

### Systematic review of amino acids and Chinese herbal supplements in diabetic foot ulcers

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**Background/Aims:** Amino acids and Chinese herbal supplements have well known wound healing properties. This study systematically reviews the role of amino acids and Chinese herbal supplements as a complementary therapy in the treatment of diabetic foot ulcers (DFU). **Methods:** Keyword searches in English language publications using a combination of 'nutritional supplements', 'supplements', 'arginine', 'ulcer', 'wound healing', 'diabetic foot ulcer' were conducted from peer-reviewed literature in PubMed, Scopus, Web of Science, MEDLINE, Cochrane Library, Embase, CINAHL, CAM on PubMed, ProQuest, ScienceDirect, Allied & Complementary Medicine Resources (AMED) and Informit library. Two independent researchers used critical appraisal skills programme (CASP) tools to critically appraise articles for inclusion and exclusion. Data was extracted and synthesised into a standardized data extraction form with data on study design, methodology, dosage, mode of administration, time to healing, wound healing and other study variables. **Results:** Of the 4316 articles, 11 studies met the inclusion criteria. Seven studies investigated the role of amino acids in DFU, while three studies focused on Chinese herbal supplements, and the remaining study explored the healing effects of general nutrition supplement in malnutrition and DFU. Some favourable outcomes were observed with faster healing times of ulcers and reduction in ulcer size when compared to controls where applicable. **Conclusion:** Reduction in wound size, healing times and limb salvage improve quality of life for clients with DFU and result in enormous reduction of health care costs. Nutrient adjuvant therapies appear to be an easily accessible, low-cost effective treatment for some DFU clients. More robust studies are needed to support this evidence.

### Wideband absorbance in newborns and six-month-old infants

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**Background/Aims:** Middle ear disease remains a significant public health concern for Australian infants. Traditional audiology tests (conventional tympanometry, distortion product otoacoustic emissions [DPOAE], and automated auditory brainstem response) are ineffective in assessment of middle ear function in the first six months of development. Wideband absorbance (WBA) is effective in assessing middle ear function in children and adults; however, there is limited research investigating WBA in newborns and infants. This study aims to compare WBA in newborns and six-month-old infants. **Methods:** A longitudinal study was conducted on 39 infants from birth to six months of age. A test battery of DPOAEs, high frequency tympanometry (1000 Hz) and WBA was administered, and infants were classified as refer or pass. **Results:** Maturation effects were evident between newborns and six-month-old infants. WBA was reduced between 250 Hz and 800 Hz. The WBA peak increased in frequency from 1600 Hz to 4000 Hz. WBA was reduced in infants that referred compared to those that passed. The difference ranged from 25% to 60% in newborns and 10% to 55% in six-month-old infants. **Conclusion:** WBA provides improved diagnostic capability of middle ear function in infants. Understanding the changes in WBA with age has important value in interpreting whether measurements are attributable to maturational effects or to middle ear disease.

### The utility of CPAP in the tropics: a preliminary investigation

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**Background/Aims:** Continuous positive airway pressure (CPAP) provides assistance to patients with a range of respiratory illnesses. However, little research has investigated CPAP use in tropical environments. This preliminary study investigated the utility of a novel CPAP device during common activities within tropical conditions. **Methods:** Sixteen healthy participants completed six everyday activities (e.g. dressing, hanging towels, treadmill walking) with and without a CPAP device within a tropical/hot-humid environment (31.0 ± 0.5°C, 71.0 ± 1.6% relative humidity). For each condition, the participant's perceptual and physiological responses to each task and recovery time were recorded. Comparisons between conditions were examined via repeated measures and one-way ANOVAs. **Results:** Participants experienced similar perceptual responses (thermal comfort, thermal sensation and rating of effort) during all activities in both conditions (device use/non-use). In contrast, wearing the device increased heart rate (18%) and prevented the environmental-induced increase in body temperature (-0.2°C) during the dressing, hanging towels and treadmill walking activities. **Conclusion:** Our preliminary findings demonstrated that use of a CPAP device in tropical conditions provided both beneficial and unfavorable physiological effects. Future studies will clarify the benefits of CPAP use in extreme environmental conditions for clinical populations that rely on CPAP use.

### Physical activity for patients with chronic kidney disease living in north Queensland

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**Background/Aims:** Current recommendations to slow the progression of chronic kidney disease (CKD) include a healthier lifestyle with increased physical activity (PA) levels. This study aimed to identify the following in people with CKD living in north Queensland: a) current levels of PA; b) barriers and facilitators to PA participation; and c) the impact of a tropical climate on PA participation. **Methods:** Sixty-seven patients diagnosed with CKD by nephrologists and listed with the Townsville Health Service District volunteered for this study. All patients completed a mailed-out survey including self-reported PA scale, barriers and facilitators to PA, and impact of extreme environments on CKD symptoms and PA levels. **Results:** Patients were predominantly older than 65 years of age (65.7%), Caucasian (86.6%) with average-good PA levels (~44 MET-hrs/day). The most common barriers to PA were lack of energy (39%), pain (36%) and ill-health (28%), with motivators being to improve health (63%), to feel good (57%) and to improve energy levels (54%). Patients reported to be less active (54% vs. 10%) and experienced worse symptoms (25% vs. 8%) during hot/humid conditions compared to cooler/drier conditions. **Conclusion:** Patients with CKD living in north Queensland exhibit average-good PA levels that are impacted upon by climate. Identification of PA barriers, motivators and climate impact provide important foci for the development of programs to better target lifestyle management for CKD patients.