Understanding of digestion process

Aharapakprakriya

अन्नमादानकर्मा नु प्राण: कोष्ठं प्रकर्षति । तद्रवैर्भिन्नसंघातं स्नेहेन मृदुतां गतम् ॥ समानेनावधूतोऽग्निरुदर्यः पवनोद्वहः । काले भुक्तं समं सम्यक् पचत्यायुर्विवृद्धये ।।

Food eaten at perfect time is brought to Gastrointestinal tract (kostha) by Prana vyu, Fluid present there by virtue of fluidity and unctuousness softens the food and make the food material dispersed & dissociated from bonding due to presence of unctuousness of kapha in stomach and due to unctuous quality of water food becomes soft.

Now here Samana vata is responsible to induce digestive fire to act on food such food is then digested for the sake of increasing span of life and divided in to Rasa & Mala.

For example we can take example of rice.This is exactly like raw rice cooked in a vessel containing water and rice.when you put rice pot in flame it started to cook.

Concept of Avasthapaka -stages of digestion.

As per Ayurveda science in the process of digestion, every food particle undergoes a common path of three stages.

1. Madhur avastha pak
2. Amla avastha pak
3. Katu avastha pak.

Each of these three stages through which every food particle has to pass in the process of digestion is called Avasthapaka

Paka is digestion of ingested material. It involves changing form, structure and taste of ingested material.

1) First Stage of Digestion (Madhuravasthapaka)

When food containing six rasas is ingested, foamy secretion of madhur Kapha takes place as a primary event in digestion

In the first stage basically, there will be separation of prithvi mahabhuta and jala mahabhuta.

This separation happens due to action of Jatharagni which is acting on food.

Breakage begins with prithvi mahabhuta and jala mahabhuta and dosha kapha in context to dosha. They together constitute the rasa madhura in context to rasa

First stage of digestion give rise to dosha kapha and is madhura in rasa.

अन्नस्य भुक्तमात्रस्य षड्रसस्य प्रपाकतः। मधुराद्यात् कफो भावात् फेनभूत उदीर्यते ॥ च. चि. १५.९

2) Second stage of digestion (Amlavasthapaka)

In second stage basically there will be a separation of Teja mahabhuta and Jala mahabhuta.

This separation happens due to effect of Jatharagni acting on food

They together constitute rasa amla in context to rasa and dosha Pitta in context to dosha.

Second stage of digestion gives rise to dosha Pitta and Amla in rasa.

The Amlavasthapaka is considered as digestion of food from expulsion of acidic food from pyloric sphincter to first part of duodenum till digested products is absorbed.

In this stage pancreatic and hepatic secretion along with succus entericus in form of pitta digest all food components.
This makes digested part of food to be separated from undigested part of food.
This part of digestive system holds Agni, hence it holds food for a long duration and this action gives it a name Grahani.It holds food till it digested & sends it down only after digestion.The same is called Pittadharakala because it gives support to Pitta in this area.

The location of second stage is between amasaya and pakwasaya.

परं तु पच्यमानस्य विदग्धस्याम्लभावतः । आशयाच्च्यवमानस्य पित्तमच्छमुदीर्यते ॥च. चि. १५.१०

3) Third Stage Of Digestion (Katuavasthapaka)

In the third stage there will be a separation of Akasha mahabhuta and Vayu mahabhuta.

This happens due to effect of agni ie Sosayamana Agni due to absorption of fluidly material by this Agni.
panchabhautic components are revealed.This begins with Akasha and Vayu mahabhuta.

They together constitute Rasa Katu in context to rasa, and Dosha Vata in context to dosha

This stage of digestion is takes place in large intestine where undigested food products in form semisolid fecal form arrive.

Since bacteria grow in this stage, noxious and toxic products, which are also acidic are produced in this stage hence Katu rasa is produced and by relation of dosha, Vata is generated.

The location of third stage is Pakwasaya onwards

पक्काशयं तु प्राप्तस्य शोष्यमाणस्य वह्निना। परिपिण्डितपक्वस्य वायुः स्यात् कटुभावतः ॥च. चि. १५.११

Strength of stages of digestion depends of what type of food is ingested If heavy, unctuous, sweet food is eaten, first stage of digestion proves to be strong, generating large amount of Kapha.

If spicy, hot, food is taken second stage of digestion proves to be strong. generating large amount of Pitta.

If very less or very light. least nourishing food is eaten, third stage of digestion proves to be strong, generating large amount of Vata.

