

Effekt av teknologibruk på trener og utøver



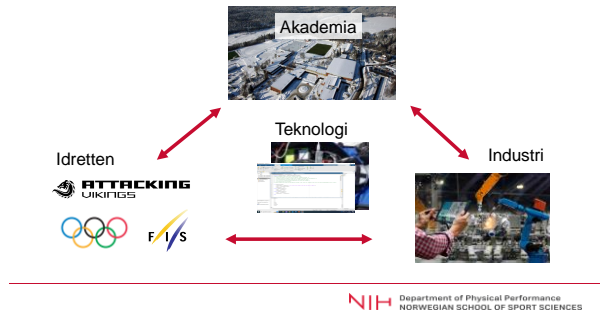
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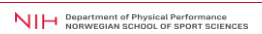


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Teknologi i golf



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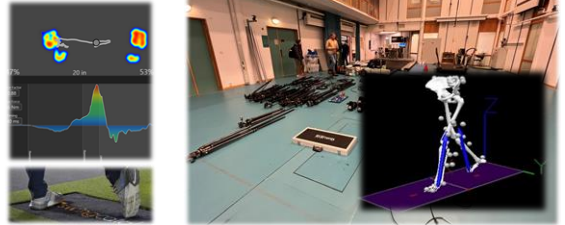
### Teknologi i golf



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### Kraftmåling



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### Trykkmåling



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### Kvalitativ video overlay



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### Kvalitativ video overlay



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### Video basert fotometri / fotogrammetri



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Spörri et al. (2012)

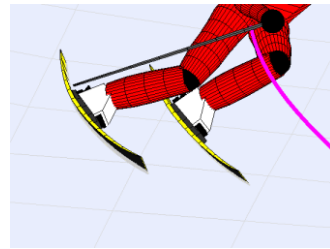
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Reid et al. (2012)

HYTREKSPORT

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Doppler radar



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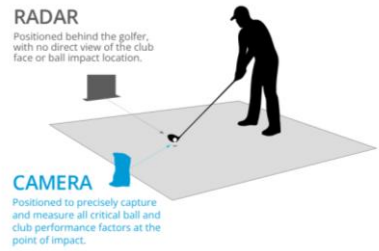
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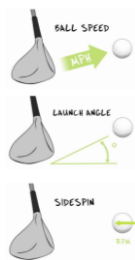
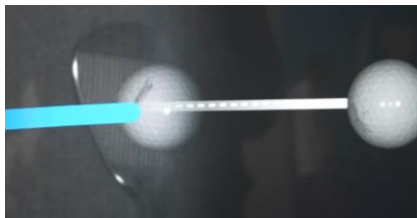
Launch monitor  
Golf simulator



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Launch monitor / Golf simulator



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Launch monitor  
Golf simulator



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Olympic rings logo, FIS logo, snowflake icon, Norwegian flag icon, NIH Department of Physical Performance NORWEGIAN SCHOOL OF SPORT SCIENCES

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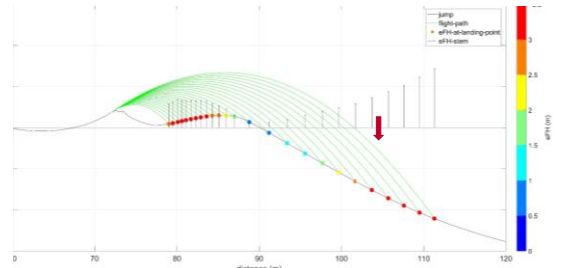
Olympic rings logo, FIS logo, snowflake icon, Norwegian flag icon, NIH Department of Physical Performance NORWEGIAN SCHOOL OF SPORT SCIENCES

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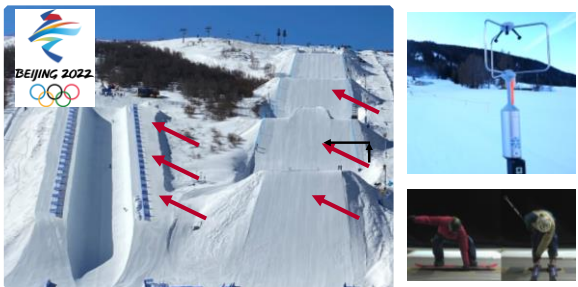
Olympic rings logo, FIS logo, snowflake icon, Norwegian flag icon, NIH Department of Physical Performance NORWEGIAN SCHOOL OF SPORT SCIENCES

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Olympic rings logo, FIS logo, snowflake icon, Norwegian flag icon, NIH Department of Physical Performance NORWEGIAN SCHOOL OF SPORT SCIENCES

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Olympic rings logo, FIS logo, snowflake icon, Beijing 2022 logo, Norwegian flag icon, NIH Department of Physical Performance NORWEGIAN SCHOOL OF SPORT SCIENCES

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# Golf er ikke alene om dette!

