

## ZUNTHLUMMAW ??? (Diabetes Mellitus)

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Rawn ziah ka tum ber chu Zunthlum ( Diabetes) hi enge a nih a, engtinngge mahni inenkawl dan kan thiam ang tih a ni. Kan hriat tawh angin; a dam thei lo a ni. A vannei deuh chu, Zunthlum an neih tirhah han nasa deuh mahse, ei leh in an insum a, exercise an lak \hat chuan a dam leh mai bawk. Dam thei lo anih avang hian, nangmah emaw, i hmangaih tak ten an lo vei anih chuan, he natna hi i hriat chian hle a tula ni. He natna hian natna dang dang a paw chhuak hnem hle a, i hriat chian a, a enkawl dan i thiam a tul a, nangma tan chauh ni lovin, midangte \anpui turin. India chu Zunthlum Khawpui tih hial a ni ta a. Tunah hian Maktaduai 33 in vei mek anga chhut a ni a. Khawvel pumpuia Zunthlum zawng zawng za zel a 19 chu Indian an ni.

Khawpui mi chengte zingah hian za zela 12.5 chuan Zunthlum an vei a, hei hi sang zel tura rin a ni a, kum 2030-ah chuan Maktaduai 80 in vei tura ngaih a ni.

Zunthlumin a khawih chhiat zinga hmuh hrehawm em em mai chu - Diabetic foot (ke \awih) hi a ni. India ramah hian, kumtinke \awih avanga, ke tan hi mi singnga chuang an awm.

Zunthlum - lung tha lo hi a pung chak hle a. Kum 2005 ah khan za zelah 3.8% hmuhchhuah a ni a, hei hi pung zel tur a ngaih a ni. Thisen dawt a lo khawnga, a lo zim a, Thisen alo kal \ha lo emaw kal thei lo emaw anih chuan Stroke a lo awm a, hei hi Zunthlum hian Zunthlum nei ve lo aiin a let 2 a\anga let 4in a tam bik a ni.

Kal \halo za zela 45 hi Zunthlum vang a ni a, Engmah a na lo anga amaherawh chu a chhiat tak tak a, buaina lian a thlen hmain ven hram hram tura ni. Kan mit mawlh mai hi!!! Mitdel zawng zawng za zela 50 hi zunthlum tih chhiat a ni. Zunthlum vei zinga za zela 60 a\anga 70 hian hriatna thazam chaklo/\halo a nei a, hei hian hriatna a ti thi a, han din a luhai mut te, kut mu/ke mu/ke sa emaw chawmawlh emaw a siam \hin.

Zunthlum nei hi kan tam hle a, khawvel ah hiana la tam zel dawn a, mahse hei hi hre reng rawh Zunthlum nei i nih chuan -Nangmah ang hian tam a nia!! Nunna atan a hlauhawm a, i in enkawl \hat loh chuan mitdelna te, lungthat lohna te, kal \hat lohna te, ke tan ngaite etc a thlen \hin a ni. Hma taka hriat chhuah a, hma taka in enkawl hi a pawimawh hle a ni. Chutih rualin Zunthlum vei lo tur hian a in ven theih bawk

**1. Enge Zunthlum?** Kan taksa hian englai pawhin chakna a mamawh a, kan mutlai pawhin a mamawh a ni. Chutiang bawkin naupangte hian chakna (energy) hi an mamawh a ni. Kan taksa hian thlum (Glucose) hi chakna thahrui (energy) siam nan a hmang a, thlum (glucose) tello chuan thahrui (energy) a siam thei lo a ni. Chaw kan ei hian, kan thil eite chu thlum (glucose) ah a lo chang a, chu chu rilah kalin Ril atangin thisenah a lut a, kan thisen chu taksa peng hrang hrangah kalin, thahrui (energy) siam nan kan taksa peng hrang hrangte chuan an lo hmang \hin a ni. He thlum (glucose) hi kan taksa peng hrang hrangte chuan an lo hmang \hin a ni. He thlum (glucose) hi thahrui (energy) siam nana hmang tur chuan INSULINKan taksa in a mamawh a, chu Insulin chu kan taksa in a lo tlakchham/neihtlem chuan, thlum (glucose) chu hman \angkai lohin thisenah a awm a, kan zung chhuak bawk a, chu chu ani, thisenthlum/zunthlum chu. Heng thlum

(glucose) hman \angkai loha a awm chuan kan lo chau a, kan nguai a, thahrui kan nei lo a ni ber e. Kan cher tulh tulh a, nikhawhrela leh thih mai kan hmabak a ni.

**2. Zunthlum ka nei tih engtinngge ka hriat ang?** Engtinngge a lo lan chhuah? Zunthlum hian kan taksa pum leh taksa chhunga awm zawng zawng hi a khawih chhiat avangin, a lo lan chhuah dan pawh chihrang hrang a awm thei ang, chuvang chuan ‘bum hmang natna’ tih hial a ni. Mahse, kan taksa a thlum a lo tam deuh deuh hian lan chhuah dan bik a nei a, chungte chu:- (1) Tuihal huam huam leh dangro (2) Zun zin em em leh zung tam (3) Ril\am huam huam leh chaw ei tui em em mai te, mahse chu tih rual chuan an lo cher tawlh tawlh bawkw \hin. Mit a fiah lova an lo chau ngawih ngawih bawkw \hin a ni. Heng kan sawi tak te hi zawi zawiin a lo in\an a, hun rei tak hriat tham vak lovin a lo awm \hin. Tin, hetiang nilo hian nasa takin a lo lang thut thei bawkw, a bik takin type - 1 DM ah a ni duh bik a, nikhaw hriatlohna in a zui nghal mai.

Hun rei tak chauhna leh chaklohna, nguina a chhan hriat siloh hi zunthlum lan chhuah dan ber a ni. Mahse zunthlum vang a ni ang tih aimahin a chhan tur dang awm zawngzawng kan puh fo zawkw \hina ni.

A chung a lan chhuah dan kan sawi bak ah khian, alan chhuah dan hrang hrang a nei a, chungte chu:-

1) Vun a a lan chhuah dan - Vun thak leh vual, a bikin kap leh serh bawrah a ni duh -hei hi a nuam lo hle a, tin khawihli leh pem dam \ha duh lo angte pawhin a lang chhuak bawkw a.

2) Hmeichhe harsatna bik, Entirnan - Serh thak, bawlhhlawh var chhuak nei deuh reng mai ang te pawhin a lang chhuak a, hmeichhespecialist te hi zunthlum hmuchhuaktu an ni chawkw reng a ni.

3) Mipa natna bik -Pa hleih theih lohna hi mipa a lanchhuah na hmasa ber a ni fo a. Hei hi natna zawng zawng a rilru tina ber tu a ni.

4) Hriatna - Thazam natna, ke-mu, ke-zaw, ke-sa -heng te hi zan lamah a zual duh hle a, mut tihar khawpin a awm theih a ni. Tin, zan lamah tha-chat kan tih hi a awm duh hle bawkw a ni.

5) Chauh riauna hi chhan tam tak a awm a, chung zinga common ber chu “Zunthlum” vang a ni. Hei hi a lan chhuah dan hmasaber a ni chawkw.

6) Mit fiah lohna - Sugar a lo san hian mit a lo fiah lo nghal mai thin a ni. Hei hi thlum tam tak kha kan mitah hian a in chhek khawm vang ani. Enkawh hnuah chuan a lo zia awm leh mai \hin. Zunthlum control hma a tarmit siam tir hi a hman tlak leh \hin loh fo a ni.

**3. Engvanga lo awm nge?** A chhan hi tam tak sawi tur a awm thei a, Inthlahchhawn hi za zel a 30 atanga 50a ni a. Nu leh Pa ten an neih chuan neihna chance a sang hle a, Nu chauhina emaw Pa chauhina a neih chuan neihna chance a tlem deuh a, Pa te lam a\ang aiin Nu te lam a\angin thlahchhawn hi a tam zawkw fe. Tin, thau lutuk emaw hian zunthlum a siam thei a. Hei hi thau (fat) hian Insulin hnathawh a dal vang a ni. Thau hi kan dul pawn (dul-kia) ah a tam hian zunthlum neih a awl bik a. Changkanna in a ken ve reng a tih thei bawkw awm e. Kan hmasawna hian nasa

takin in elna leh rilru hahna a siam nasa em em a, inah chaw mumal pawh ei hman lovin - office-ah/dawrah fast food/soft drinks etc. Kan eiin kan in nasa em em a, heng hian zunthlum a siam thei a ni. Tin, changkanna in a ken lirthei - motor car/bike kan keng a, ke a kal kan peih lova, inchhawngah lawn dawn ila, step a lawn ai chuan 'lift' a inkhai chhoh kan duh zawk a, exercise hi kan nei lo lutuk hi a \halo a, zunthlum kan neih phah \hin a ni.

