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Davao Medical School Foundation, Inc.

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# COMPENDIUM *of* ABSTRACTS

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## PHYSIOLOGY




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## Comparative Study on the Effects of the Three Leading Glutathione Brands on the Serum Glutamic Pyruvic Transaminase (SGPT) Levels of Rabbits

Abundo, I. C. S., Calma, F. A. L., Don, M. P., Parilla, X. C., Quianzon, M. F. L., Rabia, D. M. J., and Talampas, M. D.

COLLEGE OF MEDICINE | 2009

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Glutathione whitening pills has been extensively distributed in the local market today. Thus, researchers aimed to determine if prolonged intake of glutathione pills may have significant effects on liver function. The study used a randomized control trial double-blind design to compare the effects of the three leading glutathione brands distributed in District I, Davao City, on the levels of SGPT. Forty rabbits have been randomly classified into four groups of ten. Each group was composed of five male and five female rabbits. The negative control, labeled as Treatment D, received plain normal saline solution as treatment while the other three groups labeled as Treatment A, Treatment B, and Treatment C, received glutathione. Baseline SGPT levels were taken before the treatment administration and further SGPT monitoring were done on the Day 15, 45, and 70 of the treatment periods. SGPT levels obtained were within normal ranges and were significantly increasing overtime. Results did not show significant differences between the baseline mean SGPT levels in all treatment groups. At Day 15, Treatment B had the least mean SGPT level while Treatment A read the highest mean SGPT level. The mean SGPT levels under treatments B and C were lower than that of Treatment A and the control group. At Day 45, SGPT readings from the three treatments were relatively similar but also were lower than the SGPT value of the control group. At Day 70, SGPT level was high in the control groups compared to the other three treatments. Results showed that the administration of glutathione significantly prevented the progressive increase of SGPT levels in rabbits. Furthermore, additional antioxidant components were found to hasten the onset of action of the three glutathione products. However, these added preparations did not provide significant advantage on the long-term effects of glutathione administration.

**Keywords:** *glutathione, SGPT, comparative, rabbits*

## Fixed Dose 14-Day Acute Oral Toxicity Study of Three Leading Food Supplement Drugs Dispensed in Davao City

Abou Zaki, S. D. B., Arroza, E. J. P., Cadulong, R. P. II, Cruz, M. L. L., Dedase, L. M. C., Mondia, N. C., Oropa, M. A. C. and Teodoro, O. H. P.

COLLEGE OF MEDICINE | 2009

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A dietary supplement is a preparation intended to supply nutrients that are not consumed in sufficient quantity in a person's diet. Only few scientific data exist on the clinical effects and potential toxicities of these marketed products. Despite the popular claims of food supplements to promote better health, the risk of adverse reactions is not only linked with toxicity associated with large doses but also with the hazards regarding its interference with a variety of prescription drugs and other medication. Thus, this study was a randomized, double-blind, placebo-controlled experimental design to determine the possible toxic effects of the fixed doses (5 mg/kg and 50 mg/kg) of the three common food supplement drugs (A, B, and C) in 20 Syrian Hamsters (*Mesocricetus auratus*) over 14 days. The main study started after the appropriate starting dose was determined. Five nulliparous female hamsters were used for each dose level considered. After the administration of the starting doses, the subjects were observed daily for changes in physical appearance, clinical signs, unprovoked behavior, behavioral changes in response to external stimuli, body weight, and related changes in food and water consumption, clinical parameters, and other unusual behaviors over 14 days. Furthermore, the pathologic profiles were determined based on the gross examination and histopathologic evaluation of all subjects upon death within or at the end of the study period. Results showed signs of toxicity in treatment groups X, Y, and Z with depreciating changes in response to stimuli, body weight and related changes and respiratory rate. In the pathologic profile of the liver, toxicity was evident in Drug B due to the presence of chronic active hepatitis with centrilobular necrosis. Overall, Drugs A and B were classified as fatal if swallowed and Drug C is considered as toxic if swallowed based on the number of deaths and evident toxicity observed over 14 days in the main study phase, and were supported by the data obtained from the daily general observations and the pathologic profile of the test subjects in treatment groups X, Y, and Z.

**Keywords:** *acute oral toxicity, 14-day, food supplement, Davao*



## **Antibacterial Property of the Ethanol Extracts of Red, Yellow, and Violet Colored Flowers of *Hibiscus rosa-sinensis* Against *Staphylococcus aureus* and *Pseudomonas Aeruginosa***

Acosta, M. B., Borcelas, M. R., Garcia, B., Gaviola, J., Hiquiana, D. U., Jumao-as, J. W., Martinez, J. M., Navarro, R. R., and Yee, R.

**COLLEGE OF MEDICINE | 2010**

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Gumamela (*Hibiscus rosa-sinensis*) flower was used in this study for its antibiotic properties. The three varieties included were purple, red, and yellow flowers. The extract for the gumamela flower was obtained with the use of the ethanol extract method. Zone of inhibition method was used to evaluate the antibiotic properties of *Hibiscus rosa-sinensis* against *Staphylococcus aureus* and *Pseudomonas aeruginosa*. The positive controls that were used were Oxacillin for the *Staphylococcus aureus* and Amikacin in *Pseudomonas aeruginosa*. Results varied both statistically and clinically. A wide difference in the zone of inhibition from the *Hibiscus rosa-sinensis* extract against the positive control was shown statistically. On the other hand, this study showed a clinical significance since the results still demonstrated a positive inhibition of the purple *Hibiscus rosa-sinensis* extract both against *Staphylococcus aureus* and *Pseudomonas aeruginosa* organisms and minimal inhibition of the yellow and red extract against *Pseudomonas aeruginosa*.

**Keywords:** *Hibiscus rosa-sinensis*, purple, red, yellow, *Staphylococcus aureus*, *Pseudomonas aeruginosa*

## Comparative Study of the Hepatoprotective Effect of *Sargassum cristaefolium* Extract and Silymarin Capsule on Ethanol-induced Liver Injury in Female Swiss Albino Rats

Bongalo, J. A. J., Cabañero, C. L. M., Denila, R. A. W., Dillera, C. A. K., Dillera, K. P. O., Honorico, F. G., Panuda, J. P., Sarnillo, L. M., and Tan, R. T.

COLLEGE OF MEDICINE | 2010

Alcohol continues to be an escalating problem such that effects of ethanol ingestion remain to be recognized for inducing substantial damage to the liver. In contrast to the rising popularity of herbal medications, this study aimed to evaluate the hepatoprotective effect of *Sargassum cristaefolium* extract on the ethanol-induced liver injury. Past studies have established an antioxidant activity in *Sargassum cristaefolium*, making it protective against specific action of ethanol such as lipid peroxidation. This study utilized a pre-test-post-test control group experimental design. A randomized, double blind study was used wherein 20 female Swiss albino rats were equally divided into four groups. Group I served as the normal group receiving only standard feeds and water. Group II, the negative control, received 20% ethanol and normal saline solution. Group III, the experimental group, and the Group IV, the comparison group, were pretreated with *Sargassum cristaefolium* extract and Liveraide Silymarin respectively, prior to 20% ethanol administration. Treatment was given for 18 days. Serum ALT, GGT, and albumin were measured prior to and after treatment. Baseline levels fell within normal range and failed to find significant difference between the four groups. Serum ALT and GGT were significantly elevated in groups II, III, and IV after treatment, with the highest elevation in the group II. There was a significant difference between groups II and III, and between groups II and IV after treatment. Furthermore, Group II had the lowest albumin levels with a mean value of 34.58 mg/dL. Histopathologic examination revealed damaging effects of ethanol on Group II, showing inflammation, ballooning degeneration of the hepatocytes and steatosis. Group III and IV only presented with inflammation while no remarkable changes were noted in Group I. Thus, these results showed *Sargassum cristaefolium* extract has a hepatoprotective effect partially accountable for by its antioxidants hesperidin, tannin, fucoxanthin, and sulphated polysaccharide content.

**Keywords:** *hepatoprotective effect, Sargassum cristaefolium, ethanol*

## **Comparative Study on the Antibacterial Properties of Virgin Coconut Oil, Guava Leaf Extract, and Virgin Coconut Oil with Guava Leaf Extract Against *Staphylococcus Aureus***

Babista, M. S. C. M., Cajilla, B. C., Calma, K. L., Capito, M. C. B., Carriedo, C. E. N., Colina, M. A. P., Hofeleña, O. M. B., Ordiz, O. L. F., Salvador, A. R., and Yu, M. G. M. M.

**COLLEGE OF MEDICINE | 2010**

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The human skin is a natural habitat of the most common *Staphylococcus aureus*. Though this is part of the skin's microbial flora and do not harm, certain conditions allow their overgrowth which overwhelms the host resulting in skin diseases that pester humans. Virgin coconut oil has become quite popular nowadays with its many benefits, including antimicrobial effect as well as guava which is rich in flavonoids, and has antimicrobial activity. This study aimed to compare the antibacterial properties of virgin coconut oil, guava leaf extract, and a combination of the oil and the extract to determine if there was an additive or synergistic effect between virgin coconut oil and guava leaf extract when combined. This study was laid out using the Randomized Complete Block Design. Virgin coconut oil, guava leaf extract, and virgin coconut oil with guava leaf extract were prepared into ointments, which separate filter paper discs were soaked into, and tested against Gram-positive *Staphylococcus aureus*. The bacteria, streaked onto Mueller-Hinton Agar culture media, were subjected to four different treatments: virgin coconut oil (T1), guava leaf extract (T2), virgin coconut oil with guava leaf extract (T3), and Oxacillin (T4) as the positive control. Three trials of the experiment, each with the four replicates, were done. After 24 hours of incubation, all treatments showed the ability to inhibit the growth of *Staphylococcus aureus*. However, the antibacterial properties showed no additive or synergistic effect. Even if the antibacterial properties of the three treatments (T1-T3), when compared to T4, were much weaker, they could still be used as antibacterial drugs.

**Keywords:** *Virgin coconut oil, guava leaf, staphylococcus aureus comparative*

## **Larvicidal Effects of *Azadirachta indica* Leaf and Seed Extract on the 3rd Instar Larva of *Musca domestica***

Alestante, M. G. B., Ali, S. Z. M., Buenaflor, F. G. B., Dublin, K. K. D., Fabian, J. A. N. C., Muhammad, S. H. D., Niñora, K. M. F., Roldan, D. M. R., and Tiang, S. N. M.

**COLLEGE OF MEDICINE | 2010**

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This research investigated current larvicidal effects of neem leaf and seed extract against *Musca domestica* third instar larva. A double-blinded randomized controlled trial was done to determine the following: mean number of larval mortality using *Azadirachta indica* crude seed and leaf extract at 25%, 50%, 75% and 100% concentration; effectivity of different concentrations of neem seed and leaf extract in comparison with a commercial insecticide; and the significant difference between the most effective crude seed and leaf extracts. One thousand eight hundred *Musca domestica* third instar larvae were utilized and randomly assigned to ten treatment groups using the lottery system. Observation of each group was done simultaneously by assigned observers at a 2-hour interval for 24 hours. Results revealed that there was a significant increasing trend in the mean number of mortalities among the different treatment groups from the 2nd hour to the 24th hour. Also, no significant difference existed between the commercial insecticide and the 25% seed extract. However, a significant difference between Seed and Leaf extracts existed. The researchers recommend 25% seed extract can be an effective substitute for the commercialized insecticides.

**Keywords:** *Larvicidal, Azadirachta indica, Musca domestica, leaf, seed, extract*

## Histopathologic Effects of a Locally Available Herbal Supplement to the Hepatic Development of Duck Embryos (*Anas sp.*)

Alcaria, H. J. D., Arca, M. J. E., Boringa, M. M. Hermano, L. N., Jagape, W. E., Madelo, I. S. Q., and Sarael, M. A.

COLLEGE OF MEDICINE | 2010

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Herbal supplements have now invaded the local market. However, little is known about its interaction to the development of an embryo, particularly in the liver. In this study, the histopathologic effects of a well-known herbal supplement to the liver of duck embryos was investigated, specifically, steatosis, balloon degeneration, portal inflammation, and lobular inflammation. Thirty duck eggs were sampled and grouped into three, each having ten eggs that were incubated. One group was infused with 7.14 mg/kg of herbal supplement, another group with 14.28 mg/kg of herbal supplement, and the last group served as the negative control. Infusion of the solutions started from day 12 of incubation. On the 18th day of incubation, the livers of the embryos were isolated and sent for histopathologic reading. Results showed that there was an increased incidence and degree of steatosis, balloon degeneration, portal inflammation, and lobular inflammation in livers treated with the herbal supplement. Furthermore, the severity of the fatty change was higher for the 7.14 mg/kg group, while results for ballooning degeneration, lobular inflammation, and portal inflammation were significantly more severe for the 14.28 mg/kg group. This suggested that the increase in the concentration of herbal supplement makes it more destructive to the developing livers. The commercially available herbal supplement had a significant pathologic hepatic effect to the duck embryos.

**Keywords:** *Histopathologic, Duck Embryos, Hepatic Development herbal supplement, steatosis*

## Toxicity and Blood Glucose Lowering Capacity of Calabash (*Crescentia cujete*) Fruit Decoction in Alloxan-induced Hyperglycemic Albino Rats (*Rattus sp.*)

Alegre, J. M., Ferolin, J. K., Gealon, A., Labarcon, K., Lariago, S., Maruya, J. E., Milana, J. K., Narciso, B. C., and Sexcion F. S.

COLLEGE OF MEDICINE | 2010

Medicinal plants play an essential role in the management of diabetes mellitus, especially in developing countries where resources are meager. The toxicity level of Calabash fruit pulp decoction was determined using the brine shrimp Assay with a resultant LD50 of 9%. This study also aimed to evaluate the bioactivity of the calabash fruit pulp decoction in lowering blood glucose level in Alloxan-induced albino rats. To evaluate hypoglycemic effects, 28 albino rats were subjected to different treatments A, B, C, and D. Treatment A, B, and D were induced with low-dose Alloxan at 0.01g/ml and treated orally with 0.005cc/g single shot of Metformin, Calabash fruit pulp decoction, and NSS respectively. Treatment C rats comprised the normal rats of the study. Periodic measurements of fasting blood glucose levels were evaluated after the 1st, 3rd, and 6th hour of single-dose administration of the treatments. This resulted in a highly significant effect of the calabash with a 75% reduction rate of blood glucose in comparison to Metformin with only 41% after the 6th hour. The anti-diabetic effect was further examined and subjected into two treatments, the Alloxan and calabash fruit pulp decoction, using eight rats with FBS>400mg/dL. Random blood glucose levels were taken in the 1st, 3rd, 7th, and 12th days after receiving treatment. Data showed fluctuating results which signified incapability of the calabash to sustain its reduction effect in the long term and uncontrolled diabetes, which already needed insulin-releasing drugs. Calabash was an effective alternative in lowering blood sugar in a borderline diabetic.