2. Concept of Vipaka

After complete digestion final stable absorbable products are produced

They are guessed by their actions on excretory products and actions on dhatu. This final stable product is Vipaka .Ultimate products are different than intermediate stages. Intermediate stages refer to Avasthapaka and final stage is Vipaka

विपाक: कर्मनिष्ठया।

परिणामलक्षणो विपाकः। च.सू. २६.६६

कटुतिक्तकषायाणां विपाकः प्रायशः कटुः। अम्लोऽम्लं पच्यते स्वादुर्मधुरं लवणस्तथा।। च.सू. २६.५८

After entire digestion and final biotransformation of matter takes place, qualities by which living body is benefited are indicators of Vipaka.
Rasa Katu, Tikta, Kashay are biotransformed in to Katu Vipaka.
Amla as rasa remains Amla as Vipaka.
Madhura and Lavana are biotransformed in to Madhura Vipaka
Among these three Vipaka Madhura is heavy (Guru) and other two namely Katu and Amla are light (Laghu).
Katu Vipaka always excrete waste products with difficulty, generate Vata and deteriorate Sukra.
Madhura vipaka excretes waste products smoothly and enhanced Kapha and Sukra.
Amla rasa in form of Vipaka excretes waste products smoothly and it deteriorates Sukra
शुक्रहा बद्धविण्मूत्रो विपाको वातलः कटुः। मधुरः सृष्टविण्मूत्रो विपाकः कफशुक्रलः॥ च.सू. २६.६१

Differcence between avastha pak and Vipaka

Avastha pak	vipaka
In avastha pak food is going underdigestion	Digestion of food complete in vipak
Three taste play role in three stage	Rasa of vipak is one and final
Avastha pak is observed in jatharagni and bhutagni	Vipak is observed by after the action of jatharagani,bhutaagni,dhatvaagni.
Shows effect for short duration	Vipaka show a effect for long duration.

3. Sara-kitta vibhajana

Sara kitta vibhajana is a process carried by Jatharagni in GI tract and by Dhatwagni in seven srotamsi of seven dhatu.
Since Ahararasa is principle channel of supplement of nutrients to all body entities, whatever is kitta with respect to ahararasa, is in fact material to be disposed off in near future as annamala.
It is then gets divided into urine and stool in Purishvaha srotas.

When Ahararasa reaches srotas of dhatu, say rasa dhatu dhatwagni of rasa dhatu digests ahararasa and divide nutriments into two parts

One part is that, which is useful for rasa dhatu this is sara portion for rasa dhatu and its upadhatu.

Another part is kitta for rasa dhatu can not use any part from kitta portion for its nourishment. Nevertheless same portion is capable of nourishing dosa kapha. The same application is true for rest of dhatus

4. Concept of Doshautpatti

All three categories of body entities namely Dosha Dhatu and Mala are products of food digestion and metabolism as well as assimilation.

Production directly from food refers to dosha which are produced at the time of avasthapaka.

First stage of digestion give rise to dosha Kapha.

Second stage of digestion gives rise to dosha Pitta.

Third stage of digestion gives rise to dosha Vata.

5. Concept of kostha

- Word kostha is used for vast vacant places.
- Charaka samhita takes gastrointestinal tract as kostha.

• Depending on the type of Dosha the Kostha is of following types

• Vata - Krura kostha

• Pitta:- Mridu kostha

• Kapha:- Madhya kostha

• Balanced- Madhya kostha

कोष्ठ : क्रूरो मृद्वध्यो मध्यः स्यात्तैः समैरपि।

Krura kostha:
In krura kostha as the predominant dosha being vata, increase of vata produces hard feces with difficulty of elimination or even non-elimination.
Koshtha is dominated mainly by **ruksha and khara** gunas (qualities) of vata dosha over the sar guna of pitta dosha. Hence, krura koshtha will be poorly secretive and absorptive.
The person should be given strong purgative

Mridu kostha
Predominance or increase of pitta causes watery or semisolid feces, moving out more than once or twice, in a day. Mrudu koshtha is characterised by **sara** (laxative), **drava** (fluid property), **snigdha** (unctuousness), and **laghu** (lightness) guna of pitta dosha. Hence the koshtha will be smooth, lubricated and slippery.
Secretions will be more, but it will be poor in absorption
Due to Pitta dosha predominance, people may complain about diarrhea.
The intenstine or kostha of such person are soft and hence people may get loose stool even with consumption of milk.

Madhyam kosth
Predominance or increase of kapha causes soft, solid feces moving out smoothly. In madhyam kostha, there will be predominance of snigdha, guru (heaviness) and sthira (stable) guna. Kostha will be secretive and will have more lubrication, but less slippery due to **guru** and **sthira** guna of kapha. Madhya kostha, which is due to the samavastha of three doshas, there will be optimum secretion and absorption.