**Thlahtute :-** Hei hi thlahtute a\anga in rochun zel a ni thei a - Hei hi 'Genetic' kan tih chu a ni, Insulin min pechhuaktu b-cell hi zawi zawiin a lo chhia a, a chhe hnem tial tial a, Insulin kan tla chham tial tial a, kan taksa mamawh puhru khawp kan lo nei lova, chuvangin Diabetes kan lo vei ta a ni. Hetiang hi type -2 Diabetes kan tih te chu an ni a, 90% Diabetes hi hetiang hi an ni a, damdawi mum leh Insulin Injection ina enkawl theih a ni.

**Chenna Boruak:-** Khua a lo vawt a (thlasik) kan chenna boruak a virus te an lo pung \hin. Heng Virus te hian b-cell an tichhe thei, tichuan Insulin an lo pe chhuak hlei thei ta lova, Diabetes kan lo vei leh mai \hina ni.

**Nausen Lai a Ei leh In Vang:-** Nu in hnutetui a neih loh chuan naute in bawngnhute a lo ring \hin a. Hengnaupangte hian Diabetes an vei duh bik em em a ni. Chumai a ni lova, naute bawngnhute ring chu an thau duh bik a, thau hrim hrim hi 'Insulin resistance' siam te a ni bawkw. Tin, nausen pianghlim te lutuk leh naupang sawngnawi lutuk hian b-cell an nei \ha tawkw lova, Diabetes an vei duh bik bawkw.

**Zu In nasat Vangin:-** Zu-in nasa zingah hian Diabetes a awm duh hle, Zu hian Insulin pe chhuaktu Pancrease natna (pancreatitis) a siam thei a, tin, lungte a awm tir thei bawkw. Hengte hian b-cell hnathawh a ti khawlo a Diabetes kan lo nei theih phah a ni. Hetiang hi "Pancreatic Diabetes" an ti bik \hin. Heng mite hi a bik in an cher duh a Insulin an mamawh bik a ni. Tin, mipat naah harsatna an nei duh bik bawkw.

**Raipuar Vang :-** Rai-lai hian Human Placental Lactogen Level a lo sang a, hei hian Insulin hnathawh a dal a, chu chuan zunthlum asiam thei. Hei hi "Gestational Diabetes" an ti bik a. Nau neih zawhah a reh ve leh thei, mahse tam tak chuan Diabetes an vei tlang thei bawkw. Tin, rilrua kan pai reng tur chu GDM (Gestational Diabetes) hi kan hmuh \hlelh fo mai a, Rai lai a vawikhat blood sugar test a lo \hat pawh in thla thum hnuah ennawn leh ngei ngei tur a ni. Sugar level a lo san hlek chuan nau chhiat fo na (recurrent abortion) hi a awm duh em em a, chuvangin nau chhiat fo tawh phei hi chu uluk taka a naupai lai hian blood sugar hi vawihnih/vawithum en ngei ngei tur a ni. A chhan chu vawihnih khat ena a lo \hat pawh in, a hnu third trimester-ah pawh a lo sang theia, chu chuan nauchhiatna a thlen leh mai \hin. Tin, Nu in naute 3.5 kg aia lian a hrin chuan blood sugar test ngei ngei tura ni. A chhan chu IFG emaw IGT emaw hriat-loh GDM pawh alo ni thei reng a ni.

**4. Zunthlum hi chi engzatnge awm?** Zunthlum hi chi hrang hrangin a thliar theih a- a thliar dan hi a chhan a zirin a ni ber.

1. Type - I Diabetes : Hetah hi chuan kan taksa hian Insulin a tlachham hle ringawt mai a ni. Rang taka enkawl an nih loh chuan thih ngei ngei a ni mai. Hetiang hi naupangah hmuh ani deuh ber a, mahse puitlingah leh upa lamah pawh a awm thei tho.

Naupang a alan chhuah dan ber chu Luak, Pumna, Khawsik - chu nikhaw hriatlohna in a chhun zawm a, rei lo te ah an chhe nghal zawt zawt mai a ni. Tin, khawsik, luak, pumna an neih kher loh pawhin naupang a lo cher tawlh tawlh a nidang anga infiam an peih loh chuan emaw an hah hma hle chuan doctor panpui mai a \ha.

Naupang kumkhat hnuailam ngat phei chu Nu leh Pa in an ziate, an than dante, an chaw ei/hnute hnek dan te ngun tak a chik a \ha. Tin, khawsik luak an neih a kaih maite, luak hlek a kaih emaw, chau chhe der mai an nih chuan Diabetes an nei em chian vat a \ha. Tin, nausen Diabetes hi a \hen chu an lo lei kan deuh hnuah an dam leh mai thei bawk.

2. Type - 2 Diabetes: Hetah hi chuan kan taksa in Insulin a tlachham let tawp a ni lova, Insulin hi kan mamawh aiin a tlem a, chu mai ni lovin kan taksa a Insulin awm sa pawh duh angin a hmang \angkai thei lo a ni. Chu chu “Insulin Resistance” an ti. A lo awm chhan tlangpui te chu - Thau lutuk vang : Ei leh in luat lutuk vang a ni deuh ber a, Kan san zawng leh kan rih tur aia rit kan nih chuan “Insumtheihna” hi damdawi \ha ber a ni. Tin, thatchhiat vang a tih theih bawk ang, ke in kan kal peih mawlh lova - motor ringawt kan ring tawh a, zing/tlai ah emaw a hranpa in exercise kan la peih chuang lova, holiday in mu chungin TV kan thlir a, computer games kan khel a, taksa sawizawina a lo tlem tialtial a, kan thu tulh bawk a - Insulin Resistance a lo sang hret hret bawk a, chu chuan diabetes-ah min siam nge nge \hin. Hengte hi changkanna in a ken kan ti thei ang. Step a rang tak a lawn aichuan lift a chuan mai te a lo nuam bawk si a.

3. GDM (Gestational Diabetes Mellitus) : Hei hi Nu in nau a pai lai chauhvinn a nei \hin a, nau a hrin hnuah a lo reh leh mai \hin tlangpui a, nei zui ta pawh an awm bawk.

4. Natna dang dang vangin:- Entirnan - Acromegaly, Cushing Syndrome, Thyrotoxicosis, Turner’s Syndrome etc. te hian Diabetes an keng tel deuh zel. Hengho hi “Secondary Diabetes” an ti bik.

**ZUNTHLUM NATNA ZAWN-CHHUAH HI:** Hei hi Damdawia thawkte mai ni lovin mipuite mawhphurhna pawimawh tak a ni. Zunthlum kan neih chuan kan taksa in “Insulin” a tlakchham avangin thisenah “Thlum” a lo sang a. He “Thlum” hi kan taksa in a hman \angkai theih loh avangin, taksa zawi zawiin a lo chhe hret hret \hin. Thisen dawt a lo khang a, a lo zim hret hret a, B.P alo sang hret hret - Kal, Mit, Lung \halo leh Stroke te a awm duh bik em em a ni. Heng natna te hi pumpelh tur chuan, a hma thei ang bera Zunthlum natna hmuhchhuah leh enkawl hian, a chung a natna thalo tak tak te hi ven theih an ni. He zawnchhuah hna hi mi zawng zawng mawhphurhna a ni. Nu/Pa in an neih phei chuan kum 20 kan lo tlin a\ang hian kumtin vawikhat tal kan thisen thlum leh thlum loh hi kan en ngei ngei \hin tur a ni.

Tin, Naupai-lai hian vawithum (3) tal chu thisen check a \ha. Miin nau a lo chhiat fo tawh phei chuan in check a, Doctor rawn ngei ngei tur a ni. Nau-pai laia Nu in zunthlum a neih hian Nautenu pum chhunga awm khan a chhiatpui \hin avangin in enkawl \hat hle a ngai \hin, chu mai ni lovin Naupang kha a lo seilenna ah harsatna tam tak a awm thei bawk. Nau dama an lo pian pawhin, piansualnachi hrang hranga neih loh vek pawhin thisen lamah diklohna a awm \hin. Hengte veng tur hi chuan naupai laia in check ngun leh in enkawl a ngai em em a ni.

Kan lo upa hret hret a, kan lo thau hret hret a, kan tha a lo \hum hret hret hian “DIABETES” neihna chance a lo tam ve hret hret \hin. Tin, thau mi, thisensang neite, thisena thau \halo ngah mi leh naupai laia zunthlum neite, chi bawm (Ovary) natna neite, nu leh pa zunthlum neite tan phei chuan kum tin vawi-2 tal chu in enchhin ziah tur a ni.