**Keywords:** *hyperglycemia, calabash, diabetes, albino rats, fruit pulp decoction, toxicity, blood glucose*

## **Effect of *Blumea balsamifera* (Sambong) on Serum Uric Acid Level, Serum Potassium Level, Urine PH, and Urine Specific Gravity of Hyperuricemic Male Rabbits**

Antenor, J. M. T., Del Fierro, A. R. M., Giguiento, N. E. N., Heitz, A. G., Magdoboy, H. F. A., Pangilinan, E. R., Sepe, J. E., Tripole, K. J. S., Tuason, K. J. S., Tuason, J. J. S., Vilela, E. M. .M., Villaroya, J. F. O., and Yap, B. V. Q.

**COLLEGE OF MEDICINE | 2010**

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This quasi-experimental study aimed to determine the effects of *Blumea balsamifera* (Sambong) tablets on serum uric acid level, serum potassium level, urine pH, and urine specific gravity on thirty pyrazinamide-induced hyperuricemic male rabbits. Specifically, it seeks to compare the mean differences of the said variables before and after treatment. This study involved three groups namely: Group I which served as the control group (tested on the first and after the seventh day of treatment), Group II (tested on first and after the fourth day of treatment) and Group III (tested on first and after the seventh days of treatment). Results showed that after the treatment, urine pH and specific gravity showed significant increased while serum uric acid and serum potassium decreased. Furthermore, there was a weak negative correlation between serum uric acid level and urine pH.

**Keywords:** *Blumea balsamifera, tablets, serum uric acid level, serum potassium level, urine pH, urine specific gravity, hyperuricemic male rabbits*

## In Vitro and In Vivo Anti-inflammatory Activities of *Sargassum polycystum*

Salaver, F. I. A., Cembrano, C. I. D., Cuison, R. J. G., Dema-ala, P. D., Diez, C. T., Doromal, G. V., and Yap, L. J. K.

COLLEGE OF MEDICINE | 2011

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The anti-inflammatory properties of *Sargassum polycystrium* were studied to examine its capacity to stabilize red cell membrane in a hypotonic solution, to prevent protein denaturation, and to inhibit carrageenan-induced paw edema in rats. Phytochemical screening test for anti-inflammatory constituents was also done. Results showed that *Sargassum* contains Alkaloid and Flavonoids. These chemicals were known for their anti-inflammatory and antioxidant properties. In vitro analysis of the *Sargassum* showed erythrocyte stabilization at a higher dosage. Even at higher doses, the extract failed to inhibit protein denaturation. Paw edema model showed a marked decrease in the width and height of the paw thickness in comparison to a normal saline solution at the second hour of measurement. It found no significant difference in the mean width and height measured at the first, third, and fourth measurements. Thus, *Sargassum* exhibited anti-inflammatory effects through the reduction of paw edema using the parameters of paw width and paw height of Albino rats and reduction of red blood cell hemolysis if given at higher doses. However, it cannot prevent protein denaturation even at any doses. This desirable outcome was observed during the second hour of Carrageenan.

**Keywords:** *in-vitro, in-vivo Anti-inflammatory, Sargassum Polycystum, Carrageenan, Phytochemical*



## **Hepatoprotective Effects of Panyawan (*Tinospora Crispa*) Crude Extract on Paracetamol-Induced Liver Injury In Albino Rats (*Rattus Norvegicus*)**

Adtoon, J. A., Arendain, M. J. III, Deiparine, K. L. K., Embalsado, L. J. S., Gatmaitan, P. J. P., Singh, S. A. A., Soriano, N. P., Tamayo, M. T. H., Taya, H. M. M. D., Uy, C. A. Y., Velasco, V. J. M., and Zafra, S. C. D.

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A 14-day experiment was conducted to test the hepatoprotective effects of *Tinospora crispa* (panyawan) crude extract against paracetamol-induced liver injury in albino rats (*Rattus norvegicus*). Ten rats were randomly selected and assigned per treatment (Control: Essentiale N Forte; Treatments: panyawan crude extract fractions A, B, and C). During the preliminary dosage testing was found to be 100 mg/kg. Thinning of hair in the head and tail regions as well as aggressiveness and hyperactivity followed by weakness a few days after were evident after the induction of liver injury. Increasing weights in rats over time was also observed, which could be accounted to the ad libitum administration of food and water rather than the direct effects of the treatments. In the main study, results found no significant difference in the serum ALT levels of rats between the treatment and control groups throughout the experiment. This suggested that the antioxidant properties of the crude extract were comparable to the commercially available Essentiale N Forte. The DPPH assay further showed the antioxidant activity of panyawan crude extract to be equal to 827.24 TE/g; percent inhibition was most significant at 4:1 dilution with the value of 96%. This showed that panyawan crude extract has a high free radical scavenging activity, comparable to standard Trolox dilution even at very low concentrations.

**Keywords:** *Panyawan, hepatoprotective, albino rats, ALT levels, Trolox*

## **Clinical Trial (Pilot Study) on the Effects of Lemongrass (*Cymbopogon citratus* Stapf.) Distillate on the Fasting Blood Sugar and Body Mass Index on Type II *Diabetes mellitus* Patients**

Limen, C. A. G., Abdulkasan, R. A. K., Abrasia, L. C. D., Agudo, A. F. N., Albino, V. F., Algonos, J. D. R., Andoy, W. P., and Araneta, A. L. II

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Given the potential medicinal property lemongrass (*Cymbopogon citratus* Stapf) in lowering serum blood sugar levels, the randomized, double-blind, placebo-controlled clinical trial aimed to establish the efficacy of lemongrass distillate in reducing the fasting blood sugar profile namely; effect on body mass index, and safely of adding lemongrass water in the diet of *diabetes mellitus* Type II patients. Results found insignificant decrease in the body mass index in the treatment (metformin + lemongrass distillate) group of *diabetes mellitus* Type II patients. The incidence of adverse events as a way of measuring the safe lemongrass distillate was also insignificant. This implied that lemongrass distillate can be added in the diet of *diabetes mellitus* Type II patients. However, a significant relationship existed between the treatment (metformin + lemongrass distillate) group of *diabetes mellitus* Type II patients. Dose-response gradient was suggested to strengthen the probability of finding out the therapeutic effect of the intervention by assigning different doses of the intervention being studied to several different groups of study participants. Through this, the optimum dose that produces a significant decrease in fasting blood sugar can be identified.

**Keywords:** *Lemongrass, Blood Sugar, Body Mass Index, Type II Diabetes Mellitus, Cymbopogon citratus* Stapf.

## **Clinical Trial on the Effects of Commercially Available *Euphoria hirta* (Tawa-tawa) Capsules on Serum Creatinine and Serum Glutamic Pyruvic Transaminase among Healthy Volunteers in Davao City**

Mohammad Isa, A. M. M., Lim, W. S., Lima, V. U., Lorena, E. M., Lu, M. A. L., Luy, H. C. R., Mabang, N. S. M., Mahipus, R. A. R., Malabanan, C. G. P., Malano, A. J. G., and Mamogkat, S. J. N.

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All medicinal agents have potentially unexpected effects, including toxicity, and herbal medicines are no different. The dictum, that herbal medicine is natural and safe, is inaccurate. In clinical practice, recognizing the adverse effects of herbal medicine is not routine, and their reporting is even less frequent. In fact, such reporting is not mandatory for manufacturers or distributors. In the Philippines, one of the herbal and abundant plants widely used is Tawa-tawa (*Euphorbia hirta*). It is used for the treatment of diarrhea, asthma, chronic bronchitis, and dengue fever. Despite its vast usage, there is a little study on its safety. To test for the plant's level of safety, the study monitored the effects of *Euphorbia hirta* capsules on Kidney and Liver function by measuring serum creatinine and serum glutamic pyruvic transaminase (SGPT) level. Twenty (20) healthy volunteers were observed. They were randomly assigned to treatment and control with the double-blinding approach wherein treatment last for ten days. Baseline and post-treatment measurements were taken. Results failed to find significant difference between serum creatinine and SGPT between the two groups. Thus, *Euphorbia hirta* capsules and placebo were the same in terms of its effect on Kidney and Liver Function. Adverse effects reported were dizziness, diarrhea, and rashes.

**Keywords:** *tawa-tawa, Serum Creatinine, Serum Glutamic Pyruvic Transaminase, E. hirta capsules*

## Pilot Study on the Beneficial Effects of Tender Coconut Water (*Cocos nucifera*) on the Serum Lipid Profile of Hyperlipidemic Patients in Davao City

Bantillo, N. Q., Jualo, M. D. G., Kho, N. F. M. B., Laganson, C. A. R. G., Langbid, C. T., Ledesma, J. A. B., Licayan, M. J. G., and Yokota, R. V.

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Tender Coconut Water (TCW) is an amazing beverage that contains several nutritional and therapeutic properties such as L-arginine, ascorbic acid, and minerals such as calcium, magnesium, and potassium which are proven to have beneficial effects on the lipid levels of cholesterol-fed rats. Recent laboratory studies showed that both tender and mature coconut water feeding significantly reduced hyperlipidemia. This study aimed to determine whether TWC has beneficial effects on the lipid profiles of hyperlipidemic patients in Davao City when used as an adjunct therapy to Simvastatin. This study was undertaken using a Quasi-experimental design. Twenty (20) study participants of both sexes aged 45 to 65 years old with borderline high LDL cholesterol level participated in the research and were divided into two treatment groups, namely: the Control group (Simvastatin 20 mg) and Experimental group (Simvastatin 20 mg + Tender Coconut water (40 mL/kg)). These groups were treated every day for three weeks. Fasting blood samples were taken at day 0, day 7, and day 21 for Lipid Profile determination. Parameters used to measure the lipid-lowering effects of TCW were Total Cholesterol, HDL, LDL, and Triglycerides. The Total Cholesterol, LDL, and Triglyceride levels of the Control group significantly decreased from day 0 until day 21 while HDL cholesterol increased dramatically from day 0 until day 21. The same significant results were observed in the experimental group. However, results found insignificant difference between the two treatment groups. These results suggested that Simvastatin alone and TCW + Simvastatin have the same positive effects on the lipid profile levels of lipid-controlling patients.

**Keywords:** *Tender Coconut Water, Hyperlipidemic Patients,*

*Serum Lipid Profile, Simvastatin, Total Cholesterol, LDL, Triglyceride*

## Study on the Anti-Cholesterolemic and Anti-Atherosclerotic Effects of Activated Carbon on Atherosclerosis-induced Rabbits

Comilang, K. S., Asotigue, R. P., Bañaga, A. J. R., Bato, N. S., Bantugan, M. J. T., Cabuga, J. G. B., and Nunez, M. F. D.

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Activated charcoal has known adsorptive properties, inhibiting the absorption of substances such as cholesterol in the gastrointestinal tract. This study assessed the anti-cholesterolemic and anti-atherosclerotic effects of activated carbon. Atherosclerosis was induced in the rabbits by adding four to five egg yolks to their daily ration of food throughout the 4-week experimentation period. Lipid profile was done before, on the second week, and last week of experimentation, along with ultrasonographic imaging of the rabbit's thoracic aorta for signs of atherosclerosis. Results showed that mean total cholesterol, mean LDL cholesterol, mean HDL, and mean triglycerides were similar between two groups from baseline to the third measurement. Ultrasonography was found to be inconclusive for studying early atherosclerotic lesions. Thus, activated carbon did not decrease the total cholesterol, LDL cholesterol, and triglyceride levels and did not increase the HDL cholesterol in the rabbits.

**Keywords:** *Activated charcoal, cholesterol, cholesterolemic, anti-atherosclerotic effects, total cholesterol, LDL cholesterol, triglyceride, rabbits*

## Anti-Glycation Effects of *Asparagus officinalis* as an Adjunct Treatment in Metformin-Treated Individuals with Non-Insulin Dependent *Diabetes mellitus*

Pizarro, R. R. R., Samanodi, B. H. A., Samson, M. J. M. III, Santamaria, A. A., Solidum, M. A. A. IV, Superioridad, J. K. P., Tan, J. V., Toca, X. S. E., and Ubaldo, C. B. R.

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A recent study suggested that *Asparagus officinalis* have a higher rutin content than tomato and broccoli, which showed significant evidence of anti-glycation properties. Thus, this randomized experimental study to assess the anti-glycating effect of *Asparagus officinalis*. The plant was prepared through steaming before consumption where 89% of rutin, the active component, is preserved compared to other cooking methods. The subjects consisted of 20 respondents (four males, sixteen females, mean age: 50 years old, mean BMI: 25.91) with *diabetes mellitus* Type II (mean baseline Hb1ac: 8%). They were equally divided into two groups: treatment group (mean age: 48.5 years, mean BMI: 26.31) and control group (mean age: 50.7, mean BMI: 25.5). The treatment group was given 1 kilogram of asparagus shoots per week and metformin 500 mg once or twice a day as prescribed by their doctor for ten weeks. The control group was given metformin 500 mg once or twice a day as prescribed by their doctor for ten weeks. Results showed that the mean baseline serum Hb1ac measurement of the treatment group is 8.35, and control group is 8.27, with overall mean of 8.31. The mean end-study serum Hb1ac measurement of the treatment group is 7.47, and control group is 8.04, with a overall mean of 7.76. The use of *Asparagus officinalis* as an adjunct treatment for NIDDM individuals is effective for inhibiting the formation of AGEs as measured by the reduction of the percentage of glycated hemoglobin. Data found significant difference between the experimental and control groups when the baseline HbA1c levels were compared with the end-study HbA1c levels.

**Keywords:** *Asparagus officinalis*, *diabetes mellitus type 2*,  
*anti-glycation properties*, *metformin*

## **Anti-inflammatory Effects of Akapulko (*Cassia alata*) Aqueous Extract on Paw Circumference, Arthritis Score and Erythrocyte Sedimentation Rate of Wistar Albino Rats with Carrageenan-induced Arthritis**

Luceñara, K. K. A., Diaz, E. R., Dimancsil, S. J., Estaris, K. Gabaton, N. M., Gayola, M. S., Griño, J., and Metran, J. C.

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This aimed to investigate the anti-inflammatory activity of the aqueous extract of *Cassia alata* (Linn). leaves against carrageenan-induced arthritis. The activity was tested on 25 Wistar Albino rats at dose levels of 200, 250 and 300 mg/kg, orally and compared with Ibuprofen (12mg/kg) as standard 100 uL of a Saline solution as a negative control. Changes in paw circumference, arthritis sores, and erythrocyte sedimentation rate (ESR) were tested in both treated and untreated groups. Inflammation was induced via intra-articular administration of 100uL of 1% carrageenan solution. The arthritis sores were determined at 0, 30, 60, 120, and 180 mins following carrageenan administration, while blood samples were taken from anesthetized rats for ESR evaluation after 180 mins. Results showed that the effects of Akapulko aqueous extract at doses of 200 mg/kg and 300 mg/kg are comparable in effect with 12 mg/kg Ibuprofen in reducing paw circumference following carrageenan immunization. On the other hand, impacts of Akapulko aqueous extracts on arthritis sore of Wistar Albino rats n all three treatment doses found insignificant difference from the groups of treated with 100uL of saline solution. Finally, post-treatment erythrocyte sedimentation rates for the three treatment doses of Akapulko aqueous extracts (200mg/kg,250mg/kg, 300mg/kg) and Ibuprofen were the same at less than 2 mm/hr, while post-treatment erythrocyte sedimentation rate for rats belonging in negative control group obtained values ranging from less than 2 mm/hr to as high as 3 mm/hr.

