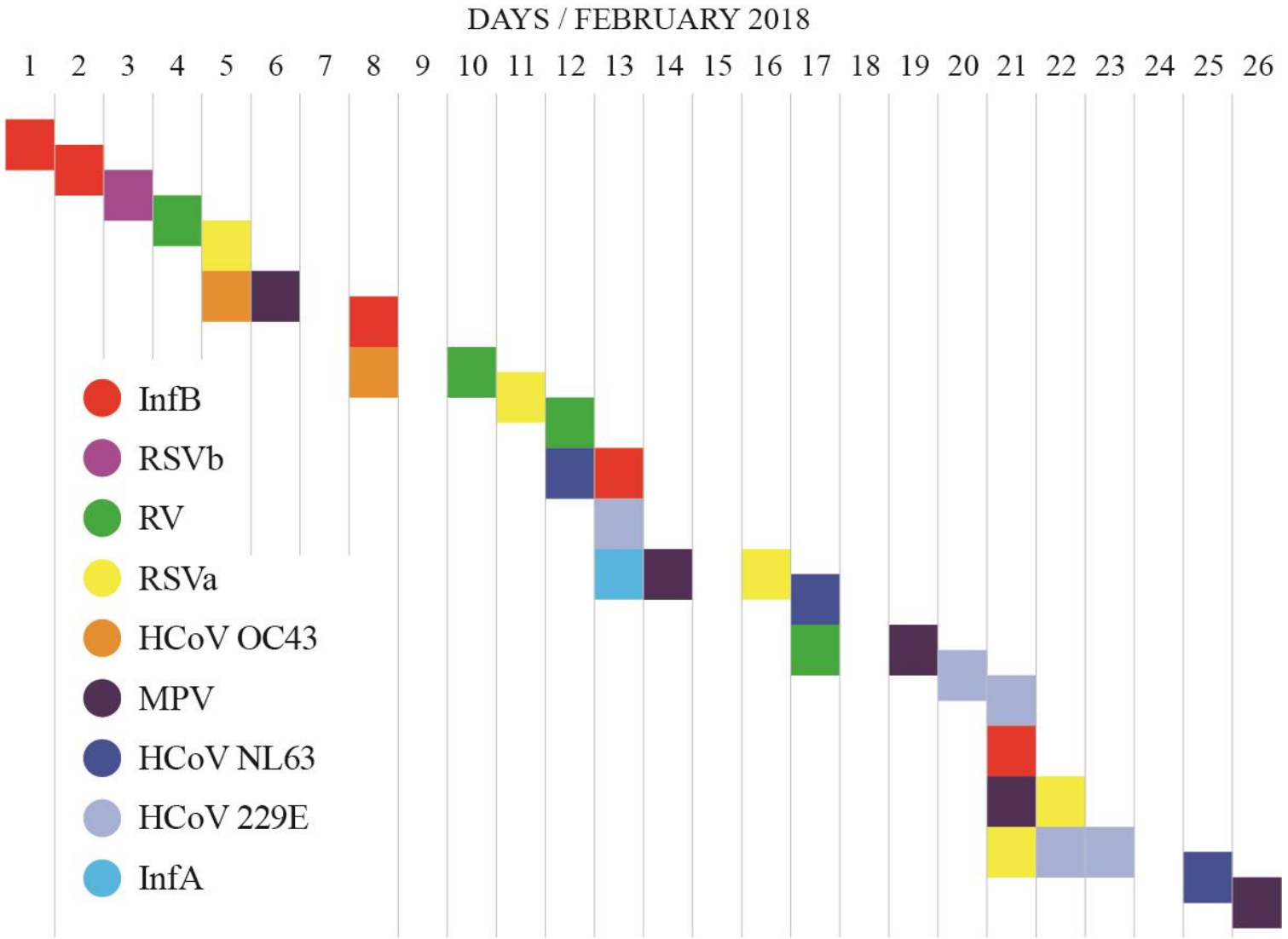
yeongChang 201

Original articl

Common cold in Team Finland during 2018 Winter Olympic Games (PyeongChang): epidemiology, diagnosis including molecular point-of-care testing (POCT) and treatment

Maarit Valtonen,[1] Matti Waris,[2,3] Tytti Vuorinen,[2,3] Erkki Eerola,[2,4] Antti J Hakanen,[2,] Katja Mjosund,[5] Wilma Grönroos,[5] Olli J Heinonen,[5] Olli Ruuskanen[6]

Br J Sports Med 2019;**53**:1093–1098.