**Naupang Zunthlum** - Naupangte hian zunthlum vei lo turah kan ngai deuh ngawt \hin. Hei hi a dik vek lo, nausente pawhin a neih thei \hin a ni. Nausen a chhan hriat vak lohva a kaih chuan rinhlelh hmasakah neih ngei ngei tur a ni. Heng naupang zunthlum nei naupang za zelah 1 - 2 in an vei a ni. Mahse hei pawh hi kan la hmuchhuak lo lutuk a ang. Naupang tam tak hmuhchhuah loh leh hmuh \helh an awm a ni. Kum 1992 - 1996 inkar a Research an neih chuan hetiang hian a tarlang - Naupang Kum 10-14 inkarah hian Sangkhat zelah Sawmhnih pali zelin an nei ang a ni a. Kum15-19 inkarah chuan Sangkhat zelah mi Sawmnga pakhat in zunthlum an nei tih an hmuchhuak bawk.

**ZUNTHLUM VENNA/TIH TLAINA**:- Zunthlum hi tunah mai chuan natna man to leh phurrit ber a ni a, chu mai ni lovin kan ramah phei chuan a pung tual tual mai si a. He natna in a ken te chu tuar tham tak leh kan taksa peng hrang hrang hnathawh te ti chhe vek thei a nih avangin ngaih\hat mai mai chi a ni lo a ni. Kan ramah ngat phei chuan a pung chak em em a, khawvel puma Zunthlum vei hi kal khawm ta ila 5 zinga 1 chu India mi a ni zel dawnin tunah hian chhut a ni. India ram pumah hian Za zelah 12 (12%) in Zunthlum an nei a. Chennai bikah khuan za zela 13.5 in an nei a; Mumbai-ah khuan za zela 10 in an vei bawk a, Kan State khawpui Aizawl/Lunglei chu hriat a ni rih lo. He natna lo pung chak ta em em hi ven emaw tihkhawtlai emaw hi a pawimawh em em a ni.

Zunthlum venna hi engtia tih tur nge ni ang tiin nasa taka beih a ni a. Tin, ei leh in te, exercise te an enchhin vek hnuah, Damdawi \henkhat, Troglitazone, Metformin leh Acarbose te an chhin leh a, Heng an enchhin hrang hrang atang hian inven theih anih zia leh Zunthlum la awm tur hi kum tam tak ina tih khawtlai theih tih hriatfiah a lo ni ta a ni. Hetih rual hian Type-I Diabetes erawh chu a ven dan emaw a tih khawtlai dan emaw an hmuchhuak thei chuang lo a ni. Diabetes-ah hian 90% chu Type - II an ni a, 10% chauh Type - I Diabetes an ni. Tin, Zunthlum hian 30 - 50% te chu chi inthlahchhawn a kal a ni. Chuvangin heng inthlahchhawn zunthlum hi nasa takin a tihkhawtlai/ a ven theih ta a ni. Kan sawi tawh ang khan Nu leh Pa in an vei ve ve phei chuan, fate tan chuan neihna chance a sang hlea ni. A bikin hmeichhe fate tan chuan a neihna chance a sang zual a ni. Hengte avang hian inven lam hi ngaih pawimawh ngei ngei tur a ni.

Diabetes Venna/Tihkhawtlai nan an enchhin hrang hrangte chu Hetiangte hi an ni-

**1. Finish Study** - Hei hi kum 3 leh a chanve chung neih a ni a, Hei hian nasa taka Ei leh In Control leh Exercise tang kawp chuan nasa takin Zunthlum vei tur a veng (58%) tih hmuha ni. He an thil zir chhuah hian Ei leh In control pawimawh zia leh Exercise regular taka lak pawimawh zia - zunthlum tur venna atan a \angkai zia a tilang Chiang hle. Tin, thau lutuk \hatloh zia a tilang bawk.

**2. DPP (Diabetes Prevention Programme)** - Hetah hian damdawi Metformin hman a ni a. Tin, Ei leh In Control bakah Exercise te telh a ni a. A chung a kan hmuh ang khian ei leh in control +

Exercise group-ah hian Diabetes Incidence chu 58% in a tlahniam a, Tin, Metformin group ah hian 31% in a tlahniam bawk a ni.

**3. Tripod Study** - Hetah hian hmeichhia nau an pai lai a zunthlum lo nei tawh teah chhin a ni a. Damdawi Troglitazone hman a ni a. He damdawi hian 56% in a veng/titla hniam thei tih hmuhchhuah a ni.

**4. Stop - NIDDM- Trial** : Hetah hian damdawi Acarbose hman a ni a, he damdawi hian 36% in a ti tla hniam thei tih hmuh a ni.

Tichuan, a chungka kan hmuh a\ang khian Ei leh In Control leh Exercise lak \hat a pawimawh zia chu kan hrechiangta a. Mahni rih tur aia rit kan nih chuan in controla, kan rih tur ang chiah hi a pawimawh hle a ni. Kan hriat theih dan tur awlsam ber chu - Kan san zawng (height) hi Centimeter in teh ila chuta tang chuan 100 paih ila, chu chu kan rihzawng tur duhthusam chua ni. (eg Ht. 160 cm. Rihzawng tur =  $160-100=60$  Kg).

**DASH ( DIETARY APPROACH TO STOP HYPERTENSION/DIABETES )** :-Thisen sang leh Zunthlum veng tur a kan Ei leh In turte :-

A tlangpuiin Mizote hian tel (Oil) hi kan ei tam mah mah \hin niin a lang, Thisen sang leh Zunthlum neite kan han zawh hian tel (oil) hi kan ei tam viau hlawm mai, WHO in kan hriselna atana \ha tawh tur hian tel hi Litre $\frac{1}{2}$  (chanve) i.e 500ml thla khatah mi pakhatin a tla tur a ni a ti. Kan taksa tana \ha tawh aia tam hi kan ei fur hlawm awm e. Chuti anih chuan, kan chhungkua member 4 (pali) kan nih chuan, thlakhat chhunga tana kan tel (oil) mamawh zat chu 2 litres a ni tihna a lo ni.

Thisensang leh Zunthlum ven nan leh enkawl nan hian, kan ei leh in hi a pawimawh em em a, Sa lam aiin thlai hring ei hnem hi a \ha a, thlaih hian a hnah leh a rah te a hrisel em em a, hel ei chi carrot, Radish etc. te hi kan taksa in natna a dona a ti chak a, purun hian thisensang leh zunthlum a ti hniam a, changkha leh thlaihna hote hian nasa takin zunthlum leh thisensang a veng a. Tin, a enkawl nan pawh a \angkai hle a ni. Hmarcha hi a hrisel em em tih hmuhchhuah a ni a. Tunah chuan a hrisel zia hi an tlangau pui mek zel a ni.

Thei chi hrang hrang ei tam hi a finthlak a, a tui in te hi a \ha hle, amaherawhchu, thisen sang leh zunthlum nei te chuan soft drinks - eg, Frooti, Coca Cola, Fanta, Appy ecte erawh hi chu a \ha lo hle a ni. Hengte hian thisensang leh zunthlum a ti zual a, a siamtu a ni bawk. Keimahni thlaihthar chaw pangngai chi hi chu a \ha a, a hrisel em em a ni. Heng Mizoram a kan hmuh ang chi -apple, grape, hmazil, hnuhnun, dawnfawh etc. te hi an hrisel em em a ni.

Bawnghnute a khar tello a in hi a \ha a, Butter Milk chini pawlh loh a \ha. Cheese leh Paneer te hi non-fat anih chuan a pawilo. Arsa kan ei duh anih chuan a vun leh a thau paih vek a \ha, a tui (soup) in leh chawm hi a \halo a ni, Artui ah hian thau (fat) leh cholesterol a san em avang hian ei tam loh hi a \ha a, Sangha hian thau \ha kan tih ang chi Omega-3 Fatty Acid a ngah avang hian Sangha hi a him ber ani. Vawksa erawh pumpelh hram a \ha ber. Dal leh a chipui dangte (pulses) chana etc hi a hrisel a. Chini, Butter, Ghee, Oil ei tlem a \ha.

Kan ei leh in te chu thil chi hrang hrang - Thei, Thlairah, Thlaihna, sa etc a ni tur a ni a, thlai hnah hring leh thlai hnah eng chi te leh corrot, radish, milk etc. te ei tam a \ha. Kan rihna te hi a \ha tawkah kan vawng reng tur a ni a, chu chu ei leh in leh Exercise a control tlat tur.