**Keywords:** *Anti-inflammatory Effects, aqueous extract, Akapulko, Wistar, Albino rats, carrageenan*

## **Choriollantoic Membrane (CAM) Assay of *Gynura procumbens* (Ashitaba) Leaf Extracts on the Angiogenesis of Duck Embryo**

De Chavez A. T. Jr., Antenor, R. T., Sandig, J. A. D., Torollo, D. C., Villarosa, C. C. D., Villa-Abrille, I. A., Yecyec, F. B., and Zamoras, S. P. Jr

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A randomized double-blind controlled trial was employed in this research study to assess *Ashitaba* for angiogenesis. Six treatment groups [Negative control (NSS): Group A, Untreated: Group B, Experimental (*Ashitaba*) 60 ug: Group C, Experimental (*Ashitaba*) 120 ug: Group D, Experimental (*Ashitaba*) 180 ug: Group E and Positive control (Retinoic acid): Group F] had ten subjects each, amounting to 60 duck eggs used in the experiment. Results found insignificant difference between groups A and B. However, it showed significant difference with groups A and B when compared to groups C, D, E and F, which are found to be comparable to each other. Thus, 60 ug dose of *Gynura procumbens* leaf extract was the minimum effective dose in inhibiting angiogenesis. Moreover, treatment with 60 ug, 120 ug and 180 ug of *Gynura procumbens* leaf extract have equal effectiveness with the positive control, retinoic acid, in inhibiting angiogenesis.

**Keywords:** *Anti-inflammatory Effects, aqueous extract, Akapulko, Wistar Albino rats, carrageenan*



## Effect of Commercially Available Activated Charcoal on Erythrocyte Count, Leukocyte Count, and Thrombocyte Count: Its Safety Parameters

Lompot, K. J. C., Hermosa, S. M., Hortel, K. N. P., Humol, M. T. B., Joaquin, J. C. B. V., Julao, M. C., Lagasi, P. D. A., and Lampauog A. M.

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The study aimed to determine the effects of the prolonged use of activated charcoal on the erythrocyte, leukocyte and thrombocyte count of rabbits and validate its safety through determining microbial limits and heavy metal content. Commercially available activated charcoal powder samples were tested for microbial limits and heavy metal content. Appropriate dosage of activated charcoal solution was given orally to 10 rabbits for 28 days. Blood samples of the rabbits were taken, before and after the treatment. Results revealed a mean baseline and end study erythrocyte count of 5 and 6, respectively, same mean baseline and end study leukocyte count of 8, and mean baseline and end study thrombocyte count of 427 and 256, respectively. There was a presence of lead (11.04 ppm) which was slightly above the normal level, and manganese (229.7 ppm) which was within the average level. In microbial limits, a minimal amount of microorganisms were found: total coliform of <3 MPN/g, E.coli <3 MPN/g, aerobic plate count of <10 CFU/g, molds of <10 CFU/g, yeast <10 CFU/g.

**Keywords:** *activated charcoal, erythrocyte count, leukocyte count, thrombocyte count, rabbits*

## Phase I and II Clinical Trials: Safety and Efficacy of Calabash (*Crescentia cujete*) Fruit Pulp Decoction as a Blood Sugar Lowering Agent on Healthy and Diabetic Volunteers

Llanes, M. R. V. B., Calio, L. M. S., Caminero, J. B., Casas, K. A. G., Cualing, P. T. M., Cunanan, S. R., De Castro, J. G., Dela Cruz, F. P., and Ugokan, N. K.

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The study was comprised of Phase I and Phase II clinical trials. Phase I aimed to determine the safety of the Calabash decoction by comparing the pre-treatment and post-treatment serum glutamic pyruvic transaminase (SGPT), blood urea nitrogen (BUN) and creatinine. Total of 20 healthy volunteers took 5 ml of Calabash decoction once a day for a one-week duration. Dosage was based on a pre-clinical effective dose of 9.88 mg/kg. SGPT, BUN, and creatinine were taken and recorded as the baseline. End-study data insignificant difference in the pre-treatment and post-treatment mean SGPT, BUN, and creatinine with their means all falling within normal laboratory range. This implied that for a one-week duration, intake of Calabash decoction was safe. Phase II clinical trial aimed to determine the efficacy of the Calabash decoction as an adjunct-treatment to Metformin. A total of 20 diabetic volunteers were divided into two groups: ten fell under the Experimental group in which they received Calabash decoction with Metformin, and ten were under the Control group in which they received Placebo with Metformin. Block randomization and double blinding were employed. Treatment was one week, and fasting blood sugar levels were taken and recorded as the baseline (Day 0), mid-study (Day 4) and end-study (Day 8) measurements. The decrease from baseline to end-study of the two treatment was insignificant. The statistical non-significance can be explained based on treatment duration, adequacy of sample size, the efficacy of the dosage, and differences between animal and human with glucose-lowering agents. Epigastric pain was reported as a side effect of Calabash by one out of forty volunteers. Microbiological load and product characteristics in terms of appearance, color, odor, and temperature were acceptable.

**Keywords:** *Calabash, diabetes, SGPT, BUN, creatinine, clinical trial*

## Phytochemical Screening and Microbiological Study of *Centella asiatica* Crude Extract and Microbiological Assay of the Formulated *Centella asiatica* Ointment

Nasser, M. C. S. Layos, B. R. G., Libre, X. C., Lim, E. J. C., Lozada, K. J. P., Madid, M. T., Mangudadatu, K. M. M., and Matilos, S. J.

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This descriptive study on the antimicrobial activity of *Centella asiatica* extracts through Disc Diffusion Method and Minimal Inhibitory Concentration (MIC) Method aimed to compare the mean Zone of Inhibition (ZOI) of wet and dry disc preparation of crude *Centella Asiatica* extract. The MIC of *Centella asiatica* extract on *Staphylococcus aureus*, methicillin-resistant *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Escherichia coli*, *Klebsiella pneumonia*, and *Candida albicans* was also determined. Furthermore, the mean ZOI of 10mg/g, 20mg/g, 40mg/g *Centella asiatica* ointment, Sulfadiazine/Fluconazole, NSS, and Cream Base were compared. Wet disc preparations generally had higher mean ZOI than the dry disc preparation. The difference between the two was statistically significant on *K. pneumoniae* and *C. albicans*. The MIC of *Centella asiatica* extract for the five bacteria were all harmful. The MIC for *Candida albicans* was at 1.0 mg/mL concentration of *Centella asiatica* extract. The positive control had significant greater ZOI over the experimental and negative control group. Thus, this study showed that *Centella asiatica* was an effective topical antimicrobial solution against fungi at lower concentrations and bacteria at higher concentrations.

**Keywords:** *Centella asiatica*, MIC, ZOI, *Klebsiella pneumoniae*, *Candida albicans*

## Safety and Anti-Inflammatory Effects of *Tinospora rumphii* (Panyawan) Plant Extract in Carrageenan-induced Inflamed Paw of Rabbits

Llanos, F. G., Loy, V. C., Lu, R. R., Lumanog, K. J., Mabanglo, P. M., Malate, C. D., and Masbad, A.

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Arthritis is a common disorder that is affecting many people nowadays. Treatment options were being explored beyond the usual medicine. This study focused on the *Tinospora rumphii* as an anti-inflammatory agent. It aimed to determine its Acute Toxicity Dose, Approximate Effective Dose (AED), and anti-inflammatory effects against NSS and Ibuprofen. Swiss mice were given an oral dose of Panyawan extract to establish its toxicity. Results classified the fruit decoction category I of the OECD guideline as toxic. Carrageenan-induced rabbits were used AED. Experimental Bioassay was conducted and showed paw thickness, of three groups: Normal Saline Solution, Ibuprofen, and *Tinospora rumphii* across time having a mean paw thickness score of 1.7175 (NSS), 1.6913 (Ibuprofen), and for the *Tinospora rumphii* group is 1.5395. Results showed a significant difference with the three groups. For the arthritis score trend, NSS group scored and maintained 3 up to the last hour. Second, the Ibuprofen group scored 3 but decreased back to 0 at the 5th hour. The *Tinospora rumphii* had a maximum score of 2 then maintained it until the 5th hour.

**Keywords:** *Tinospora rumphii*, carrageenan, arthritis, rabbits, acute toxicity

## Antifungal Effects of Neem (*Azadirachta indica*) Leaf Extract on *Microsporum canis*

Medina, C. M. G., Pavino, C. A. N., Pentaliday, A. F. D., Perez, H. M., Pinili, C. J. M. B., Pleños, W. L., Quejadas, K. J. C., Rama, J. S., and Rendon, J. C.

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The optimized Neem leaf extract, ethanol Neem leaf extract, and powdered Neem leaf extract were studied in vitro on their effects on the dermatophyte, *Microsporum canis*, on Sabouraud Dextrose Agar plates. The leaf powder preparation, however, did not exhibit any growth inhibition around the filter disk, thus had no antifungal effects against the tested dermatophyte in all ten trials. Comparison between the two active extracts was made. Results revealed that the optimized Neem leaf extract was significantly more effective against *Microsporum canis* than the ethanol Neem leaf extract. Dermal toxicity level determination following the OECD guidelines was also done using 15 guinea pigs. The test substance applied was osterized Neem leaf extract. At the end of the fourteen-day observation trial, no death on all three dosage groups was observed. Thus, dermal toxicity dose of the osterized Neem Leaf extract was greater than 2000 mg/kg. Also, dermal irritation index of the osterized Neem leaf extract was performed on four guinea pigs. The extract was tested on both the abraded and intact skin. After the first, second, and third day observation period, no edema and erythema was noted on both abraded and intact skin. Therefore, osterized Neem leaf extract was not a skin irritant.

**Keywords:** *Neem leaf extracts, osterized, Microsporum canis, Dermal toxicity, guinea pigs*

## Effect of Kumintang (*Catharanthus roseus*) Leaf Extract on the Arthritis Score, Paw Thickness, and Blood Vessel Density in Fibroblast Growth Factor 2 and Carrageenan-induced Arthritis in Rats

Ciudadano, R. Z. S., Rosit, J. J. I., Salvador, A. N. P. B., Samanodi, S. F., Sandoval, C. M., Sarona, N. G. S., Songcaya, C. A. V., Talon, F. C., and Tapia, C. A.

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Rheumatoid arthritis (RA) is a chronic multi-systemic disease characterized by inflammation and angiogenesis. *Catharanthus roseus* can be a potential alternative in the management of the inflammation and angiogenesis in RA due to its cytostatic alkaloids Vincristine and Vinblastine. Hence, the researches decided to determine the approximate effective dose (AED) of *C. roseus* that will reduce the paw thickness of FGF-2 and carrageenan-induced arthritis in rats. Furthermore, the researchers aimed investigate the effect of *C. roseus* on the arthritis score, paw thickness, and blood vessel density of the arthritis-induced rats. Ten (10) rats were used in determining the *C. roseus* AED in reducing paw thickness in arthritis-induced rats. The approximate effective dose of 157.15mg/kg was established. In the bioassay, thirty (30) rats were divided into three (3) groups, the negative control (NSS), positive control (methotrexate), and experimental group (*Catharanthus roseus*). The clinical severity of arthritis was determined using the arthritis score by grading each paw from zero to four based on erythema, swelling, and deformity of the joint with four as the highest score possible for each paw. The group treated with *C. roseus* showed the highest number of rats returning to the baseline value. In determining the paw thickness of the rats, results showed a significant difference between the positive control and experimental group. In determining the trend for the blood vessel densities of the rats, it was shown that only the experimental group had no occurrence of angiogenesis in all of its subjects, suggesting an anti-angiogenic response from the *C. roseus* treatment.

**Keywords:** *Catharanthus roseus*, carrageenan, arthritis  
arthritis, approximate effective dose, paw thickness,  
blood vessel density

## Effect of *Sechium edule* (Chayote) Fruit Juice in the Lowering Of Serum Uric Acid Levels of Allopurinol-treated Hyperuricemic Individuals in Davao City

Belen, M. A. P., Mohammadsali, S. J., Montejo, G. A., Muga-Sardido, H. K. R., Nanez, L. V. D. S., Neo, K. S., Nival, J. A. C., Omandac, R. F. D., and Panuda, M. A.

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Hyperuricemia is a condition wherein uric acid levels in the body are abnormally elevated above the normal range. This condition is associated with many illnesses and disease states such as arthritis, gout, urolithiasis, cardiovascular disease, and renal dysfunction. *Sechium edule* (chayote) has been studied to have uric acid-lowering effects. This study aimed to determine the effect of chayote fruit juice, as an adjunct treatment, in the lowering of serum uric acid. Thirty (30) hyperuricemic individuals from Sitio Balite, Marilog, Davao City were randomly distributed into two groups: a control group, receiving Allopurinol with placebo; and an experimental group, receiving Allopurinol with chayote fruit juice. Blood extractions from these subjects and serum testing of their uric acid levels were done weekly, for four (4) weeks. Results found that mean serum uric acid values of both groups significantly decreased during the study. Moreover, the experimental group receiving the chayote juice adjunct were found to have significantly lower mean uric acid values during first to second week, and third to fourth week, as compared to the control group.

**Keywords:** *hyperuricemia, Sechium edule, uric acid-lowering effects, Allopurinol, chayote fruit juice*

## Effect of *Moringa Oleifera* Seed Oil Capsule as an Adjunct Therapy to Simvastatin on the Serum Lipid Profile of Hyperlipidemic Respondents in Barangay 19-B, Davao City

Agustin, J. R. E., Ababon, M. C. R., Abdulkarim, C. M. B., Agarano, A. R., Alicer, D. D. P., Andoy, A. M. .M., AQUI, T. A. S., Araneta, C. A. W., and Macario, M. J. S.

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The study aimed to determine the effects of the *Moringa oleifera* seed oil capsule as an adjunct therapy to Simvastatin on the Serum Lipid Profile of the hyperlipidemic respondents in Barangay 19-B, Davao City. The study was a quasi-experimental design involving 20 volunteers with borderline high LDL-C level (130-159mg/dL) randomly divided into two groups; the treatment and control groups. The treatment group was given 1000 mg *Moringa oleifera* seed oil capsule as an adjunct to 20 mg Simvastatin, while the control group was given 20 mg Simvastatin. Serum Lipid Profile was determined during pre-test, after seven days and after fourteen days. Results reveal insignificant difference between the control and treatment groups. However, a significant decrease can be observed throughout the study, from pre-test (day 0) to mid-test (day 7) until post-test (day 14). A decreasing trend was observed in terms of Total Cholesterol, Triglycerides, and LDL-C. The HDL-C data found insignificant change between the groups, but an increasing trend across time was observed in the treatment group. This suggested that *Moringa oleifera* seed oil capsule as an adjunct to Simvastatin can lower Total Cholesterol, Triglycerides, and LDL-C of hyperlipidemic respondents.

