HPR*net*
Human Performance Research
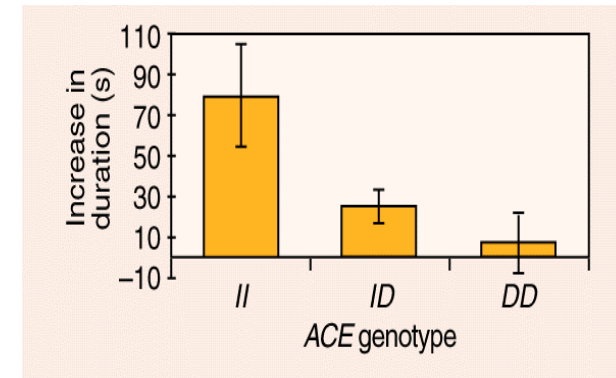*network*

The $100 Genome: Implications for Defence

the US Department of Defence (DoD)
"…can benefit significantly by employing personal genomics technologies when evaluating the health and performance characteristics of their personnel"

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THE ARMY · AUSTRALIAN

DST GROUP Science and Technology for Safeguarding Australia

Discovering 'combat genes' to help identify, and optimise the training of, the future soldier

Aim 1 (Short Term): to use cutting-edge technologies to identify genetic predictors of <u>baseline</u> physical performance, relevant to the Army, in new recruits (**PP1**).

Aim 2 (Mid Term): to use cutting-edge technologies to identify genetic predictors of the response to physical training, and the likelihood of sustaining an injury during basic training, in Army recruits (**PP1** & **PP2**).

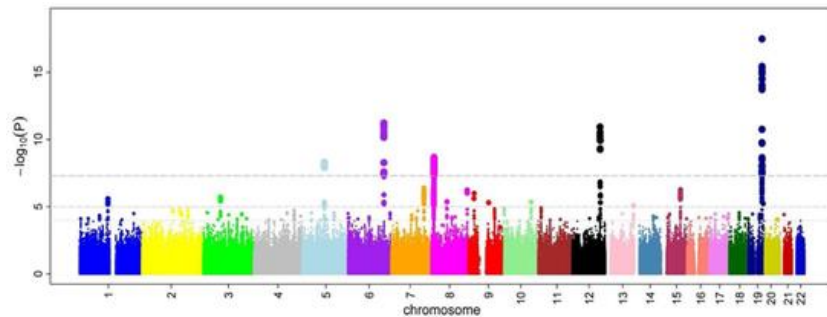Montgomery *et al*. (1998). *Nature*.

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Project Design

① Hypotheses

Using cutting-edge technologies we will be able to identify genetic predictors that predict <u>baseline</u> physical performance, the response to physical training, and the likelihood of sustaining an injury during basic training, in Army recruits

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Project Design

② Experimental methodology

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3 Deliverables

A review of literature on "Genes and the military"

Report of genetic predictors of physical performance in military personnel

Report of genetic predictors of trainability in military personnel

Report of genetic predictors of susceptibility to injury in military personnel

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Project Design

④ Timelines

	June 2017	Dec 2017	June 2018	Dec 2018	June 2019	Dec 2019	May 2020
Task	Recruit RA/PhD	Draft Ethics	Collect data on recruits (PhD based at Kapooka)			Analyse genes	Write Up
Deliverable	Recruit RA	Submit Ethics Recruit PhD	Submit Review Draft	Data from Year 1	Data from Year 1.5	Analysis of genetic data	Reports /Papers
Progress	✔	✔ ✔					

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Progress, challenges & opportunities

Progress to date

	June 2017	Dec 2017	June 2018	Dec 2018	June 2019	Dec 2019	May 2020
Task	Recruit RA/PhD	Draft Ethics	Collect data on recruits (PhD based at Kapooka)			Analyse genes	Write Up
Deliverable	Recruit RA	Submit Ethics Recruit PhD	Submit Review Draft	Data from Year 1	Data from Year 1.5	Analysis of genetic data	Reports/Papers
Progress	✔	✔ ✔					

Opportunities

- Set up a database, and share genetic results with other members of HPRnet (and beyond

Challenges
- Working with Army & PTIs?
- Modifying the shuttle run test (repeat at end, maximal effort)
- Setting up a database
- Sharing data
- Ethics/Confidentiality for additional uses of the data

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