Kan ei tur te hi fimkhur taka thlan \hin tur a ni. Thau (fat) tam lohna hi thlan fo \hin a \ha, a thlum lutuk tur a ni lova, a al lutuk tur a ni baw lo, a theih hram chuan a thar lam ei \hin a \ha. Chi (salt) hi mi pakhat in nikhat atan 4-6gm a ni a, Tel (oil) hi 15-20 gm nikhat atan mi pakhat tan a \ha taw. Chu chu 3-4 tsf a ni. Tel tih hian Butter, Ghee leh Sa-thau a tel a ni.

**ZUNTHLUM ENKAWL DAN:-** India ram bikah hi chuan, changkan zelna leh nunphung inthlak chho zel hian Zunthlum a ti tam ta em em niina lang, hetianga kan lo pun chhoh zel avangin a in enkawl dan leh inven dan hriat hi a pawimawh em em a ni. India hi WHO chuan Diabetes khawpui ( Diabetes Capital of the world) ah a puang ta hial a ni. An chhut dan chuan kum 2025 ah chuan 5.72 core Zunthlum vei awm tura ngaih a ni. Tin, Zunthlum vei zingah hian \ha taka enkawl na dawng chu za zela 10-12 chauh an ni, a tam zawk hian enkawl na \ha an dawng loa ni.

Zunthlum enkawl na hi thlan thiam a ngai hle a, a enkawl na hi a vei te hian an pawm thlap loh chuan control a har em em a ni. Zunthlum vei tam tak te chu Ei leh In control leh Exercise leh Damdawiin a control \hat hle laiin tam tak hi chuan Insulin an mamawh nghal \hin. Tin Insulin hi Naupai-lai te, Inzai ngai te, Natnadang entirnan T.B veite hian an mamawh nghal \hin baw. Zunthlum hi Thisensang nen hian an kal kawp duh hle a, chuvangin Zunthlum enkawl rualin Thisensang hi uluk taka enkawl ngei ngei tur a ni baw.

### **1. Zunthlum enkawl na in a tum te:-**

.Zunthlum sang lutuk tur leh hniam lutuk tur ven a ni.

.Zunthlumin a kal pui Thisensang leh Thisen thauchhia enkawl nghal te.

.Zunthlum avang a mitdelna, kal \halo, lung \halo, zeng leh ke tan ngai ven tlat te.

.Zunthlum veite nuam taka nunphung pangngaia an nun ve nan te.

.Kan Blood Sugar hi chawei hma 120 mg/dl aia sang lo leh chaweikham 180 mg/dl aia sang lova dah tum tlat te.

.HbA1c hi 7% aia sang lova dah tum a ni. HbA1c hian kan Zunthlum average control thla thum atan min hriattir a ni. A normal chin 4 - 7% a ni.

**2. Ei leh In :** Ei leh In hi zunthlum enkawl na a hmun pawimawh luahtu a ni. Kan thil ei hian carbohydrate 60% leh protein 10-20% leh fat 20% a keng tur a ni. Ei leh In bakah hunbi dika ei hi a pawimawh em em a, kan thil eiah te chuan Vitamin A, C leh E a tam tur a ni. Chi (Salt) a tlem thei ang ber ei tur a ni. Thisensang neite phei chuan chi ei tam loh tur, thlai hnah ei tam a \ha.

**Ei leh In tur Duan** - Hei hi kan tih makmawh a ni. Kan hnathawh a zirin kan eitur mamawh zat a dang vek a ni. Chutiang bawkin kan exercise lak duh zat a zirin kan ei tur mamawh zat pawh a dang ang. Kum 20 hnulamah hi chuan zawi zawiin kan eitur mamawh a thla hniam hret hret a, kum inang, san zawng inang rau rauhpawh, a sang zawk chuan a hniam zawk aiin a mamawh a tam a. Heng a\angte hian i Doctor/Nutritionist te chuan i mamawh tawh an chhut chhuak mai ang. Kan Ei leh In te chuan, carbohydrate, protein, fat leh fibre a inpawlh tawh a pai tur a ni. Kan thlai ei te hi a tharlam tura ni. Chu chuan Vitamins leh Minerals an pai \ha a, kan chaw ei dan hi a pawimawh hle a, duh dan chuan nitin vawi - 4 zing chaw, chhun, thingpui, tlai chaw, mut dawn bawngnhute leh chhang/snacks, hi a \hat dan ber chu a ni. Chaw nghei mai mai hi chin loh tawp tur a ni.

### **Ei leh In Inkaihhraina:-**

1. Ei leh in hi Zunthlum enkawl nan a pawimawh a ni tih hriat reng tur.
2. Zunthlum tan hian chaw special bik a awmlo tih hriat bawh tur a ni. Midangten an ei \hin ang hi kan ei ve thei tho tih hriat tur a ni. Chuvangin, engzatnge kan ei theih ang tih hi in zawh fo zawk tur a ni.
3. Chaw (buhfai) kan ei lo tur tih dan pakhat mah a awm lova, Atta/wheat chauh kan eitur tih dana awm bawh lo. Heng ho hian za zelah (70%) starch - thlum siamtu an nei vek a ni. Chuvang chuan buh/atta i ei leh ei loh aiin, engzat nge i ei tih a pawimawh zawk a ni. Chuvang chuan a hrechiang tan chuan buh ei tih a pawimawh zawk a ni. Chuvang chuan a hrechiang tan chuan buh (chaw) ei hi zunthlum nei tan a theih a ni tih hriat ngei tur a ni.
4. Kan Protein ei kan ti tam tur a ni a, chumi tur chuan - chana, dal etc kan ei tur a ni. Sa a\ang aiin thlai a\anga protein kan hmuh hi a \ha a, mihringin kan ngeih zawka ni.
5. Thlai-hnah/rah eitam hi zunthlum control nan a \angkai em em a, chumai ni lovin - thisen thauchhia tih tlem nan a pawimawh em em a ni. Be-lam chi te, thlai dang leh hnah hringte hi kan ei tam tur a ni.
6. Tel/Butter/Ghee ei tlem a \ha. Hengte hian thisen thauchhia an ti tam \hin a ni. Heng kan ei tlem hian Lung natna tam tak kan pumpel thei a ni. Thau lam (tel) kan duh loh zualte chu - butter, ghee, coconut oil, vawh hriak etc. heng ho hian thisen a thauchhia an ti tam hma bik em em a ni.
7. Nitin a kan ei leh in hi tih tlem a tha. A bikin thau (over weight) te phei chuan tih tlem ngei ngei tur.
8. Vawikhat a ei \euh aiin, tlem deuhva ei zin a \ha. Hei hian zunthlum control ati \ha bik.
9. Thlai leh thlaihnah chi te hi duh tawh in a ei theih a. Bul nei chi eg. Alu, Bal, Pangbal, Kawlbahra te hi insum a \ha.
10. Ei leh In hi \ha taka control a nih chuan -

Nunphung pangngai in kan nung thei a.

Zunthlum avanga harsatna awm \hin te kan veng thei a

Damdawi tam tak kan ei a ngaihloh phah a

Kan rihna control nan a \angkai em em a ni.

### **Exercise -**

Exercise hi zunthlum enkawlna zinga tel tlat a ni. Nun a ti hlim a, hriselna a ti \ha a, Zunthlum control nan a \ha hle a ni. Exercise laka hriat tur pawimawh zual chu kan sawi tawh a, eng ang exercise nge kan lak theih tih doctor-ah in check up a, enfiah phawt \hin a \ha. Tute tan pawh ke a chak-tawh tak a, minute 30 - 45 kal hi a \ha tawh hlea ni. Pheikhawk tawt lutuk bun loh a \ha. (Pheikhawk I lei in tlai lamah lei \hin ang che) Exercise lakin biscuit emaw chocolate emaw ei \hin ang che. I ke a pilh loh nan fimkhur la, exercise dawn leh zawh hnuah ke endik ziah tur a ni, BP sang lutuk leh zunthlum sang lutuk chungin exercise lak loh a tha.

*Engvangin nge Exercise kan lak ang?*

Exercise hi tute tan pawh a \ha a, min tihlimtu ber pakhat a ni. Zunthlum enkawlna hi kawng thum a awm a, Damdawi, Ei leh In leh Exercise te hi an ni. Heng kawng thum hi rual takin zunthlum enkawlna ah hian an \ang tlang tur a ni. Exercise \ha taka lak hian zunthlum control a ti\ha mai ni lovin, Thisen dawt \hat loh vanga lungna tur leh kehmawr \awih tur a veng a, Insulin in kan taksa tana a hnathawh, a thawh \hat tir a, Thisen -thauchhia a paih chhuak a, Lung a ti chak a, Blood Pressure a ti hniam a, Rilru leh ngaihtuahna a siam \ha a, thisen taksa peng hrang hrang a kal a ti \ha a, Nun hrim hrim hi a tihlim a ni.