**Keywords:** *Moringa oleifera*, seed oil, Hyperlipidemic, Serum Lipid Profile



## **Effect of *Phyllanthus niruri* Linn. (Sampa-sampalukan) Leaf Extract on the Troponin I Level in Rabbits (*Oryctogalus* sp.)**

Solaiman, B. R. G., Asiong, N. C. L., Baker, J. M., Basa, R. T. A., Bata, A. M. M., Buxani, R. J. J., Calinga, S. M., and Callos, K. L. A.

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*Phyllanthus niruri* Linn. (Sampa-sampalukan) has been reported to possess antioxidant, hypotensive, and anti-atherosclerotic properties may become cardioprotective by lessening the severity of the cardiac injury. The study aimed to determine the effects of *Phyllanthus niruri* Linn. leaf extract on the troponin level in rabbits. It specifically intended to compare the troponin level of rabbits in the two treatment groups at baseline and two days after induction of cardiac injury. Two treatment groups, a negative control (NSS) and *P. niruri* treated group, each composed of three randomly selected rabbits, were pretreated for 14 days and induced with cardiac injury using Epinephrine for two consecutive days. Troponin levels were determined at baseline level and two days after induction. Results have insignificant overall mean increase in Troponin I from baseline to final measurement and significant mean difference at baseline and final measurement between two treatment groups across time.

**Keywords:** *Sampa-sampalukan, troponin, rabbits, leaf extract*

## **Phytochemical Screening, Acute Dermal Toxicity and Approximate Effective Dose of *Hibiscus rosa-sinensis* Linn. Leaf Essential Oil as Topical Agent for Hair Growth on Male Albino Rabbits**

Armilla, N., Galang, K., Gillesania, C., Malinis, M. C., Singh, R., Velasco, J. S., Villarosa, C. R., Yap, C. B., Yap, S. M., and Yu, J. K.

**COLLEGE OF MEDICINE | 2012**

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*Hibiscus rosas-inensis* Linn. is known for ornamental value along with its medicinal properties. This study aimed to compare the hair growth promoting the effect of gumamela leaf essential oil as measured in hair growth length, growth rate, initiation time and completion time. The leaves of gumamela were mainly cultivated to expose their therapeutic potential for hair growth properties. The sample was extracted by the combination of steam distillation and rotary evaporation. For distillation, water was the solvent used and then hexane to extract the non-polar components, oil composition, for testing. The commercially available therapeutic hair growing agent, Minoxidil, was used as control agent. Both crude formulation and control agent was topically applied. Determination of its possible skin toxicities and adverse effects and approximation of effective dose were done then were observed for its effect on hair growth. Upon the duration of the tests performed, no adverse effects were observed among the rabbits tested. The rabbits generally remained healthy and no irritation with treatments given. The two treatments (gumamela essential oil and 5% Minoxidil) showed positive effects with the crude formulation producing the optimum effect for hair growth as manifested by a shorter span of initiation time three days as compared to six days for Minoxidil. Gumamela's completion time as well as significantly shorter manifesting 24 days compared to Minoxidil completing 27 days. The significance of the gumamela plant concerning its role in traditional medical treatment was its hair growing effects. Gumamela showed excellent potential in medicinal cultivation where further investigation should be done to discover more uses of the plant.

**Keywords:** *gumamela, hair growth effect, rabbits, pharmacology*

## Randomized Double-Blind Study on Safety And Efficacy of the Urine Output-Increasing Activity of Gotu Kola (*Centella Asiatica*) in Stage I Hypertensive Patients

Nierra, M. F., Pescadero, R., Precia, M., Quemado, J. V. A., Ramos, K., Risonar, S. A., Sabal, A., Salumbides, C. D., A. F., and Samanodi, A. F.

COLLEGE OF MEDICINE | 2012

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The study aimed to determine the significant urinary output increasing properties of the plant Gotu Kola (*Centella asiatica*) of Stage I hypertensive patients. Research was conducted into two phases. The first phase tested for the safety of Gotu Kola as a drug wherein twenty-four male and female were selected as healthy volunteers. The second phase tested for the efficiency of Gotu Kola in increasing the urine output of Stage I hypertensive subjects wherein twenty-one male and female Stage I hypertensive subjects have been selected. Results insignificant difference in the mean levels of Alanine Aminotransferase, Blood Urea Nitrogen, Serum Creatinine of healthy adult volunteers between control and treatment group before and after administration. However, there was a significant difference in the mean 24-hour net fluid balance of the volunteers before and after administration of placebo and Gotu Kola. Furthermore, there were no complaints of side effects upon administration of Gotu Kola capsule.

**Keywords:** *Centella Asiatica, urine, placebo, Alanine*

*Aminotransferase, Blood Urea Nitrogen, Serum Creatinine*

## **Pilot Study on the Safety and Efficacy of TNTS-001 Ointment as Treatment for Acute Superficial Wounds among Construction Workers in Davao City**

Bagares, L. M., Duque, J. A., Galang, R., Gallera, A., Garcines, K., Gemelo, N. B., Go, S., Guy, D. M., Herbert, B., Ibanez, M., and Jalamana, M. A.

**COLLEGE OF MEDICINE | 2012**

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Acute superficial wound infections are common health problems, and account for a vast majority of skin injuries. Drug therapy, although useful in treating superficial wound infections, entail cost and may possibly contribute to bacterial resistance issues. Hence, this study determined the safety and efficacy of TNTS-001 ointment in treating acute superficial wound infection. The ointment was created from the leaf extracts of TNTS-001 and was pilot tested for dermatological effects on 10 healthy human volunteers. The formulated TNTS-001 ointment was applied to specific skin areas twice daily for seven days. Changes in skin color, localized rash, irritation, and swelling, were closely monitored for one week. Adverse allergic reactions were not observed on the healthy volunteers. Afterwards, the same ointment was applied to the skin of 10 construction workers who had superficial skin injuries while another group of 10 individuals received Mupirocin. Prior to treatment, wound area was measured using a caliper and wound status was assessed using Bates-Jensen Wound Assessment Tool. Results revealed low overall post-treatment mean score of TNTS-001 compared with the wound score prior to treatment. The findings showed improved wound status after treatment with TNTS-001, suggesting the potential of the ointment to cure injury, lesions, or wounds.

**Keywords:** *safety, efficacy, TNTS-001 leaf extract, wound healing*

## Acute Oral Toxicity and Median Effective Dose (ED50) of *Asparagus officinalis* Ethanolic extract as Hypoglycemic Agent on Alloxan-Induced Diabetic Mice

Arañcon, N. K. T., Arguelles, G. B., Arreola, A. P., Autida, C. E., Babatid, J. C., Baclayon, R. N., Balboa, T. M. R., Bantilan, G. L., Barrientos, M. A. A., Basman, A. J. A., Maharjan, B., and Potutan, H. G. D.

COLLEGE OF MEDICINE | 2013

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Diabetes now affects seven percent of the world's adult population. *Asparagus officinalis* L., with its low glycemic index and active components such as saponins and rutins, has been studied for its potential to prevent and treat the complications brought about by diabetes. This study, however, documented the toxicity of the ethanolic extract of the plant and identified its Approximate Effective Dose and Median Effective Dose (ED50) in a pre-clinical setting to generate information for future clinical trials. Three mice received a single dose of 2,000 mg/kg, and another set of three mice received a single dose of 5,000 mg/kg of the extract. For AED determination, four test doses: 0 g/kg to 1 g/kg were administered to the alloxan-induced diabetic mice. ED50 was determined thereafter and Probit analysis was employed. Mean blood glucose was also compared among mice that received ED50 of the plant extract, metformin, and normal saline solution. All mice survived after 14 days observation period. Hence, *Asparagus officinalis* ethanol extract can be classified under Class V according to the qualifications set by Globally Harmonized Classification of System. Probit analysis showed that 0.5 g/kg is the ED50 for this plant extract. The overall mean blood glucose of the mice decreased from 396.22 mg/dl to 323.81 mg/dl after 14 days. Although a significant decrease in mean blood glucose was observed, insignificant mean difference was noted among treatments groups.

**Keywords:** *Diabetes, asparagus, Approximate Effective Dose, Median Effective Dose*

## Comparison of the Efficacy of *Mikania cordata* (Ekswater) Formulated Cream Versus Cloxacillin and Mupirocin on Superficial Wound Isolates Based on Zone of Inhibition

Razon, D. R. D., Bastian, J. S. A., Brodie, C. M., Buen, J. P., Bueno, D. J. D., Burgos, R. H., Butlig, N. V., Butt, K. M., Cabading, R. G., Cabahug, C. E. M., and Dawadi, S.

COLLEGE OF MEDICINE | 2013

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*Mikania cordata* (Ekswater) is locally used in treating skin infections. To compare its efficacy as an antimicrobial agent versus the standard drugs (mupirocin and cloxacillin), formulated cream of *M. cordata* was used against the microorganisms isolated from superficial wounds of 10 grade school pupils. Sensitivity testing using disc diffusion method was utilized. *Staphylococcus aureus*, coagulase-negative *Staphylococcus* and *Escherichia coli* were the organisms identified from the isolates wherein all except *E. coli* showed susceptibility against *M. cordata*. The zones of inhibition were  $25.40 \pm 1.14$  mm for *S. aureus* and  $24.60 \pm 1.14$  mm for coagulase-negative *Staphylococcus*. Among the susceptible bacteria, *M. cordata* exhibited maximum relative percentage inhibition (RPI) against coagulase-negative *Staphylococcus* (43.26%) when compared to cloxacillin. The maximum RPI was exhibited against *S. aureus* (34.89%) when compared to mupirocin. Although there was a significant difference between the antimicrobial activity of *M. cordata* and the conventional drugs, the plant extract still showed potential as an antibiotic as evidenced by the RPI. The optimum concentration for it to be of substitute for mupirocin and cloxacillin as a treatment option is yet to be explored.

**Keywords:** *ekswater, skin infection, cloxacillin, mupirocin, ZOI*

## Effect of *Centella Asiatica* (Gotu kola) on Blood Pressure Urine Output and Urine Specific Gravity of Prehypertensive Patients

Quiao, J. M. O., Abanil, D. M. F. V., Abundo, J. D., S., Agarano, A. R., Alicer, D. D. P., Alinsugay, A. T., Alvarez, A. U., Alvarez, E. J. R., Amora, C. M., Ibay, P. A. R., Shah, N. K., and Zarra, V. L. D.

COLLEGE OF MEDICINE | 2013

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This quasi-experimental, double-blind study with placebo control sampling technique determined the blood pressure, urine output and urine specific gravity of pre-hypertensive respondents who received Gotu kola (*Centella asiatica*) capsule. Capsule intake was in adjunct with proper diet and exercise. Subjects of the study were 20 male military personnel of Eastern Mindanao Command, aged 30 to 55 years old, who were grouped into two: one group received the placebo capsule, and the other group received the Gotu kola capsule. Significant difference in the systolic blood pressure was noted between baseline data and Day 1 of treatment (level 2). On the other hand, a marginally significant difference was noted for systolic blood pressure between Day 1 (level 2) and Day 2 (level 3) of treatments. For diastolic blood pressure, there was a significant difference between the baseline data and the first day of treatment. Moreover, a significant difference was also noted between Day 2 (level 3) and Day 3 (level 4) of treatment. No significant difference was noted between treatments of each capsule in terms of urine output. But when comparing the urine output of placebo and Gotu kola groups, a significant difference was recorded between Day 2 and 3 of the second week. In urine specific gravity, results showed insignificant difference between placebo and Gotu kola group. Data suggested that administration of Gotu kola (*Centella asiatica*) capsule has insignificant effect on systolic blood pressure, urine output and urine specific gravity but has a significant effect on the diastolic blood pressure of prehypertensive patients.

**Keywords:** *Gotu kola, blood pressure, hypertension, urine*

## **In Vitro Antifungal Effect of Neem (*Azadirachta indica*) Leaf Juice on *Aspergillus niger* and Acute Dermal Toxicity and Irritation Tests in Rabbits**

Doromal, E. R. P., Ekka, N., Pascua, J. O., Pedreso, E. J., Penduma, I., Pereira, Q., Pesante, J. I., Piñol, J., Polinar, A., and Ramos, N. C.

**COLLEGE OF MEDICINE | 2013**

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Emergence of various fungal diseases appear to be high in tropical and subtropical countries. The increasing number of fungal infections prompted humanity to find means to cure such ailment. To add to possible solutions to fungal infection control, this study explored the antifungal effect of neem leaf juice on *Aspergillus niger* using extent of zone of inhibition generated. Terbinafine was used as control to compare if the neem leaf juice really exhibited an inhibition zone. Acute dermal toxicity and irritation of Neem leaf juice on rabbits was also assessed. Three groups consisting of five rabbits each received different doses of Neem leaf juice on a dermal patch with 0.5 ml neem leaf juice per patch. The doses were 200mg/ kg, 1000 mg/kg and 2000 mg/kg. All rabbits survived after 14 days observation and without any observable lethal effects. Neither erythema nor edema was noted on the skin of rabbits.

**Keywords:** *neem, leaf juice, Asperfillus niger, fungal disease, rabbits*



## **Phytochemical Screening and Effects of Calamansi (*Citrofortunella microcarpa*) Pure Processed Extract on the Clinical Outcomes of Common Colds: A Pilot Study**

Macrohon, J. R. P., Tacang, S. B., Taghap, C. M. B., Tan, A. L. M., Tan, J. I. C., Tapucar, L. D. A., Tenefrancia, R. J. D., Udang, M. H. T., Untalan, B. A. R., Valencia, S. C., and Valles, D. R. A.

**COLLEGE OF MEDICINE | 2013**

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This pilot study determined efficacy of pure processed Calamansi extract and flavored water on lessening incidence of common colds based among healthy subjects. The study population consisted of 40 male and female respondents ages 18 to 60 years old, healthy, and within the normal limits of the body mass index, residing at Barangay 20-B in Davao City. Randomized block sampling was employed. Phytochemical screening of Calamansi extract was done with qualitative identification of alkaloids, aldehydes, flavonoids, glycosides, saponins, steroids, and tannins. The treatment group consumed 50 ml of Calamansi extract/day while the control group consumed 50 ml of flavored water/day for a period of two months. The incidence of common colds among subjects was recorded within this period. Blood was also extracted for the ferric reducing ability of plasma (FRAP) before and after treatments. A reduced occurrence of common colds occurrence was noted in the treatment group. However, there was insignificant difference in relative risk of the treatment group. Additionally, the FRAP assay means calculated revealed that there was no significant difference between treatment and control groups.

**Keywords:** *phytochemical screening, calamansi, common colds*

## Phytochemical Screening, Acute Dermal Toxicity and Approximate Effective Dose of *Hibiscus rosa-sinensis* Linn Leaf Essential Oil as Topical Agent for Hair Growth on Male Albino

Armilla, N., Galang, K., Gillesania, C., Malinis, M. C., Singh, R., Velasco, J. S., Villarosa, C. R., Yap, C. B., Yap, S. M., and Yu, J. K.