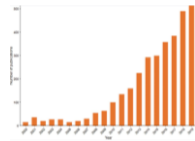
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Sports Technology Market Size, Share & Trends Analysis Report By Type (Devices, Smart Wearables, Analytics & Statistics, Equipment, By Sport, By End-user (Sports Clubs, Sports Associations, Sports Leagues), By Region, And Segment Forecasts, 2023 - 2030

Report Summary Table of Contents Segmentation Methodology Download a PDF Sample Copy

### Sports Technology Market Size & Trends

The global sports technology market size was valued at USD 13.54 billion in 2022 and is expected to grow at a compound annual growth rate (CAGR) of 20.35% from 2023 to 2030. The growth can be attributed to the increasing need for technology-based services in the sports arena along with a strong emphasis on the enhancement of audience and entertainment activities and the digital transformation of sports stadiums. As the number of sports events and stadium-based decision-making and operations are increasing or planned, the market is expected to witness significant growth during the forecast period. The increased usage of GPS, AR/VR, the Internet of Things (IoT), and social media are also boosting the market expansion further.



The increase in publications in the area of team sports and GNSS/GPS technology from 2000 to 2019

## Fordeler av teknologibruk

- Spill golf når som helst og i all slags vær.
- Tidsbesparende, og du kan spille baner du vanligvis ikke kan spille.
- Du ser resultatet av slagene dine
- Du ser de underliggende faktorene for resultatene.

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## Kan bruk av teknologi forbedre prestasjon?



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# Forstå idretten bedre

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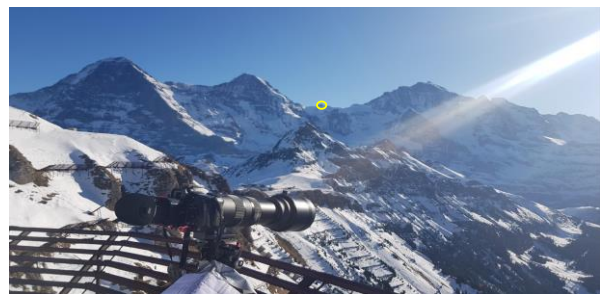
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Audi FIS Ski World Cup 2019/20		LONGINES				
Wengen (SUI)		5th March Downhill				
PERFORMANCE ANALYSIS BY RANK 3RD TRAINING		THU 16 JAN 2020				
Number of Competitors: 34		Start Time: 11:30				
Rank	Sk. Name	NIA	Position	Points	Difference	Speed
1	WALTER Mathias	AUT	1st	14.81	0.00	102.12
2	CARREZZI Marco	ITA	2nd	14.76	0.05	102.05
3	KLEBER Alexander Samuel	NOR	3rd	14.75	0.06	102.04
4	BERNHARDER Christian	ITA	4th	14.74	0.07	102.03
5	COCHRAN-BIGLE Ryan	USA	5th	14.73	0.08	102.02
6	PEZZI Dario	ITA	6th	14.72	0.09	102.01

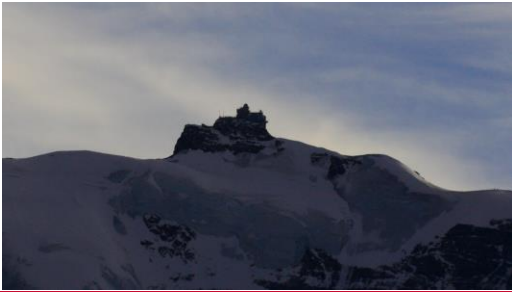
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Norsk Røysingstiftelse HYTECHNISK UNIVERSITET OLYMPIAOPPSØK 2022-23 NIH Institute of Physical Performance NORWEGIAN SCHOOL OF SPORT SCIENCE