Zunthlum neite tan - Exercise lak-hma a hriattur te:

1. Zunthlum Control lo lutuk - Sang lutuk te chuan exercise lak loh a \ha.

2. Blood Pressure Control loh Sang lutuk chungin exercise lak loh a \ha.

3. Pheikhawk tawt lutuk bun loh tur a ni. A bikin Zunthlumin hriatna-thazam a tih khawloh tawhte pheih chuan exercise lak hma leh lak zawh hnuah ke ngun taka enfiah vek tur a ni. Pheikhawkin a nawt pilh em? Lungte a lut em? Hei hian harsatna namenlo leh sum tam tak sen ngai “Diabetic Foot” a siam thin. Kan hriat angin accident vanga ke tan ngai tih loh ah chuan za a (80%) ke tan ngai hi zunthlum tih chhiat a ni. Pheikhawk lei dawn reng rengin zing lamah lei lovin, tlai lamah lei \hin tur a ni, a chhanchu tlailamah hian ke hi a lo lian hret a, chuvang chuan tlailamah pheih-khawk i lei chuan i tawt dawn lova, pheikhawk tawt bun loh reng reng tur a ni.

4. Exercise lak hma in Doctor rawn tur a ni - Engvangin maw? Zunthlum vangin, Thisen dawt \ha lo, Mit \ha lo, Kal \ha lo, Hriatna thazam \halo i nei em hriat hmasak ngei ngei a \ha. Zunthlum vanga mit \halo, kal \halo i nei hlauh a nih chuan exercise hahtlak tak, \an \awng \awng ngai chi reng reng phal a ni lova. Heart attack nei tawh i nih chuan zing lam aiin tlai lamah exercise a fuh

zawk a, BP sang nei I nih chuan exercise lak hmian control phawt tur a ni. Pum ruak lutukin exercise lak loh tur a ni, a chhan chu i Zunthlum a lo hniam thut anga, nikhawhrelavin i tlu palh thei a ni. Exercise i lak dawnin biscuit emaw chocolate bar pai \hin tur. I ril a tam viau a, i mit a thim sulh chuan \hut hahchawlh a, biscuit emaw chocolate emaw ei vat \hin tur. Sugar sang lutuk emaw hniam lutuk a exercise lak loh tur. BP Control loh chung a exercise lak loh tur. Exercise lak hmian tui tam tawk in ngei ngei tur. Exercise lak hmian i dinhmun dik tak leh eng ang nge i tih theih chin Doctor zawhfiah ngei ngei tur.

5.Ke pun/pem nei chungin exercise lak loh a \ha. Hetiang nei reng reng chuan uluk taka enkawl dam phawt tur a ni.

6.Exercise chi hrang hrang tam tak awm mahse ke a kal pangngai hi tu tan pawh a him a, a \ha a ni.

7.Exercise a tan “ Rit chawi” hia \halo tih hriat reng a \ha.

8.Exercise hi minute 30 - 45 thleng ke a kal hi a \ha tawk a, kar-khatah ninga (5) a tawk, nihnih (2) chawlh a lak theih.

9.Kan exercise lak chu Aerobic leh Isotonic an ni tur a ni a. (Isometric ah chuan rit chawi hi phalloh a ni.) Chungte chu - Chak pangngai tak a kal, tlan/zuan, Tuihleuh, Cycle chuan, lam, inhruizuan, bad-minton, tennis, football, volleyball, basketball, hockey etc. te an ni.

10.Kan exercise lak nasat dan tur a zirin kan ei leh in kan ti tam tur a ni. Hah taka inkhel tur chuan inkhelh hma in thil \ha takin a ei phawt tur a ni. Exercise rei tak lak dawn pheih chuan, inkar lakah thil ei ngei ngei \hin tur a ni.

**Exercise hi enga tan nge? Engtin nge? Khawiah nge? :-** B.C 600 daih tawh khan Zunthlum enkawl nan hian exercise hi an lo hmang tawh thin a, heng hunlai hi chuan damdawi \ha zunthlum enkawl na tur engmah a la awm loa ni. 1920 daih tawh khan Diabetologist lar tak Joslin (Father of Modern Diabetes) chuan Exercise, Damdawi, Ei leh In, Insulin Injection hi \ang kawp tlat tur leh pawimawh tlang vek an ni a ti \hin. Hmanlai chuan damdawi \ha a awm lo a lawm, i ti a ni mai thei, mahse Insulin leh damdawi \ha chi hrang hrang awm tawh hnuah pawh exercise hian zunthlum enkawl nan hian hmun pawimawh tak a chang zel tho a ni. Zunthlum \ha tak a enkawl a, nunphung pangngai nei tan chuan, Exercise, ei leh in control leh damdawi te hi an pawimawh tlang vek a ni.

Exercise hi zunthlum enkawl nan mai a ni lova, zunthlum vennis hian a pawimawh em em a ni. Exercise hian thisen thau-chhia a ti tlem a, min ti hlim a, tihrawl a ti chak a, lung a ti chak a, chuap in boruak \ha a hip a, thisen a ti thianghlim \hina ni. Miin regular taka exercisela lak chuan, zunthlum leh thisensang lakah nasa takin a veng a, a enkawl nan a \angkai hle a ni. Amaherawhchu, engang exercise nge lak tur tih hi a pawimawh a, miin zunthlum a neih a, thisen sang a neih chuan exercise lak hma in control phawt tur a ni. Zunthlum sang leh thisen sang control loh chuan exercise hi a hlauhawm tih hriat reng tur a ni.

Exercise lak dawnin eng chi nge ka lak dawn tih hi a pawimawh a, hei hi mimal tinah a in ang lo thei a ni. Kan taksa fit dan a in anglo ang bawkin kan exercise lak dan tur pawh a in ang lo thei a ni. Tin, exercise lak hmain Diabetic complication engnge ka neih tih hriat hmasak ngei ngei tur a ni. Miin zunthlum vanga a mit emaw, a kal emaw a lo \hatloh chuan Strenuous exercise (exercise hahthlak) lam chi reng reng a ti tur a nilo. Mi zawng zawng ten a kan tih theih chu Isometric Exercise entirnan - ke a kal te, yoga etc. te hi a remchang em em a ni. Office kal leh Dawr nghak \hin te chuan zingah emaw, tlaiah emaw regular taka exercise lak a ngai thung. Dawr nghahna-ah emaw office kalna-ah emaw sneaker/puan pheikhawk bun mai a, kal lam, haw lamah ke a kal mai hi a \ha, hun remchang ber a ni mai.

Engtianga nasa in nge exercise kan lak ang? Hei hi zawhna pawimawh tak a ni. Mi pakhatin midang tih ang a nasa in a ti nghal nghawt tur pawh a ni lo. Kan physical fitness a in ang thei lo a ni. Zawi zawiin kan \an phawt anga, nasa zawk a tih phawt tura ni. Vawilehkhat-ah tennis/badminton etc. khel nghal vak mai lovin, zawi zawiin kan \an tur a ni. 10 Km chau lova kal i duh chuan 1 Km a\ang a tan bek bek phawt hi a \ha. Exercise lak vak a, tawp san leh mai aichuan zawi zawi a regular taka lak reng hi a \ha zawk a, taksa in a ngeih em em zawk a ni. Exercise hian kan taksa a sawizawi tur a ni a, a “Sawisa” tur a ni lo. Engang a nasa nge exercise ka lak tih hi mahni leh mahni a in judge \hin tur a ni. A mawl thei ang ber a in chhut theih dan chu, exercise lak lain pangngai takin a \awng thei em tih a ni. Duh dan takah chuan exercise kan lak tan tirh lamah chuan MHR (Maximum Heart Rate) hi za zelah 60 a ni tur a ni a, a rei deuh chuan 70% - 75% ah tih chhoh tur a ni. (  $MHR=220-Age$  ) A dik tak chuan HR hi kan lo fit hnu chuan a sang chho tawh lova, a hniam reng zawk \hin. Marphu a tlem raih hi chuan kan fit hle tihna a ni. Pathian in ke zung\ang khawih thei tura min duh a nih chuan eng a tinge hei aia sangah ke zung\ang a dah mai loh? Kan ti ve mai ang tih hlauhawm a ni.