COLLEGE OF MEDICINE | 2013

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*Hibiscus rosasinensis* Linn is known for its ornamental values and medicinal properties. This study, conducted in rabbits, compared the hair growth promoting potential of gumamela leaf essential oil against a commercial product. Length of hair, rate of growth, and initiation time and completion time were the factors measured. Leaves of cultivated gumamela plants were subjected to steam distillation and rotary evaporation to extract the oil. The commercially available therapeutic hair growing agent, Minoxidil, was used as a control for this study. Both crude oil and control agent were topically applied on skin of test organisms. Possible skin toxicities and adverse effects and approximation of effective dose were also done alongside determination of the crude oil and control agent's effect on hair growth. Adverse effects were not observed among the rabbits tested for the entire observation period. The rabbits generally remained healthy and did not exhibit irritation reactions to the treatments. Both crude oil and 5% Minoxidil showed positive effects, with crude oil producing the optimum effect for hair growth based on a shorter span of initiation, time three days as compared to six days for Minoxidil. Gumamela's completion time of 24 days was significantly shorter than 27 days of Minoxidil. Current data suggested that Gumamela crude oil showed excellent potential in hair growth. Further investigation should be done to discover more uses for the plant.

**Keywords:** *Phytochemical screening, Hibiscus rosasinensis linn, rabbits, hair growth, gumamela*

## Effect of ED90 dose of Calabash (*Crescentia cujete*) Decoction on Blood Sugar Levels of Prediabetic Individuals

Rañeses, G. M., Guariño, D. D., Martinez, C., Marundan, J. A., Mascardo, K., Melanio, A., Meling, R. K., Mendez, M., Monteverde, K. A., and Montojo, M. D.

COLLEGE OF MEDICINE | 2013

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Prediabetes is a condition where body cells show resistance to the effect of insulin. Increased weight, an unhealthy diet, and a sedentary lifestyle can lead to prediabetes. This study determined the effect of ED90 dose of calabash fruit (*Crescentia cujete*) with diet and exercise on blood sugar levels of prediabetic individuals. Twenty participants living in barangay Lapu-Lapu, Agdao, Davao City were screened based on the set of inclusion and exclusion criteria formulated for this study. Age, weight, height, and body mass index of the selected participants were taken prior to the study. Fasting blood sugar was also taken and recorded as pre-treatment (Day 0), mid-treatment (Day 8), and post-treatment (Day 15) data. Double blinding and block randomization were used in grouping the participants into two: Control group and treatment group, with 10 participants per group. The former was given a placebo while the latter was given the calabash decoction for two weeks. The volume of the calabash decoction given was dependent on the weight of the participant. Dosage was based on the ED90 dose of 13.5 mg/kg. Results showed insignificant difference in the mean age, weight, height, and BMI of both groups. The decrease in fasting blood sugar levels in both control and treatment groups from pretreatment to mid-treatment showed significant and from mid-treatment to post-treatment, the control group showed insignificant difference while the treatment group exhibited a significant difference. Intake of calabash decoction together with regular diet and exercise showed positive effects on decreasing fasting blood sugar levels.

**Keywords:** *diabetes, calabash, fasting blood sugar, ED90*

## Effect of Horseradish Tree (*Moringa Oleifera*) Leaf and Seed Oil Capsule on Selected Borderline Hypercholesterolemic Individuals

Gaviola, T. T. G., Gopal, S., Sales, K. M. G., Sandig, J. A. D., Santillan, J. V., Saripullah, A. M. L., Saydil, A. A., Segovia, J. C. L. Q., Serina, J. N. F., Subaldo, D. J. P., and Superioridad, E. J. P.

COLLEGE OF MEDICINE | 2013

Hypercholesterolemia is one of the persistent problems in the Philippines due to changing food practices and habits. The therapeutic effects of *Moringa oleifera* capsules in controlling this condition were tested in this study. The study involved 20 borderline hypercholesterolemia (with total cholesterol at 200-239 mg/dL) males aged 35 to 55 years old. Each subject was screened prior to treatment where baseline blood lipid measurements on total cholesterol, triglyceride, HDL, and LDL were taken. Block randomization was done: 10 males were assigned in treatment group and were given 30 capsules each to be consumed once a day, along with a diet plan and menu. Ten males were placed in the control group, wherein no treatment was given other than the prescribed diet. Each participant was assigned a treatment partner for better compliance. Blood lipid profiles were again taken 30 days after. Results showed an overall significant increase in total cholesterol in both groups and mean LDL; an overall increase in HDL was also seen. Insignificant difference was noted for mean triglyceride levels. Separately, each treatment group showed insignificant increase in total cholesterol levels and triglyceride levels. A significant increase was seen for LDL, and HDL levels. Mixed results from the study show that *Moringa oleifera* does not affect cholesterol and triglyceride levels but may increase the HDL and LDL levels of borderline hypercholesterolemic individuals.

**Keywords:** horseradish, hypercholesterolemic individuals, HDL, LDL

## **Effect of Virgin Coconut Oil (*Cocos nucifera*) on the Serum Lipid of Borderline Hypercholesterolemic 31-56 Year Old Patients In A Barangay 15-B, Davao City: A Pilot Study**

Paez, N. A. G., Estillore, B., Murugiah, V., Navarro, H. L. E., Ninte, R. M. D., Noriega, J. M., Orteza, A. K., Ozims, G. E. P., Pader, N. R. K., and Pama, A. M. P.

**COLLEGE OF MEDICINE | 2013**

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Virgin Coconut oil has been reported to promote reduction of serum triglycerides, LDL cholesterol levels, and total cholesterol. Given earlier reports, this study determined effect of virgin coconut oil (*Cocos nucifera*) on serum lipid profile of borderline hypercholesterolemic adults of Purok 6, Barangay 15-B, Davao City when used as supplemental therapy to adults undergoing a diet intervention program. Quasi-experimental single-blind design was employed. Thirty participants of both sexes, aged 31 to 56 years old, cholesterol level of 5.7 to 6.7 mmol/L participated and grouped into three: VCO (3.5 tbsp) group and VCO (3.5 tbsp) with low cholesterol diet group as experimental groups, and the low cholesterol diet group as Control group. Intervention lasted for 15 days. Fasting blood samples were taken at Day 0 and Day 15 for Lipid Profile determination. Total Cholesterol, HDL, LDL, and Triglycerides were the parameters used to measure lipid-lowering effects of VCO. Significant decrease of the control group's Total Cholesterol, LDL, and Triglyceride levels were noted but their HDL level showed insignificant increase on Day 15. Experimental groups also show significant decrease in total cholesterol, LDL and triglyceride levels and insignificant increase in serum HDL on Day 15. Triglyceride and serum HDL showed insignificant difference when results of three groups were compared. Serum LDL and total cholesterol values of the three groups however show significant difference. Results suggested that VCO with low cholesterol diet can lower serum LDL and HDL of borderline cholesterolemic patients.

**Keywords:** *Virgin coconut oil, serum lipid, hypercholesterol, HDL, LDL, triglycerides*

## Comparative Study between the Effects of One-Hour Shiatsu Massage Therapy and One-Hour of Sleep on the Mean Arterial Pressure of Hypertensive Clients Under Oral Medication

Bermudez, K. C. M., Ebero, R. E. R., Javier, J. K. R., Kundo, S. S. D., Layug, V. C., Locsin, J. D. M., Maulana, A. M., Nuñez, K. W. L., Odra, C. S., Orteza, A. R., Pangilan, R. J. Y., Ruta, J. R. B. II, Saliganan, I. T., and Singh, S. A. A.

COLLEGE OF MEDICINE | 2010

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Studies showed that massage therapy has health benefits such as lowering blood pressure of hypertensive people. Thus, this study aimed to evaluate the effects of shiatsu massage therapy and one hour of sleep on the blood pressure of hypertensive clients who has oral medication maintenance. The researchers observed 25 individuals of both genders who aged 39 to 72 years old. Each respondent answered a questionnaire on their hypertensive status. The study was conducted at Body Excellence Shiatsu Clinic 3 Bonifacio Street, Davao City for three months. The respondents were engaged in shiatsu massage therapy sessions for one hour, twice a week. A baseline blood pressure was measured three days before the shiatsu massage therapy. Afterwards, blood pressure was obtained three times a day before and after the shiatsu massage therapy and sleep sessions. Results showed that both interventions significantly decreased the respondents' mean arterial pressure (MAP). Also, there was significant difference between the effects of shiatsu massage therapy and sleep sessions in lowering MAP.

**Keywords:** *Shiatsu Massage Therapy, Sleep, Arterial Pressure, Hypertensive, Oral Medication*

## Correlates of PEFR among Non Smoking Field Traffic Aides

Andoy, A. M., Baste, E. N., Cusion, R. J., Estaris, K. E., Joaquin, J. C. B., Loy, V. C., Medina, C. M., Nierra, M. F., Quemado, J. A. V., Santillan, J. A., Toca, X. S., and Zamoras S. Jr.

COLLEGE OF MEDICINE | 2011

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Pulmonary function tests are utilized clinically and epidemiologically to measure functional status. They are also used to measure changes that occur in function related to treatment, to laboratory challenge, or environmental (e.g., occupational) exposure. A commonly used manner of assessing pulmonary function is through the Peak Expiratory Flow Rate (PEFR). PEFR is the maximum flow rate attained at any time during a forced expiratory maneuver. This study aimed to find out if there was any correlation between Peak Expiratory Flow Rate and the age, height, and weight of non-smoking field traffic aides. Based on their answers to the distributed preliminary questionnaires, 38 healthy nonsmoking subjects were chosen from 300 field traffic aides under the employment of the Traffic Management Center in Davao City, Philippines. The subjects were selected through purposive sampling technique. The resulting predicted values demonstrate that there was insignificant correlation between Peak Expiratory Flow Rate of nonsmoking field traffic aids with age, height, and weight. However, there was significant difference in comparison with typical western PEFR values and the adjusted PEFR of the participants in the function of age or height. There was also a significant difference between the typical western PEFR values and the adjusted PEFR of the participants in the function of weight.

**Keywords:** *PEFR, Non-Smoking, field traffic aides*

## **Hearing Loss among Active Smokers of Purok 5-B, Fatima Village, Garcia Heights, Bajada, Davao City**

Agarano, A. Babila, Z. A., Caminero, J., Dimacasil, S. J., Guani, M. E., Layos, B. R., Mamalimping, F., Nable, R., Nable, J. I., Salazar, A., Supnet, E., and Villarosa, C. C.

**COLLEGE OF MEDICINE | 2011**

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This study was done to identify the prevalence of hearing loss among smokers. A survey was done, 236 smokers were interviewed, and preliminary hearing tests were performed to assess the possibility of hearing loss. In this study, 91% were males, and 9% were females. Based on the preliminary hearing tests, 31% and 29% have possible hearing loss in males and females, respectively. The results in the survey, based on the self-perceived questionnaire, revealed 38% males and 33% females with no hearing loss, 60% males and 67% females with mild hearing loss, and 1% males with severe hearing loss. Moreover, it was found that as the smoker ages, the number of pack-years increases.

**Keywords:** *hearing loss, increase pack-years, gender profile, Fatima*



## Lipid Profile of Shifting and Non-Shifting Medical Technologies in Davao City

Alicer, D. D., Bantugan, M. J., Embalsado, M. R., Humol, M. T., Llanes, M. R. V., Matilos, S., Neo, K., Prior, S. J., Sandoval, C. M., Tapia, C., and Yokota, R.

COLLEGE OF MEDICINE | 2011

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This research aimed to determine the serum lipid profile of shifting and non-shifting medical technologists in Davao City. The study used a cross-sectional research design. A total of 64 subjects, aged 20-30 years were selected, whom 32 were shifting medical technologists, and 32 were non-shifting medical technologists. They have worked for at least one (1) year as medical technologist. Questionnaires were distributed to determine their age, sex, height, weight, and body mass index. Resting blood pressure of all subjects were recorded before collection of blood. Blood samples were collected after overnight fasting for estimation of serum lipid levels and were measured by standard laboratory technique. Data was analyzed by independent *t*-test. Results showed that the study participants exhibited no significant difference in terms of their age, sex, height, weight, and body mass index. Furthermore, in the lipid profile panels, the triglyceride and high-density lipoprotein cholesterol (HDL-C) of the respondents exhibited no significant difference. However, the total cholesterol and low-density lipoprotein-cholesterol (LDL-C) of the respondents exhibited a significant difference for both lipid profile panels that indicate a significantly higher total cholesterol and LDL-C among shifting medical technologists than non-shifting medical technologists. The changes in serum lipid levels except Triglycerides and HDL-Cholesterol may be related to internal desynchronization due to disruption of the circadian rhythm.

**Keywords:** *Lipid Profile, Shifting, Non-shifting, Medical Technologies*

## Muscular Discomforts Experienced by Gamers in Davao City

Abarilla, C. L., Araneta, A. C., Alexandro, E., Cunanan, S., Estepa, C., Hortel, K. N., Limen, C. A., Mascarina, G. Jr., Palaca, N. A., Rama, J., Singanon, A. M., and Lidasan, M. D.

COLLEGE OF MEDICINE | 2011

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Muscular discomforts have been related to computer use among young adults as rise in prevalence of muscular discomforts has been reported for adolescent populations. These young adults spend an increasing amount of time on computer gaming where potential muscular discomforts developed. Thus, this cross-sectional study involving 273 volunteer participants was performed among computer gamers aged 12 to 30 years old. A structured interview based on a validated questionnaire was used to determine the daily hours of computer gaming and the occurrence of muscular discomforts. Results showed the mean age among gamers was 19 years old. Most of them were males and college students. They played for a mean of 2.7 hours daily around a standard deviation of 1.6. Fifty-two percent of computer gamers experienced muscular discomfort in the eyes while ten percent experienced it in the forearm. It was found that there was a significant relationship between age and sex to lower back discomfort as well as age and daily hours of computer gaming to hand discomfort. Overall, direct relationships between these variables existed.

**Keywords:** *Muscular Discomfort, Gamers*

## Serum ALT and AST among Spray Painters in Davao City

Alvarez, A. U., Balleras, J. B., Butlig, N. V., Delos Reyes, D. N., Ihay, P. A., Licup, K. W., Mallano, A. G., Ninte, R. M. D., Ranches, M. D. S., Tan, J. I. C., and Yap, S. M.

**COLLEGE OF MEDICINE | 2012**

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The study aimed to determine the mean serum aspartate aminotransferase (AST) and alanine aminotransferase (ALT) levels to show the possible effects of paint solvents to the biochemical functions of the liver among automotive spray painters in Davao City. Convenient sampling method was used wherein 53 male respondents actively working as spray painters for at least one year in Davao City and have not taken any alcoholic beverages within 72 hours were chosen as participants. An interview was done along with blood samples taken to St. Justin Medical Laboratory for testing. Statistical analysis of laboratory results showed that the mean ALT of spray painters aged 34 years old with 6.1 years of service on average was 53.61 U/L with a standard deviation of 29.68 U/L. The mean AST was 49.18 U/L with a standard deviation of 21.43 U/L. Among respondents, 38% has normal levels of AST and ALT, 11% borderline ALT, 7% borderline AST, 51% above normal ALT, and 55% above normal AST levels. It was also shown that the AST levels had a strong bivariate correlation between the years of service. Also, ALT levels had a strong bivariate correlation between the years of service. The study also showed that non-drinkers had a mean 46.33 U/L with a standard deviation of 12.16 U/L. In AST levels, however, a mean of 50.73 U/L with a standard deviation of 11.19 U/L of non-drinkers has no significant difference to a mean of 48.86 U/L with a standard deviation of 23.05 U/L of drinkers. The mean ALT and AST levels were above normal (0-42 U/L) with more than 50% of the samples having above normal levels of AST and ALT serum levels. This indicated that these paint sprayers of Davao City had above normal ALT and AST levels. Also, results implied that as the number of years of exposure increases, the serum ALT and AST levels also increases.

