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Medication and dietary supplement use in athletes; prevalence and safety

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Presented by
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Background

- MA are generally healthier overall than population peers
  - 8 of 9 chronic conditions ↓ prevalence vs Aus population (Halar et al, 2019 in prep)

- Supplement use is common in athletes (40-100%; Garthe et al, IJSNEM 2018)
  - ~60-62% in masters athletes (Striegel et al, IJSM 2006; Guthrie et al, IJSNEM 2016)

- Prevalence of concurrent prescription drug use and medicinal herbal medicines in older people varies (Agbabiaka et al, Drugs Aging 2017)

- Athletes, athlete support personnel, others participating in activities of the International Masters Games Association (IMGA) - bound by IMGA Anti-Doping Rules (approved by WADA 2015, IMGA 2016)

90 year old Heather Lee broke the world record for the 3000m walk at the AMG 2017**

www.australianmastersgames.com/news

Tartans Crème Puffs 2017*
:tartanshockey.org.au
Aim

Describe the prevalence of medication and supplement use for treatment of chronic conditions, and dietary supplement/sports food use in masters athletes

Prohibitions of medications used and potential for interactions were also investigated.
Methods

• 2017 AMG: n=4848, 2018 PPMG: n=14456
• anonymous online survey (10-20 mins)
Methods

• demographics, health conditions, treatment methods, dietary supplements/sports foods (DSSF) collected
  • representativeness: Pearson's Chi-squared, Kruskal-Wallis rank sum test
  • medications/supplements (including herbal) treatments doubly extracted
    • medications prohibitions categorised – international standards e.g. WADA
• dietary supplements and sports foods collated
• single ingredient/branded dietary supplements checked for interactions
• measures to ensure supplement safety collated
Results

Years competing at masters level

- n=817 (53.7 ± 14.0 yrs, 60.8% F)
- 84.7% (n=692) Aus, 9.4% (n=77) NZ
- vs all MG participants (p<0.001):
  - ↑ age
  - <20-39yo, >60+
  - ↑ F
- Australian residency similar
- Top ten sports similar
Results

- **Medical conditions**
  - 48.1% (n=393) with current condition
    - 25.3% (n=206) took medications
    - 7.1% (n=58) used supplements/herbal therapies

- **Medications**
  - Asthma (26.6% usages): Ventolin, Seretide, others
  - Heart/Circ (23.4% usages): Telmisartan, Perindopril, Rosuvastatin, others

- **Supplements**
  - Arthritis/bone (64.1% usages): glucosamine, turmeric, vitamin D, calcium
  - Obesity (22.8% usages): shakes, vitamins/minerals

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*does not include cancer or obesity (therapy for obesity not collected in AMG, medications for obesity not collected PPMG)
**one person could nominate more than one therapy
Results

46.5% (n=380) used 1-16 DSSF

Types of supplements used by masters athletes

- Carnitine, β-alanine, beetroot juice, exotic berries, bicarbonate, quercetin, tart cherries, HMB
- Sports confectionary

- Chondroitin sulphate, Vitamin E
Results

• Interactions
  • 46.3% used ≥2 therapies/DSSF
  • 2.1% known interaction
    • e.g. fish oils + antihypertensives, creatine + nephrotoxic drugs, glucosamine + warfarin*

• Potential prohibitions
  • n=81 individuals (106 usages)
  • β-2 agonists (n=52), Glucocorticoids (n=34), combination (n=2)
    • asthma, low BP, rapid/irregular heart beat
  • β-blockers (n=6)
    • hypertension, heart failure, rapid/irregular heart beat, other heart condition
  • Diuretics/masking agents (n=4)
    • fluid retention, heart failure
  • Hormone/metabolic modulators (n=5)
    • diabetes, obesity
  • Stimulant (n=1)
    • obesity

*Major = Do not use combination; contraindicated; strongly discourage patients from using this combination; a serious adverse outcome could occur.
Moderate = Use cautiously or avoid combination; warn patients that a significant interaction or adverse outcome could occur.

Results

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**Results**

**Measures taken to ensure supplement safety***

- Recommendation of Health/Sport professional
- Recommendation of Supplement Company
- Check ASADA/WADA Prohibited Substances List
- Recommendation of other Athlete/s
- 3rd party testing
- I Use an App
- Don’t Know
- No Measures

*athletes could nominate more than one option*
Limitations

- Internet platform (may also be a strength)
- Acute medication use not captured
- Interactions: multi-ingredient supplements difficult, did not check drug-to-drug
- Not possible to link safety checking methods with individual supplements
- Generalisability
  - AMG recruitment on site as well as electronically → different sports?
  - PPMG dataset on all participants was limited → limit demographic comparisons
  - majority Australian
  - Under-represented in younger age groups, over-representation of females → influence consumption of supplements (types/numbers) and medications
Conclusions and implications

– Potential for misuse of supplements
  – supplements may interact with medications
  – possibility of doping violations
  – may not use appropriate measures to check safety

– MA likely to use supplements in combinations
  – performance supplements used with other supplements (Gifford et al, ECSS 2018)
  – multiple nutrition supplements may exceed upper limits
Conclusions and implications

– Medication/supplement for treatment and DSSF use is common among MA
– Many inexperienced MA may not be aware of the issues
– Health professionals
  – be pro-active in asking about medication and supplement use
  – need to be aware of risks – doping violations, adverse interactions/effects
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