## **DAMDAWIA ENKAWLNA**

Kan Ei leh In, Exercise bakah hian damdawi mum ei emaw Insulin injection emaw a \ul \hin. Damdawi mum chi hrang hrang, hnathawh dan in anglo tak tak te an ni hlawm a, Zunthlum vei chu a thau leh a cher zawng a\angte, a kum upat dan a\angte, zunthlum vanga \hatlohna dang a nei em tih a\angte in fimkhur taka damdawi hi thlan tur a ni. Zunthlum damdawi leh thisen sang damdawi te hi zin bag-ah dah hmasak ber \hin tur a ni. Insulin Injection i ken in Ni-sa em theihah leh engine sa ur phakah dah loh tur. Harsatna i tawk a nih chuan Hospital hnai ber pan la, Zunthlum nei i ni tih hrilh nghal ang che. I zinnaah damdawi lei tur a awm loh mai theih avangin keng tam deuh \hin ang che.

## **INSULIN ZUNTHLUM TAN:-**

### ***Engatinge kei kher?***

Hei zawhna hi a ruka kan in zawh reng, a chhanna mumal tak kan neih ngai si loha ni. Mahse hei hi hre reng ang che. Nangmah chauh i nilo a nia, India ram zau takah hian mi maktaduaitam tak in he natna hi an vei mek a, chung zingah chuan pathum zela pakhatin INSULIN hi an mamawh a ni.

Lo lungngai suh, Zunthlum hriatthiamna leh uluk taka enkawlna hian nunphung pangngai an nei thei a, kan duh apiang kan ti thei \hina ni. Chutiang enkawlna \ha zinga mi chu INSULIN hi a ni. Hei hi Doctor in \ul a tih chuan lak mai tur a ni. Taksa ina ngeih em em a, nun a ti nuam \hina ni. Tunah chuan i mamawh rihlo anih pawhin nakinah ila mamawh thei tih hre reng ang che. Mithiam ten an hmuh dan chuan, INSULIN la hma apiang an \ha rei, Zunthlum avanga tuarna tam tak an pumpelh bik a ni, an ti.

Mi tam tak in kan hriat dan chuan INSULIN hmang tawh te chuan “tunhma khan lo in enkawl \ha ilang chuan INSULIN ka mamawh lo tur” te an ti bawk. INSULIN kan mamawh reng a ni tih hi Zunthlum nei te chuan kan hre reng \hin tur a ni.

Kan hriatthiam zawk nan, han sawifiah hlek ta ila, Kan pumpui bulah hian Pancrease a awm a, chutah chuan b-cell an awm a, chungho chuan Insulin an pe chhuak \hina ni. Enge thil thleng ta le? b-cell te an lo chau ta a, kan mamawh tawh INSULIN an pe chhuak thei ta lo a ni. Zunthlum kan nei chu ani ta der mai. INSULIN tlak chham avangin kan ei leh in \ha \ha te kan taksa ina hmang \angkai thei lova, kan cher hret hret a, kan thil ei \ha \ha te chu kan zung ral hiau hiau mai a ni.

***Ka Zunthlum hi ka Control em?*** Hei hi kan in zawt fo \hin tur a ni. Control hi a pawimawh a, Damdawi ei ringawt hian lungawi tur a ni lova, Damdawi khan a control em? Tih hi in enfiah fo \hin tur a ni.

Engvangin nge INSULIN ka mamawh? Zunthlum vei tih kan in hriat meuh hi chuan, b-cell hi za zela sawmsarih panga 75% hi chu an chhe tawh \hina ni. Hun a kal zel a, b-cell te chu an chau ve hret hret a, an lo chhe der thin a ni. Hetih hunah hi chuan Damdawi mum hian hna an thawk thei lova, INSULIN kan mamawh ta ngawih ngawih mai a ni. Hetiang hun b-cell an chhiat der hma daih a INSULIN lak hi a finthlak em em a, b-cell ten rei tak an dam phah a, upat hnuah nun a nuam zawk thina ni. ‘DAWN STUDY’ chuan ‘zunthlum nei zatve zet hian a nasat zel an hlauh em em laiin, engmah an ti chuang lem lo’ a ti. Mi tamtak hian INSULIN kan tan hian a tawpkhawktlheng tawhah an in ngai a. Zunthlum vanga chhiatna thleng tur ven kan duh vang zawk a ni. He Insulin hi kan taksa a awmsa ang chiah a ni a, a hlauhawm loh. INSULIN KA LAA, DAMCHHUNG HMAN TUR A NI EM? Zawhna pawimawh tak a ni. Hei hi Type-I Diabetes tih loh ah chuan a ni reng chuang lo. Engvanga Insulin hmang nge i nih? tih a pawimawh a, temporary takin reilo te chauh pawh hman theiha ni. Insulin hian taksa a siam tha thei em em a ni.

***Insulin vawikhat hman tawh hian hman reng tawh tur a ni em?***

He zawhna hi kan zawh tam ber pawl a ni ngei ang, tin Type-2 Diabetes kan hriat chian loh vang pawh a ni bawk ang. Insulin hi enghunah pawh type-2 Diabetes ah hian pek theih a ni a, tawp leh theih a ni bawk a ni. Amaherawhchu, kan b-cell te hian Insulin an pe chhuak reng tho a, mahse taksa mamawh tawh a pe chhuak thei lo mai a ni.

***Insulin Injection hi a na em?***

Na lo e, tunah chuan thiamna a sang em em tawh a, hriau sin te te hmangin na lovin a injection theih tawh. Mahni ngei a injection theih hram tur.

*Insulin lak hian Zunthlum a hniam lutuk a hlauhawm em?*

Hei hi zunthlum awmzia chiang taka hriat chuan a hlauhawm lohzia a hriat theiha. Mi singkhat sangthum (13000) ah Insulin hi enchhin a ni tawh a, tlemin damdawi mum ai chuan zunthlum hniam a tam hret a ni. Mahse a pawimawh zawk chu engtinnge zunthlum a lo hniam dawn hian kan awm tih hriat hia ni.

### **A hriat theih dan te chu:**

Luhai, Awmnawmlohna, riltam, mit fiahlo, lungphu rang, thlanfim te alo tla bawk thin. Hengte hi i hriat chuan CHINI thirfian thum vel han ei hian a hniam zel tur a veng a ni.

*Engvanginnge Zunthlum hniam lutuk a lo awm?*

Chaw ei \hat loh vang te, damdawi kan mamawh aia tam kan lak vangte, Exercise lak nasat lutuk vangte a ni tlangpui \hin.

*Ka zunthlum hi nasalo te nita se, Insulin ka mamawh em?*

Zunthlum hi nasalo te leh nasa a thliar hi a fin thlak loh hle a ni. Zunthlum a nih hrim hrim tawh chuan a hlauhawm tih hriat a tha.

*Ayurvedic leh Hnimhnah kan hmante hi an tha tak tak em?*

Hengte hian thatna chin nei mahse, zunthlum enkawl nan a inngah tawp nan chuan hman tur a nilo. I hmang a nih pawhin zunthlum regular takin check thin la, 140 aia sang a nih chuan, hna an thawk lo tih hria ang che. I doctor hrilh vat ang che.

*Insulin side effect engnge ni ?*

Side effect a nei lo. Mahse zunthlum hniam lutuk erawh a awm thei a ni, chu pawh chu chaw ei that loh vang emaw a ni thin. Tun hma kha chuan Insulin chawh hi kan harsat em em thin a, zunthlum kaihhnawih natna a awm chauh a hman tur emaw kan ti thin. Insulin hian PAtheihlohna emaw Mit delna emaw a thlen lova, a dik tak chuan a veng zawk a ni. Insulin hi zunthlum enkawl nana tha ber a ni.

*Engtinnge Insulin ka dah that ang?*

I hmanlai kha hmun thim leh vawt a dah thin tur a ni. Fridge a dah kher kher a tul lo, kan hmanlai nilo dahthat duh chuan 2'-8'c ah fridge ah dah tura ni a, mahse freezer ah dah loh tur a ni. Hmun lum - tukverh bul, T.V. Stabilizer chung etc ah dah loh tur a ni.

**ZUNTHLUM EMERGENCY TE:-**

Zunthlum kan vei a nih chuan, a sang lutuk emawa hniam lutuk emawa awm duh em em a, hei hian harsatna min siam fo thei a ni. Zunthlum hi a lo hniam lutuk a nih chuan Ril\am, Tamchhawl, Marphu a lo sang a, mit a vai a, lu ana a, thlantui in min bual a, nikhawhrelain a tluk mai theih a ni. Hetianga a lo awm chhan hi - Chawei mumal loh vangte, exercise lak tam lutuk vang te, Insulin lak hnem lutuk vangte leh kan taksa mamawh ai a tam damdawi chak ei vangte a ni tlangpui. Hetianga a lo nih chuan - sweet 2/3 emaw, chocolate emaw, serthlum tui, chini thirfian2/3 emaw in/ei vat tur a ni. Tin, zunthlum vei nikhawhrela a lo awm chuan - damdawi in panpui nghal emaw a doctor emaw phone sak nghal thin tur a ni. Hetianga hun atan Diabetes I.D Card an kawl vek tur a ni.