**Keywords:** *Serum ALT, Spray Paint*

## **Comparative Study between Water and Oral Saline Gargle and their Effects in Salivary Buffering Capacity Following Intake of Carbohydrate-Riche Food among First Year Medical Students of Davao Medical School Foundation**

Arancon, N. K., Bergado, B., Enojo, A. V., Joven, K., Lu, M. A., Monterde, K. A., Pedreso, E. J., Valencia, S., and Segovia, J. C.

**COLLEGE OF MEDICINE | 2012**

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This study was conducted to compare the effects between water and oral saline gargle and their impact in salivary buffering capacity among first-year medical students of Davao Medical School Foundation, Inc. After the formulation of the inclusion and exclusion criteria, 90 respondents were chosen through purposive sampling method. The respondents were then assigned in three groups namely, Group A with no treatment, Group B with water gargle, and Group C with oral saline gargle. For the three groups, the respondents were asked to spit saliva on a container that was tested for the baseline pH. The respondents were then allowed to take in chocolate as carbohydrate-rich food. After five minutes, for group B, the respondents were asked to gargle distilled water for 30 seconds while for group C, the respondents were asked to gargle oral saline solution for 30 seconds. Every five minutes thereafter, saliva was again collected and tested using a pH meter until baseline pH was achieved. The findings of the study showed that there was a significant difference in the mean salivary pH between intake of carbohydrate-rich food, after gargling of water and that after gargling or oral saline solution. Specifically, the significant difference was noted at 15 minutes between Group A and B. Furthermore, the three groups have their trends in salivary pH across the indicated time. The rest of the compared mean salivary pH showed no significant difference.

**Keywords:** *Water, Oral Saline, Carbohydrate Food*

## **Pilot Study on the Effect of Subcutaneous Cyanocobalamin (Vitamin B12) Subcutaneous Injections on the Weight and Total Serum Cholesterol Levels of Hypercholesterolemic-induced Male Albino Rabbits (*Oryctolagus cuniculus*)**

Autida, C. E., Camacho, R. D., Del Tiña, K. P. A., Estillore, B. E., Gemelo, N. B. D., Layug, C. C., Mamogkat, S. J. N., Sarmiento, J. A. T, Usman, N. M., Montojo, M., and Frances, D.

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The study was about the effect of Cyanocobalamin subcutaneous injections to weight and cholesterol levels in male albino rabbits (*Oryctolagus cuniculus*) with egg yolk-induced hypercholesterolemia. The study utilized the Pretest-Posttest Control-Group design, which was a true experimental design and conducted at Brgy. Tacunan, Davao City. The study subjects were composed of twenty male albino rabbits that were purposively selected according to the specified criteria and were randomly assigned to the experimental and control groups. The researchers determined the experimental and control group baseline weight with mean 2.0 kg and 2.4 kg, respectively, and cholesterol level with mean 123.7 mg/dL and 110.3 mg/dL, respectively. These were determined using an automated blood cholesterol meter. In the same day, researchers started to induce hypercholesterolemia by giving 5 milliliters of egg yolk via oral gavage. A week after, the experimental and control group's mean weight were 2.1 kg and 2.5 kg, respectively, and mean cholesterol levels were 138.2 mg/dL and 110.5 mg/dL, respectively. The egg yolk was still continuously administered. In that same week, researchers started the intervention of administering Vitamin B12 to the experimental group. After a week, the experimental and control group's mean weight were 1.9 kg and 2.5 kg, respectively, and cholesterol levels with means 139.8 mg/dL and 137 mg/dL, respectively. Results showed a decrease in experimental group's mean weight during the second week and continuous increase in control group's mean weight. However, no significant difference in their mean weight. It was found that after one week of the intervention of Vitamin B12 injections and continuous egg yolk feeding, there was a significant increase in cholesterol levels of the experimental group and control groups.

**Keywords:** *Vitamin B12, Cholesterol Levels, Albino Rabbits*

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## **Correlation of Carboxyhemoglobin Levels to Symptoms of Carbon Monoxide Exposure among Non-smoking Emission Test Workers in Davao City**

Abanil, D. M. F. V., Balboa, T. M. R., Candia, S. S., Diel, J. F., Fajardo, M. A. O., Guariño, D. D. V., Lee, K. K. B., Margallo, M. G., Orteza, A. K. T., Reyes, R. D., Sollano, J. A. P., and Valles, D. R. A.

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This study was a descriptive cross-sectional analysis conducted in seventeen emission test centers in 5 different areas in Davao City. Twenty-five respondents were included. These respondents were below fifty years of age, non-smokers, emission test workers for at least one year, and not reported for any acute illnesses. The research was designed to determine the correlation between the levels of carboxyhemoglobin and reported symptoms of carbon monoxide exposure. A COmpact™ Smokerlyzer and guided interview were used for data collection. Results showed that the carboxyhemoglobin levels and the carbon monoxide exposure reported symptoms were highly correlated. The mean level of carboxyhemoglobin of the respondents was at 2.11 COHb, which corresponds to 2.23 - 2.30%. Furthermore, the top three most reported symptoms are headache, weakness, and muscle pain.

**Keywords:** *Carbon Monoxide, Non-smoking workers, emission test*

## **Effect of Chili Pepper (*Capsicum annum*) Intake on Blood Glucose Level among Type II Diabetes Mellitus Patients in Barangay Lapu-Lapu, Agdao, Davao City**

Andico, R. B., Cabonita, K. A., J., Eliseo, K. S. S., Jardinico, S. E., Loreña, E. M., Mendez, M. S., Pe Benito, D. M., Saripullah, A. L., Untalan, B. J. R., and Bastian,

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*Capsicum annum*, commonly known as chili pepper contains the active substance capsaicin. It is known to affect glucose concentration in the systemic circulation. The action of capsaicin stimulates insulin secretion by the beta cells located in the Islets of Langerhans of the pancreas, which eventually lowers blood sugar level, thereby, showing its potential in helping type II diabetes mellitus patients. Several studies were already conducted to test the effectiveness of capsaicin. However, evidence supporting its beneficial effect was still inadequate due to limited studies on animal models and physiologically normal humans. To fill this gap, the study was conducted to determine the effect of chili pepper intake on blood glucose level among 14 type II diabetes mellitus subjects selected using purposive sampling in accordance to the formulated inclusion criteria. A significant decrease of blood glucose was observed upon administration of chili pepper capsule. However, the carryover effect was not significant for period effect and treatment-period interaction effect. It can be deduced. Therefore, chili pepper intake, specifically the active component capsaicin, has a significant effect in lowering the blood glucose level of type II diabetic patients.

**Keywords:** *Capsicum annum*, blood glucose, diabetes

## Effect of Inhaled Commercially Available Eucalyptus (*Eucalyptus deglupta*) Essential Oil on Reaction Time of the First Year Medical Students of Davao Medical School Foundation

Alinsungay, A. T., Babatid, J., Bueno, D. J. D., Dangcalan, C. M., Go, S. L. N., Laccas, J. J. G., Magriña, P. J. C., Navarro, H. L. E., Subaldo, D. J. P., Yap, C. B. T., and Quiao, J. M. O.

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Alertness, a core function of attention, is essential in the accomplishment of daily tasks. It becomes increasingly important as a task become increasingly complex. Advocates of aromatherapy have been touting that the essential oil of eucalyptus helps improve a person's level of alertness. This prompted the researches to determine the validity of this claim by experimentation. The researchers used a within-subject design. They measure the subject's level of alertness by checking their reaction time. This allowed the researchers to measure the subjects' speed of information processing objectively. In the first week, they took their initial mean reaction time and rechecked it without exposing the subjects to the treatment. In the second week, they took their initial mean reaction time and rechecked it after allowing the subjects to inhale the essential oil of eucalyptus. The experiment revealed that there was a significant difference between the first week's initial mean reaction time and the one taken after the subjects inhaled the essential oil of eucalyptus. Moreover, the mean reaction time taken after the subjects inhaled the essential oil of eucalyptus was lower than the second mean reaction time taken without treatment. However, it is not statistically significant. This experiment proved that the essential oil of eucalyptus could produce measurable improvements on a person's level of alertness.

**Keywords:** *eucalyptus, essential oil, reaction time*



## Effect of Sleep Deprivation on Clotting Time and Platelet Count among Medical Students

Amilil, H. D., Butt, K. M., Diesto, A. P., Imlan, Y. B., Lim, K. J. R., Malinis, M. C. D., Ozims, G. E. P., Rañeses, G. M. M., Tapucar, L. D. A., and Bantilan, G. L.

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Sleep deprivation is attributed to cause many diseases, especially nowadays that activities demand more time where people tend to sleep less. Recent studies showed that sleep deprivation tends to increase the risk of cardiovascular diseases. Researchers investigated if sleep deprivation has significant effects on platelet and clotting time. Blood samples were taken from 25 medical students having a sleep not less than seven hours for five days. Another blood samples were taken from the same subjects after being sleep deprived for less than seven hours for five days. All blood samples were subjected to hematologic tests such as platelet count and clotting time and then compared. Analysis of platelet showed that platelet count increased from  $272.28 \times 10^9/L$  to  $307.84 \times 10^9/L$ , and clotting time is shortened from 4.053 to 3.804 minutes. Data analysis revealed that there was no significant difference in clotting time before and after sleep deprivation and that there was significant difference in platelet count before and after sleep deprivation. This research findings suggested that sleep deprivation affects the platelet count which could be attributed in developing diseases.

**Keywords:** *sleep deprivation, clotting time, platelet count*

# High Intensity Interval Training Versus Aerobic Exercise on Maximal Oxygen Consumption among Recreationally Active Males

Abundo, J. D. S., Arreola, A. P., Brodie, C. M., Chua, M. C. C., Go, L. M., Labuen, S. E., Potutan, H. G. D., Singh, R., Velasco, J. S. S., and Macrohon, J. R. P.

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This study compared High-Intensity Interval Training (HIIT) and Aerobic Exercise on Maximal Oxygen Consumption ( $\text{VO}_2 \text{ max}$ ) on 16 recreationally active males aged 18 to 25 years old. The study used Repeated Measure Design where the same group of respondents employed six HIIT sessions (80%-90% intensity) for the first two weeks, detained for three weeks and employed six aerobic exercise sessions (60%-70% intensity) for the next two weeks. A Multistage Bleep Test was done to measure the baseline, Post-HIIT, and Post-Aerobic Exercise  $\text{Vo2max}$ . HIIT intervals used alternating sequences of high-intensity exercise (20 seconds sprint) and low-intensity exercise (60 seconds jog). The first and second sessions had eight HIIT intervals, the third and fourth session had 10 HIIT intervals, and lastly, the fifth and the sixth session had 12 HIIT intervals. The three weeks detraining period limited the subjects to activities of daily living and independent living. First and second sessions of aerobic training had 30 minutes jogging, the third and fourth session had 45 minutes jogging, and lastly, the fifth and sixth session have 60 minutes jogging. Therefore, the more intense but shorter high-intensity interval training is as proper as the moderate but longer aerobic exercise in terms of improving cardiorespiratory fitness.

**Keywords:** *high intensity interval training, aerobic exercise, oxygen consumption, males*

## **Prevalence of Andropause and the Severity of Andropausal Signs and Symptoms among Married and Unmarried Men aged 40 to 65 from Barangay Buhangin, Davao City**

Briones, M. III, Devilleres, C. V., Fernando, R., Hadjimuddin, A., Marundan, J. A., Pama, A. M., Roldan, E. F., Tacang, S. L., Zarra, V. L., and Lima, V.

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This study was a descriptive cross-sectional type of study conducted in Barangay Buhangin, Davao City. The research intended to identify the prevalence of andropause through the Androgen Deficiency in Aging Male (ADAM) questionnaire and determine the severity of andropausal signs and symptoms using the Aging Male Symptoms (AMS) questionnaire among married and unmarried men ages 40 to 65 years old. Furthermore, this study was conducted to determine the significant relationship between andropause and the marital status of men. The researchers surveyed the identified 385 respondents and collated the data gathered after that. Results showed that 93% of the respondents exhibited signs and symptoms of andropause. In addition, 88% among married and 5% unmarried respondents were positive for the signs and symptoms of andropause. The researchers found that there was a high prevalence of andropause among married and unmarried men ages 40 to 65 in Barangay Buhangin, Davao City. It was found that there is a significant relationship between andropause and marital status wherein married men are eight times more likely to have andropause than unmarried men. Also, it has been found out that married men are experiencing more severe andropausal signs and symptoms than unmarried men.

**Keywords:** *andropause, prevalence, correlation, marital status*

# Relationship of Systolic Blood Pressure to Body Surface Area, Body Mass Index, and Total Percentage of Body Fat among 18 to 19 Year Old Davao Medical School Foundation Students and Personnel

Baclayon, R., Burgos, R., Davalos, J. R., Ibanez, M., Laruya, K., Mahippus, A., Quibam, H., Saydil, A., and Tagora, S.

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Hypertension is an increasingly important medical and public health issue as its prevalence increases with advancing age. The age-related rise in systolic blood pressure is primarily responsible for an increase in both incidence and prevalence of hypertension. Determinants that increase blood pressure include obesity and anthropometric measure like body surface area and body mass index. This study aimed to determine the relationship of systolic blood pressure to body mass index, body surface area, and a total percentage of body fat. This cross-sectional study included 315 students and personnel aged 18 to 39 years old in Davao Medical School Foundation. Age, sex, height, and weight were taken to compute for body mass index, body surface area, and the use of body fat analyzer to get the total percentage of body fat (TBF). Data were analyzed using multiple linear regression. Results showed that the mean systolic blood pressure was 115.68 mmHg, mean age was 24 years old, mean weight was 61.19 kg, mean height was 1.61 m, TBF for male and females were 24% and 27%, respectively, mean BMI was 23.49 and 1.98 BSA. Out of the three variables identified, body mass index is significantly correlated with levels of systolic blood pressure (SBP). Total percentage body fat has very weak correlation with SBP levels. Body mass index is directly correlated SBP levels. Total percentage body fat and body surface area were not found to correlate with levels of systolic blood pressure.

**Keywords:** *systolic blood pressure, body surface area, body mass index*

## **Relationship of Sex, Age, and Weight Profiles and Physical Activity as Measured by Pedometers among First Year National Medical Students of Davao Medical School Foundation**

Cabahug, C. E. M., Ceros, K. J. D., Dulla, D. E. S., Galang, K. P., Herbert, B. E., Joyo, L. A. L., Luy, H. C. R., Mayo, C. J. T., Sabay, R. V., Taghap, C. M. B., and Patayan, J. R. S.