Valtonen M et al. Br J Sports Med 2019

Increased risk of respiratory viral infections in elite athletes: A controlled study

Risk of a respiratory infection in athletes:

7x compared to matched controls.

2x compared to team staff members.

Asymptomatic infections were common. In athletes nearly all infections were symptomatic.

Several viruses transmitted within the team.

Point-of-care PCR testing proved clinically valuable and reliable

Valtonen et al. PLoS One. 2021

DISPATCHES

Non–SARS-CoV-2 Respiratory Viruses in Athletes at Major Winter Sport Events, 2021 and 2022

Maarit Valtonen, Matti Waris, Raakel Luoto, Katja Mjøsund, Mira Kaikkonen, Olli J. Heinonen, Olli Ruuskanen

Emerging Infectious Diseases • www.cdc.gov/eid • Vol. 28, No. 10, October 2022

2018 Winter Olympics
2019 Nordic Ski Worlds

10X

2021 Nordic Ski Worlds
2022 Winter Olympics

Update vaccinations in the entire team

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SARS-CoV-2

Influenza

Pneumococcus

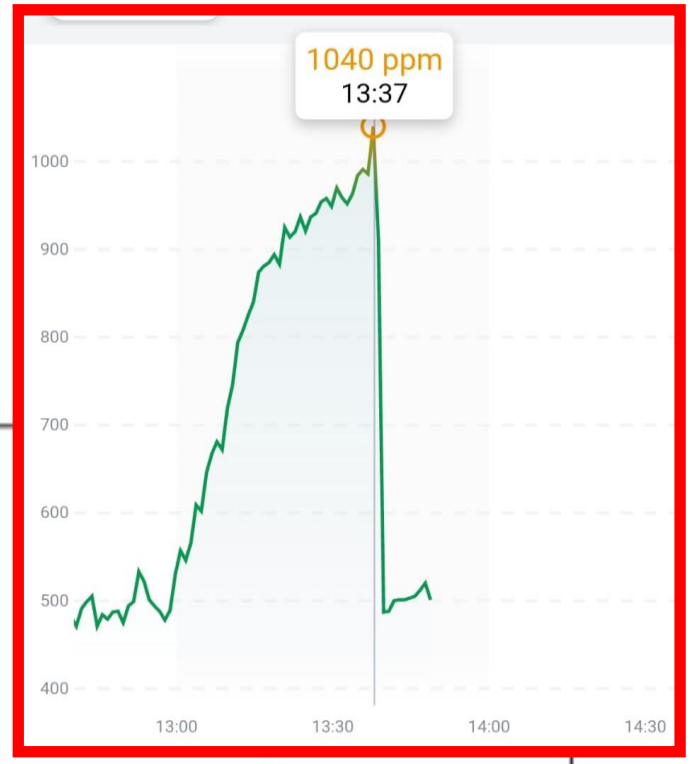
RSV

Pertussis

Measles

Ruuskanen et al. Vaccinations for elite athletes. Vaccines. 2025

Optimize indoor air quality



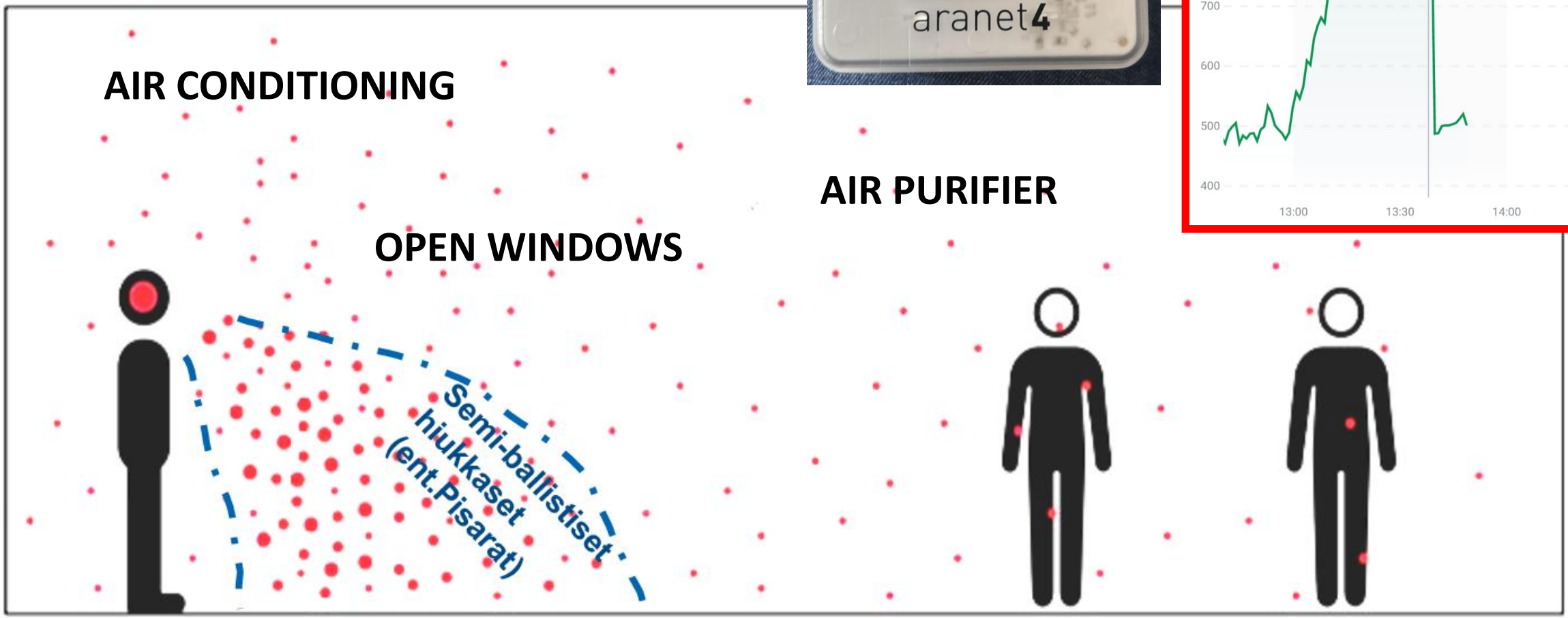


Figure: Mikko Auvinen, Lotta Oksanen

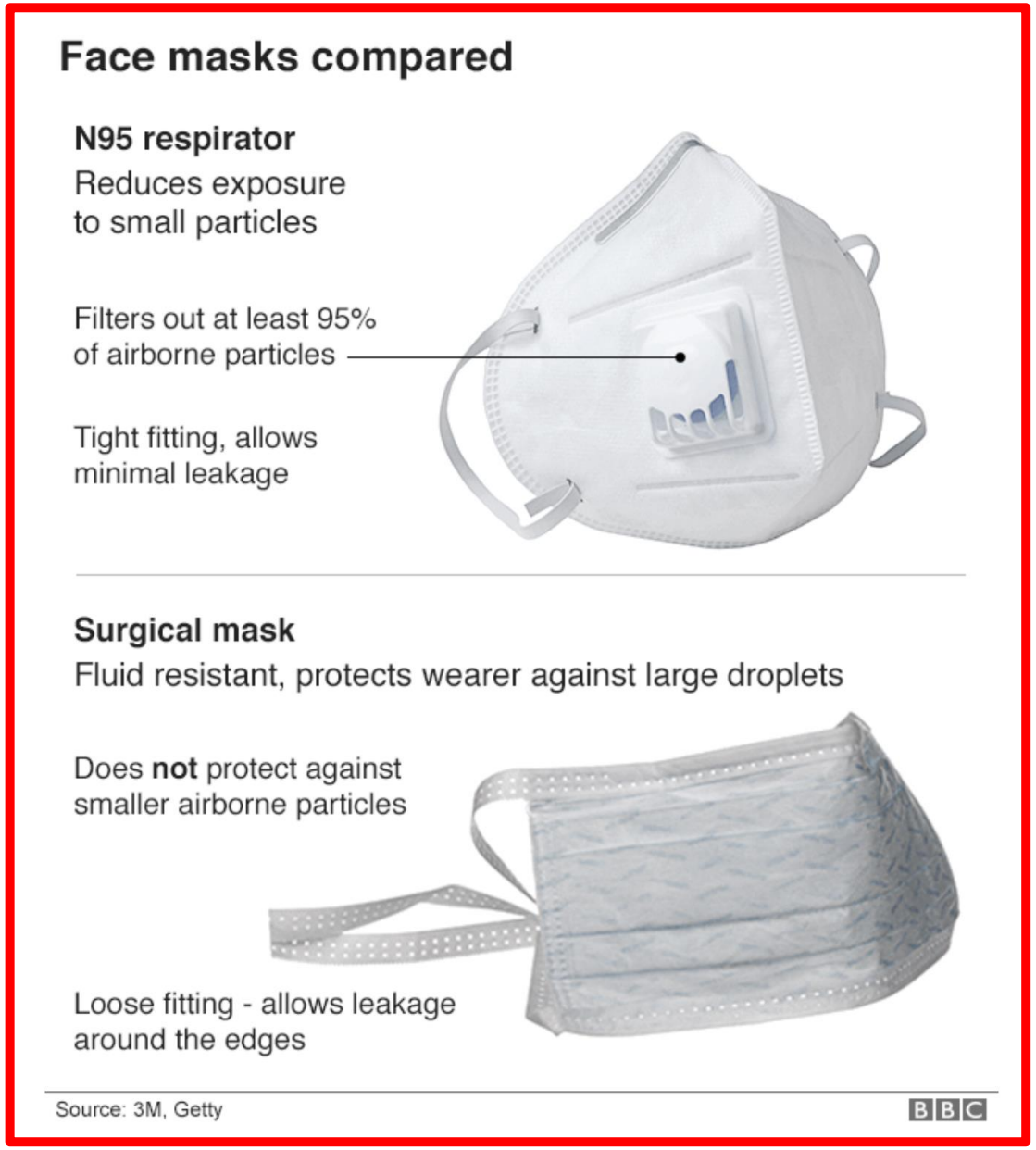
Use face masks when traveling and in crowds

N95 respirator and surgical mask protect the user and the environment.
N95 respirator is more effective in both cases.

Tend to be uncomfortable
Need to be worn correctly to be effective
Need to be removed correctly
Can be reused – let dry for 3 days

N95 respirators are, if correctly and consistently worn, 94% - 99% effective, in reducing transmission of respiratory diseases

Surgical mask – less leakage, more protection



Greenhalgh T et al. Clinical Microbiology Reviews 2024
Oksanen LM: Understanding airborne transmission : experimental and observational studies during covid-19 pandemic. Univ of Helsinki 2023