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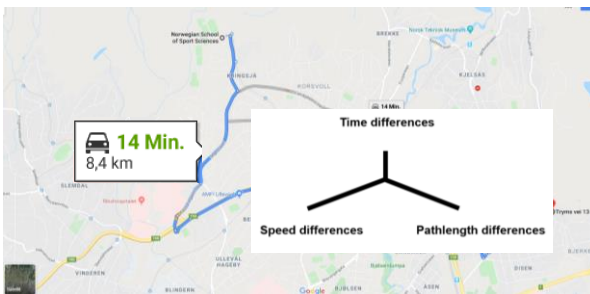
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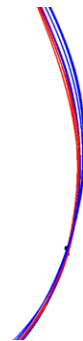
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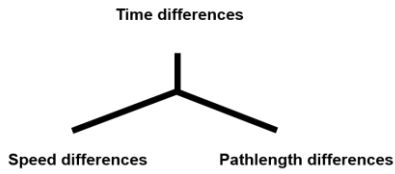
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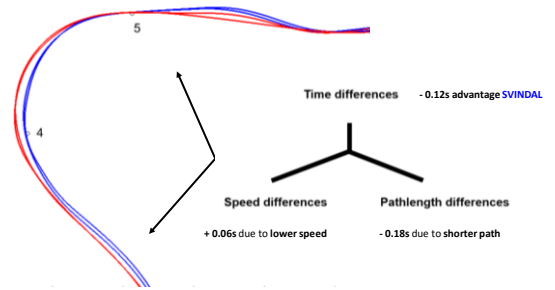




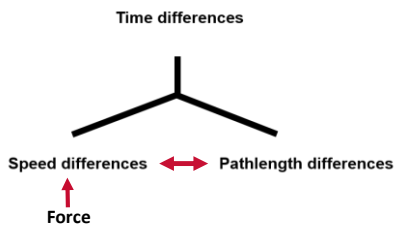
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Orretsvingen (Time, Pathlength, Speed)

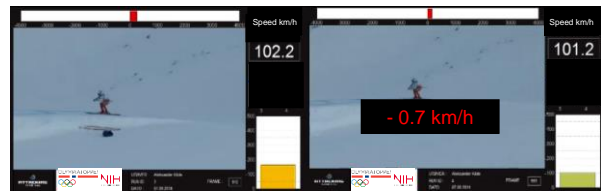
SVINDAL  
KILDE



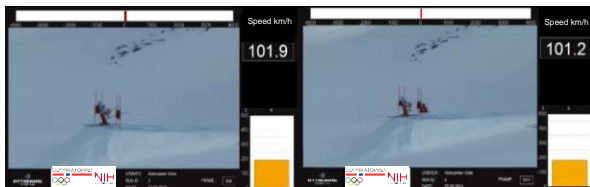
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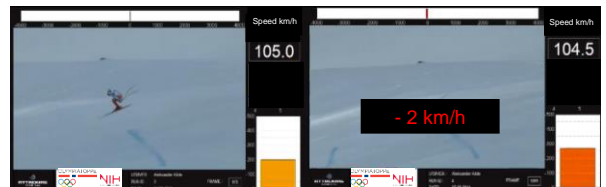
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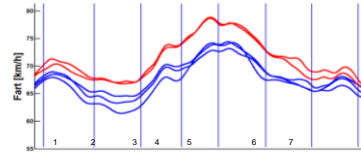
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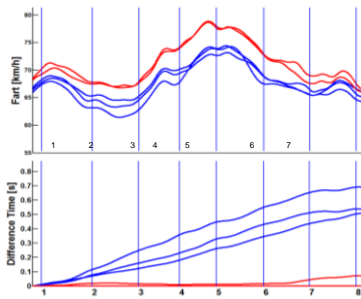
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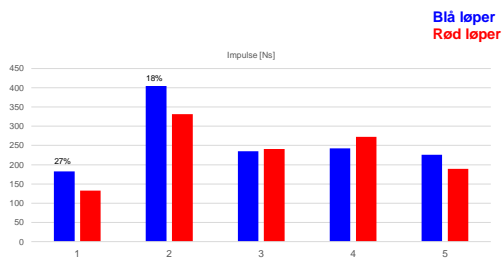


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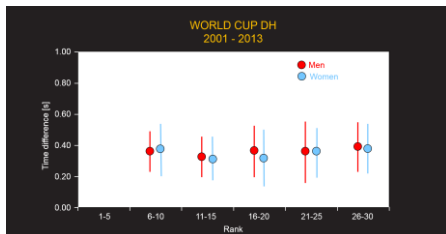
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Kan bruk av teknologi forbedre læring?