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This study determined the relationship of age, sex and weight profile and the physical activity as measured by pedometers of 142 first-year medical students of Davao Medical School Foundation. Their daily physical activities were monitored during their wake hours for a period of seven days. The total number of wakeful hours of each respondent was recorded as well as the total number of steps taken. The collected data were compared with an average of 10,000 steps per day. Multiple linear regression was used as an analytical tool to compare means and values were considered significant. Results showed that females (58%) have 269 more steps compared to the males (42%). The result also showed that for every increase in age, there was a corresponding 43 steps increase, while for every increase in weight per kilogram, there was a corresponding 10 steps decrease in the total number of steps. These results were, however, not statistically significant due to the homogeneity and nature of the study population. The findings suggested that medical students should find time to engage and increase their physical activities to get the maximum health benefits that improved physical activity could give.

**Keywords:** *sex, age, weight profiles, physical activity, pedometers*

# Effect of a Seven Day Twelve-Hour Night Shift on Hematocrit Levels of Security Personnel in Private Security Agencies in Davao City

Bagares, L. M. J., Campaner, M. A. F., Delos Santos, C. P., Gillesania, C. S., Ledesma, J. L., Manibpel, F. M. M., Noriega, J. M., Regulacion, J. G., Seniel, I A. P., and Valiente, K. J. T.

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Shift workers are often required to perform their duties at times that are not favored by the body's endogenous clock. Night shift has emerged as an additional health risk affecting over than 100 million individuals, especially the decrease in hematocrit levels. This study aimed to determine the effect of seven-day twelve-hour night shift in selected agencies in Davao City. Blood samples were collected from 25 subjects before and after the seven days night shift duty. The mean pretest and posttest laboratory results were analyzed with *t*-test and Pearson Correlation to ascertain the significant difference and measure the relationship of the variables, respectively. Results showed that blood samples taken from security personnel on 12-hour night shift for seven days had significant decrease in hematocrit level. There was a moderately strong correlation between the length of time exposed to a 12-hour seven days shift and the levels of pretest and posttest hematocrit levels of respondents. This described the likelihood of the increasing tendency of the difference in values if the security personnel is further exposed to a 12-hour night shift duty beyond seven days. Thus, the exposure of security personnel to 12-hour night shift was considered a determinant to the decrease of hematocrit levels.

**Keywords:** *night shift, hematocrit levels, security personnel, private security agencies, Davao city*

## **Effect of Calamansi Juice (*Citrofortunella microcarpa*) on the Blood Pressure of Prehypertensive Individuals ages 20 to 50 of Purok Fatima, Barangay 19-B, Poblacion District, Davao City**

Caduan, S. L. P., Co, J. D., Doromal, M. K. C., Duque, J. A. M., Gallera, A. S., Lacurom, L. K. C., Pinol, J. B. A., Sales, K. M., and Tan, A. L.

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Hesperidin is the major flavonoid found in citrus fruits. It has many beneficial biological functions on the vascular system such as a vasodilator, antioxidant, and cholesterol formulation inhibitor. This study aimed to find out if hesperidin can significantly decrease the mean arterial pressure (MAP) levels of prehypertensive individuals, ages 20 to 50 years old. Thirty respondents were identified and divided equally into experimental and control group. Their baseline MAP were taken and done twice a week for three weeks for the duration of the study. Results showed that the experimental group has a downward trend in MAP. However, when viewed statistically on week by week changes, there was no significant difference in decrease in MAP of both treatment groups. Although the week by week changes was not statistically significant, the change from baseline up to the sixth MAP of the experimental group showed to be clinically significant. Thus, it was concluded that hesperidin can lower the mean arterial pressure of prehypertensive individuals.

**Keywords:** *Calamansi juice, citrofortunella microcarpa, blood pressure, prehypertensive, Davao city*

## Effect of Fresh Young Coconut (*Cocos nucifera* L.) Water and Tap Water in the Urine Specific Gravity and Color Among Young Adult Male Athletes

Alce, C. C. O., Basman, A. J., Diocolano, S. K., Feliz, M. P. E., Guy, D. A. M., Leyva, J. M. C. Martinez, C. T., Paez, N. A. T., Rodriguez, M. I. P., Superioridad, E. J. P., Villarosa, C. R. D., and Castañeto, A. C. S.

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Recent researches stated that coconut water is being overlooked upon by many as a simple fruit juice, but it is more effective in replenishing lost electrolytes and minerals needed by the body compared to commercialized sports drinks. On the other hand, clean potable water is the normally used fluid as a thirst quencher. Though both are fluids used in rehydration, one might prove to be better than the other leading to the formulation and purpose of this comparative study. As common measurements of hydration status, urine specific gravity and urine color were the focal points of the study, noting and comparing the variations that may arise from the two fluids used namely coconut water and tap water. Influenced mainly by the inclusion and exclusion criteria, ten respondents from San Pedro College, Davao City were chosen to participate in the study. As experimentation and researches were done, it was found out that by drinking coconut water and tap water, the mean urine specific gravity after a basketball game decreased. However, this comparative study did not found out significant difference in the effect of fresh young coconut water and tap water in urine specific gravity among young adult male athletes.

**Keywords:** *Cocos nucifera*, coconut water, tap water, urine



## **Pilot Study: Age, Sex, and Body Mass Index in Relation to Heart Rate Variability Among Staff and Students of Davao Medical School Foundation, Inc.**

Aranda, J. M. M., Buma-at, L. J. C., Chua, J. W. C., Enide, L. R., Husain, A. S. S., Naraval, A. H. D., Pineda, E. M. P., Roasales, C. J. R., Socito, K. B., and Tolentino, C. D.

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Heart rate variability (HRV) is a noninvasive measure of automatic nervous system regulation on heart rate. A reduced HRV indicates poor autonomic input on heart rate which signifies an increased risk for cardiovascular diseases and complications during and after surgery. No literature on HRV of healthy Filipino existed, thus the researchers instigated a study to characterize HRV in relation to age, sex, and body mass index (BMI). The HRV of 43 volunteer students and staff from Davao Medical School Foundation, Inc. were taken. A standardized 5-min resting study, using an HRV machine, was used on all subjects after a 2-hour fast. HRV was spectrally determined by four components: Total Power (TP), High Frequency (HF), Low Frequency (LF), and Very Low Frequency (VLF). These parameters are induced to the sympathetic nervous system (SNS) and parasympathetic nervous system (PNS) activity. Results showed that age and sex had a significant and moderately inverse relationship to HRV, however, there was insufficient evidence to conclude that BMI has a significant relationship with HRV.

**Keywords:** *heart rate variability, dmsf, pilot study*

## Blood Lead Level and Categorization to Mild, Moderate and Severe Lead Toxicity Among Welders in Davao City

Aponesto, P. A. B., Boiser, A. L. B., Cruz, A. M. Q., Denrue, L. G. D., Gacayan, I. D., Guiani, A. A. A., Madjani, O. H., Pahayac, K. J. A., Puentespinosa, M. L. T., Reyes, F. T. M., Tan, A. L. Y., and Versosa, A. B.

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Lead is one of the most utilized metals in several industries including production of pipes, jewelry, and ceramics. Accumulation of lead in the blood can alter normal physiologic function in organ. In this study, 30 welders were conveniently selected and screened. The welders' venous blood were analyzed for blood lead levels (BLL) and its categorization according to mild, moderate, and severe were determined. The welders also underwent a guided interview to determine pertinent information in relation to the study. Seven out of thirty welders belonged to the category of severe lead toxicity with BLLs ranging from 40 to 79 and greater than 80 µg/sL, which exceeded the limit set by the U.S. Occupational Safety and Health Administration. Eight out of the thirty welders belonged to the category of mild lead toxicity with BLLs ranging from 1 to 4, 5 to 9, 10 to 19, and 20 to 29 µg/dL. Furthermore, one out of thirty welders belonged to the category of moderate lead toxicity with a BLL under the range of 30-39 µg/dL. Sixteen welders showed lead toxicity while fourteen appear to be not experiencing lead toxicity. This study can serve as supporting data to reinforce safety protocols in welding, specifically, the proper use of protective masks and clothing.

**Keywords:** *blood lead level, lead toxicity, welders*

## Body Mass Index and Blood Pressure Levels of Primary School Teachers in a Local Elementary School in Davao City

Amilasan, K. F., Barrios, K. A., Calma, C., De Manuel, A. N., Estorque, P. V., Gio, P. S., Lacanilao, P., Manlangit, B., Paclibar, P. M., Sandig, A. K., Taclibon, C., and Vercide, B. A.

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Teachers today are in danger of acquiring cardiovascular disease as their Body Mass Index and blood pressure increases. This study determined the Body Mass Index and Blood pressure levels among primary school teachers in an elementary school in Davao City. This study aimed to increase the awareness of school teachers on the importance of BMI as a risk factor for cardiovascular disease and its impact on overall health. The researchers used a descriptive type of a study, where Body Mass Index and blood pressure of primary school teachers were measured while other relevant data was obtained through a questionnaire. Twenty-nine full-time teachers were chosen aged 24 to 60 years with the mean age of 39 years old with a standard deviation of 10. Twenty four of the respondents were female and five were male. BMI result showed that normal and overweight respondents comprise 11 out of 29 respondents. Blood pressure data showed that 17 out of 29 respondents were in the prehypertensive stage. Four and eight out of twenty nine respondents have Stage I Hypertension and normal blood pressure, respectively. The BMI had a significant linear relationship with the blood pressure where an increase in the BMI would correspond to an increase in both the systolic and diastolic blood pressure.

**Keywords:** *BMI, blood pressure, awareness, primary school teachers*

## **Burnout among Medical Students of Davao Medical School Foundation, Inc.**

Asuncion, C. A., Caballes, C., Collado, C. M., Enobio, C. M. T., Fuentes, I. III, Jabonero, I. P., Lim, M. A., Porras, V., Sabdullah, B. M., Soria, Valdevieso, E. M., and Yu, J. I.

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Burnout is now a topic of interest for research. However, in the Philippines, research done about burnout especially among medical students was lacking. This study determined the levels of burnout among all year levels of medical students of Davao Medical School Foundation, Inc. A descriptive cross-sectional study was used to determine the levels of burnout among 457 Filipino medical students of DMSFI. The survey instrument used was the Maslach Burnout Inventory-Student Survey (MBI-SS) to measure the levels of burnout among the respondents. Out of the 457 respondents, approximately 65% are categorized as burned out. For the first year, 137 (70%) are burned out, 68 (57%) for the second year, 62 (67%) for the third year and 30 (60%) for the fourth year. Females (61%) have a higher burnout rate than males (39%). For the first year, 58.39% (80 out of 137) of females are burned out. While 67.65% (46 out of 68), 62.90% (39 out of 62) and 53.33% (16 out of 30) of females for the second, third and fourth year are burned out.

**Keywords:** *burnout, medical students, cross-sectional study*

## Cold Pressor Test on the Blood Pressure of Volunteer Medical Students of Davao Medical School Foundation

Alviso, R. K., Bandayanon, M. K., Cajoles, R. M., Cosare, J. A., Estacion, E., Gevera, M. A. P., Laurel, R. J., Mangahas, A., Paalan, N. D. F, Salveron, J. L., and Tacta, J. R.

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Cardiovascular reactivity to Cold Pressor Test (CPT) is hypothesized to be a marker for subsequent neurogenic cardiovascular diseases. We screened 248 medical students whose blood pressure status was ascertained through a questionnaire and blood pressure reading prior and immediately after CPT to determine their risk of developing hypertension. Only 68 participants were included in the analyses after considering exclusion criteria. Fourteen subjects were considered hyperactive thus showing a higher risk for developing hypertension in the future. Results revealed the normal blood pressure of the participants prior to CPT exposure at a maximum of 119/79. After CPT, a drastic elevation of systolic and diastolic blood pressure was observed at a maximum of 141/108. Monitoring of the blood pressure five minutes post-treatment showed that blood pressure decreased close to the baseline. Results indicated a significant difference in the systolic and diastolic blood pressure of the participants before (baseline) and after (one-minute post-treatment) subjecting them to CPT. Findings showed insignificant difference in the systolic blood pressure of the participants five minutes post-treatment compared to the baseline blood pressure while for diastolic blood pressure five minutes post CPT remained significantly higher compared to the baseline blood pressure.

**Keywords:** *cold pressure, blood pressure, medical students*

## Complete Blood Count, Potassium and Sodium Levels of Stored Whole Blood in a Local Blood Bank in Davao City

Aquino, M. A. M., Ching, J. F. I., Elevaso, J. E., Fong, L. H. O., Lyva, E. L. G., Monday, J. M. P., Pasaylo, R. R. I., Sepulveda, M. B., Roldan, L. R., Tinagan, J. F. F., Wong, J. P., and Yap, J. C.

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Cellular and biochemical changes in blood during prolonged storage are of great interest in transfusion medicine as altered levels may cause iatrogenic effects after blood transfusion. This study examined the daily changes that occur in stored blood, and if these changes reflect the blood's viability. Blood (450 ml) was randomly drawn from 10 healthy volunteer donors into CPDA-1 anticoagulant. Blood bags were all negative for HCV, HBsAg, Syphilis, HIV 1 and 2, and Malaria. Blood bags were placed in the blood bank refrigerator maintained at 2-4°C. Samples were collected at 1, 7, 14, 21, 28, and 35 days and checked for hematologic and biochemical parameters. Results showed an excessive increase in the mean Potassium level which was observed beginning Day 7. Lymphocyte count increase significantly as well. In contrast, Sodium, WBC and Neutrophil levels decreased significantly over time. Although increasing values can be observed in the Hemoglobin, Hematocrit, and RBC levels and a decreasing value for the Platelet count, the changes are still within the normal range in vivo. Percent of Hemolysis yielded no significant changes. Implications of the results vary from case to case. Clinical management for transfusion of aged stored whole blood is under the discretion of the physician, particularly for neonates, cases of sepsis and to patients with renal problems. Potassium levels should be monitored first. Degeneration of white blood cell should be noted with amplification of lymphocytes. Studies showed a relationship between prolonged storage time and increased inflammatory effects post-transfusion.

**Keyword:** *complete blood count, potassium, sodium, blood transfusion*

## Effect of Fractionized and Continuous Aerobic Exercise on Maximal Oxygen Consumption Among First Year Medical Students

Abanilla, P. J. D., Aricheta, G. M. B., Cunanan, J. R. R., Go, L. P. M., Lao, T. J. G., Lee, K. K. B., Mamalintaw, J. R. C., Nolasco, A. E. P., Paracha, K. C. E., Rala, L. E., Saligumba, L. A., and Tinagan, D. V.

