

Pengaruh arus puncak ekspirasi terhadap relaxed +gz farce tolerance dalam latihan human centrifuge pada bakal calon siswa penerbang TNI AU tahun 2002

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Abstrak

LATAR BELAKANG: Terbang dengan menggunakan pesawat yang memiliki kecepatan tinggi melebihi kecepatan suara (high performance air craft), yang mampu menghasilkan akselerasi +5Gz sampai +9Gz bahkan lebih terutama pada saat melakukan manuver, merupakan suatu tantangan tersendiri yang membutuhkan kepaiawaan dan sikap profesional. Banyak faktor yang mempengaruhi relaxed +Gz force tolerance seperti mean arterial pressure, hasil puncak ekspirasi dan posisi tubuh.

METODE: Desain penelitian adalah studi korelasi, yang dilakukan di Lakespra Saryanto Jakarta. Dengan menggunakan populasi semua bakal calon penerbang TNI AU dan subyek dipilih secara random sederhana, semua yang memenuhi kriteria inklusi diambil. Sampel yang diambil sebanyak 31 orang, data yang dikumpulkan berasal dari kuesioner, pencatatan human centrifuge. Hasil penelitian kemudian dilakukan uji statistik berupa analisis regresi inner untntk melihat pengaruh arus puncak ekspirasi terhadap relaxed+Gz force tolerance serta faktor faal yang berpengaruh.

HASIL: Rata-rata relaxed +G, -force tolerance $7,51 \pm 0,71$ G, selanjutnya beberapa faktor yang berpengaruh terhadap relaxed +Gr force tolerance antara lain arus puncak ekspirasi: koefisien regresi sebesar -0,358 dan kemaknaan $p = 0,073$; mean arterial pressure: koefisien regresi sebesar 0,047 dan kemaknaan $p = 0,065$, serta forced expiratory in 1 second: koefisien regresi sebesar 1,246 dan kemaknaan $p = 0,012$) dan yang paling dominan adalah-forced expiratory in l second.

KESIMPULAN: Relaxed $\pm$ Gz force tolerance dipengaruhi oleh arus puncak ekspirasi. Di samping itu relaxed G tolerance berkaitan pula dengan mean arterial pressure dan FEV1.

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BACKGROUND: The Influence of Peak Expiratory Flow Rate to Relaxed +Gz Force Tolerance at Human Centrifuge Training in Pilot Candidates of Indonesian Air Force 2002
BACK GROUND: Flying high performance fighter aircraft is a challenging and demanding profession which regularly imposes significant acceleration force on pilot, particularly during air combat maneuvering, in which +Gz level of +5 to ± 9 G or more are frequently experienced. Relaxed +Gz force tolerance is influenced by mean arterial pressure, peak expiratory flow rate and body position.

METHODS: Correlation study design was chosen for this research in Lakespra Saryanto. Simple random sampling is used to choose the subject from all pilot candidates in the population. Thirty one subjects were selected consecutively according to inclusion criteria. Data collected from questionnaire, human centrifuge records. The results were analyzed by linear regression analysis to evaluate the influence of peak expiratory flow rate and relaxed +Gz tolerance, and other physiological factors which might influence the relaxed +Gz tolerance.

RESULTS: The mean value of relaxed +Crz tolerance was $7,51 \pm 0,71$ G. Several factors that influence of relaxed +Gz tolerance was peak expiratory rate (regression coefficient - 0,358, $p = 0,073$); mean arterial pressure (regression coefficient =0,047, $p = 0,065$); forced expiratory volume in 1 second (regression

coefficient 1,246, $p = 0,012$). The most dominant was forced expiratory volume in 1 second.

CONCLUSIONS: Relaxed +Gz force tolerance was influenced by peak expiratory flow rate, forced expiratory volume in 1 second and mean arterial pressure.