KOSHTHA PARIKSHA (ASESSMENT OF KOSHTHA):
Koshtha is the expression of bowel habit, which depends on Prakriti (constitution). Generally, a subject with complaints of constipation is considered as Krura Koshṭha. This judgment may

be misleading as this may be an acquired condition and so it is important to distinguish between what is constitutional and what is acquired. Constitutional means the nature of bowel habit since from birth. Assessment of Koshtha can be done by following points-

Sr no	Examination Points	Krura koshtha	Mrudu koshtha	Madhyama koshtha
1	Ahara of 24 hours(food intake)	vishama (irregular frequency and quantity) Guna-ushna, tikshna, snigdha, guru Rasa-madhura, amla, lavana	Swarupa-more frequency and quantity Guna- laghu, sheeta Rasa- madhura, tikta, kashaya	less quanitity Guna- ushna, ruksha Rasa- katu tikta, kashaya
2	Jalapana(water intake)	Vishama (more or less)	More water intake	Less water intake
3	Sneha dravya (duration for oilation)	No change in the bowels by test dose (30ml) of Sneha (fats). Duration for snehapana- 7 days	After the 30 ml test dose of Ghrita (ghee) passes stools slightly loose and frequency may be more. Duration for snehapana- 3 days	After the intake of test dose of Ghrita (ghee), passes semi formed or formed stools once or twice. Duration for snehapana5 days
4	Vyanjana Dravya (frequency & quantity)	in more quantity and at more times (amla, lavana, katu vyanjane)	Taking very less or not (Madhura vyanjane)	Taking in medium quantity, at less time
5	Malapravrutti (stool formation)	Doesn't pass stool regularly, Hard and dry stools, Requires straining, Requires long time for defecation, Unsatisfactory bowel clearance, Seldom encounters diarrhea and more frequently constipation.	Passes Stools daily once or twice regularly, Semi formed or formed stool, Easy defecation, Less time required for defecation, Satisfaction after defecation, Previous encounters show often watery stools due to hot drinks, tea, milk.	Passes stools daily once, Formed stools, Requires minimum stress, Little long time (in comparison to mrudu), Satisfaction after defecation, Doesn't often encounter diarrhoea or constipation.
6	Effect of virechana dravyas (purgative medicine)on bowel	Requires drastic purgatives of snigdha,ushna & lavana like Shama, Kushta, Triphala.	Minor laxatives easily induces diarrhea Kshir (milk), Aaragwadha, ekshu, takra, mastu, gudha, krushara, navamadya, ushnodak, draksha requires kashaya & tikta laxatives	Requires medium purgatives of katu rasa and medium dose of Purgatives and laxatives. Doesn't purge by milk or minor laxatives.
7	Jirna anna(digested food) lakshana	Irregular appetite (may be early or long time)	Amlodgara, urodaha, early appetite, excessive thirst	Heaviness, long time appetite

Aahaara Parinamkar Bhava with application

आहारपणिामकरास्त्वमि भवन्त । तद्यथा - अ◌ामा, यापुर, मलेदः, सनेहा, कान, समगोगशशेत । ऊपमा पचता, यायुरपकरथ, क्लेः शेधलिपन्मपादयता, सनेहो भारदयं जनता, कालः पर्यापतमिभनिरिवरतयत, समयोगसतवेषा परीणामधातुसाम्पफरः संपदयते । - शा. ३/१४, १५

The following factors to be considered while transformation of food –
a). Ushma helps digestion of food.

b). Vayu stimulates the mixing and propulsion of food.

c). Kleda lubricates the food

d). Sneha - fatty and oily ingredients makes food soft.

e). Kaala - sufficient time to allow enzymatic digestion.

f). Samyog - coordination of all above aspects.

Aahaara Parinamkar Bhava with application

Food can be transformed or digested in the following ways.
a) Ushma is essential for transformation Agni in the form of paachak pitta helps on digestion
b) Vayu pushes the food forward and coordinates all movement. Vayu is essential to promote agni. Example saman vayu.
c). Kleda - moisture helps the food to become soft. Bodhakakapha and kledaka kapha helps the formation of bolus and facilitates digestion
d) Sneha, soften, lubricates food and help in digestion. Ghruta - agnivardhak. Taila -ushna guna-agniwardhak.
e) Kaala, time is required for the digestion to be completed. Eating at proper time and giving appropriate time for digestion
f). Samayoga, balance of all the above helps complete digestion of food. With samayoga samadhatu are formed in equilibrium.