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This study determined effects of fractionated and continuous exercise on maximal oxygen consumption ( $\text{VO}_2 \text{ max}$ ) among 18 male and female first year medical students, aged 20 to 24 years old to each exercise regimen. Pre and post intervention  $\text{VO}_2 \text{ max}$  were determined using the Queens College Step test. This experimental study showed that the mean pre intervention  $\text{VO}_2 \text{ max}$  (26.45 ml/kg/min) significantly increased by 11 (mean post-intervention  $\text{VO}_2 \text{ max} = 29.73 \text{ ml/kg/ min}$ ) after doing fractionized exercise. Furthermore, mean pre intervention  $\text{VO}_2 \text{ max}$  (26.78 ml/kg/min) significantly increased by 12% (mean post-intervention  $\text{VO}_2 \text{ max} = 29.73 \text{ ml/kg/min}$ ) after doing continuous exercise. Hence, fractionized and continuous aerobic exercises were effective exercise regimens for first year medical students. Also, there was insignificant difference between the two mean post-intervention  $\text{VO}_2 \text{ max}$ . Thus, fractionalized aerobic exercise had similar effects with continuous exercise in increasing  $\text{VO}_2 \text{ max}$ .

**Keywords:** *aerobic exercise, oxygen consumption*

## Effect of Banana (*Musa spp.*) on the Body Weight among First Year Medical Students S.Y. 2012-2013: A Pilot Study

Abellera, A. J. D., Amilil, H. D., Asal, R. C., Datukon, R. R. D., Dulla, C. D. S, Ho, C. M. L., Mama-o, J. M., Nunez, M. R. T., Parrenas, J. T. P., Rombaia, R. M. B., and Toledo, C. G. S. III

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Overweight and obesity are becoming prevalent in society today affecting all age brackets. With this, the researchers conducted a pre intervention weighing and referred the data gathered to the pre enrollment weight. Result showed a 68% of weight gain among the target population. Questionnaires and consent were handed for the finalization of the sample population. The study aimed to suggest an alternative, simple, and accessible diet that will help individuals manage their body weight and prevent them from becoming overweight and obese. This diet comprised of intervention of Cavendish banana in the daily diet of 44 medical students of Davao Medical School, Inc. for three weeks. A calculated diet wherein 10.7 grams of resistant starch based on the 107 grams of peeled ripe banana was introduced as breakfast for the respondents. During the first week of intervention, insignificant change was noted in the mean weights from the pre interventional weights of the respondents. However, during the last week of intervention, both groups of male and female respondents showed a significant decrease in their mean weights. Results suggested that Cavendish banana has a remarkable effect on body weight among the respondents. Nonetheless, a longer duration for the study is recommended to thoroughly study the effect of Cavendish banana in the body weight of medical students and to overweight and obese individuals.

**Keywords:** *banana, body weight, diet, medical students*



## Effect of Body Mass Index (BMI) on Forced Expiratory Volume in One Second (FEV1) among Male and Female Volunteers

Andang, M. L., Capacite, I. F. M., Fernandez, A. G., Gonzales, G. A., Laguardia, D. A. B., Marasigan, M. S., Paclibar, S. P., Rodriguez, M. A. G., Sandig, S. J. Y., Te, J. M. L., and Villarosa, H. Jr.

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Individuals with high or low BMI are at risk of having a poor respiratory function. Recently, some medical researchers have shown that not only those persons having a high BMI tend to show lower pulmonary function. BMI and Forced Expiratory Volume in one second (FEV1), a measure for lung function, have long been associated with one another by different studies. However, most of these studies were conducted among Caucasians, and little information from other races was known. Furthermore, several other studies reported that FEV1 was also affected by the sex of an individual. This study determined the relationship between FEV1 to BMI and sex among Filipino volunteers. The study included 59 research participants. Linear regression showed the significant correlation between the values of BMI to FEV1 and sex to FEV1. Results revealed that male subjects showed a significant positive correlation between BMI and FEV1. These implies that BMI and sex may be pertinent variables in testing for FEV1 to assess and consider normal or abnormal pulmonary function.

**Keywords:** *BMI, FEV1, adult volunteers, correlation, sex*

## Effect of Cinnamon (*Cinnamomum cassia*) on Fasting Blood Sugar Levels among Prediabetic Volunteers

Avenido, C. Cadena, D. R., Escovilla, C. D., Fulgerinas, K., Olivares, N. J., Macarimbang, N., Rafael, S., Suguran, J., and Yu Ekey, M. G.

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The potential of spice as a new possible option for drug therapy diabetics and those at risk is a new hope. Considering the huge number of 1,700 new individuals being diagnosed daily as diabetic, this possible alternative will be a big help. The study determined the effect of cinnamon capsule in the fasting blood sugar of 12 prediabetic individuals from Davao City. The research participants have glycosylated hemoglobin levels within 5.7 to 6.4% while their fasting blood sugar was between 5.7 to 6.9 mmol/L. They also do not have other medical conditions and are not taking any maintenance medications. The volunteers took one gram of cinnamon capsule a day for three weeks. The compliance of medication was reinforced and monitored. Each week, fasting blood sugar was obtained. Results showed that the mean FBS levels of the prediabetic volunteers have significantly dropped to 0.34 and 0.84 mmol/L at the second and third week, respectively, upon subsequent oral administration of cinnamon capsule. A significant difference on the initial, first, second and third week mean FBS among the participants after the intervention of cinnamon capsules was also noted.

**Keywords:** *cinnamon, blood sugar, diabetes, decrease*

## **Exercise Functional Capacity of Filipino Adults Ages 40 to 60 Working in Davao Medical School Foundation, Inc. using the 6-Minute Walk Test**

Antolin, O. Q. R, Clapis, L. L., Deles, P. A.. Jr., Gubal, I. J. O., Kuhutan, D. M. S., Lugtu, P. L., Margallo, M., Montenegro, R. J. M., Pagayao, L. M., Prudenco, M. A. C., Repollo, A. R. V., Sun, M. D., and Vergara, M. M. I

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People ages 40 to 60 years old are at high risk of Cardiovascular, Pulmonary and Cerebrovascular diseases. This study determined the Exercise Functional Capacity of Filipino Adults ages 40 to 60 using the 6-Minute Walk Test (6MWT), 14 Male and 22 Female Davao Medical School Foundation Inc. employees aged to 40 to 60 years old were considered as treatments in this study. Five variables: age, sex, height, weight, and body mass index were used as basis. Respondents were subjected to walk for six minutes and 6-minute walk distance (6MWD) was measured. Reference values were computed using the Enright and Sherill protocol. Findings showed that a significant difference was evident between the 6-minute walk distance and the reference value. Also, a highly significant variation among the pre and post test heart rate and respiratory rate were observed contrary to the blood pressure which showed insignificant. However, a significant difference was noted in the 6MWD among males and females. On the other hand, results showed that 20 (55.6%) that comprises 4 males and 16 females fell below the lower limit normal value. From the conducted study, majority of the respondents have low exercise functional capacity. Sex, weight, and height were identified as variables that significantly affected the 6MWD. Also, more females have low exercise functional capacity compared to males.

**Keywords:** *exercise functional capacity, adult*

## **Fat Loss Among Overweight Males Utilizing Resistance Training in a Fitness Center in Davao City**

Albano, A. F. D., Baluma, K. S. A., Castro, K. R., Decolongon, J. M. D., Hapsay, Z. L., Matunog, M. N., Pableo, J. D. L., Pepino, M. R. A., Salim, K. E., and Sorongon,

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This study determined fat loss among overweight males utilizing resistance training in a fitness center in Davao City. The measures of adiposity (body mass index, waist-hip ratio, body fat percentage, and total body fat mass) were used as variables to measure body fat. A four-week resistance training program was designed to be performed three times a week, 60 to 90 minutes per session. Comparison of pre and post intervention measures of adiposity yielded the following results: 0.1 kg/m<sup>2</sup> increase in mean body mass index, 0.0009 increase in mean waist-hip ration, 0.482% increase in mean body fat percentage, and 0.46 kg increase in mean total body fat percentage. Results revealed insignificant difference between the pre and post intervention measures of adiposity. In this study, resistance training did not cause any significant fat loss among the respondents.

**Keywords:** *fat loss, resistance training, overweight males, fitness center*

## Pulmonary Function Test Results of First Year Medical Students Exposed to Formaldehyde

Adalin, V. A., Aturcido, R. T., Balleras, J. B., Capistrano, I. L., Dy, D. J. M., Isaguirre, B. M. D., Limlengco, G. B. C., Mamburan, K. J., Olalo, M. M., Pavino, A. R. N., Ramintas, J. L. J., Salvi, M. G. D., Solier, M. L., and Torrijos, D. M.

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First year medical students were constantly exposed to formaldehyde during cadaver dissection. This colorless substance which is commonly used as a disinfectant and preservation of cadavers gives powerful pungent odor and had reportedly caused respiratory problems to students. The study determined the pulmonary function of first year medical students exposed to formaldehyde. Study was conducted among 44 healthy (male and female) first year medical students of Davao Medical School Foundation Inc. The FVC, FEV1, and PEFR were measured using a digital spirometer. The research used a cross-sectional study design. Pulmonary function was measured before exposing them to the Fross Anatomy Laboratory for three hours with an interval of one and a half hours. Results revealed a significant decrease in values of FVC, FEV1, and PEFR of the participants after the third hour of exposure to formaldehyde. Furthermore, it showed a greater decline in males than females but both values return back to pre exposure levels after 24 hours. The changes in the pulmonary function across time for both males and females can be attributed to the acute effects of. Also, it was noted that there was a strong association between hours of exposure to formaldehyde and occurrence of respiratory restriction. Thus, strict implementation of continuous use of protective gear and appropriate ventilation must be implemented.

**Keywords:** *pulmonary function test, formaldehyde*

# Respiratory Symptoms and Chest X-ray Findings of Toner Dust-Exposed Photocopy Machine Operators in a Selected Photocopying Area in Davao City

Aguetas, W. H. O., Ayco, J. R. M., Cainghog, C. M. D., Copia, C. M. B., Espiritu, A. F., Gavira, N. A., Jarabelo, K. R., Madridejos, S. A., Osorio, A. M., Rannan, K. M., Salonga, C. C., Sukarno, S. A. M., Valencia, J. P. A., and Yuga, M. P. G.

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Photocopying industry in the Philippines grown tremendously. Substances found in the machines might pose a health risk for working individuals, especially operators who are constantly exposed. This descriptive cross-sectional pilot study that determined the respiratory symptoms and chest x-ray findings of the photocopy machine operators in select photocopying area in Davao City. From January to February 2013, 33 research participants were interviewed using the respiratory symptoms questionnaire adopted by the British Medical Research Council and the American Thoracic Society. However, only 23 respondents qualified based on chest x-ray results using the International Labour Organization Categorization for Pneumoconiosis. The results showed insignificant association between age and sex such as cough, phlegm, wheezing, and breathlessness, whereas the length of exposure showed a significant association. In chest x-ray finding, age, sex, and length of exposure showed insignificant association respiratory symptoms. Length of exposure showed a positive impact on the manifestation of respiratory symptoms as low, yet constant exposure over time might cause the toner dust to settle and accumulate over the years. Although insignificant association had been linked to the chest x-ray abnormalities with the said factors, it was suggested to use larger sample size to have more accurate abnormalities with the said factors, and to use larger sample size to have more factual findings in the future. With these in mind, prevention and adequate information dissemination are still of aid to the general population in regards to handling and operating such machines.

**Keywords:** *respiratory, x-ray, photocopy machine operators*

## ***Salmonella* spp. and *Enterobacteriaceae* in Street-Vended Foods in a Local Barangay in Davao City**

Babac, A. F., Carreon, L. A., De Leon, A., Espiritu, M. B. Lorenzo, B. M. F., Manguio, L. A., Montilla, K. A., Ong, D. S., Pendatun, D. S. IV, and Ramirez, L. J.

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Street foods are common source of snacks amongst locals throughout the country. Studies showed that lack of proper food handling can give way to pathogen contamination and render street foods possible source of food-borne bacterial infection. The study was conducted within a local barangay in Davao City. Thirty samples of street foods were collected and subjected to rapid testing for the presence or absence of *Salmonella* and *Enterobacteriaceae*. Out of 30 samples, 12 tested positive for *Salmonella* spp., which make these foods unsafe for human consumption. Furthermore, 13 out of 30 showed *Enterobacteriaceae* growth. Of this, five were found to be "satisfactory," six were "acceptable," while two were "unsatisfactory" following the standards set by PHLS. The presence of such pathogens calls for vigilance among consumers, as well as the merchant on eating and selling street foods.

**Keywords:** *salmonella, enterobacteriaceae, street foods*

## Severity of Low Back Pain and the Duration of Time Working as a Saleslady in a Local Department Store in Davao City

Aquino, J. M. R., Bernaldez, A. B., Duarte, R., Flores, L. A., Guardados, R. C., Lequillo, J., Mindanao, J. C., Roldan, I. R., Saron, J., Tejada, E., and Wee, A. M.

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Low back pain is one of most common musculoskeletal complaints among workers who stands for period of time such as sales ladies. A descriptive cross-sectional study about low back pain was done among salesladies in a local department store in Davao City. The study determined the severity of low back pain and duration of time working as a saleslady. It also determined the relationship between the severity of low back pain and the duration of time working as a saleslady. A self-administered questionnaire was given to each participant. Prevalence of low back pain was assessed using the Nordic Back Pain Questionnaire (NBPQ) while the Visual Analog Scale (VAS) was used to measure the severity of low back pain (LBP) experience by the salesladies. Results revealed that 73% of the salesladies experienced LBP and a severity of mild to moderate pain (3.49 to 4.99). It should be noted, however, that the salesladies have a very varied duration of time working as a saleslady which ranges from 26 to 44 months. Also, results showed that there was insufficient evidence to show correlation between the duration of time working as a saleslady and the severity of low back pain. Moreover, majority of the salesladies experience low back pain regardless of the duration of time employed in such profession further suggesting there was no direct relationship between both variables.

**Keywords:** *severe back pain, saleslady, working hours, no correlation*



## **Treadmill Exercise and Semantic Long Term Memory Retention of First Year Medical Students**

Arendain, G. I., Andico, R. B., Culaste, G., Dipaling, K. A., Guitierrez, V., Lagmay, A. A., Magbanua, A., Niñora, K. M., Pañares, B. D., Que, N., Rofreos, J. M., and Zaraste, A. B.

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Efficient long term memory contributes a significant component in getting higher grades in school, which was why several studies have emerged regarding factors affecting human memory. Such a remarkable study was the effect of aerobic exercise on long term memory. This study determined the effect of 30 minutes moderate and high-intensity treadmill exercise on the semantic long term memory of First Year Medical students of Davao Medical School Foundation (DMSF), 20 first year medical students undergone varying intensity treadmill exercise for three weeks, first week served as the control week with no exercise, second week used for moderate intensity treadmill exercise and third week for high intensity treadmill exercise. The research participants were given a pre and post test two days after the exercise regimen. The research participants exhibited a significant increase in the word and pictogram free recall-pretest, moderate, and high-intensity post-tests at 95% confidence level. From the study conducted, it can be drawn that aerobic exercise can have significant changes in memory retention brought about by diverse factors. Such could have resulted from increased delivery of oxygen in the brain, which can increase its activity. Another was the increases in hippocampal size caused by the increase in serum brain-derived neurotrophic factor (BDNF), which led to memory improvement in humans. Allocating a more extended duration and larger sample size, homogenizing the study by selecting respondents with very close characteristics, and using other forms of aerobic exercised can help for a better experimentation analysis.

**Keywords:** *treadmill, semantic, memory retention*





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