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#### Tradisjonell coaching

- Gi instruksjoner hvordan utøvere skal kjøre
- Gi feedback på utførelse

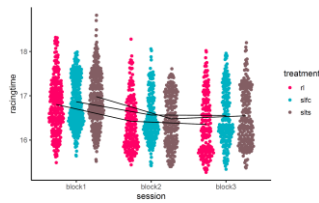
#### Reinforcement learning

- Utøvere prøver strategier
- Evaluerer effekten av strategien

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### Forskjellene mellom gruppene under innlæring



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### Utfordringer

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### Validitet



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Intern Validitet  
versus  
Extern Validitet

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2. Grew N, East T. Treadmill versus overground and fieldwork versus indoor conditions of three locomotion variables in human walking and running. *Gait Posture.* 2013

3. Castellanos D, Segura V, Avelo F, Williams P, De Clercq D. Joint kinematics and kinetics of overground, treadmill running versus running on an accelerated treadmill. *J R Soc Interface.* 2015

4. Smith DR, Stone D. Gait velocity performance: comparison between treadmill and field conditions. *Eur J Appl Physiol.* 2011

5. Van Oortswijk S, Grooten J, Roosen P. Electromyographic analysis of the last daily treadmill versus overground locomotion. *J Am Podiatr Med Assoc.* 1988

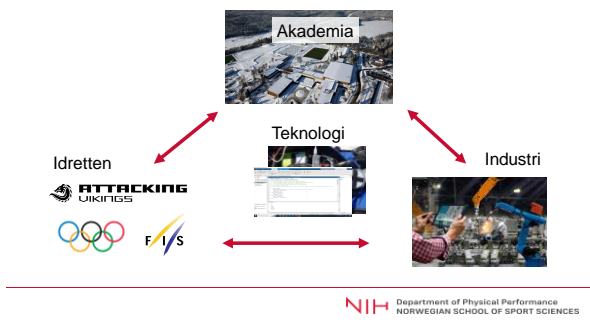
6. Basciani DR, Giles KL, Nigg FA, Wirtz A, Reed DR, Balle S. Aerobic requirements of overground versus treadmill running. *Med Sci Sports Exerc.* 1985

7. van Hagen-Schmied GJ. Some kinematic aspects of the biomechanics of overground versus treadmill locomotion. *Med Sci Sports Exerc.* 1983

8. Steiner MC, Collins CA, Leggett P, Gillett P. Differences in overground versus treadmill running. *Med Sci Sports Exerc.* 1975

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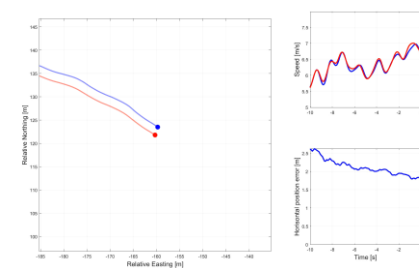
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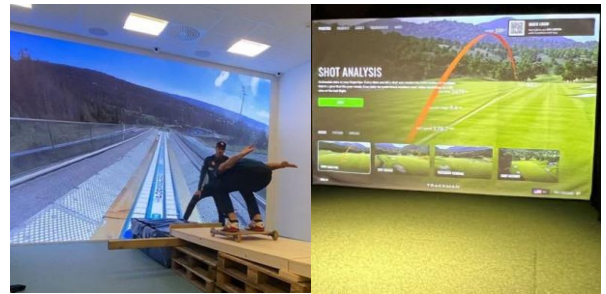
## Kommunikasjon

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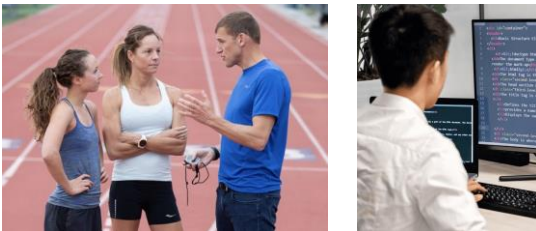


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## Rolle forståelse

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Takk for oppmerksomheten