Practical advice during air travel

Have an educational briefing session regarding travel strategy

Use facemask – door-to-door

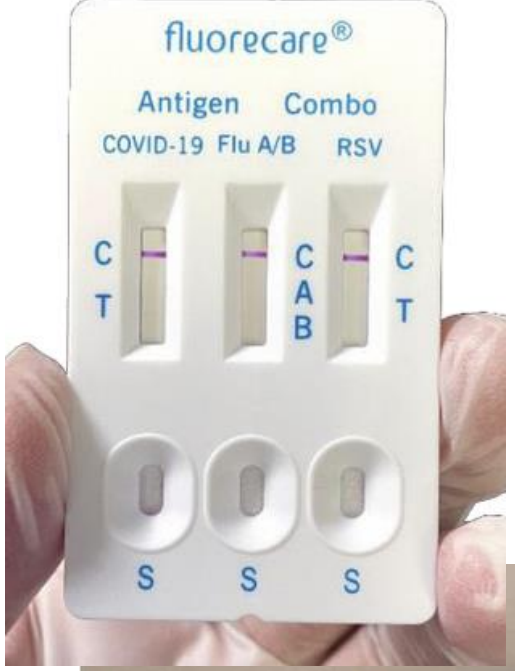
Choose a window seat wherever possible towards the very front or back of the plane and stay there.

Position your air vent and open it to allow air flow between you and your neighbor

If possible travel in business class (use that upgrade)

Use POCT to reach accurate diagnosis, shape clinical decision making and minimize outbreaks

Hull et al. Br J Sports Med 2024



Result Summary	
	Viruses
Not Detected	Adenovirus
Not Detected	Coronavirus 229E
Not Detected	Coronavirus HKU1
Not Detected	Coronavirus NL63
✓ Detected	Coronavirus OC43
Not Detected	Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
Not Detected	Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2)
Not Detected	Human Metapneumovirus
✓ Detected	Human Rhinovirus/Enterovirus
Not Detected	Influenza A
Not Detected	Influenza B
Not Detected	Parainfluenza Virus 1
Not Detected	Parainfluenza Virus 2
Not Detected	Parainfluenza Virus 3
Not Detected	Parainfluenza Virus 4
✓ Detected	Respiratory Syncytial Virus
	Bacteria
Not Detected	*Bordetella parapertussis* (IS*1001*)
Not Detected	*Bordetella pertussis* (*ptxP*)
Not Detected	*Chlamydia pneumoniae*

Strategies for staying healthy during the Olympic and Paralympic Winter Games

KIHU

To manage antiviral immunity

Balance the training load and recovery

Avoid undernutrition and keep a relative energy-balance

Use evidence-based supplements (vitamins D and C)

Sleep regularly 8 hours a night

Utilise professional guidance of proper diet

Manipulate gut microbiome (prebiotics, probiotics → quality of nutrition)

Update vaccinations in the entire team

To minimise viral transmission

Be aware of high-risk viral seasons

Avoid individuals with common colds

Isolate when suffering from a common cold

Use face masks when traveling and in crowds

Minimise shared housing

Close toilet seat when flushing

Optimize indoor ventilation

Remember careful hand-hygiene

Create a team policy for ARI prevention

Finnish medal hopeful Iivo Niskanen has caught the flu just before the World Championships in Trondheim. The illness struck after the competitions in Falun, Sweden.

"Unfortunately, the flu came as a gift from Sweden. On Sunday evening, when I was traveling home, I already felt a bit off, and at the beginning of the week, the illness hit," he told Ilta-Sanomat.

Gikk verdenscup etter positiv koronatest: – Jeg blir flau

Johannes Thingnes Bø og Tarjei Bø sikret dobbelt norsk i Nove Mesto. Det gjorde de begge etter positive koronatester.

August 7, 2024 | 4 min read Add Us On Google

COVID-Positive Olympic Athletes Are Still Competing

Several athletes at the Paris 2024 Olympic Games have come down with COVID, but they are still allowed to compete

WORLD OF SPORT Share

"Unfortunately, I didn't feel 100%" – Ingebrigsten points to sore throat after World championship loss

23rd August 2023
10:28pm BST

American sprinter Noah Lyles says he tested positive for Covid-19, ran 200-meter race anyway

By David Close, Kyle Feldscher and Amanda Davies, CNN
5 min read · Updated 8:18 PM EDT, Thu August 8, 2024

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THANK YOU!