Kan zunthlum a lo san viau chuan-kan lo chau a, ril a tam a, tui a hal deuh reng a, vun a ro a, a thak bawk thin, kan chau a kan zung deuh reng bawk thin, nikhawhrela hial in a awm theih bawk a ni. Hetianga a alo awmna chhan ber chu, Insulin emaw zunthlum damdawi mum ei theihngilh emaw vangte, ei leh in a kan insum loh lutuk vangte , kan mamawh tawk damdawi chak kan ei loh vangte a ni tlangpui a, hetiang a ilo awm anih chuan - i damdawite doctor in a chawh angin a hun takah ei la, i thisen thlatin test \hin ang che. Tin, harsatna dang i neih chuan I doctor hrilh vat \hin ang che. Hetianga a zunthlum a lo san viau emaw a lo hniam viau a i lo chau anih chuan a enkawltu doctor hrilh vat ang che. I zunthlum alo san lutuk hian DKA (Diabetic Keto Acidosis), HONKS ( Hyperosmoler Nonketotic Syndrome) emaw kan nei thuai a, thih mai awlsam tak a ni.

1.DKA ( Diabetic Keto Acidosis): Hei hi type- I Diabetes ah hmuh a ni deuh ber a, eng hunah pawh thleng thei a nih rual in, natna dangin a tlakbuak hian a awm duh zual a ni. Nunna atan a hlauhawm avangin rang tak a enkawl a ngai a. Hei hi zunthlum avanga thihna tam ber a ni. Kum 1921 ah Insulin hmuh chhuah a ni a, chumi hma chuan DKA hi chu an thih pui ngei ngei thin a, tunah erawh chuan thihpui an vang ta hle. Insulin hian nunna tam tak a chhan ta a ni.

Hei hi a lo awm chhan ber chu, Sugar sang lutuk vang a ni a, Kan taksa in Insulin a tlakchham avangin ‘sugar’ chu a hmang tangkai thei lova, tichuan thisen ah alo sang vak a, pawl a khawih ta a ni. Hei hi type-I Diabetes lan chhuahna hmasa ber a ni chawk a ni. A bikin naupangah a ni leh zual. Hetianga nikhaw hrelova an awm hma hian, an chau ngaih ngaih a, tui a hal huam huam a, luak leh pumna an nei a, an zung teuh teuh reng bawk a, thawk harsa an ti tan a, tichuan reilo te ah nikhaw hrelovin an lo awm mai thin a ni. Hetianga khawsik nen a awm avang hian ‘Thluaka Khawsik Lut’ emaw tih a awl hle thin bawk; tin, a lan chhuahna hmasa ber a nih fo avangin - natna hriat chian lohin ‘Zunthlum’ hmuchhuak hman bawk silovin damlo hi thih tir mai a awl hle a ni. Chuvangin Naupang unconscious a an awm chuan zunthlum a nei em tih en ngei ngei tur a ni. Ka mit ngei a ka hmuh tawh han sawi ila, Chennai a ka awm laiin nausen thla riat (8 months) mi hi casualty ah an rawn hruai a, a nu leh pa pawh an mangang hle mai a, Naute chu nikhawhrelovin an rawn pawm lut a. An chanchin ka’n zawh chuan, naute chu a chau a, chaw a ei duh lova, khawsik tlem a nei bawk a, tichuan, nikhawhrelovin a awm zui ta mai a. Naupang Specialist ah an hruai ta a, a ni chuan thisen chi hrang hrang a exam na ah chuan a “Sugar” a lo sang hle mai a. Naute chu Insulin Drop kan tan nghal a, a thisen kan test reng bawk a, reivak loah chuan a lo harh a, a tap a, hnute a ngen nghal a, Naute tha pangngai a lo nih leh ta mai a, a lawmawm duh khawp mai.

2. HONKS (Hyperosmolar Nonketo-tic Syndrome ) : Hei hi a chung a kan sawi tak nen khian a in ang thuk a, mahse danglamna a neih avangin thliar hran a ni. Hei hi type - II Diabetes ah a

awm duh bik a, DKA ang khan nghet takin nikhawhrelodin an awm meuh lo. Chhia leh tha hriatna fim neilodin an a ruai thin a. Enkawl an nih loh chuan nikhawhrelodin an awm a, an thi zui mai thin. Hei pawh hi sugar sang lutuk vanga lo awm a ni.

Lunglei Civil Hospital ah hetiang hi hman deuh khan kan nei a, Rotlang khua, Pa valai tak mai a ni a, Zunthlum a nei tih an la hre lova, chau em em mai, biak theih tawh loh hian anrawn hruai a, Chaw te a ei that loh avangin leh a chauh em avangin 25% Dextrose In-ah an lo khai tawh a. Damlo chu ka en hnu chuan rinhlelhna ka neih a vangin “Sugar” ka test nghal a, a lo sang hle mai a lo ni a, Insulin drip kan tan nghal a, a tha chak hle a, a tukah chuan a haw leh nghal thei ta mai a ni. Kan sawi duhna kher chu, He pa hian zunthlum a nei tih a in hreloda, churang chuan, zunthlumhi hmuhmaih a awl em em a. A natna chhan zawng zawng si hian sugar (zunthlum ) hi hmaih palh a awl em em a ni.

3. HYPOGLYCEMIC COMA: Zunthlum hi control that a nihloh chuan nikhawhriatlohna (coma) a awm thei a ni. Zunthlum neite nikhawhreloda an lo awm chuan, thil pathum rilru ah a lut nghal thin a, chungte chu 1) Hypoglycemia 2) DKA 3) HONKS . Hypoglycemia - Hei hi chu thisen thlum a lo hniam lutuk vang a ni a, Kan thisen thlum hi 60 mg/dl aia hniam a nih chuan, kan taksa ah hriatirna - Mitval, Khur, Chau, Riltam huam huam, Lungphu zawih zawih ang te in alo lang chhuak phawt a, chumi hnuah nikhawhrelodin an lo awm zui mai thina ni. Hei hi “Hypoglycemia” an ti, enkawl vat a nih loh chuan, an thi zui mai thin a ni.

A chungka kan sawi ang, a hniam tih loh lanchhuah dan khian kan awm a nih chuan - Glucose tui siam a in mai a tha a, Tin chaw ei mai te, thingpui thlum in mai te, chocolate ei mai tur aawm chuan ei nghal vat a tha. Hetia sugar lo hniam a, kan lo chau/khur hi warning min petu a ni. “I Sugar a hniam e, Inveng vat rawh” tih na a ni. Kan thluak hian Glucose (sugar) chauh hi a hmang tangkai a, churangin, sugar a lo hniam lutuk chuan thluakin a lo tuar a, nikhawhrelodin kan lo awm ta thin a ni. He “Warning Sign” hi Zunthlum nei te chuan kan hre ngei ngei tur a ni. Hetia nikhawhreloda zunthlum nei, lo let reng kan hmuh chuan a doctor pan thin, a rang thei ang berin hrilh nghal tur a ni. A rang thei ang berin Hospital ah hruai a, thisen test nghal ngei ngei tur a ni. Sugar a lo hniam anih chuan 50% Dextrose thisenah thun nghal mawlh mawlh tur a ni. Sugar alo san chhoh chuan minute 2/3 leka an lo harh leh thin a ni. tin, Glucose Injection a awm chuan hei hian rang takin a tanpui nghal thei bawk. Hei hi enkawl vat anih loh chuan an thi zui mai thin.

Heng lo awmna chhan ber chu mamawh aia tam hret Insulin kan lak vangte, zunthlum damdawi mum kan mamawh aia a san vangte, exercise lak lutuk vang te pawhin a awm thei bawk. Exercise lak dawn chuan thil ei hmasak a tha a. tin, Biscuit emaw chocolate bar emaw ah ran hi a tha hle. Hetiang a nikhawhriat lohna a lo awm hian “Phungzawl” tlu emaw tih a awl hle a, churang chuan ID Card “Zunthlum nei ka ni, kaDoctor Phone rawh u” tih ang hi tunlaiah chuan an hmang a, Tin, “Glucose min pe rawh u, Phungzawl ka ni love” tih te pawh Card ah hian an chuang thin.

**UPA LEH ZUNTHLUM:-** Upa tih hian kum engzat chin nge upa a kan ngaih? Ngaih dan a in ang lo thei viau ang. Diabetologist hmingthang tak Dr. JOSLIN, America a zunthlum damdawi In ropui tak neitu chuan “UPA” chu tuna i kum atanga kum 10 (sawm) a ni mai e, a ti a. Chutiang anih chuan kum 80 mi tan chuan kum 90 mi chu upa ah a ngaihtheih a nih chu. Tun

kan dinhmunah hian khawvel pum mihring 11% hi kum 65 chunglam an ni a, hei hi kum 2020-ah chuan 17% a pung chho tura chhut a ni a, chu chuan mihring dam rei kan tam tulh tulh a ni tih a ti lang a, heng zingah hian 10-25% te hian zunthlum an nei mek a chhut a ni. Kan changkang zel a, kan dam rei hret hret a, upa zunthlum nei an lo pung ve tial tial a ni. Hei hi a chhan chu, kumalo upat ang zelin thlum kan doletna alo hniam a, Insulin vanga kan taksa in thlum a hman tangkai dan pawh a lo tla hniam a, thlum kan taksa a dah \hat theihna a lo tlak hniam \hin vanga ni. Han upat hrim hrim hian kan taksa reng reng hi a lo tla hniam ta a, chuvang chuan, kan taksa peng hrang hrang, mit, kal, lung, hriatnathazam te chu an lo chau rau ve ta a, heng avangte hian kan zunthlum in enkawl danah hian damdawi kan hman turah te uluk taka, fim taka a damdawi hnathawh leh side effect ngaihtuah chungah thlan tur a ni. Damdawi chak tak leh rei tak hnathawk te hi hmanloh hram hram tur, a chhan chu kan sawi tawh ang khan upa lamah chuan sugar lo hniam thut/hniam lutuk hi an chauhpui thei em em a, an thihpui hial theih thin vanga ni. Upa mahnia in thiarfihlim thei tawh vak loah phei chuan nasa takazunthlum control hi a tul lova, an nun nuam tawk zunthlum vanga nun nawmlohna pumpelth tawk a in enkawl thin tur a ni. A hniam thut/lutuk chuan rei tak an chauh phah a, that chhuah leh nan hun rei tak a duh thin a ni. Chauh hlen pui leh thih mai a awl thin a ni. Tin, zunthlum hi a san lutuk loh pawhin DKA leh HONKS te a awm hma em em bik bawk. Thalai zingah chuan DKA//HONKS nei tur chuansugar a san viau a ngaih \hin bakah natna dangin a tlakbuak te a ngai thin, Mahse upa te ah hi chuan, an taksa chakna lo tlak hniam hrim hrim vanga hian heng kan sawi tak zunthlum emergency hi a awm hma em em bik a ni. An khua a lo sik emaw, kawthalo leh luak an neihte hian uluk taka enkawl vat thin tur a ni, tichuan DKA/HONKS te hi kan pumpelth thei dawn a ni.

**METABOLIC SYNDROME (METs) :-** Hei hi natna/thil thalo kan taksa a awmkhawm - Lungthalo, Thisen dawt natna leh thih thutna thlen thei a ni a, a hmingah ‘Syndrome x’ emaw METs an ti bawk thin. heng thil thalo awmkhawm te hi zunthlum veiho zingah hian a tam bik em em a, mahse zunthlum veilo te pawhin an nei ve thei tho a ni. Tin, naupangte pawhin METs hi an vei ve thei tho a, chuvangin naupang thau lutuk tur hi ven a tha, heng thil thalo awmkhawm kan tih te chu:-

1. Thau lutuk, Dulkiar ( Central Obesity)
2. Thisen sang te (130/85 mm Hg)
3. Thisen a thau chhia tam lutuk leh thisen thau tha tlem lutuk te
4. Diabetes emaw IFG/IGT nei te

Heng bakah hian Hyperurecemia, Microalbuminuria etc. pawh telh a ni na chungin, kan rawn tarlan te khi a pawimawh zual te an ni.

METs hi kan hriatchhuah hma hian kum rrei tak kan lo pai ru reng thina ni. Kan han hmuh chhuah meuh hi chuan ‘chhiatna’ kan lo hnaih viau tawh a lo ni thin. Miin Blood Pressure hi 130/85 mm Hg emaw a aia sang a nih a, Thisen thauchhia ( Triglyceriale) hi 150 mg/dlemaw a aia sang a neih a, Thisen thautha (HDL) hi a nei hniam leh viau sia ( Mipa ah 50 mg/dl aia tlem, hmeichhia ah 45 mg/dl aia tlem). Tin, alo thau a, a dul kiar bawk chuan ( Mipa ah, kawng 102 cms/40inches aia lian: Hmeichhia ah 88 cms/35 inches aia lian) emaw BMI ( Body Mass Index) (

Hei hi rih zawng Kgs. Kha sang zawng m2 a sem tur a ni) hi 30 emaw a aia sang emawa nih chuan METs or Syndrome X a nei a ngaih a ni.

Zunthlum neih hrim hrim hi METs member pakhata ni tawh hrim hrim a, chuvangin a mah lawng pawh hian enkawl a tulzia a lang nghala ni. Zunthlum hi Thisensang thian tha tak a lo ni ve leh a, he thisensang hian nasa takin kal a khawih pawh a, tin Mit chhiatna a thlen thuai thin. kan Kal in tha taka hna a thawh theih nan leh Mit del thut vennan Thisensang hi uluk taka control a ngai a ni. “Zunthlum neite Blood Pressure chu 120/70 mm Hg emaw a aia hniamah emaw dah reng tur a ni, hei hian Kal thalo tur Mitdel tur leh Stroke tur a veng tlat a ni”.

Thisen a thauthalo hi miin exercise tha tak a a tih peih chuan a tlahniam duh hle a, tin zunthlum nei in-control lo ah hian a sang duh em em bawk a. Tin, hemi thau thalo sang hian natna ‘panomatitis’ a siam thei a, chu chuan zunthlum natna a siam ve leh thei chu chu Pancreatic Diabetes an ti bawk thin. Pumna an nei tel ziah thin. Tin, he thisen thauthalo hi a lo san viau chuan vun hnuaiyah te a in chhek khawm a, a lo Bawk chhuak thei a, Tin, vun natna ang takin a lo bawl sen tuar thin bawk. Thau lampang, dulkiar ( central obesity) Thisensang nei te hi chuan - Thisen thauthalo hi check thin a tha. Damdawi hmangin emaw exercise hmangin emaw diet control in emaw tih hniam ngei ngei tur a ni. Chu chuan nasa takin tuarna hrang hrang lakah min veng dawna ni.

**Zunthlum kê :** Engatinge! Engvanga lo awm nge? Hei hi chu, Zunthlumin kan hriatna thazam (nerve) leh kan thisen dawt a tih chhiat vanga lo awm a ni. Kan thisendawt te chu thisen a thauchhia ten an ti khawng a, an ti zim a, thisen a kal tha thei ta lo thin a ni. Kan ke a thisen a kal thatloh chuan ke a vawt a, ke a nâ a, a bik in kawng kal zawnginchawn puar a na thin . Ke tin a lo chhah , ke a na vawng vawng a, a chhan hriat si lohin, ke pemte a dam thei lova, kan ngal vun hi a thiang hluia, ke pan uih deuh te a awm thin.

Kan hriatnathazam (nerve) hi Zunthlum hian a khawih chhe hma hle a. Hei hian Nâ/Sâ etc. hriatna a ti nep/hrelo thei a, A zual zel chuan zânah ke a lo na a, tih reh tumin an vei an vei thin. A lo mu chuah chuah a, hriatna a hlauh thin. Hei vang hian i ke a pem/hling i rah pawh i hre ta lo thin a ni. A lo pun fe hnuah chauh i lo hre ta a ni. Thlasik ah Meilum i lo aia i ke in a lum/sa tawh a lo hre lova, ke a lo durh a, a lo pan a, a dam thei lova, chu chuan nasa tak tuarna leh sum leh pai sen ngaiin min siam thin.

Vaiho (Hindu) phei chu in tih rinsan nan, rizai puan var pante sin-in ke lawngin an kal nalh nalh thin, chumai a ni lo - meiling chung a kal an la hrat zui - in tih rin sanna ah chuan tih chi loh pawl tak a ni. A tawpah an rinna in a daih lova, an In leh lo hralh meuhin ke an tan a ngai leh si!!

Engtinge i kê chu i ven tak ang? Silfai la hru ro thlap ang che. Ke lawngin kal lo la, i pheikhawk a tawt tur a ni lo. Nitin i ke kha pem emaw durh emaw a awm em? Enfiyah ziah ang che. I ke tin zuah lo la, fai takin enkawl ang che. I ke lamah rinhlelh/ngaihthatlohna i neih chuan Doctor pan vat ang che.